

Knowledge-based anticipatory governance: toward an ecosystem model for strategic intelligence

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Abstract

This paper presents a literature review on strategic intelligence within the National Security field, particularly studying the case of Guatemala's National Intelligence System. It raises a discussion about the concept of strategic intelligence understood as a product and the traditional methods used to its generation, such as the intelligence cycle. The predominant focus on information is highlighted, showing a significant gap towards knowledge production and management; but also, towards capability development. In this sense, the implications of conceptualizing strategic intelligence as a capability are explored.

The traditional approach tends to be reactive by responding to decision-makers requirements and needs, while its linear and sequential, methodology allows limited feedback and knowledge integration. Beyond these gaps, the integration of frameworks such as knowledge management and anticipatory governance is useful to propose a more dynamic model, based on knowledge ecosystems, allowing to identify positive reinforcing and balancing dynamics that could enhance intelligence capabilities.

Keywords: *strategic intelligence; anticipatory governance; knowledge ecosystems; intelligence capability development.*

INTRODUCTION

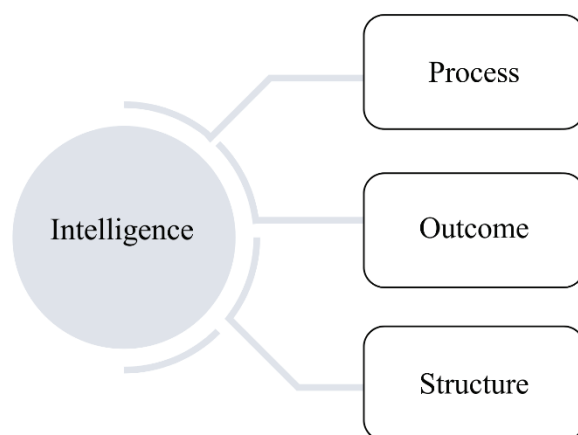
Strategic intelligence has traditionally been considered as a linear sequential process that fulfils its purpose when creating a particular product for decision-makers to consume when preventing threats and risks. While some definitions considered it as a capacity -such as the National Intelligence System in Guatemala- its operation still reproduces the traditional approach. This paper starts by presenting and comparing different definitions of strategic intelligence, identifying its main attributes and later contrasting to the Guatemalan construct.

Limitations of the traditional intelligence cycle model are explored, particularly related to a necessary information-to-knowledge qualitative leap. From this point, it is proposed that strategic intelligence should be understood as a capability rather than a product, and specifically as an anticipation capability. For this purpose, a more dynamic, anticipatory governance knowledge-based ecosystem model is proposed as an exploratory framework.

What is strategic intelligence?

A clarification of the meaning of intelligence and strategic intelligence is needed as a starting point. Definitions of intelligence tend to concur on three main characterisations: as a body of information –and the conclusions drawn from it– that has been refined to meet decision-makers requirements and needs; as the set of functions and activities “involved in the process of planning, gathering, and analyzing information of potential value to decision makers” (Goldman & Maret, 2016, p. 291); and, as the organizations –both individually and the larger community– that shape raw data into critical information for decision-making. These perspectives actually refer to three interconnected constructs, necessary for a clear understanding of intelligence, being: intelligence as a process, as the outcome –product– of such process, and as the structure that enables it (Lowenthal, 2000 cited by Awotayo et al., 2023, p. 197; Johnson L., 2007, p.1-3). Figure 1 highlights these core constructs that give meaning to the concept of intelligence.

Figure 1. Intelligence concept constructs.



Author's elaboration based on
Awotayo et al., 2023, p. 197; Johnson L., 2007, p.1-3

In order to further illustrate the three constructs, some definitions of intelligence from different country contexts can be cited. For example, in the United States, the Office of the Director of National Intelligence defines it as “information gathered about threats to the nation, its people, property, or interests; ... and any other matter related to national or homeland security” (DNI, n.d.). It provides insights that enable the anticipation of potential threats, opportunities and probable consequences of policy options. In a similar perspective, Spain's National Intelligence Centre defines intelligence as “information, analysis, studies, or proposals that allow the prevention and avoidance of any danger,

threat, or aggression...” (CNI, 2022, p.12)¹. In the case of Mexico’s institutionality, it is defined as “the knowledge obtained from the collection, processing, dissemination, and exploitation of information, for decision-making in matters of national security CNI, 2020a, p.1)².

