

NEURO-HUMINT – AT THE INTERSECTION OF CLASSICAL HUMINT AND OPERATIONAL NEUROSCIENCE

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Abstract: *Achieving and persistently maintaining maximum performance in the case of demanding professions is a complex and expensive process, but essential for the fulfillment of institutional tasks. In the NATO countries, there has been an increased interest in the integration of knowledge from the fields of operational neuroscience, occupational health and related areas in the training of military personnel (especially intelligence and SOF operators) in recent decades. The stated purpose of these selection and training programs is to ethically achieve cognitive dominance, physical supremacy and emotional resilience at the individual, team, human-AI-robot system level. The structure of personalized prevention, optimization/augmentation and resilience programs is based on the measurement and analysis of a large number of data from medical, functional, psychological, sociological evaluations, genetic, anthropometric parameters, etc. that generate a constellation of data analyzed through "big data" methodologies, with the use of ML algorithms and the identification of individual patterns. The objectives are achieved through precision and personalized interventions on a large number of modifiable factors (physiological, functional, behavioral, attitudinal, psychological) that are responsible for influencing the neurocognitive and psycho-social performances. In our paper we propose to present the main concepts, the history, the current good practices and a state-of-the-art in the extended field of operational neurosciences, as well as specific applications in the field of HUMINT-related intelligence operator training. Among the objectives of the neuro-humint training processes we mention: the identification of discrete, atypical and/or rare neuropsychological qualities that can offer competitive advantages in the humint field; persistent and secure non-invasive monitoring of physical and cognitive performance in the natural environment; accelerated learning using innovative methodologies and wearable neurotechnologies; developing the ability to creatively build atypical, non-linear, original tactical scenarios; continuous self-programming of stress resistance and emotional recovery; the rapid identification and threat assessment of the potential of neuroaugmented opponents or with special qualities.*

Keywords: *HUMINT; neuroscience; human performance; operational neuroscience; neuro-HUMINT*

1. HUMAN PERFORMANCE OPTIMIZATION – OLD CONCEPT, NEW APPLICATIONS

Technical-scientific progress in the field of national security has forced the reconceptualization of human performance, considered to be

the ability of the person, as a unit and biological entity, to cope, to adapt to special conditions, conditions that exceed the 'functional parameters' for which man is ontologically and genetically conditioned. Exceeding the parameters can be adverse (extreme environmental conditions, high stress, etc.) or intentional (performance sports, physiologically or mentally demanding activities, etc.) (Marin *et al.*, 2015:107-113).

By definition, the *concept of optimizing or*

increasing human performance (Human Performance Optimization/ OPU/ HPO) emphasizes the fact that it is addressed to healthy people, an essential particularity that differentiates it from a preventive, diagnostic, therapeutic, regenerative or aesthetic approach:

... is an emerging field that aims to explore medical or rehabilitation therapeutic methodologies, such as strategies, drugs and external artificial prostheses whose main purpose is to compensate for the diminution or lack of a function, in order to increase / augment the physical and cognitive abilities of healthy individuals, beyond the characteristic level of physiological performance in healthy conditions (Di Pino *et al.*, 2014;109).

The HPO concept focuses on physical, cognitive and social performance and has three

main interconnected objectives of interest and action:

- professional excellence (zero errors) and the culture of safety at work (zero accidents);
- resilience and endurance (in the case of demanding professions – maintaining the quality of the prolonged professional act and / or in adverse conditions by increasing the functional reserve and the capacity to manage stressors);
- preventive, protective strategies and countermeasures to professional risk and aggression factors (prevention, rapid recovery, active longevity, quality of life).

In the United States The Force 2025 “Human Dimension” programme introduced a new human element optimisation vision in 2014.

The HPO's broad adoption is part of the military's flexibilization in a complex, unpredictable environment. This initiative created a framework for evaluating, integrating, and synchronising training and educational, scientific and technological, holistic medical, and human resources policies, programmes, and more to support military professions. The HPO is

a process in which emerging knowledge, skills and technologies are used to enhance and maintain the individual capabilities of the military and military organisations to perform essential tasks (Army.mil).

The BRAIN (2013) and Precision Medicine (2015) programmes of President Barack Obama provided another chance for HPO incorporation into the military. These efforts have funded many military research projects that are not directly oriented at performance optimisation. The cyborgization-optimization programmes are the most apparent and scientifically fascinating. HAPTIX envisioned neural interfaces for bionic prosthesis that provided input through a peripheral nerve implant. This programme compliments the “Revolutionising Prosthetics” effort, which created two anthropomorphic bionic modular prosthesis. “Restoring Active Memory” (RAM) intends to construct a wireless implanted brain-computer interface for restorative (medical, for veterans with neurological damage) and augmentative reasons. Despite advances in high-accuracy encephalographic analysis and microelectrodes, hippocampus implanted neuroprostheses are not yet employed in medicine.

