REORIENTATION

Useful observations for contemplating the future. Prepared by OODA LLC for OODA Network Members. February 2024

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OODA Almanac 2024 – Reorientation

Introduction

This is the 4th installment of our OODA Almanac series. The Almanac is intended to be a quirky forecasting of themes that the OODA Network think will be emergent each year. You can review our previous Almanacs at OODAloop.com, they have all held up well.

The theme for last year was "jagged transitions" which was meant to invoke the challenges inherent in the adoption of disruptive technologies while still entrenched in low-entropy old systems and in the face of systemic global community threats and the risks of personal displacement. The theme for this year: "Reorientation"

The year 2024 will require a reorientation to new realities, largely driven by the acceleration of disruptive technologies grinding against the inertia of stale institutions that would rather we snack on the comfort food of the past than the buffet of the future. In past Almanacs we've talked about the rapid acceleration of technology and the power of exponentials and 2024 forward will mark the move from theoretical disruption to practical disruption. Those technologies we could not comprehend utilizing over the past five years will feel commonplace after the next five years.

> ***Out on the edge you see all kinds of things you can't see from the center. Big, undreamed-of things—the people on the edge see them first.***
>
> ***- Kurt Vonnegut***

Each year, the OODA Almanac is the edgiest piece we publish as we take the opportunity to not only provoke your thinking with disruptive ideas but also seek to peer out over the edge into the unknown. We hope the concepts discussed here help you reorient around what's next, but also around what is possible.

We look forward to tracking these thematics over the coming year with the OODA Network. If you would like to support this research and interact with the top executives, experts, and luminaries on these issues, we would implore you to consider joining the OODA Network. Each month our network convenes to explore the landscape of risk and opportunity as well as deep dive on current events impacting their organizations.

MATT DEVOST & BOB GOURLEY
Co-Founders, OODA LLC

Adapt or You're Toast

In 1999 Matt's personal website offered the following Arthur Kroker quote in the footer: "Adapt or you're toast".

Some 25 years later, the quote finally seems appropriate as we enter into a decade that will offer differentiation and opportunity to those that can reorient and adapt versus those who can't. These changes will largely be driven by the exponential technologies tracked by the OODA Network, but will also be impacted by those Jagged Transitions as old systems are forced to revert to first principles in order to survive.

Of course, this adaptation will not be universal and the failure to adapt will be painful for those individuals and organizations that can't cross the threshold to the future. Binary fractures will become binary chasms and there will be turmoil and conflict across the void.

The generalist will be advantaged over specialists in adapting to new technologies. Specialization will be for insects, narrow AI, and robots.

Reversion to First Principles is the Foundation of the Future

In thinking about the adoption of disruptive technologies, the best mental model is not one that layers these technologies on our existing stacks, but rather rethinks the whole of the system from first principles and seeks to displace and replace with new approaches.

The ability to adapt and revert to first principles will be a necessity of governance as well. First principles, the fundamental concepts or assumptions at the heart of any system, serve as the bedrock upon which the future is built. In government, this approach necessitates a return to the core values and constitutional tenets that define a nation's identity and purpose. It's about stripping down complex policy issues to their most basic elements and rebuilding them in a way that is both innovative and cognizant of the historical context.

When it comes to economics and money, a first principles mindset could lead to a reevaluation of foundational economic theories, potentially fostering new forms of currency or novel financial instruments that could reshape markets. This is evident in the emergence of digital currencies and the underlying blockchain technology, which challenge traditional banking paradigms and redefine value exchange.

In the realm of engineering, applying first principles thinking often results in breakthrough innovations. By focusing on the fundamental physics of materials and processes, engineers can invent solutions that leapfrog over incremental improvements, much like how the aerospace industry has evolved with the advent of composite materials and computer-aided design. These disciplines, when underpinned by first principles, are not just adapting to change; they are the architects of the future, sculpting the landscape of what is to come.

Computation is the Ultimate First Principle

If there was to be one guiding first principle over the next 5 years, it would emphasize the role that computation plays across everything we are and will be the underpinning over everything we do. In engineering, computation serves as the bedrock upon which structures both tangible and conceptual are built; it is the mechanism by which we translate the laws of physics into the marvels of modern infrastructure. Within finance, computation is the pulse that courses through the veins of markets, embodying the algorithms that drive trading strategies and the quantitative models that shape economic forecasting. As for nature, computation can be seen in the intricate dance of evolutionary processes, the patterns of genetic code, and the emergent complexity of ecosystems—a testament to the universal language of mathematics that governs all.

