

2017 Award Winner
USAWC Student Awards Program

Time: Exploring the 4th Dimension
of Strategy

by

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United States Army War College
Class of 2017

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REPORT DOCUMENTATION PAGE			Form Approved--OMB No. 0704-0188		
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1. REPORT DATE (DD-MM-YYYY) 01-04-2017		2. REPORT TYPE STRATEGY RESEARCH PROJECT		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE Time: Exploring the 4th Dimension of Strategy			5a. CONTRACT NUMBER		
			5b. GRANT NUMBER		
			5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S) Mr. Joseph Andrew Brooks Defense Logistics Agency			5d. PROJECT NUMBER		
			5e. TASK NUMBER		
			5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Colonel Doug Douds			8. PERFORMING ORGANIZATION REPORT NUMBER		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army War College, 122 Forbes Avenue, Carlisle, PA 17013			10. SPONSOR/MONITOR'S ACRONYM(S)		
			11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
12. DISTRIBUTION / AVAILABILITY STATEMENT Distribution A: Approved for Public Release. Distribution is Unlimited. To the best of my knowledge this SRP accurately depicts USG and/or DoD policy & contains no classified information or aggregation of information that poses an operations security risk. Author: <input checked="" type="checkbox"/> Mentor: <input checked="" type="checkbox"/>					
13. SUPPLEMENTARY NOTES Word Count: 5464					
14. ABSTRACT Time is tacitly understood and often taken for granted; it is a complex multi-faceted construct that must be fully understood for cogent strategy formulation. Through a multidisciplinary survey of the fields of history, anthropology, science, sociology, and psychology, this paper aims to provide strategic leaders with a deeper understanding of time's many facets. Moreover, this paper enriches the strategic planning process by exposing the assumption of absolute time. Time is not absolute; it is relative to the observer scientifically and culturally. This paper helps strategic leaders grasp with the unexplored frontier of relative time. This paper also identifies the possibility that leaders can make use of national instruments of power to strategically manipulate time to achieve their ends.					
15. SUBJECT TERMS Conflict Duration, Ethnography, Cross-Cultural Savvy, Relativity, Einstein					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES 29	19a. NAME OF RESPONSIBLE PERSON
a. REPORT UU	b. ABSTRACT UU	c. THIS PAGE UU			19b. TELEPHONE NUMBER (w/ area code)

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(5464 words)

Abstract

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Time: Exploring the 4th Dimension of Strategy

Time plays a central role in the life of a nation, its culture, its security, and its international relations. Time is always a factor in operational planning, but it is often taken for granted strategically. The works of Sun Tzu, Mahan, Clausewitz, and other theorists note that the course of a conflict is driven by the characteristics of the people involved—to include cultural aspects.¹ Time is relative, not only scientifically but in how it is perceived among individuals and cultures. For strategic leaders, understanding time is a critical competency.

Humans have a compound understanding of time; it is both a scientific metric and an intrinsically subjective construct. We can measure it and track it with increasing precision, yet the more we understand time—the less absolute it becomes. While everyone can measure time, fundamental perceptions of time differ. These temporal asymmetries are often prominent in protracted conflicts. As the Taliban claimed: “The Americans have a clock, but we have the time.”²

Temporal asymmetry is more than just a different state of mind, it has practical manifestations, including affairs of the state. States measure and track time differently. For example, Saudi Arabia only recently abandoned the Islamic calendar for the Gregorian calendar used by America and the West. What is even more striking is that Saudi Arabia was not the last holdout from the Gregorian calendar; it is the year 1395 in Iran, 5776 in Israel, and 2559 in Thailand.³ The construct of time, as well as how it is observed and applied, affects humanity in profound ways that cannot be seen by noting differences in calendars.

Time and how its perception has a profound impact on the course of human life. Edward T. Hall concluded, “Time is not just an immutable constant, as Newton

supposed, but a cluster of concepts, events, and rhythms.”⁴ Time and our perception of it is fundamentally tethered to our understandings of science, our relationship with technology, as well as our sociology, culture, and environment. Given its omnipresence, it stands to reason that time and how it is perceived play a critical role in understanding conflict and formulating strategy.