The Preservation of the Force and Family Task Force (POTFF-TF) (USSOCOM) programme for US Special Forces (SOF) fighters is devoted to their dual roles as family members and military

“family” members. This programme integrates all aspects that affect performance across two or three decades, the operational life of a SOF fighter. This programme uses psychologists, marital consultants, coaches and trainers, doctors, priests, and others to achieve “preventive maintenance” – early identification, awareness, prevention, resilience and strategies, coping, social and family reintegration – to prevent chronic problems. Stress resilience and group cognitive and behavioural performance are prioritised psychologically. SOF operations require lengthy periods of family separation in often quite diverse geographical places, covert and high-risk missions, and optimising “social performance” via open and constructive interactions in families. Performance nutrition, sports medicine, and sports psychology comprise HPO. Spiritual performance, aimed to “improve essential spiritual beliefs / identity, values, awareness, relationships and experiences” within and without religion, is remarkable.

The most important civilian US agency involved in HPO research is the National Aeronautics and Space Administration (NASA), especially through The Human Research Program (HRP). Particular interest is given to the factors that influence the health and performance of cosmic crews in conditions of prolonged isolation, exposure to cosmic radiation, biological effects generated by microgravity, etc.

Other civilian US institutions involved in various human performance optimization niches are Sandia National Laboratories, Lawrence Livermore National Laboratory, Center for Applied Brain and Cognitive Sciences (a consortium between Tufts University and the U.S. Army DEVCOM Soldier Center).

Early exposure to this culture of improved performance since college education has a facilitating effect on the adoption and enrollment in HPO programs during military service. We mention some of the HPO centers in the American academic environment: the Fighter Human Performance Research Center (University of Pittsburg), the Human Performance Laboratory (Connecticut University), the Department of Health and Human Performance (Hudson University), the UCSF Center for Human Performance from California), Center for Advanced Bioengineering for Survival (GeorgiaTech), Brain and Cognition Research Laboratory (University of Illinois), etc.

In 2018, the United Kingdom approved the OPSMART/Optimizing Human Performance Through Stress Management and Resilience Training (Army.mod) programme to diagnose

psychological disorders early, improve mental resilience, and improve quality of life. Mental resilience helps regulate psychological stressors and emerging emotions caused by operational stressors like information and sensory overload, complexity, fear, anxiety, sleep deprivation, fatigue, time pressure, and extreme weather.

“Human Augmentation – The Dawn of a New Paradigm” (MoD, 2020) is a report by the UK Ministry of Defence and the Bundeswehr's Office of Defence Planning on human performance optimisation, necessary technologies, ethical and legal issues, and defence and society implications. The most promising augmentative technologies for military institutions are listed.

“Future Soldier” is the British Army's modernization plan for the future decades. “Health, performance, and well-being” is one suggestion to dominate physical, cognitive, and social domains. Multidisciplinary Force Mental Health Teams will improve military mental health, well-being, and performance.

NATO has shown an early interest in the applications of human performance optimization methods in the military field. The symposium “Human Performance Enhancement for NATO Military Operations” was held in Sofia in 2009. The conference examined NATO operations' HPO theoretical and ethical limits.

This conference concluded that performance-enhancing technology is not yet operational, there are no clear research plans, no ethical framework, and no NATO Member State synergies in this area. The recommendations were to establish separate performance scales for fitness and health, develop a minimum ethical framework, implement HPO medical research programmes between NATO member states, and establish a foundation from military HPO programme implementation.

NATO Special Operations Headquarters (NSHQ) sponsored the 2017 workshop “Human Performance Programmes in Special Operations Forces”. Decision-makers and scientists from 25 nations discussed creating common organisational platforms, vocabulary, and metrics for SOF operator human performance optimisation programmes.

In October 2021, Rome hosted “Applying Neuroscience to Performance: From Rehabilitation to Human Cognitive Augmentation”. This symposium focused on military neuroscience applications, emerging neurotechnologies, NATO Member State research collaboration, and neurotechnology for military personnel, other demanding professions, and extreme environments.

