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Rethinking Time: Adopting a Mindset for Interpreting Threats and Imagining Opportunities

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U.S. intelligence analysts sometimes mirror-image their own sense of time—how they relate to the past, present, and future—onto actors of national security interest, creating misunderstandings that can skew judgments. This *Research Short* offers a conceptual framework of temporal complexity that analysts can use to consider how these actors perceive their place in time and, thus, to better understand the actors' mindsets; the context within which they operate, including their differing cultures; and the factors involved in their decisionmaking.

Experience of Time

Borrowing from the discipline of geography, an individual's, group's, or government's physical, cultural, and social environment can be metaphorically described as its landscape. Unlike the more visible aspects of one's landscape, the temporal aspect is largely internal and subjective (i.e., how one thinks about time and how time enters into one's value system),¹ and therefore, it is unseen. As a result, time has been largely overlooked in understanding how actors think and behave.²

IC analysts and others who inform U.S. policymaking can run afoul in applying the concept of time to their assessments of national security-related actors. A lessons-learned study of the 2003-04 analytic support to Operation IRAQI FREEDOM (OIF) showed that quite a few analysts mirror-imaged their sense of history and time onto adversaries. As a direct result of assuming that the foreign actors also viewed time as linear and made their decisions based on an always-moving-forward concept of linear time (like a clock), the analysts' assessments often exhibited errors in judgment about adversary actions. A master's level course for senior officers and government civilians at a senior service college similarly made clear that the U.S. students had a very different view of the role of time than did their foreign military officer counterparts. Again, the U.S. students reflected a linear sense of cause and effect in evaluating the motivations and decisions of Russian, Chinese, and Middle Eastern state and nonstate actors, often leading to errors in judgment.

Social scientists from the fields of anthropology,³ organizational science,⁴ policy science,⁵ political science,⁶ psychology,⁷ research methods,⁸ and sociology,⁹ as well as intelligence professionals,¹⁰ have offered perspectives on how intelligence analysts can better understand the complexity of how actors think, behave, and make decisions. Few of their studies, however, have discussed an actor's experience of time or how the intelligence analyst's experience of time shapes perceptions of the mindset and behavior of state or nonstate actors.¹¹ This *Research Short* draws on academic research regarding concepts of time to fill that gap. It also offers a new framework for IC analysts and managers to develop a deeper understanding of the relationships that actors of national security concern—and IC analysts themselves—have with time and to use this understanding to strengthen their assessments and the analytic process.

Temporal Complexity: A Mindset for Thinking About Time

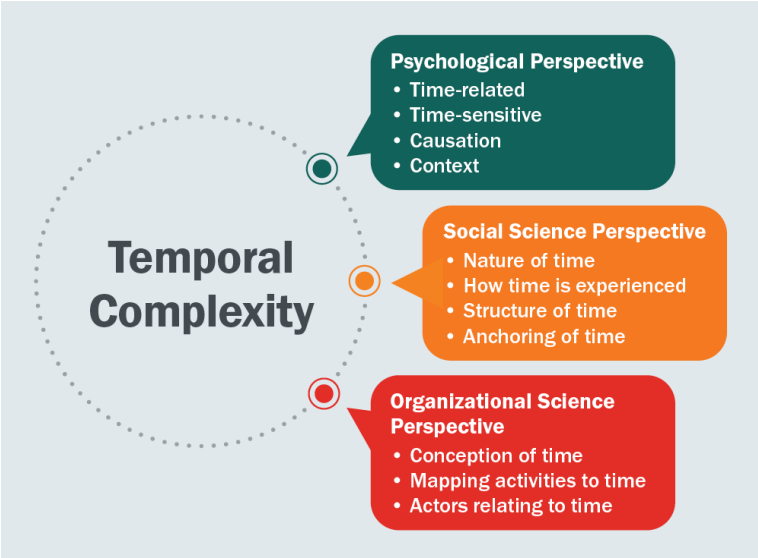
What is time? The conventional Western view is that time is objective and one-dimensional: it is physical and linear, and it is experienced the same way by everyone.¹² However, drawing from behavioral and social science, time is understood to also be subjective: time is a social phenomenon ingrained in specific contexts, and it varies by person, group, and society.¹³ Its effects influence an analyst's understanding of the adversary as well as the process of analysis.