Through this lens, computation emerges not merely as a tool but as a fundamental principle that underpins the complexity and beauty of the world we navigate. It is a thread that weaves together the fabric of human ingenuity with the tapestry of the cosmos. Comprehending the world through a lens of computation will be the ultimate re-orientation.

Not Just New Technologies but New Realities

William Gibson transcended the future, where Philip K. Dick transcended reality.

The future of the next ten years will be more closely aligned with Dick than Gibson. Gibson's prescient visions of cyberpunk landscapes and the matrix have certainly shaped our understanding of a digital future. His narratives often hinge on the interplay between humanity and technology, forecasting a world where the two become inextricably linked. In contrast, Philip K. Dick's work delves into the nature of reality itself, questioning the very fabric of existence and the human experience. His stories grapple with themes of identity, consciousness, and the nature of truth—concepts that are increasingly relevant in an era defined by deepfakes, misinformation, and the erosion of shared objective realities.

As we look to the next decade, it seems plausible that the themes explored by Dick will resonate more deeply with our societal trajectory. The rapid advancement of technology has brought us to a point where the manipulation of reality—be it through augmented reality, virtual reality, or artificial intelligence—is not just possible but becoming commonplace. The blurring lines between what is real and what is synthetic challenge our perceptions and could lead to a future that feels more akin to the surreal and often dystopian worlds depicted by Dick.

This is not to say that Gibson's influence will diminish; on the contrary, his insights into the interconnectivity of global systems and the cybernetic enhancements of the human condition continue to unfold around us. However, the philosophical quandaries that Dick presents—such as the nature of humanity in an increasingly artificial world—may prove to be more immediately pertinent as we confront the ethical and existential implications of our technological evolution.

Reflecting on the current state of the world, it is evident that the questions raised by Dick's work are not just philosophical musings but pressing concerns. The struggle to discern truth from fabrication, to maintain a sense of self amidst a barrage of algorithmically curated content, and to find meaning in a world where traditional narratives are constantly being upended, are challenges we grapple with daily. In this sense, Dick's transcendence of reality may indeed be the guiding theme for the next ten years. We might engage in bar arguments of the reorientation required in the world imagined by Gibson, but we will fight wars over the reorientation necessary to inhabit the landscape envisioned by Dick.