Strategic leaders must abandon the assumption that time is accounted for and perceived uniformly across populations. Understanding how a group, friend or foe, accounts for and experiences time can provide deep strategic insights. As Edgar H. Schein concludes: “The perception and experience of time are among the most central aspects of how any group functions. When people differ in their experience of time, tremendous communication and relationship problems typically emerge.”⁵ Despite its criticality in human affairs, concisely defining time is difficult.

What is Time?

Telling the time is easy; defining time is much harder. Most simple dictionaries hold time to be a measurement of past, present, and future. Definitions of this type do not clarify the word’s deeper meaning. Science allows us to understand that time is not a natural given; it is a human creation that is relative to the observer. Time is a human social construct derived from history, religion, science, and technology.⁶

Time: A Brief History of the Construct

The idea of time evolved differently throughout the globe, but there is a common developmental path. Time as a construct links human existence to the natural world, celestial bodies, and spiritual realm. Babylonian, Egyptian, and Greek efforts to understand time and track its passage formed a backbone of what Renaissance Europe would develop into the modern Western construct.

Dating back to 3,000 BCE, the Sumerians and Babylonians used their sexagesimal (1/60ths) system to chart the movement of the sun and stars. The sky was divided into degrees, minutes, and seconds.⁷ While precise horology—the study and measurement of time (using minutes and seconds)—remained beyond reach, Babylonian efforts culminated in the development of a 12-month calendar.⁸

Time was very much a God-given cycle to Egyptians; whose primary aim was to understand and predict natural events—the flow of the Nile and the changing of seasons. Scholars credit the Egyptians with the 365-day year and cite duodecimal (1/12ths) sundials from ancient Egypt (1500 BCE) as precursors for the 24-hour day.⁹ Given their solar reliance, the duration of the hour was not standardized, and Egyptian horology lacked precision after sundown. Nocturnal Egyptians would track time with the moon, stars, water clocks and other gravity-driven time approximators.¹⁰ More than a millennium later, the Greeks would synthesize Babylonian and Egyptian time concepts in an attempt to better reconcile the interplay between their gods, their world, and the cosmos.

By 127 BCE, the Greek scholar Hipparchus standardized the duration of an hour to allow for more accurate astronomical calculations.¹¹ This standardization was essential to Ptolemy's trigonometric calculations that in turn aided astronomers and navigators alike.¹² Even though the Greeks standardized its measurement, time remained the property of the gods.

The Greeks had two words for time: Chronos and Kairos. Chronos, named after the god who informs our modern image of Father Time, described time's sequential and unyielding flow. Meanwhile, Kairos described the opportune or historical moment.

Kairos was a fundamental concept in Greek philosophical notions of fate and destiny.¹³ Time was not just a fascination of the Western world; it was also tracked in China with zeal, albeit with less precision and persistence.

The Chinese, per imperial decree, developed the first functioning mechanical clock in 1094 CE to anticipate the movements of the sun, moon, and stars. However, no further effort was given to the mechanical clock as it was deemed too complicated and of little apparent benefit. For the Song and subsequent dynasties, water driven clocks were adequate for astrological duties.¹⁴

Given time's importance in tracking the heavens and setting horoscopes, the science and art of horology were controlled by the Emperor. In essence, the Chinese construct of time was more an instrument of power than a scientific pursuit. Central control over time in China continues to this day. Although the nation spans five geographic time zones, Chairman Mao directed it be further unified under one time zone. This attempt at control remains contested as the rebellious Uyghur population in Xinjiang pointedly track their own local time.¹⁵

While the Song Chinese shunned mechanical clocks, time telling technology would profoundly change Medieval Europe. European horology would expand upon Byzantine, Egyptian, and Greek efforts to understand and track time through accurate mechanical clocks. Beyond its technical and scientific impact, the mechanical clock would have profound implications for the structure of European society.

The Mechanical Clock – A Technology to Structure Society

To the early Europeans, time was larger than nature; it was tied to holy design. The Church sponsored much of Medieval and early Renaissance science and technology. As such, advances in horology were in the name and benefit of the Church.