The NATO Centre of Excellence for Cold Weather Operations will host the symposium “Human Performance and Medical Treatment and Support During Cold Weather Operations” in autumn 2022 to develop biomedical research for Arctic and adverse weather operations. Human-Autonomy Teaming: Supporting Dynamically Adjustable Collaboration, Improving Human Effectiveness Through Embedded Virtual Simulation, and Assessment of Augmentation Technologies for Improving Human Performance were also discussed at other NATO symposia. At the start of 2022, the Science and Technology Organisation website listed 14 HPO-related projects.

These projects include monitoring pilots' stress through brain-computer interfaces, countermeasures to prolonged cognitive load and/or sleep deprivation in operational conditions, “operational ethics,” blockchain technology in portable/mobile medical sensors, identification and prevention of organic damage caused by high-speed marine vessels, and more.

2. HUMINT – ANCIENT, BUT NEVER OLD

The activities of collecting, verifying, evaluating and completing the raw data are carried out within the framework of integrated informational projects/ operations, related to the monitoring of areas, places and environments of informational interest. The specific activities involve the exploitation of secret human (agent network) and technical sources (operative surveillance, informational investigations, radioelectronic research, secret finding, operative records), public sources (mass media, internet, public relations, documentation) and official ones (cooperation with authorities and public institutions, internal/ external partners).

Usually, as a result of the connection to the concept of intelligence, the reference to the gathering of information through human (secret) sources is made through the term HUMINT.

Intelligence has the following meanings (Kent):

- organization – defines the structures, units, agencies, which implement the respective process and develop the final product
- process – the directing-gathering-processing-dissemination cycle of information
- product – current information is disseminated to decision-makers, which relates to usual events, estimated information that projects potential developments, warning information that triggers an alarm, scientific and technical information that

includes an examination of the development and technological capabilities of foreign entities.

HUMINT is a three-dimensional view of person-process-product. a) planning and preparation – research and operational planning for an information gathering activity correlated with a specific source; b) filtering/ screening –evaluating/ differentiating people based on factors like knowledge, attitude towards specific questions, degree of cooperation, general appearance/ accessories, approach techniques. Screening is a time-saving way of identifying individuals who are most likely to have valuable information and who fit a predetermined source profile – level of knowledge, degree of cooperation, positioning, and access; c) the approach – control and report elements are established to develop cooperation and facilitate information acquisition; and d) formulating questions/questioning – an interrogation, debriefing, or elicitation method. These factors affect HUMINT:

- approach (technique/ tradecraft), which involves planning, organising, and coordinating SSU activities to minimise risks to the Human Secret Sources (SSU in Romanian), operational officer, and organisation. Procedures involve SSU information retrieval and other abilities. HUMINT relies on recruiting people and using counterintelligence, surveillance, exploiting links, “cover” (commercial or official), and false flag operations (invoking the quality of a representative of another state or organisation).

- information needs vs. security - before a HUMINT operation, the persons of interest (potential targets) are identified and evaluated, with arguments for and against, depending on the counter-informative risks;

- disruptive factors, which are events/actions that affect cooperation, when the balance between the operative officer's objectives and the SSU's objectives becomes unstable and an adjustment is needed

- staff adequacy (insufficient) – the specific selection of some targets determines the specific selection of operative officers, so it is possible that the unavailability factor also appears (prioritising according to the critical level); – time constraints – HUMINT activities require significant time to develop SSU relationships and trust; – evaluating and disseminating information – verifying and establishing the verity.

Operational officers are educated and accredited to gather data from persons to meet information needs.

A satellite or listening device can provide valuable information, but only a human source reveals intentions... and the recruitment and management of HUMINT is essential to the effectiveness of an intelligence or security service.

HUMINT's main idea is that "the foundations of human relations have not changed in any way since the origins of civilization, it being necessary to at least build a rapport, connected to the ability to empathise and the feeling of trust, as pillars of a successful relationship". A person attempts to get information without the other person knowing or wanting to provide it. Thus, an operational officer should have “subtle science” and/or “delicate artwork” features that aid HUMINT operations (native qualities are important).

Human Secret Sources requires a relational and informational alliance:

I. Informative Alliance, centred on the goal (task), consisting of three elements: language, message form/style, and approach/introduction. Language must match SSU comprehension and language kind. The SSU should be informed of the security risks if the instructions are given as a command. Persuasion may encourage informative tasks, security norms, collaboration, and task solving. The informational alliance requires two skills: persuasion and behaviour modification.