Note that these definitions have National Security as the object of intelligence, and whereas they implicitly involve the process and structure constructs, a strong emphasis on intelligence as a product is present, highlighting the outcome construct. It can be said that both the process and structure constructs are implicit, since it is assumed that for the generation of such product, a systematic set of activities is required; it is even explicitly mentioned in the last cited definition. On the other hand, all of these definitions are formulated within the framework of intelligence services or communities, showing the underlying structure construct. A first relevant gap emerges from the narrowing of the concept to a one-dimension construct, understanding it mainly as a product –information– rather than an organizational capability.

Even when referred as “strategic” intelligence, the gap is noticeable, since this characterization provides it with a set of attributes related to the nature or quality of the information produced, its role in decision-making processes and a sense of purpose or larger scope; but remains to narrow it down to be essentially a product. Table 1 presents such attributes associated with strategic intelligence.

Table 1. Strategic intelligence attributes.

Attribute	Core elements
Nature	Comprehensive and thorough Based on specialized methodologies Anticipation driven
Object	National Security Development
Role in decision-making	Inform strategy and policy design
Purpose	Threats and risks prevention
Scope	Short, mid and long term Systemic: social, economic, political, environmental, etc. Internal and external phenomena

Author’s elaboration based on
Goldman & Maret, 2016, p. 534; CNI, 2020a, p.2-4

As shown in table 1, when referring to strategic intelligence an idea of more refined, evaluated and comprehensive information is presumed. In the same way, its anticipation nature tends to be more emphasized, nevertheless it remains to be mainly considered as a product intended for threat and risk prevention, as well as to inform decision-making on National Security matters, but also –in some cases– on development issues. In this sense, the predominant state-centric nature of strategic intelligence exclusively serving the central government, needs to be highlighted.

The expansion of the concept’ scope includes a larger long-term view and a systemic approach, where social, economic, political, environmental, and other dimensions are considered. This involves a broader comprehensive approach of both internal and external phenomena. In this sense, an evolution of the

¹ Definition based on the 11/2002 law, which regulates the National Intelligence Centre.

² Definition based on Mexico’s National Security Law.

concept is to be noted: more recent definitions of strategic intelligence include aspects related to knowledge, foresight or governance. This evolution also involves its adoption and development within the corporative field.

The context of strategic intelligence in Guatemala

In the case of Guatemala, strategic intelligence has been addressed in two forms: from an institutional perspective, as one of the functions of the Executive power, for which specialized agencies have been created; and, from a normative perspective, as the set of duties assigned by law to such institutions (InterPeace, 2002, p.31). However, there was not explicit definition of intelligence or strategic intelligence until 2008 when the Guatemalan Congress approved the Framework Law for the National Security System.

This law institutionalized a democratic perspective and a systemic approach to the country's security sector, one that had traditionally been defined by its authoritarian instrumentalization and siloed operating. This model defines four areas or subsystems, being: internal security, external or foreign security, risk management and civil defence, and State's intelligence. The latter defined as:

The institutional capacity of the State, in accordance with the law, to have timely, truthful and relevant information regarding internal and external threats, risks, and vulnerabilities, for decision-making in order to guarantee the National Security through the fulfilment of the intelligence cycle.

It constitutes the set of special powers and procedures assigned, by law, exclusively to specialized public institutions, so that they may carry out, in differentiated areas, the obtaining of information, its analysis and its transformation into a useful product for decision-making.

(Framework Law for the National Security System, articles 21 & 23)

Note that this definition maintains the institutional and normative nature mentioned before. It also shares attributes such as its role in decision-making; a threats, risks, and vulnerabilities anticipation purpose, as well as an internal and external phenomena scope. Two particular elements in this definition are worth special attention: a) its conceptualization as a capacity, which involves a dynamic and adaptative approach understanding intelligence as a sustained potential to generate results rather than a specific output or product; and, b) the reference to the intelligence cycle, a traditional approach to intelligence that implies a tension with the intelligence-as-a-capacity approach. This tension will be further addressed later.

