

# Cognitive Intelligence: The Theoretical Aspect

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## Introduction

Since the dawn of history, strategic conflicts and wars have had a cognitive dimension. The Cold War is one of the best examples of this. In recent years, it has been understood that intelligence for the purpose of influencing cognition is not just another part of the campaign but a critical component of it. Today, attempts to influence cognition are considered a component of a campaign in the strategic, intelligence, and operative spheres. This is also true of the cognitive intelligence that supports them.

In this article, we will focus on cognitive intelligence as a field in its own right whose importance has increasingly been recognized in recent years, as well as its interfaces with other fields that influence it and are affected by it. The article establishes a conceptual and theoretical foundation and aims to serve as a basis for developing methodologies and operating concepts within the intelligence community in the field of cognition, while relying on existing conceptualizations within the field. The article reveals the scope of the discussion and addresses the open questions, which will expand the knowledge base that the Israeli intelligence community has developed as a result of its practical experience in this field.

In order to properly contend with diverse adversaries in the cognitive campaign – including radical organizations – both integrated national efforts

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and coordinated international efforts are necessary.<sup>2</sup> These efforts need to take place simultaneously in four dimensions: prevention, disruption, response, and proactive designed action. In all four dimensions, the efforts require deep knowledge of the operational arena and of the actors influencing it, including the adversaries and the mechanisms of building cognition and its influences, in addition to a creative approach that goes beyond existing conceptual and operative frameworks. Full synergy must occur between the intelligence system's development and its adaption to the challenge of cognition in order to maximize its potential contribution and the management of operational campaigns.

The use of intelligence for the cognitive campaign, especially in the world of cyber as a relatively new area of operation, requires developing a suitable and revised doctrine that includes the manipulative use of information. At the same time, ethical principles must be maintained when using intelligence,<sup>3</sup> which will ensure the effectiveness by maximizing capabilities and their quick and high quality use, as well as the credibility of messages (both in terms of their authenticity and the way they are perceived by the target audiences) and maintaining the protection of sources and information. This should be done while preventing any possibility of using intelligence for internal political needs that are not related to the objective of the campaign.

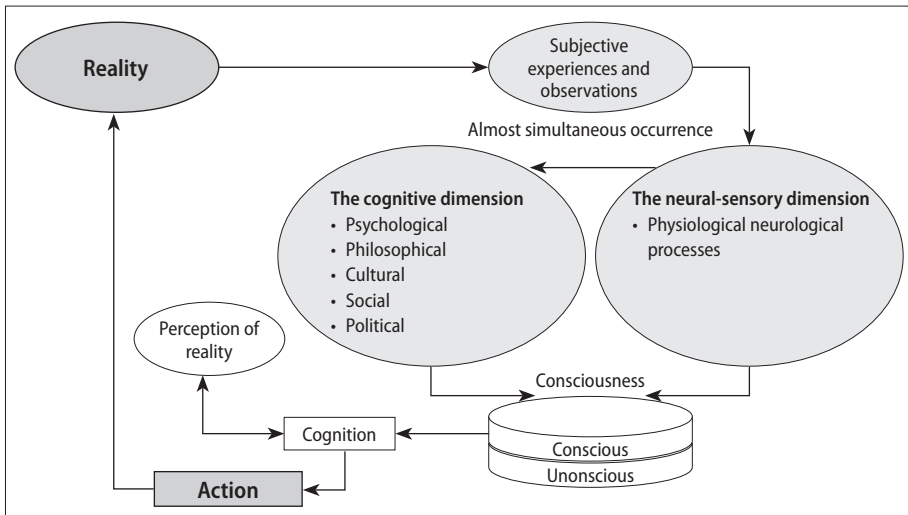
### **Intelligence in Relation to the Essence of Cognition**

As with all operations, high quality intelligence is a necessary condition for the success of the cognitive campaign. It must be able to identify the parties that are influencing people's cognition and understand the ways that they affect its development and strength. In the cognitive dimension,

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2 "Integrated efforts" refers to joint and synchronized operations based on joint thinking and planning of all state bodies and resources that are relevant to the efforts. "Coordinated" means cooperation and transparency in cognitive efforts against shared adversaries.