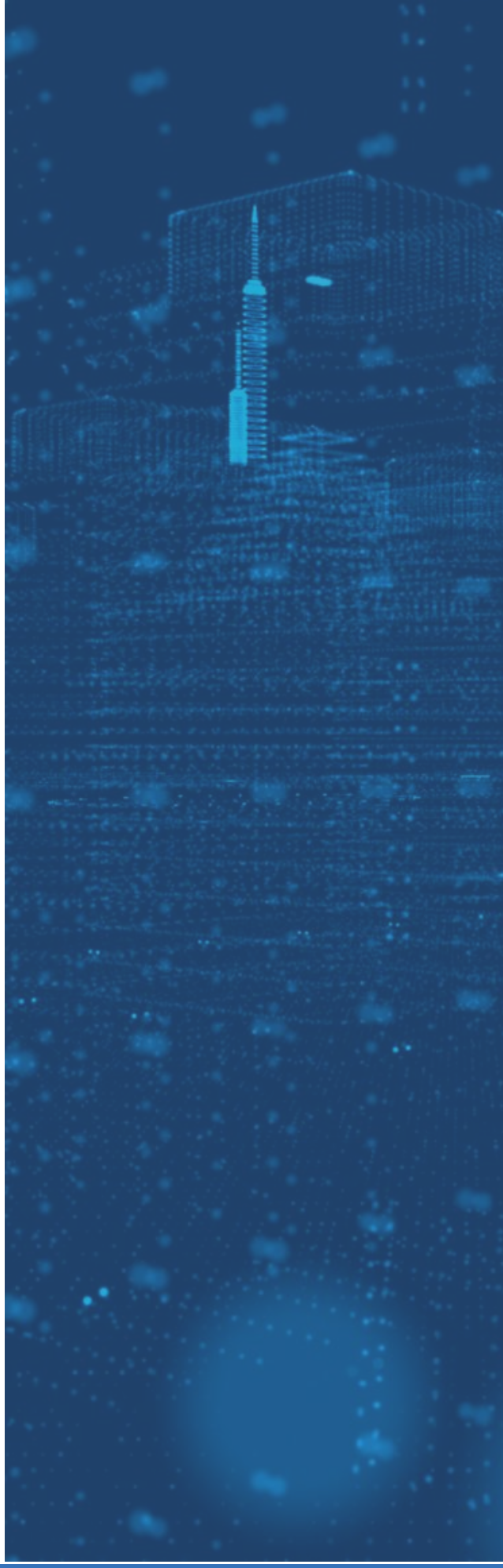
Schrodinger's Mental Model

We aren't well adapted to shades of gray and seek binary outcomes which facilitates a desired reversion to the known past and also creates a pathway for exploitation at the cognitive and societal infrastructure layers. In past Almanac editions, we've referred to these divisions as binary fractures. We are being forced to contemplate and confront these dualities on a persistent basis. For example, consider:

- Tech optimism versus neo-Luddite regulatory tendencies
- Land of opportunity but abject poverty and increasing wealth disparity
- Precision weapons but indiscriminate killing

In order to derive the benefits of future technologies, the Schrodingers's mental model is not one where we accept the contradiction of the unknown states but were we actually open the box and leap into the future. As David Lloyd George articulated, you can't cross the chasm in two small jumps.

Niche Innovation Disadvantage?



Niche innovation will be disadvantaged in a future dependent on computation given the implied expense and associated disparity of compute access. Meta is making a run at General AI with an $18b investment in GPUs and will derive not only technology advantage but underscores that large companies have the resources to innovate at scale. Large companies will dominate the observation cycles in the media. This will make niche computation plays difficult.

It will become even more important to keep an eye out for the guerrilla innovation percolating from the garage scientists and basement hackers that can disrupt this compute disparity through genuine invention. We need to make sure that we are orienting to innovation emerging not only from investments by Marc Andreessen but also Michael Gibson.

Civil War Cinema

Viewed through the lens of history, 2024 will be a landmark year punctuated by the complexities of a political process that will exacerbate the binary fractures of the American republic. These issues are much too deep to benefit from analysis here, but it is always important to contemplate how close to the flame we are dancing in the context of an Eric Hoffer case study. It is also a year that will be marked by a major cinema film that contemplates a new American Civil War, normalizing the idea of conflict to resolve political differences and it hits at a time of misaligned governance incentives and high levels of poverty and displacement.

Focused on the thematics of this Almanac, we should acknowledge that problems arise when societies dream more about how things were than how they could be and that a vote is the last bastion of power you have against a broken and corrupt system without firing bullets. Therefore, the articulation of the future and the benefits of exponential technologies need to align with the first principles of democracy and opportunity.

Weather Wars

Of all the books Matt has read over the past years, the stickiest has been “The Ministry for the Future” which contemplates both conflict and innovation to address the realities of global climate change. This Gray Rhino risk suffers from mitigation dependencies that rely on global cooperation around accepted behaviors. In absence of those behaviors, might some countries disadvantaged by geography and thus suffering from disproportionate impacts consider themselves engaged in weather wars and thus look to use instruments like sanctions and sabotage?

Regions facing increased frequency and severity of weather, rising sea levels, and economic and human costs will seek to disrupt the asymmetry of weather with novel approaches.

Cyber a Safe Haven for Attackers

Attacks in cyberspace seem to have no escalatory or deterrence consequences, especially in the realm of cybercrime as ransomware attacks doubled over the past year with increasing impacts on the global economy. In an era dependent on technology for advantage, the importance of developing novel approaches to cybersecurity issues cannot be overstated.

The escalation of cyber threats, particularly ransomware, underscores a stark reality: our collective security posture must evolve with an urgency that matches the ingenuity of our adversaries. The doubling of ransomware attacks is not merely a statistic; it is a clarion call for a paradigm shift in how we conceptualize and implement cybersecurity measures. New concepts for how we jurisdiction attacks and disrupt the economic incentives of the attackers are required. We must also embrace a more proactive stance, integrating advanced technologies like artificial intelligence and machine learning to predict and preempt attacks before they occur. Furthermore, the convergence of cybercrime with nation-state tactics necessitates a more nuanced understanding of the threat landscape, where strategic defense and risk management become as critical as tactical responses.

