

AT THE
SPEED
OF
IRRELEVANCE



HOW AMERICA BLEW ITS
AI LEADERSHIP POSITION
AND HOW TO REGAIN IT

AL NAQVI AND MANI JANAKIRAM

WILEY

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For Nur, Mahek, and Marya

Dr. Al (Ali) Naqvi

Dedicated to my wife, my son, and my parents

Dr. Mani Janakiram

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Preface

AS THE REVERBERATIONS ABOUT China's ascendancy over the United States in artificial intelligence are coagulating, America must consider the root causes of falling behind. The popular narrative is about China doing something magical to close the technological gaps. This book argues that America is losing the AI competition not because China is doing something extraordinary but because the American national strategy for AI is flawed.

There are many books on AI. There are many books on China's rise. But there is no book that explains why America is lagging in AI. Developing that perspective requires taking a bold stand and applying critical thinking.

We observed an overwhelming concern about China's rise in AI. From Congress to various government agencies, the threat of China's advancement in AI has led to rapid and hasty reactions and policies. But none of those reactions have taken a critical approach to uncover what are the root causes of falling behind.

The American Institute of Artificial Intelligence captures the adoption of AI across economies, industries, governments, companies, and agencies. Professor Naqvi is the CEO of AIAI and has authored several books on industrialization of AI. He is an AI industrialization expert. Dr. Janakiram offers a unique understanding of the semiconductor value chain. Bringing both ends of the spectrum—the AI software and the AI hardware—the authors take a critical approach to analyze the descent of American AI.

In our discussions with many Americans knowledgeable about the AI competitive dynamics, we observed tremendous unease about the Chinese AI advantage and the damage it will cause to American competitiveness in the long run.

We do not believe that ignoring what has transpired in the past will restore the future. Unless corrected, the mistakes of the past will shape the future. America will struggle to rise back up to the leadership position and

that will impact every other aspect of nation building. From political turmoil to economic decline and from social meltdown to national security collapse, AI has the power to impact all aspects of human life and institutions. Loss of leadership in AI implies a loss in everything else. Despite the importance of this technology, little planning went into how AI should be launched and socialized in America at a national level.

In America, the AI technology was launched with a narrative that repels rather than attracts interest, an R&D plan that constrains national adoption rather than encourage it, a national strategy that destroys value instead of increasing it. The result is a technology development model that favors monopolies and elite universities at the expense of American innovation and the American public. This creates social and economic inequality, wealth disparity, poverty, and plutocracy—and it weakens democracy.

The plan to restrict access to AI and to limit its nationwide growth has fallen on its face. Adversaries who may not have been liberal democracies have both liberated and democratized AI and solidified the future of their countries. America remains mired in its problems, uninterested, and uninspired about the greatest change ever in human civilization.

We also argue that the fundamental R&D system is due for a change in America. America has already experienced three R&D systems in the twentieth century. The R&D system includes both its processes and the funding model, and AI is changing both. Despite that, the investment model and approach of the Office of Science and Technology Policy (OSTP) remain antiquated. The OSTP appears as the greatest barrier to success in American AI. The office has overstepped its responsibility and has trodden into areas where it does not have any expertise: strategy development. In the end, the failed policies of OSTP are harming American national interests and giving China an easy victory.

We conclude the book by recommending an alternative path. Our tone in this book is critical and at times harsh. But that is intentional. We want the audience to recognize the importance of getting this right. America must move at the superspeed of relevance. Time is running out.

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Dr. Al Naqvi and Dr. Mani Janakiram

About the Authors



DR. AL (ALI) NAQVI

Dr. Naqvi is the founder and CEO of the American Institute of Artificial Intelligence. His work in artificial intelligence industrialization is globally recognized by scientific and professional societies, companies, agencies, and governments. He is the author of several books on artificial intelligence industrialization. With hands-on experience in machine learning product development and AI research, Dr. Naqvi leads a team of researchers who monitor and analyze the AI absorption and adoption across companies, industries, agencies, and countries. Dr. Naqvi sits on the boards of several AI companies, and he advises C-level executives, agency heads, and senior government executives on AI strategic industrialization planning. His doctorate research was on Discovering the Process for New Product Development (NPD) in Machine Learning Software. Dr. Naqvi presents at leading global conferences. He teaches at the American Institute of Artificial Intelligence.