3 For more on the issue of ethics in intelligence and in intelligence organizations, see Aryeh Roter, "On the Purpose and Role of the Gatekeepers in Intelligence Organizations: The Case of the Shin Bet," *Hossen*, International Institute for Counter-Terrorism, Interdisciplinary Center Herzliya, <https://bit.ly/2GVZmAC> [in Hebrew]; Yehoshafat Harkabi, *Intelligence as a State Institution – The Hidden Book* (Tel Aviv: Maarachot and the Israel Intelligence Heritage and Commemoration Center, 2015), pp. 63-64, 71 [in Hebrew].



**Figure 1:** How is Cognition Formed?

this means the philosophical (the worldview of the target audience of the cognitive campaign); the psychological (for example, the way target audiences interpret reality and the question of what is more convincing – intimidation or promises); and the social, cultural, and political aspects. In the physiological-neurological dimension, this refers to how the structure of the brain and nervous system influence the formation of the conscious and unconscious elements of cognition.<sup>4</sup> In addition, intelligence must be able to track the adversary’s cognitive activities and produce reliable, timely information in order to influence its efforts and formulate the content of the operations designed to influence cognition.

Figure 1 explains the process of the formation of cognition in an individual. Understanding this process is the core of the intelligence challenge discussed in this article.

Another important issue is the connection between individual consciousness and the collective one. The issue of collective consciousness is complex and difficult to decipher and influence, since the connection between it and that of individuals who make up the collective is not a simple linear sum of all

4 Bernard J. Baars, “Some Essential Differences between Consciousness and Attention, Perception and Working Memory,” *Consciousness and Cognition* 6 (1997): 363-71, <https://bit.ly/2tvPqpM>; “What Is the Difference between Cognition, Consciousness and Perception?” *Quora*, January 25, 2017, <https://bit.ly/2IviGHn>.

these consciousnesses but rather a unique and complex product influenced by a variety of factors and shaped over time in lengthy, complex processes. One special case is the connection between the leader's consciousness and that of the population. On the one hand, the public influences the leader's consciousness, while on the other hand, the leader has considerable influence over the public's consciousness. The leader's consciousness as an individual with unique responsibility also influences his cognition as a leader and vice versa.

Figure 1 shows how complex and difficult the task of intelligence is within the context of cognition. This is not meant to be discouraging, despite the reasoning behind the critical approach, which warns against investing excessive resources in efforts aimed at addressing this complicated and challenging problem. The need not to give up stems from the fact that the benefits of overcoming these difficulties are significant and could turn out to be a game changer in terms of achieving strategic objectives.

### **What Is Cognitive Intelligence?**

The first distinction that needs to be made in relation to cognitive intelligence is between intelligence about cognition as a phenomenon and an area of activity and influence, and intelligence for cognitive operations.<sup>5</sup> The first category can be defined as foundational and strategic intelligence, while the second can be defined as operative intelligence. The categories overlap and feed off of one another. Operative intelligence is rooted and develops in the logic of foundational and strategic intelligence, while it reveals information and insights that help update and develop strategic intelligence.

In this respect, *situational cognition* and *basic cognition* should be distinguished.<sup>6</sup> Situational cognition refers to specific events/contexts. While it is derived from the basic cognition that relates to a broad and comprehensive perception of the world and reality, it is also influenced by many additional factors, and hence it is easier to influence. The connection between basic cognition and situational cognition in a given context creates

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5 This article discusses military intelligence, but it is clear that the intellectual and conceptual discussion of the topic of cognition does not belong only to military intelligence.

6 Zvi Lanir, *The Basic Surprise – Intelligence in Crisis* (Tel Aviv: Hakibbutz Hameuhad Publishing House, Kav Adom, 1983) [in Hebrew].

what we will define as *cumulative cognition*. Understanding the cumulative cognition of target audiences by understanding their basic and situational cognition and the connections between them is the most important task of cognitive intelligence, while cultural intelligence has considerable importance in fulfilling this task.

### **The Interface between Cognitive Intelligence and Other Areas**

Every operative action has significance for cognition. Therefore, in every campaign or operation, even those not defined as cognitive operations – whose main objective is not to influence consciousness – it is necessary to think about the cognitive dimension.