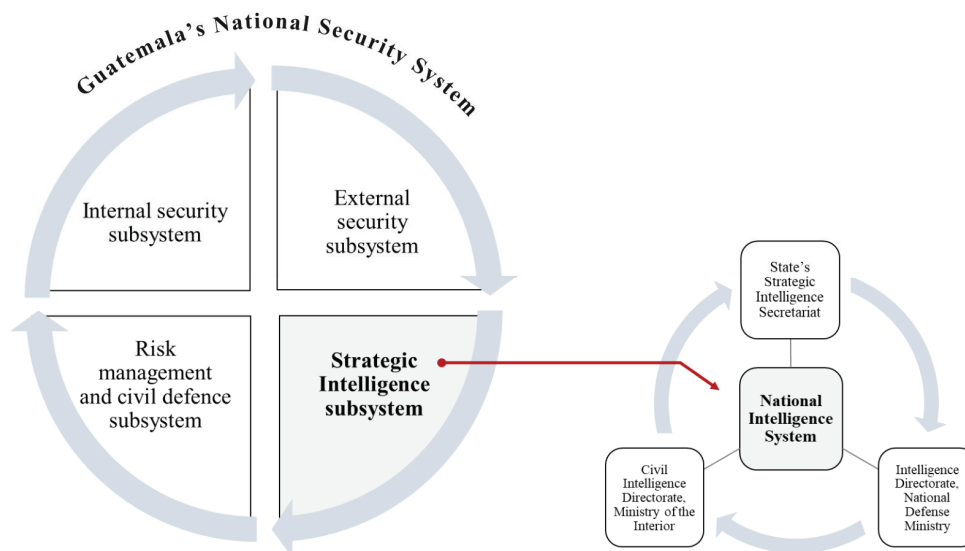
This law involved a new model for National Security and intelligence, therefore the creation of new institutionality to support it. Among this new institutionality, the National Intelligence System was created and defined as:

...the ensemble of institutions, procedures, and regulations that address, in a preventative manner, the threats and risks to the security of the Nation, through the necessary coordination of the functions of strategic, civil, and military intelligence, as well as of each of them within their respective fields of action...

(Framework Law for the National Security System, article 24)

The National Intelligence System integrates three institutions: The State's Strategic Intelligence Secretariat, which coordinates it; the Civil Intelligence Directorate of the Ministry of the Interior, and the Intelligence Directorate of the National Defense Ministry General Staff. The law also mandates all institutions to provide information to the State's Strategic Intelligence Secretariat and collaborate with its functions. Figure 1 represents the integration of the National Intelligence System and its connection with the National Security System framework.

Figure 2. The National Intelligence System within the National Security System framework.



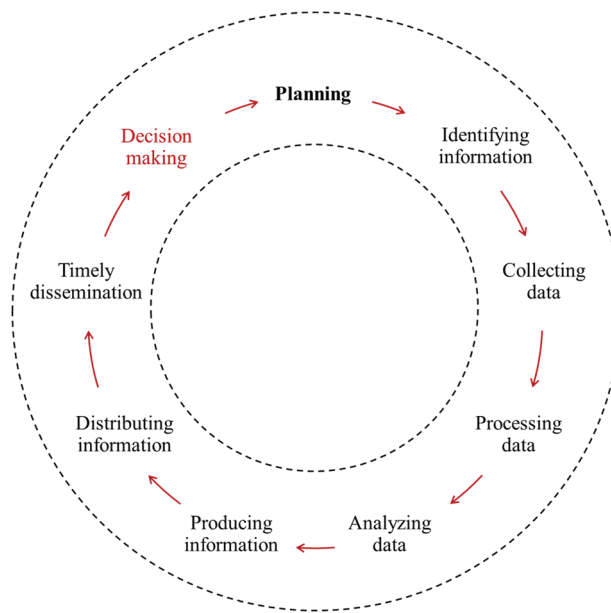
The National Intelligence System is obliged to coordinate functions such as guiding the search of strategic information related to the national and international context, as well as interagency cooperation and efforts to produce intelligence and counter-intelligence, among other functions. To fulfil this purpose, the traditional intelligence cycle is followed. This can be defined as:

...the set of activities carried out by the institutions that integrate the National Intelligence System, which include: planning, identifying information, collecting, processing, analyzing, producing, distributing, and disseminating information in a timely manner for decision-making at the highest level of the National Security System.