As “idleness is the enemy of the soul,” initial developments in European horology were aimed at standardizing measurements and doling out time for work and worship.¹⁶ The Church’s desire to structure society was threatened by Pagan practices that tracked time through nature’s cyclical rhythms.¹⁷ The Church’s disdain for time’s cycle is evident in works as early as St. Augustine’s “The City of God.” In this work, St. Augustine makes it clear that linear time is the holy path and that “circuitous paths” of time are the work of “deceiving and deceived sages.”¹⁸ Religious desires for absolute notions of time promoted the refinement and propagation of the mechanical clocks in Europe.¹⁹

After 1320 CE, places of worship were equipped with mechanical clocks which alerted Europeans to the passing of time through visual and audible cues.²⁰ These clocks were developed based on Hellenistic calculations and were designed to correspond to astronomical movements.²¹ Church bells usurped the natural signs of time’s passing as Europeans organized their lives around the clock’s persistent and predictable pronouncements.²² This mass synthesis of technology and pious thought created the Western construct of time.

Time’s arrow and absolute time best characterize the Western construct of time. Time’s arrow maintains that time is an unrelenting, single progression that links past, present, and future in a causal string.²³ Time’s arrow conforms to deep Judeo-Christian beliefs of progression and underpins prevalent paradigms such as Newtonian physics and Whig History.²⁴ Stephen Hawking reckons that absolute time “is what most people would take to be the commonsense view.”²⁵ The European construct held time to be an immutable truth that cannot be challenged.²⁶

Following the larger Renaissance and Enlightenment trends, clock making, horology, and astronomy eventually became more secularized. New commercial sponsors of scientific and technological study championed the importance of the clock as it aided in navigation and trade. Navigationally, mechanical clocks had to divide the passage of time into more acute increments. The clock's increasing accuracy would reshape the order of society and our understanding of the universe.

Precise Time Changed Society and Our Understanding of the Universe

Modern scholars point to the development and proliferation of mechanical clocks as an essential development in Western society.²⁷ Mechanical clocks gave Europe a decisive advantage in cartography, navigation, and exploration from the 15th to 19th centuries. More precise ship bound clocks (losing only 1/10th of a second each day), such as the one invented by Englishman John Harrison in 1764, led to the “discovery,” or rather, the more precise application of longitude.²⁸ Longitude enabled more expeditions and trade missions. Clocks helped naval powers, like Britain, command the seas and with it diplomatic and economic power.

The clock and the pursuit of tracking time have allowed for greater compartmentalization and economization of labor hours.²⁹ While Benjamin Franklin is credited with publicizing the concept of time being money, it was the industrial revolution that anchored the conceptual linkage between the two in Western society.³⁰ Political philosopher Helga Nowotny directly addresses this: “In the machine (Industrial) age, the notion of the linearity of time prevailed because time, following the laws of economics was equated for the first time with money and made into a scarce resource. Time = money was at work in the motion of the machines.”³¹ Clocks and the pursuit of

time did not just change society through economics in the Industrial era; they also redrew boundaries.

The Industrial Revolution expanded production and shrank both time and space. Railways drastically reduced the transit time between towns and cities as compared with horse-powered contrivances. The effect of the railroad was dynamic and dramatic; it was characterized as the “annihilation of time and space.”³²

Before the railway, each city and town had a unique temporal identity; they set time to correspond with local observations. Clocks were set so that 12:00 PM marked the moment the Sun crossed the meridian at its highest elevation, i.e. noon. This municipal level arrangement with the Sun meant that towns further east would change hours earlier than those further west: Boston time would be 12:00 PM, whereas clocks in New York would simultaneously read 11:48 AM.³³ This variable time represented a challenge to both the practical aspect of coordinating transit schedules and the tacit assumption of absolute time.³⁴ This uniquely local time was short-lived, as railroad companies implemented their own standard times and lobbying governments to designate time zones. By 1884, the International Conference on Time Zones divided the world into 24 zones.³⁵

Albert Einstein, who changed our understanding of time, was born into a world of variable time and efforts to standardize time zones. It is likely that his Theory of Relativity was influenced by this rail-driven environment of temporal change.³⁶ Whereas the railroad “annihilated space and time,” Einstein would eventually bind the two together to form a fourth dimension of physics.