Viewing time as subjective adds richness to the description of actor mindsets, behaviors, and contexts, known as “temporal complexity,” and therefore, potentially yields a more accurate understanding of a situation, event, or interaction.¹⁴ “Temporal” refers to how we think about and experience time, and how we relate to and interact with time.¹⁵ “Complexity” takes into account multiple outcomes, the multiple ways to achieve these outcomes, the conflicting

interactions among ways to achieve multiple outcomes, and the uncertain and ambiguous connections among the various ways and outcomes.^{16, 17} Figure 1 summarizes the ways that time can be perceived, as gleaned from different academic perspectives.

Considering these perspectives as interpretative lenses benefits the work of intelligence analysts by applying temporal complexity to assessing and anticipating the threats posed by actors of national security concern or identifying opportunities to shape the responses of other actors. To illustrate, from the psychological perspective, taking *time sensitivity* (i.e., the actor’s perceived time constraints) into account can strengthen an IC analyst’s assessment of the timing, scale, and scope of a strategic threat. For example, while the American sees time as an expensive commodity that should not be wasted, the Chinese are more likely to take the historically long view and see an abundance of available time to consider all options. *Time flow* (i.e., whether and to what degree the present stands alone or connected to the past and/or into the future), from the social science perspective, can shed light on an analyst’s assessment of what and how events from various time perspectives motivate the actor. For example, how will the Greek-Turkish dispute over the definition of an exclusive economic zone (EEZ) be resolved when Greece relies on its interpretation of the 1982 United Nations Convention on the Law of the Sea (UNCLOS), which creates separate EEZs around each Greek island in the Aegean Sea, while Turkey refuses to be bound by the modern constraints of UN law and adheres to the traditional division of the Aegean Sea into two equal parts? The organizational science perspective offers *conceptions of time* (i.e., views about how time passes) as a way to better understand analyst’s assessments of a culture. For example, while developed Western societies tend to be driven by the regularity of clock time, remote and developing societies may understand time according to interpretations in nature, traditions, and their local context. (For definitions of each temporal complexity element featured in Figure 1, please see the Appendix.)

Figure 1. Temporal Complexity



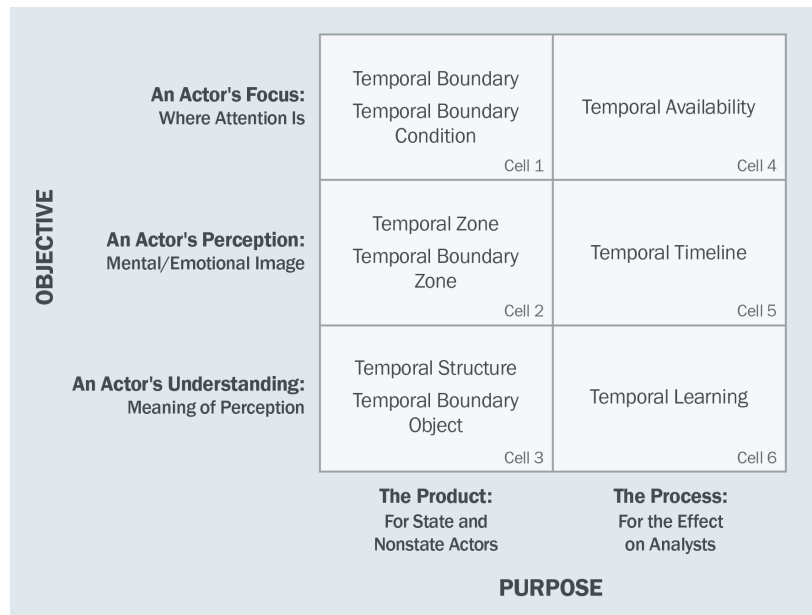
Framework for Applying Temporal Complexity

To facilitate adding temporal complexity to the IC analytic toolkit, the following framework (see Figure 2) offers a set of temporal concepts (e.g., “temporal boundary” in cell 1), based on the dimensions of objective and purpose. Because these concepts are insensitive to specific cultures and societies, they can be used for any objective or purpose. The objective dimension reflects the actors’ focus, perception, and understanding. An *actor’s focus* aids the analyst in recognizing

what changes in the actor’s environment may have captured the actor’s attention because they affect the stability or pace of change in that environment. An actor’s *perception* encompasses the mental or emotional images, such as a shared perspective of time, that influence the actor’s decisions and courses of action. An actor’s *understanding* helps the analyst interpret the meaning the actor attaches to that mental or emotional image and, therefore, how the image guides the actor’s behavior.