DR. MANI JANAKIRAM

Dr. Janakiram is a Mfg. Supply Chain and Analytics executive and also an academician. His 25+ years of professional experience includes semiconductor/hitech, automotive and aerospace industries at Intel, Honeywell, and Motorola in supply chain, strategy, systems, analytics, manufacturing, and research, planning. He is on the adjunct faculty at Arizona State University and also taught at various schools, including MIT, and Thunderbird School of Global Management. Mani has two patents and has published over 100 papers on supply chain, statistical modeling, capacity modeling, data

mining, Lean Six Sigma, factory operations research and process control. He is an accomplished speaker and serves on several committees to advance practical application of AI and analytics in manufacturing and supply chain. Mani holds a PhD in Industrial and Systems Engineering from Arizona State University and an MBA from Thunderbird School of Global Management. He is a recognized Six Sigma Master Black Belt and an APICS certified supply chain professional. He was recognized by Drexel University and CIO.com as one of the Top 50 Analytics Executives and is also an ASCM Fellow.

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The Dawn of Irrelevance

FOR THE OUTSIDERS IT was an uneventful cloudy October Sunday in Washington, DC. Over the weekend, the Washington football team had lost to the New Orleans Saints. Baltimore, another local team from the DMV area, was supposed to play on Monday. No earth-shattering news was making the headlines. Ten months after what some media outlets termed the “insurrection,” American media was still obsessed with the domestic ideological wars. Sound bites from politicians were making rounds. Fights over *to mask* or *not to mask* were erupting all over the country. Despite a new wave of Covid claiming thousands of lives daily, traffic in restaurants and shopping areas was increasing. Amazon had started its Black Friday sales early. America had adjusted to a new normal. But unknown to most Americans, a fateful event had transpired that weekend. In contrast with the obliviousness of the American media, foreign media had a field day with the news about that story. As the history of this event will be written half a century from now, it would go down as probably the most solemn and depressing weekend for America. That was when Nicolas Chaillan, former chief software officer for the US Air Force and who oversaw the Pentagon’s cybersecurity efforts, announced, in no uncertain words, the surrender of the United States in the artificial intelligence (AI) war against China. He gave an interview to the *Financial Times*—his first after his sudden resignation in September of 2021—and stated, “We have

no competing fighting chance against China in 15 to 20 years. Right now, it's already a done deal; it is already over in my opinion" (Manson 2021). Chaillan's statement did not appear as a warning, or a battle cry, or some inspirational slogan to rise and claim back America's AI leadership. It was a cold, matter-of-fact, and outright acknowledgment that it was already too late to have any hope for sustained American leadership in AI.

Chaillan's capitulating comment came after he had expressed his frustration about the inertia in the government and had resigned by submitting a fierce resignation letter. His tenure with the government had lasted barely three years. Chaillan is a naturalized citizen and had become a US citizen in 2016. That didn't stop him from getting a top position with the government. Upon joining, Chaillan was shocked over the state of technology and saw that as an opportunity to bring about a cultural change. Strong-willed and inspired by a vision of transformation, he began acting as a change agent. But he recognized that the problems were far deeper than what he had thought. AI was being approached as any regular technology. Chaillan gave an account of what was transpiring. The organizational dynamics represented a bureaucratic nightmare. Unskilled people were made in charge, and while money was being spent, the procurement costs were high and funds were being allocated in the wrong areas. Most importantly, AI was not being viewed as a national priority. Before resigning from his position with the government and during a CyberSatGov conference, he had claimed that American national security satellite providers were unable to develop "at the speed of relevance" as they were stuck in the Pentagon's ecosystem. In other words, getting unstuck from the Pentagon's ecosystem implied achieving the speed of relevance.

On Monday morning after the Chaillan news hit the international press, Tom Albert, a friend of the American Institute of Artificial Intelligence and an AI entrepreneur (founder and CEO of MeasuredRisk), video called Al Naqvi (one of the authors), and expressed his frustration. Tom is passionate about creating and mobilizing American intellectuals to rise and fight back against the Chinese dominance in AI. He is putting together a major initiative to inspire American investors and entrepreneurs to develop more advanced AI capabilities. Tom carries a genuine smile and has a great sense of humor. He jokes frequently and laughs loudly. But his voice changes and his face turns red when he starts talking about the lack of visionary leadership for AI at the helms in America. With his fists clenched and teeth gritting, he complains about how America is self-inflicting this catastrophe upon itself. Several minutes into the conversation, he asked Al Naqvi the name of the book that Naqvi was coauthoring. Al Naqvi responded that the name of the book was *At the Speed of Irrelevance*, and that made Tom smile and he said, "It would have been

immensely funny if it wasn't so tragic." Tom and Al talked for over an hour, and Tom felt this book will be critical to drive hope and to inspire the nation. Tom is among a small number of Americans who understood what the term "speed of relevance" meant and its profound significance for AI and for the United States of America. America's last hope to maintain its global leadership position—the American AI—was in jeopardy. The great experiment was at risk.