Space-time is comprised of four dimensions: X (horizontal, or in the case of navigation, longitude), Y (vertical or latitude), Z (depth or elevation), and T (time).³⁷ Space-time, which Stephen Hawking explains as “the four-dimensional space whose points are events,” is strikingly similar to earlier Greek notions of Kairos (the moment) rather than the immutable Chronos.³⁸ While the linking of space and time represented a cognitive leap, it was his theory of relativity that shattered Aristotle and Newton’s concepts of absolute time.

Einstein’s theory of relativity holds that time is affected by factors such as speed and gravity, allowing for a condition of relative time. Stephen Hawking summarizes relative time as “each individual has his own personal measure of time that depends on where he is and how he is moving.”³⁹ Increasingly precise chronometers have observed that time is slower on moving clocks than it is on stationary ones.⁴⁰ These observations disprove absolute time and confirm that time is relative to the observer.⁴¹

How is Time Perceived?

If physics maintains that time is relative to the observer, wouldn’t perception of its passing be just as, if not more relative? Academically, the answer to this question is “yes;” however, in practice, absolute time still reigns over our social thought processes. Our predisposition to such a concept—to the point where absolute time is a tacit assumption—blinds us to poignant ethnographic differences that separate us from our allies and adversaries. Time perception varies widely among different cultures and is critical to understanding the development and alignment of agendas, values, interests, goals, and, broadly speaking ... strategy.

Time Perception: A Cultural Divide

Time is a highly influential force on society. Per ethnographer Frank Dubinskas, time is “a guide by which social life is actively and intentionally shaped, a model for action.”⁴² Time perception is how a culture views time and is informed by that culture’s history, religion, sociology, and relationship with science and technology. Time perception, knowingly or unknowingly, guides human actions and decisions. Understanding a culture’s time perception is as important as accounting for its other cultural artifacts as it can provide profound insights into strategy.

From a survey of scholars, time perception is grouped into three overarching categories: linear time (i.e. monochromatic time), flexible time (i.e. polychromatic time), and cyclic time.⁴³ While these types are generalized, the consensus is that they provide a framework to compare time perspectives cross-culturally. In addition to linear, flexible, and cyclical time perspectives, social psychologist Geert Hofstede adds duration preference to the discussion of cultural differences. Hofstede and subsequent scholars point to multiple cross-cultural surveys which overwhelmingly demonstrate that there are cultural biases to the duration of an investment, conflict, or engagement both in measured and perceived time. These studies reinforce previously held notions that some cultures have a short-term orientation (STO) while others maintain a long-term orientation (LTO). STO cultures value quick results whereas LTO cultures are more patient, preferring to conserve resources and wait for progress towards their goals.⁴⁴ There is clearly a link between cultural perceptions of time and duration preference—these factors, and their interplay influence conflict and strategy.

In the West, particularly in countries with strong historical Anglo-Saxon ties, time is akin to money: it is spent, it is invested, and our use of it is tightly scheduled.⁴⁵ Linear

time cultures view time as a singular progression—an immutable arrow that proceeds towards the future. Linear time is the social manifestation of absolute time and time's arrow. Schedules—the tyranny of the clock—dominate planning in linear time cultures. Linear time is more tangible, measured, and thereby scheduled in increasingly smaller and more precise increments. Edward T. Hall writes that linear time is “a classification system that orders life” and adds that “monochromatic time is arbitrary and imposed... it is treated as though it were the only natural and logical way of organizing life.”⁴⁶

In linear cultures, tasks are scheduled in an ordered and sequential format.⁴⁷ People in linear cultures tend to focus and orient their actions on the near future and have an STO when considering investments, projects, conflict, and effort.⁴⁸ Linear time influenced strategies will likely focus on sequential ordering of ways and means to achieve near-term ends and stress adherence to a timetable. This is to achieve quick, orderly results. This desire for immediacy can be stifled by allies or adversaries with flexible approaches to time and LTO.