The importance of intelligence in the first stage of campaigns focused on cognitive influence and cognitive operations is partly its involvement in shaping the objectives of the campaign or operation, in order to ensure that they are relevant and achievable. As a rule, the objective is to change the state of mind from situation A to B, or, at least, to prevent a cognitive change in an undesirable direction as a result of the consequences of the operative action. Situation B can be defined as the consciousness that we wish to shape, which is necessarily a derivative of the strategy; that is, what the commanders seek to achieve. This is the reason for the depth of the interface between the cognitive and strategic spheres. The impact of a cognitive operation or campaign explains the connection between the cognitive and the operative spheres.

### **Cognitive Intelligence and the Cultural and Social Spheres**

Cognitive intelligence lays the foundations for understanding the adversary's logic and reveals the agents who influence the adversary and the process. This kind of intelligence helps understand the adversary as well as the cultural foundations of the society in which the adversary operates, and the many similarities and interfaces between them and the world of cultural intelligence.<sup>7</sup>

Israeli intelligence must prepare to contend with a broad and diverse range of cultures in which there are different agents and mechanisms of

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7 Kobi Michael and Omer Dostri, "Human Terrain and Cultural Intelligence in the Test of American and Israeli Theaters of Confrontation," *Cyber, Intelligence, and Security* 1, no. 2 (2017): 53-83.

cognitive influence. The challenge in this context is to be able to provide diverse responses, which will help identify the agents of influence who constitute epistemic authorities (those who are seen as agents of truth, who best define the truth, and discourage openness to other information and interpretations)<sup>8</sup> in the various cultures and create mechanisms to influence them in a way that serves the objectives defined.

Intelligence needs to understand the connection between the culture and social structure and the state of mind, both at the basic and situational levels, but it must also understand how this connection develops and the factors influencing it, as well as the practical derivatives of the cognitive influence on the actors. For example, groups with a deep religious consciousness or a strong ideology are expected to behave differently than those with a weak ideology, whose consciousness could be more flexible.

Intelligence for basic cognition and cognitive operations should also relate to the public that is not directly involved in the campaign but influences its results. A certain cognitive operation could have the desired influence on the main target audience but could have a negative influence on secondary target audiences. Therefore, intelligence should be capable of supporting the formulation of cognitive operations whose purpose is to appeal to a limited and defined target (narrowcasting) by conveying focused messages on narrow channels that reach only the defined target audience. Alongside this, general messages should be conveyed on broad and diverse channels (broadcasting) with the intention and understanding that they will reach a variety of target audiences and not just their main target audience. The world of social media – despite its built-in biases – makes it easier to study cognition, makes it accessible, and improves the ability to influence mainly through narrowcasting but also broadcasting. This is partly based on insights related to effective ways to influence cognition; that is, toward whom emotional messages should be directed, toward whom rationalistic or combined messages should be directed, and how.

Cognitive intelligence requires unique access to the social and cultural spaces being researched, an information-gathering methodology, and, in

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8 On the significance of the phenomenon of epistemic authority, see Kobi Michael, “The Israel Defense Forces as an Epistemic Authority: An Intellectual Challenge in the Reality of the Israeli-Palestinian Conflict,” *Journal of Strategic Studies* 30, no. 3 (2007): 421-46 [in Hebrew].

particular, a suitable research methodology. These should involve skilled and professional personnel from the relevant research fields (anthropology, sociology, psychology, history of the relevant area, political science, social media research, big data, and more). The need for this personnel necessarily influences the selection, recruitment, and training processes of suitable professional staff, while taking into consideration emotional intelligence and cultural intelligence.<sup>9</sup> Creating an intelligence picture of cognition is an ongoing process that also requires information gathering in order to fill in gaps, validate information or assessments, and enlarge the knowledge base, but it also depends largely on overt sources and on tools available in the age of big data.

Unlike intelligence for cognitive operations, intelligence on basic cognition is less limited by place and time, and its work processes and production are characterized as wide-ranging and multidimensional, and it involves a historical and cultural perspective. Intelligence for cognitive operations is much more focused, and its purpose is to advance a specific achievement vis-à-vis a targeted population or adversary, at a given time, and for a defined purpose.