The future of cybersecurity lies in our ability to outpace the adaptability of threat actors, ensuring that the defenses we construct are not only resilient but also intelligent, capable of learning from each attack to bolster our protective measures. This requires a commitment to continuous innovation and the development of cybersecurity strategies that are as dynamic as the threats they aim to thwart. As we've seen, attackers often exploit the weakest link, which may not be within our own organizations but within our supply chains, turning trusted partners into potential vulnerabilities.

Fear of Dangerous Ideas

The apprehension surrounding emergent technologies such as AI, synthetic biology, and cryptocurrencies often stems from their transformative potential and the unknowns they carry. However, it is precisely this potential for profound change that should steer us away from fear and towards a judicious embrace. AI, for instance, heralds a new epoch in cognitive augmentation, enabling us to solve complex problems with unprecedented speed and efficiency. Synthetic biology promises revolutionary breakthroughs in medicine and agriculture, potentially eradicating diseases, and bolstering food security. Cryptocurrencies are redefining financial systems, offering decentralized and democratized alternatives to traditional banking.

These are not mere tools or trends; they are the catalysts for a new renaissance in human capability and creativity. It is essential to recognize that the risks associated with these technologies are not monolithic but manageable with informed governance that balances innovation with ethical considerations. We should not be afraid of these ideas; instead, we should be vigilant, fostering an ecosystem that encourages responsible exploration and safeguards against misuse. In doing so, we harness their potential to unlock a future that is more resilient, equitable, and abundant.

The Anti-content Movement

In the deluge of content generated by AI, the human element becomes a coveted rarity, a beacon of authenticity in a sea of algorithmically crafted narratives. This forecasted anti-content movement is not merely a reactionary step backward but a recalibration of value in the digital age. The essence of human creativity, the nuances of emotion, and the irreplaceable nature of personal experience will be elevated, creating a renaissance of verifiable human-centric content. Trust and affinity groups like the OODA Network will indeed rise as the arbiters of this new era, curating human expertise and interaction.

The integrity of human-generated content will become paramount, and our cybersecurity strategies must be agile enough to defend against the sophisticated manipulations that generative AI can produce, such as creating synthetic personas with high viral reach and believability. The challenge will lie in distinguishing authentic human interaction from these high-quality, AI-generated facades, a task that will require innovative detection capabilities and a deep understanding of the nuances of human communication.