Flexible time cultures, like those found in Latin America, the Mediterranean, Middle East, and parts of Asia, tend to view time as not just one arrow, but multiple simultaneous arrows. Rather than satisfying ordered agendas, flexible time cultures focus on developing long-term relationships and the total number of tasks that can be accomplished over longer periods. Flexible time cultures are averse to measuring, as well as attempts to control time; linear time encourages focus on a single task, whereas flexible time encourages multi-tasking. Flexible time cultures also usually feature a much more centralized control/authority mindset and simple, flat command relationships.⁴⁹

The penchant to multi-task and greater tolerance of delayed gratification combined with LTO strategies enable people in flexible time cultures to focus on the present.⁵⁰ Aphorisms and expressions on time from flexible time cultures reflect this dichotomy: the Turks say “what flares up fast extinguishes soon,” while the Mongolian people hold that “profit always comes with a delay.”⁵¹ Flexible time influenced strategies will likely encourage wider participation and focus on achieving multiple results over a longer duration. Whether in cooperation or in conflict, strategic leaders adhering to linear time perspectives will often find themselves frustrated by the broad scope and the protracted nature of strategies authored by those adhering to flexible time.

Perhaps furthest from the linear nature of Western time perception, cyclic time cultures, like those found in East Asia, tend to embrace time’s cycle. Viewing time as a repeating progression, cyclic time cultures hold that humans do not control time; they flow with it. Time is rooted in larger concepts of nature.⁵² There is a higher emphasis on harmony and having individual efforts fit into the rhythm of life rather than shape it.⁵³ This focus on temporal balance is apparent in Buddhist principles of mindfulness. Whereas a person from a linear time culture may view a missed deadline as an opportunity lost, a person from a cyclic culture would wait for the chance to rise again.

People in cyclic time cultures tend to take time in making decisions and draw on connections and symmetry with the past.⁵⁴ Countries that embrace more cyclical notions of time, such as China, Japan, and South Korea tend to have a longer, more patient view of their labors and are considered to have an LTO approach with investments, projects, conflict, and effort.⁵⁵ Strategies informed by cyclic time, will likely make use of patience, cite historical analogies, and be more responsive and adaptive to abrupt

change.⁵⁶ Beyond broad cultural categorizations, the study of psychology provides some universal insights into how individuals perceive time.

The Role of Psychology on Individual Time Perception

Due to persistent and somewhat contradictory notions of mortality and afterlife, the human mind is a battleground between urgency and patience. Is time a destroyer, is it racing for or against us, or is it an omnipresent, yet ambivalent companion? At a certain level, it all depends on individual mindset and environment. Citing a broad survey of psychological studies and a wide range of other scholars, Psychologist Steve Taylor, argues in his book “Making Time,” that there are five fundamental psychological laws of time:

1. Time speeds up as individuals grow older;
2. It slows down as individuals confront new experiences and environments;
3. It speeds up when individuals are absorbed or obsessed;
4. It slows back down when individuals are unoccupied; and,
5. It stands still when individuals are in extremis.⁵⁷

While these laws are general and the understanding of the human psyche is a constantly evolving study, there is a certain intuitive appeal. Certainly, psychological factors influence those who shape strategy and those affected by any given strategy. Moreover, social and technological trends may heighten certain psychological factors of time perception.

Ubiquitous Technology’s Accelerant Effect on Time and Decision Space

Humanity’s relationship with time changed in 2007 with the invention of the smartphone. Borrowing from a phrase first coined in climate science, academics in economics and public policy have described the post-2007 world as ‘The Great

Acceleration.’ This Great Acceleration, in social science, describes a situation where the speed of information, due to ubiquitous technology, has drastically increased the rate of change.⁵⁸ Given this acceleration, individuals expect instant gratification.⁵⁹