The purpose dimension provides a choice in applying the framework: (1) to support the accuracy and completeness of the intelligence *product* that assesses the actors’ intent and readiness to take actions of national security interest (cells 1-3), or (2) to examine how analysts think and to strengthen the intelligence analysis *process* (cells 4-6). The concepts identified in cells 1-6 are not all-inclusive, but they suggest how a framework for temporal complexity can be helpful to analysts for not only understanding threats, but also for thinking about opportunities for collection, policy, and operations.

Figure 2. Framework for Applying Temporal Complexity



Strengthening an Analytic Product

The concepts of *temporal boundary* and *temporal boundary conditions* (cell 1) provide insight into an actor’s focus (e.g., the information or events to which the actor is paying attention) and can help analysts provide warning of pending events and their likely impact.

- Temporal boundaries can help analysts measure the degree to which select events and cultural norms will fuel change—and the speed and duration of that change—in their target actor’s environment.¹⁸ Changes—such as regime change—made through social or political events can happen more quickly than changes spawned by planned policy or technology advances. Changes influenced by cultural or geographical patterns take a longer time.
- Temporal boundary conditions can help set the range for evaluating, from an actor’s perspective, to what degree the target environment is stable or in flux.¹⁹ One way this can be detected is by observing the flow of information or exercise of control within a group or organization. For example, when a disruption to leadership takes place, detecting top-down flow of control would indicate organizational stability and the leadership change is likely to take hold quickly, whereas detecting a bottom-up flow of suggestions would indicate instability and a longer period of leadership disarray.

The concepts of *temporal zone* and *temporal boundary zone* (cell 2) provide insight into an actor's perceptions and can help analysts gauge the degree to which shared perspectives will influence the decisions made and actions taken by actors of national security concern.

- A temporal zone is the shared concept of time among groups of individuals.²⁰ The bond between two people or among a group of people will be strong if the individuals have the same conception of time but will be weak when their conception of time is dissimilar. For example, members of the Arctic Council—the eight countries of Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, and the United States, as well as the six Indigenous Peoples' organizations granted permanent participant status—have perceptions of time that vary along a spectrum from transactional to relational and value-based. Although climate change would appear to force all parties to action, understanding the members' relative positions on time can inform analytic judgments on the prospect of diffusing tension and fostering agreement on specific development plans for the Arctic region.
- A temporal boundary zone pertains to an individual²¹ and demarcates what that person perceives at any given time as the external environment, which has no effect on the individual, from what is exclusively within the psychological environment of the individual. Understanding the psychological or sociological context of the actor's placement in time can foster specific and relevant analysis of the actor's needs, motivations, and goals that informs national security policy. In contrast, the OIF lessons-learned study, cited above, showed how analysts struggled in interpreting the difference between intent—planning for the future—and capability—existing in the present—when developing their assessment of a possible Iraqi nuclear weapon program.

The concepts of *temporal structures* and *temporal boundary objects* (cell 3) provide insight into an actor's understanding of the meaning and value of shared images or events and can help analysts assess and even anticipate the actor's behavior.”