(Framework Law for the National Security System, article 2)

Figure 3 represents the different phases of the intelligence cycle. One of its main characteristics is the focus on information, showing a significant gap towards knowledge production and management; but also, towards capability development.

Figure 3. Intelligence cycle.



Reframing strategic intelligence: beyond the intelligence cycle

The intelligence cycle model has contributed a practical day-to-day approximation to intelligence communities, however its sequential and somehow simplifying logic limits the possibility of an information-to-knowledge qualitative leap. To this purpose, a different approach is needed: understanding intelligence as a *capability*, rather than an isolated product. A capability involves the “integration of knowledge, skills and personal qualities used effectively and appropriately in response to varied, familiar and unfamiliar circumstances” (Nagarajan and Prabhu, 2015 cited by Galagan et. Al., 2020, p.7) In this sense, intelligence as a capability should provide organizational elements for adapting and moving to meet future needs.

The importance of strategic intelligence derives from the role it plays in decision making and planning based on forecasting. It contributes to crisis management as well as to face potential external threats effectively, helping to build readiness to stop threats or adapt to them, reducing losses to the minimum possible. Strategic intelligence as a capacity involves the ability to anticipate, gain advantage and develop human resources through acquired skills (Hadi, J. & Salim, S., 2023, p. 149). Strategic intelligence as a capability contains at least five dimensions:

- a. Foresight: the ability to theorize about the future based on quantitative or qualitative information, and exploring possibilities and alternatives about a particular phenomenon
- b. Visioning: the ability to imagine a view of the future, consisting in a set of fundamental principles and goals that guide strategic planning
- c. Partnership: the ability to establish strategic alliances in order to reduce risks and threats, but also to add value and additional strength that helps achieve goals and reach success towards a specific vision.
- d. Systemic thinking: is the ability to understand the interaction or interdependence between elements and then analyzing them together as a coherent and integrated whole.

- e. Motivation: a set of interests, incentives, and goals that drive strategic decisions and actions according to a common vision.

(Hadi, J. & Salim, S., 2023, p. 150-151)

These dimensions provide useful elements to explore a more dynamic model on strategic intelligence analysis. Special emphasis should be drawn to the foresight, visioning and systemic thinking dimensions as the basis for understanding strategic intelligence as an *anticipation capability*. In that context, strategic intelligence is useable knowledge that supports policy makers in understanding the relevant aspects and scope of the impacts of diverse phenomena and their potential future developments. It recurs to robust tools such as horizon scanning, advanced data analytics, forecasting to anticipate³ future challenges and inform governance strategies (Tönurist, P., & Orlik, J., 2025, p.11).

An ecosystem model for knowledge-based anticipatory governance

To reframe strategic intelligence as an anticipation capability, an ecosystem and a knowledge-based view are pertinent. Knowledge ecosystems often refer to a “heterogeneous set of knowledge intensive [parties] ... that depend on each other for their effectiveness and efficiency and as such need to be in close proximity” (Van der Borgh et al., 2012, cited by Öberg & Lundberg, 2022, p. 295) The knowledge-based view helps to describe different characteristics of knowledge and the ways by which it develops, transforms, its transferred and integrated within a knowledge ecosystem.

Additionally, an anticipatory governance view contributes to further develop on a knowledge-based ecosystem construct for strategic intelligence. Anticipatory governance emphasizes “the use of strategic foresight to perceive, make sense of, and act using insights of possible future changes in the present, and then developing government policies and programs to address them” (Tönurist, P., & Orlik, J., 2025, p.8). From this perspective, strategic foresight is systematically embedded throughout the entire ecosystem, including institutional and governance architecture, policy analysis, engagement, and decision-making. There are five key dimensions of anticipatory governance that directly relate to the strategic intelligence as a capability framework:

- a. Future-readiness: policy and decision-makers take into account and proactively address possible future scenarios and events, rather than reacting to unexpected events.
- b. Innovation: strategies and policies provide room for identifying and introducing new solutions rather than replicating existing solutions.
- c. Endurance: strategies and policies are resilient against future challenges and able to withstand unexpected changes, rather than only responding to immediate needs.
- d. Long-term perspective: policies reflect long-term perspective and consider the needs of societies across time and policy siloes, beyond the current agenda and electoral cycle.