II. The Relationship Alliance, centred on communication, refers to the link and attachment (bond, attachment) between the SSU and the operational officer, important for beneficial outcomes. The following attributes of an operational officer are significant, associated with the notion that he will, in a premeditated way, know (sometimes under numerous identities and vocations) a variety of persons he will contact and some he will convert to SSU:

1. multitasking/active attention: a) focusing on the information provided and constantly evaluating its value and veracity, based on informational requirements, current data, and other data; b) analysing the interaction with the SSU, the para and non-verbal language, associated with the assessment of truthfulness, the degree of cooperation, and the state of mind; c) notifying the opportunity for breaks and insisting on addressing/detailing a topic; and d) providing solutions for the SS

HUMINT information has security/ counterintelligence risks:

- social and personal implications of identity disclosure and cooperation with information structures; – improper, manipulative behaviour

towards the operative officer, even for his protection.

HUMINT (clandestine) relies on understanding and manipulating interpersonal dynamics to affect operational targets.

2. patience, tact, and self-control (patience, tact, self-control) – for rapport and questioning efficiency. Lack of patience/self-control may cause: a) SSU to become non-responsive, seeming to give up asking questions and devalue the connection; b) the operative officer to display displeasure, exhaustion, actual anger, and lose the initiative. Positive relationships take time and SSU training demands patience.

Asking the right question or avoiding the wrong question (not synonymous) does not guarantee the accuracy, credibility, relevance, or timeliness of information, but it is a prerequisite for informing decision makers and good analysis, which requires applying the right techniques to good and answerable questions to understand meaning.

Self-awareness – knowing one's weaknesses and triggers – leads to self-control.

3. initiative – the operative officer understands the needs and steers the discourse to the areas of interest to create a relationship/get information.

4. objectivity – underlined in: a) appraisal of knowledge; b) neutral attitude independent of emotional responses, to avoid inadvertently distorting information (and for flexibility in approach and questioning approaches).

5. credibility – credibility is built and maintained through: a) personal presence and consistency; b) fulfilling promises and avoiding unfulfillable promises; c) clear articulation of complex situations and concepts; and d) providing a clear, precise product with an objective assessment of qualities.

The operative officer might concentrate on a good feature of the SSU to establish true empathy, which increases trust.

– adaptability – based on: a) the relationship with various categories of personalities and the reflection from the SSU position; b) frequenting different types of locations and operational environments, which allows the SSU to easily change questioning and approach techniques depending on the operational environment and personality.

– SSU (ability to recognise the human source's goal) is crucial for developing real empathy (motivation is not just based on reward), and it must be balanced with the operative officer's professional agenda.

– Given the ongoing strain, an operational officer needs resilience to overcome challenges and concentrate on goals.

– persistence (endurance) –when faced with resistance, non-cooperation, or other challenges, perseverance will yield information. Consistency makes the SSU trust the operational officer.

– (pre)vision/ (foresight “bigger picture”) – collecting information is done to chronicle a current danger and anticipate tomorrow's hazard. Partial, unusual, apparently inconsequential facts that question assumptions and define alternate configurations (the large picture) can help develop credible forecasts.

– critical thinking – framing/interpreting elements in particular situations, formulating questions, and rationally contesting important assumptions are necessary for successful operational solutions. Pressure requires good logic.

– detecting patterns and strange differences (patterns, uncommon differences) – theoretically, human behavioural patterns and security risks are lessons learnt. Thus, while reality imposes unrelated conditions, links may be found to project scenarios (with a particular judgement based on past data).

– physical appearance and behaviour (appearance, demeanour) – personal appearance, comprised of organised and professional look, way of action expressing accuracy, power, and efficiency, may substantially impact SSU attitude - becomes more cooperative and receptive. Charismatic implies friendly, open, and confident.

– interpersonal skills/social cue response - HUMINT includes innate traits or training. The operative officer must assess the SSU's personality (by observing behaviour and verbal, para, and non-verbal language) to determine the appropriateness of formulating the cooperation proposal and the SSU's credibility and information veracity. Identifying the SSU's changing motive impacts operational security.

Empathy is developed through responding to social signals, both verbal and nonverbal. The operative officer must be able to establish and hold a discussion, discuss diverse issues, and tailor the topic to the SSU level. The relationship is positive when the operative officer adapts to the SSU level, adopts a non-threatening demeanour and conversational approach, is professional, “gets the language – jargon, slang,” and has a relaxed and friendly attitude (no pressure to succeed or be liked).

– active/reflective listening skills, because it is possible to identify topics addressed and messages sent to the SSU that provide clues about

its dispositional characteristics (especially when the statements are not appropriate to the situation/context).