In this new environment of acceleration and instant gratification, policy makers are compelled to speed up decision-making to keep pace.⁶⁰ This perceived need for greater urgency in decision-making amplifies already potent cultural dispositions towards STO. Once the standard in business and governance, today’s attempts to conduct five-year plans seem anachronistically measured and immobile as strategic leaders feel pressed to respond quickly to new information.⁶¹

The Great Acceleration also extends to conflict. The weapons of the cyber domain travel to their target at near instantaneous speed and information warfare is equally rapid and more powerful than ever.⁶² Taylor’s second, third, and fifth laws of psychological time are clearly at play as countries engage in cyber and information warfare. Cyber and information warfare actions are, in part, efforts to manipulate the decision environment at a psychological level. Finding their decision space beset with fast, changing information, decision-makers fear being left behind—they perceive that their time to decide and to act is running out. The Chairman of the Joint Chiefs of Staff, General Joseph Dunford recently testified that this is the case: “the pace of change has accelerated...Decision space has collapsed, and so our processes must keep pace with the speed of war.”⁶³ This increased need for quick decision-making may be the result of a contrived perception—the designed purpose of enemy action—and as such can be counterproductive. The strategic leader in crisis needs to detect this ruse and ensure or restore an atmosphere for deliberation.

Time in Strategy: Accounting for and Manipulating Preferences and Perception

The construct of time clearly impacts strategy formation at every level. To this point, this paper has provided an outline to enrich the strategic leader's understanding of time's construct, its history, and its role in science, technology, culture and society. The strategic leader must account for his or her own perception of time and preference for duration as well as the time perception and preference of allies and adversaries. Accounting for time perception and duration preference is not enough on its own to make Father Time (*Chronos*) your ally. Strategic leaders must also capitalize on momentum, or lack thereof, (*Kairos*) and manipulate time perception through the instruments of national power and psychology to best suit their ends, ways, and means.

Accounting for Perception and Preference: Knowing Yourself

Sun Tzu emphasized the value and importance of knowing yourself and knowing your foe.⁶⁴ Knowing yourself, understanding your people and their culture is of particular significance in a democratic system where the perception of the people is paramount. When formulating strategy, the strategic leader must account for their own perception of time and their preferences for duration.

Absolute and linear time is a tacit assumption at the center of American strategy. Decision-makers in America see time as a valuable and highly perishable resource. This is especially the case in politics where there is a "fierce urgency of now" and concerns about election timetables.⁶⁵ Accordingly, policy makers seek to manage and protect their time. Americans prefer quick outcomes and have a strong predilection for STO, especially when considering the accelerant effect of modern IT.

When Americans desire a change, they want it instantaneously. Patience is almost a quaint anachronism, and protracted negotiations and conflicts are often

regarded as unsuccessful blunders.⁶⁶ This desire for decisiveness has led to the adulation of leaders who take action. This decisiveness, however, can be a limitation, as it can artificially accelerate a conflict; in forcing early action before the opportune moment, *Kairos* has arrived. One of the most vexing challenges for the American strategic leader is striking a balance between deliberation and action. To find the time for critical thought, the American strategic leader should rely on the design of the government and its intrinsic system of checks and balances to regulate the pace of their decisions, actions, and by extension, the pace of conflict. Undue haste can also prevent the American strategic leader from understanding their allies and adversaries.

Accounting for the Perception and Preference of Others: Knowing Your Enemy

While America subscribes to absolute, linear time, and exudes a strong preference for STO, our adversaries may not. Different time perceptions and duration preferences influence the opposition's strategy. Strategic leaders must have a refined understanding of how their opponent views time. Previous studies are helpful, but outline matters in broad (East and West) and even sub-continental terms (East Asia, Latin America, Western Europe, etc.). These generalizations can be further refined to understand a given opponent. The following questions frame the temporal aspects of the environment, adversary, and conflict at hand:

1. How old is the conflict and is this conflict as existential to any party involved?
2. How old is the adversary's culture, nation, and state?
3. Is there a religious aspect to the conflict?
4. How does the adversary perceive time?
5. What is the adversary's duration preference—STO or LTO?
6. What is the role of technology in the conflict?