³ Anticipation refers to “the act of creating actionable forward-looking knowledge about the future drawing on the existing contextual factors, values and worldviews, assumptions, and range of emerging developments” (Tönurist, P., & Orlik, J., 2025, p.11).

- e. Direction: policies are oriented around clear visions for the future developed by multiple actors, increasing policy coherence and legitimacy, rather than being captured by the interests of narrow circles.

(Tönurist, P., & Orlik, J., 2025, p.8).

Building from the integration of these perspectives, a dynamic knowledge-based anticipatory governance ecosystem can be outlined as presented in figure 4.

Figure 4. Anticipatory knowledge-based ecosystem.

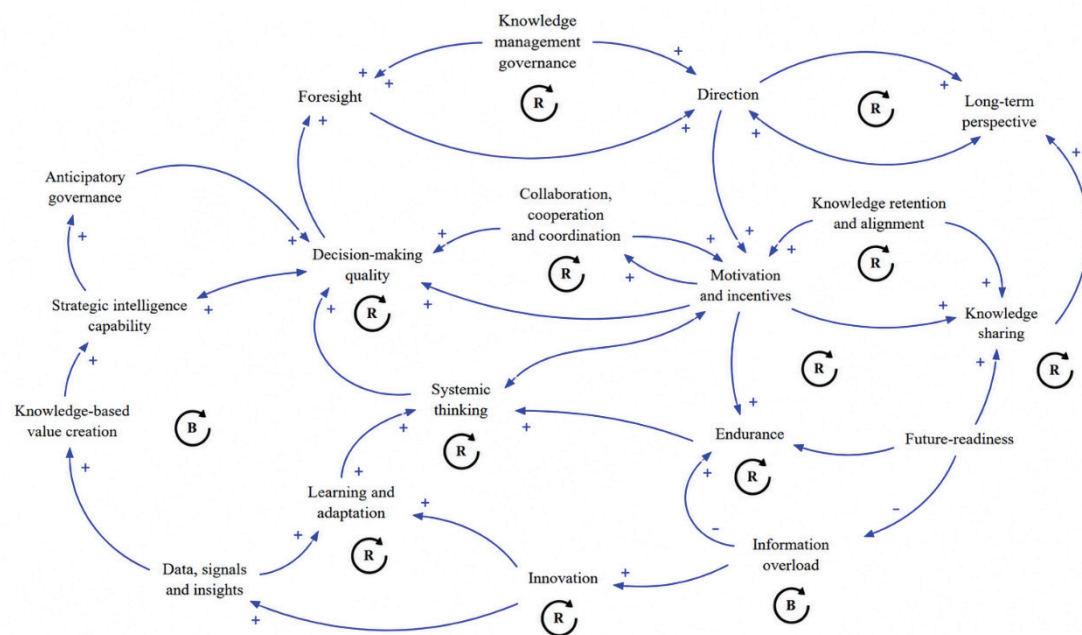


Figure 4 presents a casual loop diagram of the conceptualized anticipatory knowledge-based ecosystem model for the National Intelligence System. The diagram connects key variables showing different reinforcing (R) and balancing loops (B). Reinforcing loops connect positive relations that leverage the system growth, while balancing loops include certain regulating mechanisms that balance the system.

Four main reinforcing dynamics are present:

- a. Strategic intelligence as an accumulative institutional capability, improving anticipatory governance and decision-making quality;
- b. Data, learning, value creation and systemic thinking enhancing strategic intelligence, might be considered the core of the ecosystem;
- c. Visioning, direction and motivation converting to sustained collective action, improving decision-making and foresight;
- d. Knowledge management governance providing incentives for knowledge sharing and enabling future-readiness and endurance.

The main balancing dynamic refers to information overload moderating the knowledge sharing and learning loop. It also affects the future-readiness and endurance loop, and the knowledge-based value creation loop.

The proposed anticipatory knowledge-based ecosystem model for strategic intelligence as a capability, should be understood as an exploratory representation. While it seeks to highlight potential reinforcing and balancing mechanisms, further research is needed to validate these relations and underlying dynamics.

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