- competence/language barrier - being unable to speak directly to the SSU without an interpreter might hinder information collecting and rapport building.

- understanding of investigative practise, which is shown via experience and authority when the SSU is given a job and different scenarios are provided (“What would happen if...?”).

The SSU strategy is founded on background information/antecedents, therefore research is essential to good coordination and constructive communication.

HUMINT is a person-centered intelligence-gathering tool. Thus, the operational officer must know how to function in the field and adapt to different situations. Patience, tact, attention, judgement, and prudence matter. In conclusion, HUMINT operative officers must have above-average general knowledge, the capacity to operate in a team, an internal locus of control, non-aggressive behaviour, rapid thinking, and unbiased argumentation. Motivations, core beliefs, wants, and desires, as well as SSU strengths and weaknesses, affect the recruiting process. In summary, the listed skills enable the operative officer to: understand and recognise non- and paraverbal language, emotional states, and nuances in a conversation (emotional intelligence); understand and evaluate the intentions and motivations, respectively to motivate the SSU; successfully direct the SSU to obtain the information of interest; verify the credibility of the SSU and the authenticity of the information provided; and

HUMINT is one of the hardest forms of intelligence to develop and deploy since it requires time and money to identify targets and analyse material. Learning foreign languages, recruiting skills, surveillance detection, and performance require time. “Operational officers are trained in 5-8 years and develop continuously” according to foreign intelligence agencies. The training includes human secret source recruiting, coverage modalities, particular technique, elicitation, foreign languages, report writing, and fitness.

From a military viewpoint, the operational officer (HUMINT operator) is the important component in the HUMINT process, and his training in foreign languages, acting courses, weaponry, and technological equipment is continual. 10 weeks of basic training are followed by 20 weeks of advanced training in intelligence

gathering, HUMINT analysis, interrogation techniques, language skills, and more (much of the training is done outside the classroom to simulate real contact with the environment/environments in a specific area).

The SSU operates covertly and organised in operational contexts and gives data to operative officers, which needs the following:

(a) Perception, the initial step of familiarisation with the operational environment, focuses on data gathering, organisation, and interpretation. The assumption of informative tasks/data collection involves: a) quickly achieving the link between the requirements, access to the data of interest, and the collection capacity; b) correctly receiving the instructions (task instructions) and transmitting the results; c) rapid awareness of deviations from planning for appropriate and prompt reactions; and d) continuous updating/upgrading of the activity to avoid a visible operational routine.

(b) memory and concentration – the ability to: a) take in all the task details accurately; b) retain various aspects in the data collection phase, where it is most vulnerable; c) summarise certain data and situations, with as much accuracy as possible after a long period of time; d) indirectly direct the perception of the significant elements of the environment in which data is collected, because they are very important for the sustainability of the SSU activity; “SSU training in this area would increase effectiveness, make various situations easier to manage, make task execution more precise and probably less time-consuming, with fewer mistakes.

(c) the capacity to re-generate/physical form (regenerate) - success depends on the secret agent's physical condition, regular physical exercise, and proper diet. “Through operative officers, the intelligence services should pay attention to such elements, because they affect the quality of the activity.”

(d) attention aids data selection in a complicated setting. The atmosphere and substance of private data are important in secret/covered information acquisition. The environment dictates data integration and meaning for the bearer, which affects data substance and timeliness for an information service.

Data value is reflected in its substance, and attention to minutiae may dramatically impact data utilisation.

(e) emotionality – emotions might cause quicker, slower, or even erroneous responses, altering data quality/usability or SSU activity concealment. Emotional choices are “affectively

charged” and often wrong. Thus, the emotional stability of the SSU is important (it can also affect loyalty) – they usually work in a team because the emotional state cannot always be determined on direct contact, but changes in the emotional state (or the causes of the changes) can be detected later, in the evaluation of the task related to data collection or content evaluation.

Operational officers use HUMINT (often disguised as a businessman, tourist, student, etc.) to acquire information and analyse human motivation and impact. Operational officers become multifunctional generalists. However, the SSU's mental processes and value system may considerably impact data quality, task performance, and operating relationship causes.

HUMINT training must focus on the following elements:

- planning – 80% of success – so specific objectives will be set so that the operative officer:
 - will plan the operation in a detailed, organised manner, respectively will develop, based on the available data, a coherent, achievable plan;
 - will study SSU by analysing and learning behaviour patterns, access level, interests, occupation, any previous contacts, etc.