The number of players actively involved in and influencing the cognitive campaign is much greater than the number of players active and influential in the operative one. Therefore, the intelligence challenge is understanding not just the cognition of the adversary and the target audiences but also the methods of action and ways of influencing all the players and connections and the hierarchy of influence in the broad social, cultural, economic, and political contexts, in order to help formulate the most effective and beneficial responses.

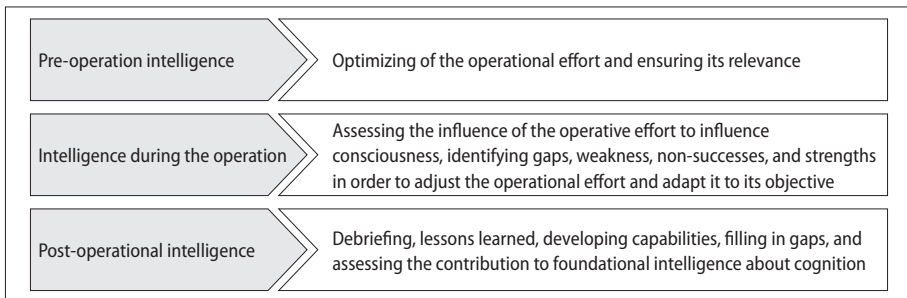
### **The Three Stages in the Process of Producing Cognitive Intelligence**

In order to develop intelligence for cognitive operations, a basis of intelligence is needed about the cognition of a target audience in a given arena. Defining the purpose of the cognitive operation by specifying critical intelligence information needed for the operation and engaging in information gathering

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9 P. Christopher Earley and Elaine Mosakowski, "Cultural Intelligence," *Harvard Business Review* (October 2004), <https://bit.ly/2cChpKL>.

and research capabilities enables a more accurate mapping of the existing information gaps that need to be addressed. As for intelligence for cognitive operations, like all operational activity, we must distinguish between three stages: intelligence prior to the operation; intelligence during the operation; and post-operation intelligence (Figure 2).



**Figure 2:** The Three Stages of Operative Intelligence

As with any operation, the intelligence prior to a cognitive operation is necessary in order to optimize the operational effort and ensure its relevance, as well as to prepare the messages and convey them to the target audiences effectively and precisely via their sources of influence. The intelligence during the operation aims to assess the influence of cognitive and operative efforts on cognition in order to locate gaps, weaknesses, and strengths in real time, and to adjust the operational and cognitive efforts so that they achieve their objective, while minimizing unexpected consequences. Post-operation intelligence is required in order to assess the level of compatibility between the result and the desired achievement, and for the purpose of debriefing, lessons learned, developing capabilities, and filling in gaps toward the possibility of another operation to achieve the objective of the original operation, as well as to examine the contribution to foundational cognitive intelligence.

The development of measuring tools and applying them to an operation or campaign are challenging tasks and processes. Along with generic metrics, such as public opinion polls and assessing the overt behavior of target audiences, unique metrics must be developed and defined for each operation or campaign, subject to their specific context.



## The Types and Layers of Cognitive Intelligence

Another necessary distinction is between “*preventive*” intelligence, whose purpose is to help thwart the adversary’s cognitive efforts by identifying, disrupting, and preventing them, and “*formative*” intelligence, whose purpose is to contribute to efforts to influence the cognition of the adversary and of target audiences in the arena itself or the arena, such as the regional and international ones, which influence the adversary.

In the context of preventive intelligence, it is worth examining the recommendations of Robert Kozlosky, which discuss the need to develop a new intelligence discipline – *public intelligence* (PUBINT) – which requires a new paradigm based on the idea of sharing intelligence information with the public. This contrasts with the traditional paradigm, according to which the public is not a partner in intelligence information and efforts are made even to hide it from the public. The objective of the new discipline is to prevent attempts at subversion by an adversary in the world of modern information warfare, which uses social media and other online means to flood the public with information, some of which is false and biased, in order to influence cognition.<sup>10</sup> Preventive intelligence also requires identifying the adversary’s efforts and understanding the logic behind them when trying to influence the consciousness of domestic target audiences, in order to strengthen the adversary’s standing, to establish its domestic legitimacy, and to recruit its target audiences for cognitive and operational efforts. In addition, it is important to distinguish between the adversary’s actions on *the targeted covert level* (when this aims to serve the efforts on the overt level and complement them, or when it reflects a separate covert effort) and its actions on a more *overt level*, especially in cases where it is necessary to act simultaneously vis-à-vis more than one target audience.