- Temporal structures are typically recurring activities that societies or organizations create that can have a direct effect on guiding and shaping behavior.²² Such activities include calendar cycles, seasonal events, holidays, meetings, and collective memories. If a holiday, for example, was very important to an actor, then the occurrence of or the meaning infused in that holiday would have a strong influence on the actor's decisions and behavior. During the NATO ABLE ARCHER exercise held in late 1983, Soviet misinterpretation almost led to nuclear war when the Soviet Union weighed several Allied-added elements, including a new form of coded communications, more heavily than the annual nature of this command post exercise and judged the United States was preparing a nuclear first strike.
- Temporal boundary objects are used in communicating between two or more individuals to achieve a common understanding.²³ This understanding can be reached because the objects are flexible enough for individuals to grasp their meaning within their own preexisting terms yet they also allow room for expanding that preexisting

construct. These objects can be tangible (e.g., a whiteboard, a map, a piece of software or hardware) or intangible (e.g., metaphors, music, spoken words, symbols). Temporal boundary objects allow individuals occupying different temporal zones—or holding different concepts of time, as noted above—to understand each other. An adversary’s war planning process is an example of a temporal boundary object because the process allows the various members of the adversary’s group to coordinate the sequence of events in the war plan. Analysts can evaluate the adversary’s war readiness by observing the degree of coordinated activity and, by extension, a shared concept of time within the adversary’s military. A lack of coordination in a sequence of events would suggest that members of the adversary’s military hold different conceptions of time and, therefore, execution of their war plan may be at risk.

Strengthening the Analytic Process

In self-reflexively examining how analysts think, with an eye to strengthening the intelligence analysis process, the concept of *temporal availability* (cell 4) provides insight into the environmental factors affecting an analyst²⁴—along a spectrum from tight to loose. Tightness imposes stringent deadlines, whereas looseness provides an openness to allow for reflection and deliberateness. Not having enough time will more than likely result in a shallow understanding of a complex problem and weak analysis compounded by inadequate imagining of risks and opportunities. When assigning tasks, IC managers may weigh the issue’s urgency against the degree of temporal availability needed for the analysts to deliver a thoughtful assessment, and analysts may advocate with managers and policymakers for the needed time. The issue of not having enough time and its negative effects on analytic production is a ubiquitous and well-documented concern of analysts.²⁵

The concept of *temporal timeline* (cell 5) provides insight into how analysts coming from different perspectives, different levels of understanding, and different missions can reveal their assumptions about the state or nonstate actors they are assessing.²⁶ Timelines incentivize dialogue, allowing analysts to understand and negotiate their different understandings of how time affects a situation, event, or activity. Collaborating analysts can ask: what assumptions are being considered by each participating analyst of the historical causes, the description of the situation in the present, and the implications for the future? Such a timeline approach can motivate analysts to productively explore their differences and move toward a shared understanding. In a real-world example, a group of analysts—tasked to assess the effects of a large, NATO-planned exercise on a U.S. adversary—began by examining the relationship between the United States and this adversarial country over time. Visualizing the events displayed along a timeline enabled the analysts to solicit each other’s assumptions, which led them to determine which events were significant and, therefore, answer the question commanders asked: will the exercise incite the adversary? The answer was no.

The concept of *temporal learning* (cell 6) provides insight into how time—including duration, timing, and continuum—affects an analyst’s ability to learn within the timeline constraints of the analytic process.²⁷ Duration involves an understanding of how processes develop over time,

especially time for learning activities like experimentation and reflection. Timing involves temporal proximity, the time difference between thinking about something and doing something; crisis situations frequently yield short temporal proximity, whereas routine situations, where time is not a limiting factor, usually foster long temporal proximity. Continuum is the placement of an analyst's experience along the spectrum of the past, present, and future; no given point exists solely within the past, present, or future because any moment in the present extends from the past and anticipates the future. Analysts may challenge themselves by asking: to what degree am I drawing from my understanding of the actor's past—and my own past—in trying to make sense of the present motivations and activities of this actor of national security concern, and how valid are these interpretations? When assigning tasks, IC managers may factor an issue's complexity into their deadlines. Given the relative ease in identifying activity levels of people, vehicles, and other physical objects at a diplomatic or military facility, short proximity is more appropriate for concrete, measurable problems like "what is the purpose of that facility?" A long proximity is more likely to be needed for abstract concepts, such as "emergence." Emergence is a process that originates in a complex, novel situation—such as the 2011 Arab Spring—and terminates with the interaction of multiple behavioral factors. The traditional analytic frameworks of trend analysis or forecasting are inadequate for interpreting emergent behavior, which is creating something new for the first time and hence requires imagination and time to mull over the situation and explore risks and opportunities.