The broad goal of these questions is to help the strategic leader better understand his or her adversary and glean insights into strategy. These same questions can also be used to assess allied perceptions and preferences. A better understanding of time perception and duration preference allow strategic leaders to determine if they will face an opponent that will try to accelerate or decelerate the conflict to better suit their strategic needs and capabilities.

Understanding the history of the conflict and adversary is essential to strategy. A historical perspective is helpful in estimating the opponent's ability to endure conflict as well as understanding their cultural and psychological mindset. A newcomer to an old conflict may have milestones that are not synchronized with his or her allies' and may be potentially spoiled by a persistent and patient foe with the experience and expectation for a long, brutal conflict. Older nations, states, and cultures can have an extended multi-generational outlook on a given conflict and a greater endurance for protracted wars. Finally, if the conflict is viewed as existential to any party involved, America may have to confront or avoid a resilient, enduring pattern of resistance.

Just as religion played a decisive role in establishing Western constructs of time, religion may also play an important role in how the adversary and their people view time. Religious fervor can increase an enemy's resolve and prolong a conflict, especially if that religion grants them an eternal and bountiful afterlife. Time perception and duration preferences as discussed previously can also create a mismatch in objectives and strategy. Flexible time cultures may approach the conflict in a less structured, but more multi-faceted manner than America's linear default. Furthermore, cyclic cultures may be more reactionary than cultures that follow linear or flexible time.

Finally, as seen with the Great Acceleration's effect on American perceptions of time, technology plays a critical role in the way humans perceive time. Technology can also play a determinant role on the duration of a conflict. For example, conflict between nuclear powers has the potential of decisive brevity whereas a guerilla war can last decades without resolution. On the whole, it stands to reason that technological advancements provide a means for increasing the speed of conflict. Conversely, a strategy designed to deny an opponent's technological advantages may prolong a conflict so that it favors a less advanced but more resolute force—strategy can manipulate a conflict's duration.

Manipulating Time and Its Perception through Instruments of National Power

The strategic manipulation of time: the ability to increase allied decision space (decelerate the clock) or collapse adversary decision space (accelerate the clock) is essential. Humans pace interactions through balancing expectations and practical factors. Expectations are set by psychology, cultural norms, precedence, as well as notions of risk and opportunity cost. Common practical factors include environmental conditions, path dependent schedules, and limitations of endurance.⁶⁷ Anthropologist Pierre Bourdieu observes that while humans exert control over the nature, intent, and intensity of their interactions, the duration or interval of the interaction is often overlooked. This oversight is a critical shortcoming, as Bourdieu contends: "to abolish the interval is to abolish strategy."⁶⁸

The deliberate timing of action can increase, alter, or reduce the perceived nature, intent, and intensity of an interaction. While Bourdieu points to the role of time in common human interactions (the giving of a gift or escalation of a feud), the practice of using time to secure victory in sports is perhaps a helpful analogy to consider matters of

national security strategy.⁶⁹ The coach of a football team seeks to control the clock on game day. The coach understands his own team's preference but also remains flexible to adjust strategy if needed. The quick scoring, pass-oriented teams are usually STO in that they aim to establish dominance early and drain their opponents' resolve to outlast. Contrast this approach with the LTO of teams that feature the running game. Running teams aim to tire down their opponent physically. Despite initial preferences, each coach must have strategies to offset the other team's advantages. The coach must also adapt his strategy to game day conditions. They must decelerate the clock if they are behind or accelerate it if they are in the lead. In the context of national security, this manipulation or clock control can be accomplished through the various instruments of national power.

In conflict, the idea of manipulating the strategic clock dates back to the Quintus Fabius' tactics against Hannibal in the Second Punic War. Fabius knew he could not beat Hannibal in a decisive contest, so he prolonged the conflict to exhaust Hannibal of the resources and will needed to wage war.⁷⁰ Just as in ancient Rome, culture, psychology, and environment play an essential role in how an individual leader and his or her people experience time. The strategic leader may be able to use instruments of power to change their adversary's time perception and preference (LTO or STO).