Foundational cognitive intelligence requires methodically tracking the adversary’s actions in these contexts and assessing their level of success. In every cognitive intelligence operation, it is also necessary to minimize, disrupt, and prevent the adversary’s influence on the consciousness of its domestic and foreign target audiences, in order to weaken it while strengthening the potential influence of countermeasures on the adversary’s cognition and

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10 Robert Kozlosky, “Modern Information Warfare Requires New Intelligence Discipline,” *RealClear Defense*, February 20, 2018, <https://bit.ly/2BGIrQ7>.

on that of the various target audiences. This is a necessary complement to operative efforts; without it, the effectiveness of the operation will weaken, and its irrelevance possibly will increase.

### **On the Challenge of Cognitive Intelligence**

Cognitive intelligence, including cognitive operations, is different from the operative intelligence that is customary in the military, political, or economic spheres. Unlike intelligence in fairly tangible and defined areas, cognitive intelligence is more amorphous and is difficult to measure and track. Translation into practical terms requires conceptual, linguistic, methodological, organizational, and structural changes. First this requires the establishment of a body that is focused on cognitive intelligence and not just on cognitive operations and then the development of a comprehensive methodology and relevant vocabulary/conceptualizations that provide optimal solutions to all the challenges to which this article refers.

The difficulty and the complexity increase when it comes to defense organizations that are mission-oriented and subject to constant assessment of results or effects in relation to resources and inputs, as well as measuring success and correcting defects. As mentioned previously, it is difficult to measure results and influence in the sphere of cognition. The time required to achieve objectives in the cognitive campaign is significantly longer than in the operative realm. In some cases, a long duration of time is required before identifying the effect or the influence of the cognitive operations, and it is difficult to identify cause-and-effect relations between actions and their results.

### **Areas of Discussion**

The conceptual and theoretical foundations on cognition presented thus far should provide a basis for developing methodologies and operating concepts within the Israeli intelligence community. Now we will present different areas of discussion and open questions that must be addressed so that the relevant body of knowledge will continue to develop, using the knowledge and resources at the disposal of the intelligence community as a result of its practical experience on the issue of cognition.

In the first stage, it is necessary to discuss the question of where cognitive intelligence should be in the order of priorities and which tools and means

(financial and human resources, attention, methodology, organizational changes) should be allocated to this task, given the increasing recognition of cognition's importance in modern conflicts.<sup>11</sup> Until recently, there was a significant gap between the repeated acknowledgment by military researchers and senior defense officials of the importance of cognitive operations and the amount of resources allocated to developing capabilities in this field.<sup>12</sup> In addition, a community-wide authority and organizational structure for coordinating treatment of this topic is clearly lacking. One possible reason is that the topic has not yet been sufficiently regulated on a national level, and that even though the cognitive campaign is defined as a national effort, it is still not being managed as such.<sup>13</sup> Most of the burden is on the IDF, which has succeeded in developing unique and impressive capabilities, but these still do not provide the necessary solutions to the entire scope of the challenge.<sup>14</sup>

In the second stage, it is necessary to analyze the meaning of a rapidly emerging reality that is quickly changing cognition and the way it is shaped. In this context, a number of basic questions arise:

1. How do the characteristics of this reality (volatility, rapid formation, disappearance, and uncertainty)<sup>15</sup> influence cognition and the ability to understand it, and how are the tools that influence cognition changing?

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11 For example, see the symposium "The Cognitive Campaign: Gaza as a Case Study," held at the Institute for National Security Studies on June 25, 2018, <https://www.inss.org.il/event/cognitive-campaign-gaza-case-study/>.