The Conflict Protocol is Always Running

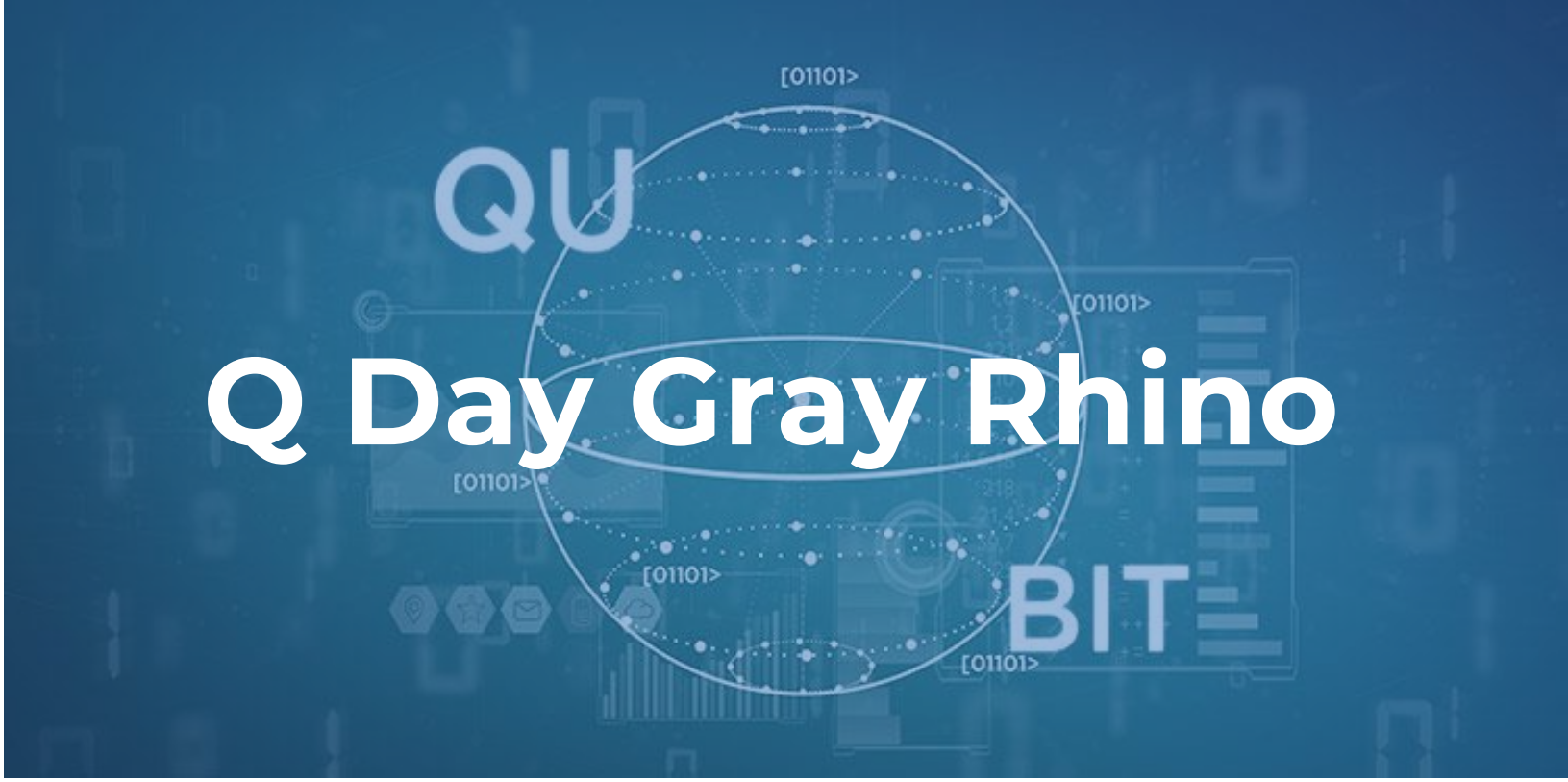
The utopian aspirations of exponential technology disruption are subject to constant disruption from conventional conflict. Viewed in terms of computation, it seems the conflict protocol is always running. In 2024, we are confronted with continuing conflicts in Ukraine and Middle East along with an Asia that seems always on the precipice. As one OODA Network expert noted during a monthly meeting, conflicts continue to combine the dualities of low and high tech as drones take out tanks and terrorists raid raves. Despite advances in technology our supply chains and supply routes remain fixed to terrestrial realities that require both vigilance and resiliency.

Conflict will be a continuous disruptor requiring constant observation and strategic planning. As our network understands better than any others, conflict on the other side of the world can have very real impact on global supply chains, markets and the overall business environment. Continued contextualized situational awareness is required and scenario planning is a new corporate survival skill.

Dangerous Places Data Centers - The New Edge

The advent of space-enabled edge computing marks a significant leap forward in the decentralization of computational power, enabling data processing to occur at the very periphery of the network, closest to where data is collected. The implications of this are profound and far-reaching, as it allows for real-time analytics and decision-making in environments where traditional cloud computing would be too cumbersome or slow.