- execution – based on theoretical and practical training, the operational officer assesses adaptability to a pre-determined source. Analysis and critical thinking are developed to appropriately analyse obstacles and build adjustment mechanisms when "the source's way of being and acting" is different.

- reporting writing training standardises procedures and records information. The training focuses on writing synthetically (clearly, precisely, and concisely), making comments and observations about the meeting, interpreting the source's statements, and explaining whether the source's verbal or non-verbal communication was consistent or inconsistent.

The intensity of the operational officer-SSU relationship makes the cooperation/coordination activity “something interesting and different” because it is a constant dynamic between exploiting the SSU's access to information (or directing its involvement in an action/situation) and SSU security.

3. THE FUNDAMENTALS OF AN HPO PROGRAM FOR HUMINT PROFESSIONALS

We consider that the principles underlying the cognitive optimization program for HUMINT professionals (personalized-prevention-and-

performance-for-intelligence-professionals-as-a-service) are as follows:

- Holistic vision - the goal is to ethically achieve cognitive dominance, physical supremacy and emotional resilience at the individual, team, human-AI-robot partnership level.

- The optimization program is scientifically based and is managed and implemented by a multidisciplinary team that combines the medical act with psychological intervention, forms of counseling, training and coaching.

- Implementation (learning, communication, monitoring, self-reporting, etc.) involves forms of direct and online interaction through a secure platform in the collective, thematic groups or individually, depending on the context and stage.

- The main areas of expertise used in the optimization program come from medicine (neurosciences, neuroergonomics, metabolism, neurology, ophthalmology, physical medicine and recovery, sports medicine, etc.), psychology, biophysics, sports, informatics (ML, AI), engineering, personal development, NLP, coaching.

- The establishment of personalized optimization programs is based on the analysis of a large number of data from medical, functional, psychological, sociological, sports evaluations, anthropometric parameters, etc. that make up a multidisciplinary analyzed data constellation. The large volume of data collected at the individual level (~ 200-300 initial indicators/individual + ~ > 50 stage monitoring indicators) allows a "big data" approach with the use of ML algorithms.

- Participation in the optimization program is based on informed consensus, direct and motivated ethical interest in improving professional qualities, prevention against risk factors, promotion of intercollegiate cooperation and the freedom to leave the program at any time without the need for justification or the risk of punitive consequences.

- Achieving the objectives is achieved through precise and personalized interventions (aiming/targeting) on a large number of modifiable factors (physiological, functional, behavioral, attitudinal, psychological) that are responsible for influencing the neurocognitive and psycho-social performances involved in the professional effort. These factors are functionally interconnected in the form of a network, which when it is persistently optimized determines the emergence of a synergistic inflection effect (threshold), objectified in the form of directed improvement of

neurocognitive and psycho-social performances at individual and team level.

- Optimization generally involves the persistent maintenance of some parameter values in a narrower (optimal) range within the normal range.

Program stages

1. Standardized anamnesis
2. Health status assessment and medical pathology screening based on questionnaires, scales and standardized scores
3. Evaluation of neurocognitive performance based on standardized questionnaires and scores
4. Parameters: anthropometric, psychological, sports performance, professional performance, etc
5. Functional examinations: pulmonary, ophthalmology, ENT, neuroophthalmology, etc
6. Biological investigations (general, metabolic, screening, hormonal, toxicology, etc.)
7. Assessment - psychological, psychiatric, medical. The establishment by a multidisciplinary commission of the objectives of the stage, the monitoring parameters. Proposals – restorative interventions, psychological and biological optimization, etc. - making a personalized psycho-medical intervention plan (3 months) and communicating with the subject (informed consent)
8. Monitoring and periodic self-monitoring (online platform, self-reporting based on indicators)
9. Re-evaluation, complex re-testing – stage conclusions (intra- and inter-individual comparisons, statistical analysis and ML/AI, interpretation and discussions on the results, conclusions, etc.)
10. Stage II – EEG assessment during professional activities, NFB-EEG, non-invasive transcranial stimulation (plasticity), hyperbaric oxygen therapy
11. Stage III – genetic testing.

4. CONCLUSIONS

We appreciate that through the development of effective and safe neuroaugmentation programs, a possible re-approach to the classic HUMINT problem, understood in the form of exploiting individual skills and access to relevant information, can be considered.