12 Kobi Michael and Gabi Siboni, "Preparations for the Nakba March: Hamas's Cognitive Campaign," *INSS Insight* No. 1036, March 20, 2018, <https://www.inss.org.il/publication/preparations-nakba-march-hamass-cognitive-campaign/>; Gabi Siboni and Gal Perl, "The IDF's Cognitive Effort: Supplementing the Kinetic Effort," *INSS Insight* No. 1028, March 1, 2018, <https://www.inss.org.il/publication/the-idfs-cognitive-effort-supplementing-the-kinetic-effort/>; Gabi Siboni, "The First Cognitive War," in *Strategic Survey for Israel 2016–2017*, eds. Anat Kurz and Shlomo Brom (Tel Aviv: INSS, 2016), pp. 215–23, <https://www.inss.org.il/publication/first-cognitive-war/>.

13 See the closing remarks by Brig. Gen. (res.) Udi Dekel, managing director of INSS, at the symposium "The Cognitive Campaign: Gaza as a Case Study."

14 See the statements made by then-IDF Spokesperson Brig. Gen. Ronen Manelis in his lecture at the symposium "The Cognitive Campaign: Gaza as a Case Study."

15 For more on the issue of the challenges of intelligence research in a rapidly changing reality, see Itai Brun, *Intelligence Research – Clarifying the Reality in an Age of*

2. To what extent is this a permanent phenomenon (the meaning of the change)?
3. How can it be measured or assessed (indicators for assessing changes to cognition)?
4. How can the results or impact of efforts to influence cognition be identified in this reality?

Naturally, rapid and volatile changes in reality increase the tension between basic cognition and situational cognition. Generally, changes first influence situational cognition, but they have the potential to penetrate the basic cognition and influence it also. The intelligence challenge in this context is to identify the changes and the potential for change and to identify tools that can influence them, whether by blocking negative influences or enhancing positive ones. Such changes require precise synchronization between cognitive intelligence, which is required for cognitive operations for the purpose of influencing situational cognition, and foundational intelligence, which is required for understanding and influencing basic cognition.

### **The Connection between Cognitive Intelligence and General Intelligence**

Those involved in cognitive intelligence should be in close contact with those who address the comprehensive intelligence picture and should allow synergy between cognitive intelligence and foundational, military, political, and economic intelligence, since understanding the reality requires broad and comprehensive observation of all its components. The connection and the synergy between the areas of intelligence are important because of the input that other areas of intelligence have for understanding cognition and how to influence it, while the synergy should be expressed at both the functional and structural levels of the intelligence community.

The desired synergy should be expressed with a high level of jointness in every operation, especially in intelligence operations.<sup>16</sup> In many cases, cognitive operations are intelligence operations, carried out by intelligence

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*Changes and Transformations* (Israeli Intelligence Heritage and Commemoration Center – Institute for the Study of Intelligence and Policy, 2015), pp. 11-12.

16 For more on the topic of jointness in intelligence, see Kobi Michael, David Siman-Tov, and Oren Yoeli, “Jointness in Intelligence Organizations: Theory Put into Practice,” *Cyber, Intelligence, and Security* 1, no. 1 (2017): 5-30.

agents; they employ intelligence materials for the purpose of influencing cognition or for gathering information on it. In these operations, even more than in kinetic operations, transparency is necessary between the operative and intelligence dimensions, in order to ensure the relevance of the operative dimension and to identify operational and intelligence risks and opportunities. Every military operation needs to relate to efforts to influence cognition, and full synergy must be ensured between the operative and intelligence aspects and the cognitive ones.

## **Conclusion**

Both cognitive and operational intelligence within the cognitive campaign are relatively new areas of intelligence activity. They support the strategic cognitive campaign (at its center is the political-diplomatic campaign and the use of military force) and more limited operations, some of which are essentially intelligence operations. Cognitive intelligence should be well integrated within every activity in these areas, overlapping with the traditional strategic, operative, and intelligence spheres.

In order to ensure high quality outputs of cognitive intelligence and their optimal integration within diplomatic and military activity, skilled personal is required in the relevant fields, most of which are not part of the classic intelligence professions. In addition, a national directorate on cognition should be established, which could provide a comprehensive perspective on cognitive intelligence issues and all their components, in addition to jointness of the cognitive intelligence with the entire intelligence operations and various operational and strategic aspects.