Outlook: Adopting a Mindset

The phenomenon of time has been largely overlooked by scholars and intelligence practitioners as an analytical lens for understanding behavior. Adopting a mindset of temporal complexity may be new to some IC analysts, but it more accurately reflects the breadth and depth of human behavior and therefore provides the opportunity to better assess that behavior.²⁸ This *Research Short* argues for the adoption of a temporal complexity mindset. It identifies a total of nine concepts, six of which can be used to augment an analyst's understanding of the intent and behavior of state and nonstate actors of national security concern, thereby strengthening the analysts' ability to anticipate threats and to conceptualize risks and opportunities into products that better inform U.S. policymaking. The remaining three concepts can improve self-awareness among the intelligence analysts themselves, fostering insights that can improve the analytic process.

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If you have comments, questions, or a suggestion for a *Research Short* topic or article, please contact the NIU Office of Research at NIU_OOR@dodiis.mil.

Appendix: Elements of Temporal Complexity

The author's empirical research on the emergence of insight in intelligence analysts inspired the searching, extracting, and organizing of social science literature on existing temporal phenomena, which form the basis of this theoretical essay and the design of a new framework for intelligence analysts' use. The phenomenon of time has been studied in social science disciplines since the mid-20th century. Although many studies have focused on the effects of efficiency in management- and organization-related activities following post-World War II industrialization, relatively few have taken the perspective of how we self-reflexively experience time and how we retrospectively and prospectively make sense of time. The lenses of psychology, social science, and organizational science offer insights into this subjective view of how actors experience time.

Psychological Perspective

From a psychological perspective, temporal complexity can be experienced in four ways: time-related factor, time-sensitive process, causation, and context.²⁹ *Time-related factor* is how an individual perceives the urgency of time, the pressure of time, the pressure of work-family time-related tensions, or the time-related dynamics as part of a group or organization, and how one divides up the past, present, and future. *Time-sensitive process* is the pattern or structure of time-constrained activities, which vary from simple to complex structures and from single to multiple activities. *Causation* is the determining connection between actions and events through time. *Context* refers to the factors within an individual's environment that affect that individual's behavior at certain times and vary across history, economic group, organization, and society.

Social Science Perspective

From a social science perspective incorporating ideas from anthropology, psychology, and sociology, temporal complexity can be experienced in five ways: nature of time, how time is experienced, time flow, structure of time, and anchoring of time.³⁰ The *nature of time* is the difference between experiencing time as dependent or independent of events and objects. *How time is experienced* can be viewed objectively—through an external measuring device like a clock—or subjectively—through the interpretation we assign to events and objects. *Time flow* is whether time is perceived as every moment is new, as moments repeat (e.g., cycles of events), or as punctuated time (e.g., repetitive events occur but infrequently). *The structure of time* is whether time is perceived as discrete and equal-duration units, a continuous flow that cannot be broken into units, or discrete units but whose length varies based on one's experience. *Anchoring of time* is time perceived as a reference point in the past, present, or future.

Organizational Science Perspective

From an organizational science perspective, temporal complexity can be experienced in three ways: conceptions of time, mapping activities to time, and actors relating to time.³¹ *Conceptions of time* include the type of time: clock time (quantifiable, regular, and precise); cyclical time (repeats); nature of time (objective or subjective); and nature of cycle (length of

time cycles, be it a person's life or a person's daily activity). Conceptions of time also include the social construction of time. Many Western societies experience time as linear, while others experience time as nonlinear. *Mapping activities to time* involves how time is associated with events. For example, for a specific event, we can focus on how long the activity lasts, and the rate at which the event takes place. Or something may happen during the event that changes the event's effects on individuals, groups, or society. Alternatively, multiple events could be held by a group or organization for which the sequence of activities or the degree to which the events are synchronized is important. *Actors relating to time* includes how actors perceive time and how actors interact with time; these actors can be individuals, groups, organizations, or societies, and their perceptions might include how time passes, how time drags on, time in retrospect, and the newness of a particular moment in time.

Endnotes

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