Strategic leaders can develop strategy and design approaches that use diplomatic outreach, economic and financial measures, information operations, and military deterrence to give pause to aggressors and reassure the public that they have sufficient time to review options. Conversely, diplomatic rebuffs, acute sanctions, information access disruptions, and decisive military action can reduce the adversaries'

time to react (decision space). The following are 20th-century examples of the strategic manipulation of time:

- **Diplomacy:** In 1972, United States' President Nixon decelerates the clock vis-à-vis the Soviet Union with his visit to China. This action also produces an immediate improvement in relations with both China and the Soviet Union.⁷¹
- **Information:** In 1917, British Intelligence accelerates the clock on their adversary—Germany—when they share the Zimmermann Telegram with President Wilson. This telegram convinces America to declare war on Germany.⁷²
- **Military:** In 1967, Israel, believing that they would not survive an attack from Arab nations, accelerates the clock with decisive pre-emptive strikes.⁷³
- **Economic:** In 1941, The United States accelerates the clock with an oil embargo against Japan. Japan relied on U.S. imports of oil and only had a limited reserve supply. Projected shortfalls in oil accelerated Japan's timetables for war with the United States.⁷⁴

The embargo against Japan provides an example of how an action may inadvertently accelerate the clock. The embargo was intended to slow down the Japanese war machine, but it had the opposite effect.⁷⁵ These are mere examples of situations where national instruments of power were used to control the clock. More research is required to precisely understand how national instruments of power can be purposefully used to alter the strategic clock.

Conclusion

Understanding the clock—ours, our allies, and our enemies—is merely an extension of understanding the environment. Accounting for different cultural time perceptions is another dimension of empathy and cross-cultural savviness. The degree to which strategic leaders can escalate or de-escalate a conflict, accelerate or slow the tempo of operations, and even influence others' perceptions of time requires careful, critical thought. If nothing else, a greater understanding of the clock promotes patience and prevents strategists from becoming crisis managers. Cogent strategy requires a patient effort to understand ourselves, allies, partners, and adversaries. A better understanding of time and time perception will help strategists and leaders not only decide but choose when to decide, and if it is best to go short or long on conflict.

Time is commonly associated with limitations, deadlines, and restrictions. The United States with its vast and capable instruments of national power has the capability of controlling the clock in nearly every conflict, but its leaders must first realize that time and time perception is mutable. This paper's aim was to expose the tacit assumption of absolute time and demonstrate that time is relative. With that knowledge, strategic leaders can purposefully leverage the fourth dimension to meet their ends.

Endnotes

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¹⁸ St. Augustine, *The City of God and Christian Doctrine*, ed. Philip Schaff (Grand Rapids, MI: Eerdmans Publishing, 1886), 541.

¹⁹ Landes, *Revolution in Time*, 58-60. Note: The first historical reference to a mechanical clock dates back to 1094 in China – Su Sung created a mechanical clock at the request of the Emperor of China. Landes concludes that this invention fell out of favor as there was no cultural affinity for more precise measurement of time than was already provided to the Chinese by the water driven clocks of the era (pages 17-24 of *Revolution in Time*). Landes adds that one possible and likely motivation for precise mechanical clocks was a desire by the Holy Roman Church to synchronize worship times (pages 59-61 of *Revolution in Time*).

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⁴³ Reynolds and Valentine, *Guide to Cross-Cultural*, 26; Dubinskas, *Making Time*, 7; Schein, *Organizational Culture*, 127; Gould, *Time's Arrow Time's Cycle*, 10-13; Hall, *The Dance of Life*, 41-55; Note: The topic of cyclic time will be discussed in detail later, nonetheless, there may be unwritten disagreement on whether it is a category to the extent that linear and flexible time are agreed to be categories. Not all authors call out this category of time perception and rather prefer to use linear and flexible categories without a third category.

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⁴⁶ Hall, *The Dance of Life*, 45. While the quote is from page 45, pages 41-46 focus on monochromatic or linear time in good detail and Hall was one of the principle sources that I have used to understand and write on mono and polychromatic time.

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⁵⁴ Reynolds and Valentine, *Guide to Cross-Cultural*, 32-35.

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