AT THE SPEED OF RELEVANCE

Four years before Chaillan threw in the towel, then secretary of defense General James Norman Mattis issued a document in January 2018. This document was the first open and clear expression of a strategy to confront China's growing power. Titled "The National Defense Strategy" (NDS), it refers to the delivery of performance at the *speed of relevance*. That was the time when General Mattis and President Trump were still on good terms and President Trump bragged about his secretary of defense. The honeymoon didn't last, as a year later General Mattis resigned and gave a two-month notice. Feeling rejected and ignoring the notice, President Trump ended General Mattis's tenure immediately. Shortly after that, President Trump said that he "essentially fired him" and then in June of 2019 went after General Mattis again and said that he felt great about asking General Mattis to resign and that he didn't like General Mattis's leadership style and was happy that General Mattis was gone (Shane III 2019).

Regardless of President Trump's view about him, what is generally acknowledged about General Mattis is that he was trying to change the culture of DoD. The report signed by him said:

Deliver performance at the speed of relevance. Success no longer goes to the country that develops a new technology first, but rather to the one that better integrates it and adapts its way of fighting. Current processes are not responsive to need; the Department is over-optimized for exceptional performance at the expense of providing timely decisions, policies, and capabilities to the warfighter. Our response will be to prioritize speed of delivery, continuous adaptation, and frequent modular upgrades. We must not accept cumbersome approval chains, wasteful applications of resources in uncompetitive space, or overly risk-averse thinking that impedes change. Delivering performance means we will shed outdated management practices and structures while integrating insights from business innovation. (Mattis 2018)

While work on the American AI had begun before 2016, it was General Mattis's recognition that developing a technology first is not what will lead to America's victory; rather, what is critical is adapting and integrating new technologies. General Mattis was trying to evangelize the term "speed of relevance" to imply a more responsive way of delivering results and eliminating red tape and the typical government inefficiencies. Joe Dransfield analyzed the use of the term in an article that appeared on "The Bridge," an online publication of The Strategy Bridge, a nonprofit organization focused on the development of people in strategy, national security, and military affairs. Dransfield pointed out that Mattis had also used the term in his written statement to the House Armed Services Committee on February 6, 2018, and described it as his aspiration to move the Department of Defense to a "culture of performance and affordability that operates at the speed of relevance." In another document, Dransfield explains, Joint Chiefs of Staff General Joseph Dunford also used the term, but his usage seemed to imply improving the decision cycle, prioritizing and allocating optimal resources, and enabling better decision-making. Both Mattis and Dunford, Dransfield contends, used the term "as being an adaptation and an aspiration that is fundamental to gaining competitive advantage" (Dransfield 2020).

The term was instantaneously picked up by other agencies, the DC analysts, and supplier communities and quickly became a buzzword. Dransfield (and Chaillan's later statement) clarified that the US Air Force used it to signify technological transformation. The US Army interpreted it as human aspects of the speed of relevance. "The US Navy," Dransfield claimed, "tended to use former Chief of Naval Operations Admiral John Richardson's preferred nomenclature of 'high-velocity outcomes' to cover similar aspirations regarding the speed of relevance" (Dransfield 2020). The Department of Defense referred to their cloud-based computing as an example of speed of relevance. Raytheon placed it in an ad. Government contractors included it in their RFPs. And as often happens with buzzwords, they get talked about so much that they lose their higher meaning.

General Mattis is not an AI expert. Neither is General Dunford. But what was profound in their vision is the power of mission relevant and integrated automation, higher prediction power, faster and more effective decision-making, and highly efficient execution speed—all of these improvements are made possible by AI, and all are necessary to advance AI. They were defining and describing what the American AI needed to be. They were setting a challenge for the nation.

The American AI Initiative Was Born

The “American AI Initiative” is America’s strategy and plan to maintain and expand America’s lead in AI. It was supposed to be the game changer. It was America’s response to a rising threat from adversaries and competitors. It was the need of the hour. It could have been a vision truly based on an unpoliticized *America First* thinking.

But speed of relevance cannot result from pursuing sporadic AI projects and pushing buzzwords in one or two organizations (for example, the DoD). It cannot materialize by fanning out mindless R&D and blindly pumping money into research without having a corresponding industrialization and economic strategy. In addition to focusing on science and technology, it requires approaching the transformation from an industrialization mindset. It needs building an ecosystem of interdependent technologies and capabilities, a meticulously developed national strategy that is articulated to inspire and mobilize the nation, a favorable economic structure, and an entire economy based on AI. It needs an economy-wide change in all areas of commerce and industry. It requires AI to emerge as a social force that gives energy to the nation.