Consequently, we propose the concept of “neuro-humint”, circumscribed to the concerns of a state or non-state entity to optimize individual and collective physical, psychological and behavioral capacities (operational team) related to HUMINT, and we propose the following topics:

- the accelerated multisensory learning associated with the rapid development of correlations, which transforms the individual into a primary factor of “professional and credible (sometimes singular)” drafting and interpretation of some information in a desirable direction,

- developing the ability to creatively build atypical, non-linear, original scenarios with the aim of diversifying access to information or people of interest,

- the amplification of one's own capacities to influence and manipulate the decisions of some “target persons”,

- self-training and the ability to identify opportunities for rapid socio-professional advancement within an organization-objective

- the development of “spontaneous” reactions/justifying behaviors of one's own activities within a counter-informative context, respectively decisions in borderline situations,

- continuous self-programming of stress resistance and emotional and moral recovery within a reasonable time frame (resilience),

- achieving maximum performance and sustaining a predictable period of time in order to carry out specific activities in a hostile environment

- rapid identification and evaluation of the potential of neuroaugmented opponents or with special qualities

- the assimilation, development and application of methods of vulnerability, blocking, deviation (in “useless” directions/domains) and/or de-efficiency of the potential of classic, neuroaugmented or special-quality opponents.

Our work calls on civilian and military departments, research labs, centres, and institutes to apply Human Performance Optimisation for demanding professions of special relevance.

Human Performance Optimisation may be a “technological crucible” for cutting-edge medical and psychological research, artificial intelligence technologies, and associated sectors. Accelerated technical progress has made specialised breakthrough “technological surprises” more likely, creating knowledge market asymmetries. The sectors have wide-ranging commercial and military applications.

Human Performance Optimisation may also be utilised to build responses to the hostility variables caused by demanding civilian and military professions. Astronauts, deep-sea divers, climbers, extreme sportsmen, Arctic explorers, and others use this pragmatic approach to create "revolutions" in weapons systems or reach a maximum threshold

of human performance (used in enhanced human operations).

A more general approach allows countermeasures for common professional situations (chronic or longer sleep deprivation, prolonged cognitive load, neurovisual fatigue, decreased operative performance during prolonged activities, decreased ability to struggle due to physical fatigue, etc.).

BIBLIOGRAPHY

- Anderson, Julie. (2007) The HUMINT Offensive from Putin's Chekist State. *International Journal of Intelligence and CounterIntelligence*. 20:2. 258-316.
- Andler, D. *et al.* (2008). Converging Technologies and their impact on the Social Sciences and Humanities. Final report CONTECS project. *Cordis* [online]. URL: https://cordis.europa.eu/docs/publications/1243/124377001-6_en.pdf [Accessed on June, 2023].
- Ardușătan, Adrian. (2012). *Intelligence și decizia politică. Conexiunile lumii informațiilor secrete cu cea politică*. Cluj-Napoca: Dacia XXI.
- British Army. (2021). Future Soldier Guide. *Army* [online]. URL: https://www.army.mod.uk/media/15057/adr010310-futuresoldierguide_30nov.pdf. [Accessed on June, 2023]
- Colin, A. (dir.). (2016). L'Homme augmenté, réflexions sociologiques pour le militaire. *Études de l'IRSEM*, nr. 42.
- da Silva, C.M.C.R.M. (2019). HUMINT – Conceptualization and use in military operations. *Revista de Ciências Militares*. VII(1). 45-70.
- Department of the Army. (2006). *Human intelligence collector operations*. FM 2-22.3 (FM 34-52), Washington, DC: Headquarters Department of the Army.
- Di Pino, G.; Maravita, G.; Zollo, L.; Guglielmelli, E. & Di Lazzaro, V. (2014). Augmentation – related brain plasticity. *Frontiers in Systems Neuroscience*. June, 11; 8:109.
- Fondation pour la Recherche Stratégique (FRS). (2014). *Les impacts de la convergence technologique sur les accords de désarmement et de maîtrise des armements*, Paris: FRS.
- Girling, K.; Thorpe, J. & Auger, A. (2017). *Identifying Ethical Issues of Human Enhancement Technologies in the Military*. Scientific Report. Ottawa: Defence Research and Development Canada.
- Hollands, J.G. (2021). *Soldier Information Presentation and Cognitive Load*. Ottawa: Defence Research and Development Canada.
- Henry, Pamela; Rajakaruna, Nikki; Crous, Charl & Buckley, John. (2019). Key attributes of an effective human source handler: Implications for handler selection and training, *The Police Journal: Theory, Practice and Principles*. 1–20. 3-8.
- Iztok Podbregar, Gašper Hribar & Teodora Ivanuša (2015) Intelligence and the Significance of a Secret Agent's Personality Traits. *International Journal of Intelligence and CounterIntelligence*, 28:3. 520-539.
- Iztok Podbregar, Gašper Hribar & Teodora Ivanuša (2015) Intelligence and the Significance of a Secret Agent's Personality Traits. *International Journal of Intelligence and CounterIntelligence*. 28:3, 520-539.
- Kis, Alexandru; Arhip, Vasilica & Tarcala, Oliver. (2019). Skills and traits of the HUMINT operator. *Defense Resources Management in the 21st Century*, nr. 14.
- Kudlow, P.; Treurnicht Naylor, K.; Xie, B. & McIntyre, R.S. (2013). Cognitive Enhancement in Canadian Medical Students. *Journal of psychoactive drugs*, vol. 45(4). 360-365.
- Margolis, Gabriel. (2013). The Lack of HUMINT: A Recurring Intelligence Problem. *Global Security Studies*. Spring 2013, Volume 4, Issue 2.
- Marin, C.; de Hillerin, P.J.; Marin, M.; Vizitiu, C.; Nistorescu, Al. & Vizitiu, A. (2015). Argumente pentru o abordare unitară, psiho-neuro-motorie, în antrenarea performanței umane. *Palestrica Mileniului III*, vol. 16, nr. 2. 107-113.
- Megheșan, Karin. (2017). *Introducere în intelligence*, Bucharest: ANIMV Publishing House.
- Ministry of Defence (MoD). (2020). Bundeswehr Office for Defence Planning. *Human Augmentation – The Dawn of a New Paradigm. A strategic implications project NATO STO (2014). Kick-off of the HFM-247 Task Group on Human- Autonomy Teaming: Supporting Dynamically Adjustable Collaboration*. Neuilly-sur-Seine: CEDEX.
- Multinational Capability Development Campaign (MCDC). (2021). *Human Performance Optimization and Enhancement*, Hamburg: MCDC.
- Muza, S., Roussel, M. (2018). Fit, nourished and resilient. *U.S. Army* [online]. URL:

- https://www.army.mil/article/199870/fit_nourished_and_resilient [Accessed on June, 2023].
23. North Atlantic Treaty Organization (NATO), European Union (EU), United Nations (UN). (2015). *Informal interorganizational military glossary of abbreviations, terms and definitions related to conflict prevention (CP) and defence and related security capacity building (DCB)*. Norfolk: Strategic Plans and Policy Directorate, HQ SACT.
 24. Office of Counterintelligence (DXC). Defense CI & Humint Center - Defense Intelligence Agency (2011). Glossary – Terms & definitions of interest for DoD counterintelligence professionals. *Office of the Director of National Intelligence* [online]. URL: https://www.dni.gov/files/NCSC/documents/ci/CI_Glossary.pdf [Accessed on June, 2023].
 25. Regens, James L. (2019): Augmenting human cognition to enhance strategic, operational, and tactical intelligence. *Intelligence and National Security*. Vol.34, no.5. 673-687.
 26. Rodriguez, Saul M. (2013). Human intelligence (HUMINT). In G. Kurt Piehler. *Encyclopedia of Military Science*. Thousand Oaks: SAGE Publications. 673-674.
 27. Russell, A.; Julkley, B. & Grafton, C. (2009). *Human Performance Optimization and Military Missions*. Final report, ONA, GS-10F-0297K. RTO Human Factors and Medicine Panel Seminary „*Human Performance Enhancement for NATO Military Operations*”. Sofia, 5-7 Oct.
 28. Sano, John. (2015). The Changing Shape of HUMINT. *AFIO's Intelligencer Journal*. Vol. 21, No. 3. Fall/Winter. 77-80.
 29. STOA (2016). *A European Approach to Human Enhancement*. Brussels: European Parliament.
 30. West, Nigel. (2015). *Historical Dictionary of International Intelligence* (second edition). Lanham, Maryland: The Rowman & Littlefield Publishing Group.
 31. WHOOP. (2017, Feb 10). WHOOP Speaks at NATO Conference on Performance Optimization for Tactical Athletes. *WHOOP* [online]. URL: <https://www.whoop.com/thelocker/whoop-speaks-at-nato-conference-on-performance-optimization-for-the-tactical-athlete/> [Accessed on June, 2023].
 32. Work, R. (2015). Speech before the CNAS Defense Forum. *US Department of Defense* [online]. URL: <https://www.defense.gov/News/Speeches/Speech-View/Article/634214/cnas-defense>. [Accessed on June, 2023].