Three and a half years after General Mattis presented his strategy, a new US secretary of defense under a new administration, General Lloyd Austin, proudly claimed that 600 AI efforts were already underway in the Pentagon and that would accelerate the Pentagon’s adoption of AI. General Austin saw AI as somehow related to projects, initiatives, and use cases. And this is where America is continuing to fail in architecting its national AI strategy. America is not thinking big enough. AI is not just a technology—it is paradigm change in the economy, science, society, politics, and human civilization. A change of that magnitude cannot be managed by pushing “projects” and “initiatives.” As any other revolutionary technology, AI also requires developing industrialization plans, supporting infrastructure, processes for social and business acceptance, maps of value creation across sectors and industries, social sensemaking and meaning construction, leadership that inspires the nation, and designs that help with diffusing the technology. But the American AI Initiative had none of that. It was growing up in an orphaned state—and even worse, as a hated and undesirable technology.

Chaillan is right. Retired military professionals with no background or experience may not be able to do it. But neither can software experts, Big Tech firms, opportunistic professors, or leading AI technology experts from

top universities. AI planning requires a strategic perspective, and that in turn needs a national-level all-inclusive, sector-by-sector industrialization planning with the singular focus on building American capabilities. Above all, it requires a patriotic positioning.

General Mattis's dream of moving American technology forward at the *speed of relevance* will stay as an unaccomplished goal until an America-focused comprehensive and integrated AI national industrialization strategy is outlined and deployed. Even if General Mattis had been able to fix the culture of his organization and create efficiencies within the DoD, what about the legacy technology cultures of the government suppliers? What about the influence of Big Tech over policy? What about the inability of the political leadership to inspire the nation and mobilize resources? What about the ongoing meltdown of civility and the rise of the ideological wars in America? What about the daily bot and cyber-attacks where enemies and adversaries are constantly bombarding the US to further divide and weaken the nation? What about the opportunistic and commercialized academia where professors place their own selfish interests above national interests? What about the consulting firms whose bread and butter are long, slow-moving, use case-focused, systems (dis)integration projects? What about the rampant influx of foreign money and influence to distract American attention? And what about the troubled supply chains and an old rotten infrastructure in dire need of replacement? The American AI Initiative needed the right breathing space and a healthy environment to grow—but the nation's ecosystem was not conducive for the spark to happen.

In the absence of becoming a national force and a social phenomenon, the entire focus of the American AI Initiative strategy remained on two things—research and investment in research. As General Mattis said in his report, developing the technology first is not an advantage. America needed to build the industrial capacity, social and business adoption, diffusion, and absorption of the technological revolution at a social sensemaking level. But none of that happened.

If *speed of relevance* implied competitive advantage, then Chaillan had declared that China has already acquired that over the United States. In 2019, ITIF (Information Technology and Innovation Foundation) conducted a study that concluded that China has already surpassed the U.S. in AI adoption and data, and that China's trend of steady progress could eventually destroy the U.S. lead (Castro and McLaughlin 2021). If the term meant overcoming bureaucratic inertia, Chaillan enlightened us with the incompetence and bureaucracy that still exists in the government. If the term signified capabilities, Chaillan called the cyber defenses of several government agencies being at a "kindergarten level." So much for the speed of relevance!

The fact is that four years after General Mattis evangelized the term, Chaillan acknowledged that the reality was much different. Clearly, America was working at the speed of irrelevance—and that was nothing short of suicidal. In the age of AI, comparative and competitive advantages of countries will be determined by their AI technologies. America was already at a disadvantage. The American AI Initiative was already in trouble.

OUR JOURNEY IN THIS BOOK

This book captures the tragic story of American slide to irrelevance. It shows the disaster that engulfed and continues to haunt America today. It is a story of failure of leadership at all levels—and of the flawed execution that came with it. This story is being told with the recognition that America can still bounce back from the clutches of defeat, that America performs best when the nation finds its motivation, and that this will not be the first time that America has risen after being cornered and pinned down. Although we do claim that this will be America's toughest and greatest fight ever, we believe (with Churchill's spirit) this could be America's finest moment ever. With that in mind, we begin the story of how America ended up in this dilemma. We have made two simple arguments in this book.

First, we argue that many problems in America are worsening due to one and one reason only: the failure to adopt AI strategically. Ironically, both the identification of and the solutions to such problems are dependent on AI. Consider the following:

Supply chains: There are now cracks emerging in the American supply chains. The infusion of automation technology at some levels in the value chain and not at others is creating problems. These problems will likely become out of control. Haphazard deployment of AI is not strategic. The problems are exacerbated by the technological rivalry with China—another problem rooted in the lack of strategic adoption of AI.

AI deployment is not real: We observe a stark difference in how China is adopting AI and how many US companies, agencies, and industries are approaching AI. What many companies, agencies, and industries are calling AI is neither intelligent automation nor what AI means today. It is very basic automation, and calling it AI is a stretch. This misconception of what AI capabilities are will lead to a decline in competitive advantage and performance potential of US companies and agencies.

The competitive structure is not favorable: The economic structure and environment should be favorable for strategic adoption of AI. But the American economic structure—which is dominated by a small number of very large firms and individuals with tremendous concentration of power and wealth—is not ripe for strategic diffusion of technology. The dominant investment style in AI is creating a negative innovation environment, waste, and increasing the cost of capital. Ironically, AI is contributing to further concentration of power and wealth.

The national narrative: Nation-inspiring narratives are the harbingers of fantastic news. They mobilize and inspire nations to do great things. The American AI Initiative is suffering from anemic and conflicting messaging. The social construct and narrative behind the technology are weak. On the other hand, AI ideology-centric narratives are dividing the nation and creating domestic conflict.

External force: Unlike during the Internet revolution, where America stood as the clear and uncontested leader in the world, today's geopolitical situation is different. The technological leadership is being redefined by global players such as China. With AI, the power of such rivals will increase exponentially.

The productivity growth: Despite significant investment in AI and years of so-called planning and execution, the productivity growth in America has stayed low. The capital being poured into the technology is not showing results—indicating it is misdirected and misallocated. AI must lead to productivity growth, but that is not happening.

Knowledge economy: As explained later in the book, AI is not just any technology. It is a technology that creates new knowledge, new science, and new technology. It finds scientific breakthroughs for which theory does not exist. It releases science from the linear model of hypothesis-test-results-theory to the paradigm of test-results-hypothesis-theory. Without strategic AI, the industries will remain malnourished to produce new knowledge and discoveries.

The risks for the entire economy and for the country are increasing. So much so that now it is recognized that China has surpassed America in AI. This means America has failed to strategically embrace the AI paradigm. AI is the key to unlock the potential of the national economy. It is the elixir to understand, solve, and identify almost all types of problems.

The AI magic has already begun. Some economies are performing great, while others are struggling. Schumpeter's creative destruction and the related disruption have already started. The loss of AI leadership to China is now becoming far more visible, and it is showing up in numerous ways.

Our second argument is that we hold the White House's Office of Science and Technology Policy (OSTP) as primarily responsible for America's decline and fall in AI. Throughout this book we cover the story of OSTP's continued failure to provide the true leadership that America needed. The problem was not that the OSTP did not do what it was supposed to do. The OSTP did give America a powerful R&D and federal investment plan. The real problem—which led to America's failure on the AI front—was that the OSTP could not distinguish between a national strategy of AI and the R&D-centric federal investment strategy of AI. The OSTP overplayed its hand, assumed the role of a strategic economic advisor, acted in the capacity of an industrialization expert, created a massive deception about its role and plans, intentionally or unintentionally (we do not know) covered up hugely relevant information, and completely ignored the process of how strategy (national or business) is developed. In doing so the OSTP forgot its core mission: first, to provide the president and his [her] senior staff with accurate, relevant, and timely scientific and technical advice on all matters of consequence; second, to ensure that the policies of the executive branch are informed by sound science; and third, to ensure that the scientific and technical work of the executive branch is properly coordinated so as to provide the greatest benefit to society. Overstepping its mission, report after report, the OSTP made the national investment plan in R&D appear like a national strategic plan. They are not the same.

A legitimate national AI strategy cannot materialize without following a proper strategy development process. It is not a product of one or two brainstorming sessions by a group of scientists, academics, agency heads, and Big Tech VPs. It requires an elaborate process to understand the economic and business environment, study national priorities and understand national goals, analyze relative strengths and weaknesses, identify the stakeholders, assess the mood of the nation, develop narratives and communications strategy, and many other such process steps. Strategy development process, whether for a business or a country, requires following a methodical approach. Strategy and plan development are, of course, well-developed specialty areas with hundreds of years of research, history, practices, and well-established knowledge domains. But the OSTP engaged in none of that. With the groupthink that led to seven (eight, as one was added later) strategies, the OSTP somehow turned what was the R&D plan into a national strategy. This would be analogous to an aeronautical engineer who knows about planes but is not a pilot, trying to fly a commercial flight full of passengers. Three presidents and Congress relied on the strategy and the positioning coming from the OSTP. Legislation was thrust based on those priorities. Money was allocated. Executive orders