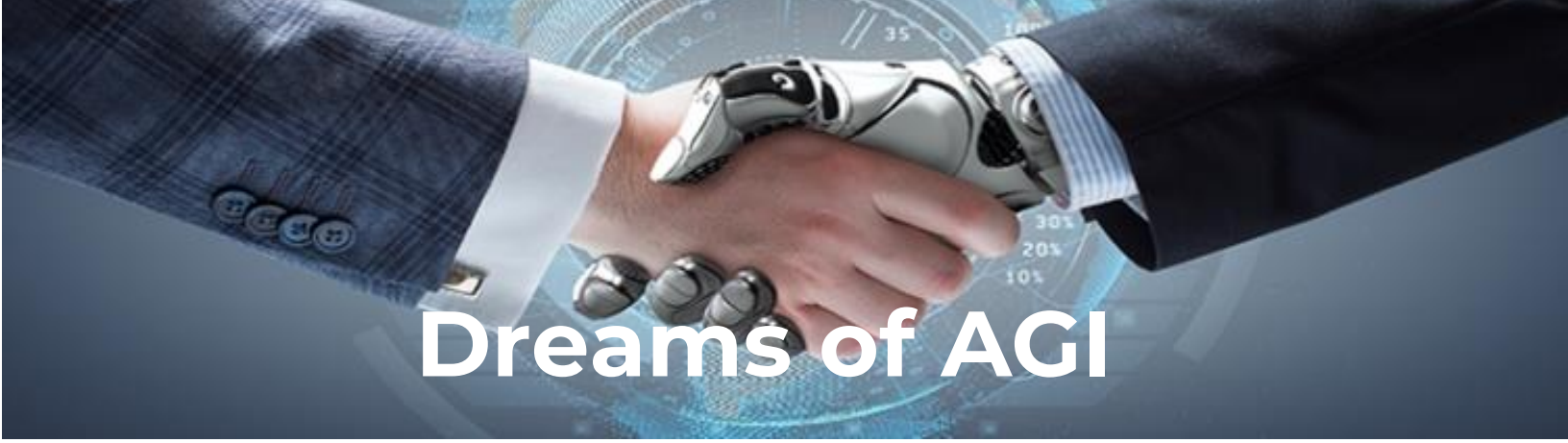
This could lead to innovations in fields such as agriculture, where precision farming techniques could be enhanced by real-time data analysis, or in healthcare, where telemedicine can be vastly improved by bringing computation closer to the patient, even in the most isolated regions.



Q Day Gray Rhino

Michele Wucker used the term “Gray Rhino” to describe a highly probable, high impact but neglected threat. The highly probable, high impact and neglected threat of quantum computers breaking current asymmetric encryption meets this definition of a Gray Rhino. There is awareness of this threat in computer science circles and at R&D centers in governments and in pockets of the technology world.

But for the most part big enterprises are choosing to ignore this threat. This is due in part to the many competing priorities for security spending. We do not see Q-Day happening in 2024 or even 2025, but we are seeing indications of Harvest Now Decrypt Later (HNDL) attacks where adversaries are stealing information today that will be broken later. This should be an impetus for organizations to move quicker to make today’s technologies quantum safe from this Gray Rhino that is reaching charging speed.



Dreams of AGI

The topic of Artificial General Intelligence (AGI) is a profound one, with implications that ripple across the fabric of our society and the very essence of our technological evolution. The risk of AGI, often depicted in dystopian narratives, is that it could surpass human intelligence, leading to scenarios where its objectives misalign with human values, potentially resulting in existential threats. This concern is not unfounded, given the rapid pace of advancements in machine learning and autonomous systems.

Yet, this risk assessment might be wrong, or at least premature. AGI remains a theoretical construct at this stage, and the anthropomorphizing of AGI risks may lead to a skewed perception of the actual challenges it presents. The intelligence of such systems may not manifest in the ways we expect, and the emergent properties of AGI could be as beneficial as they are daunting. It is crucial to differentiate between the speculative risks of AGI and the immediate concerns posed by narrow AI applications that are already impacting society.

To protect against potential AGI risks, a multifaceted approach is necessary. This includes rigorous ethical frameworks, transparent design principles, and robust governance structures that ensure alignment with human values and societal norms. It also involves fostering interdisciplinary collaboration among technologists, ethicists, policymakers, and other stakeholders to anticipate and mitigate unintended consequences. Preparing for AGI is as much about building resilient systems as it is about nurturing a culture of responsibility and foresight in the development and deployment of AI technologies.

Balancing the pendulum of AGI risk and reward requires a nuanced understanding of the trade-offs involved. In business and society, the potential benefits of AGI—such as solving complex global challenges, enhancing productivity, and advancing scientific discovery—must be weighed against the ethical considerations and potential for misuse. It is a delicate equilibrium, where the pursuit of innovation must not outpace our capacity for control and comprehension. As we navigate this uncharted territory, it is imperative that we remain vigilant and adaptable, ensuring that the arc of our technological journey bends towards the enhancement of humanity rather than its diminishment. In light of these considerations, what are your thoughts on the current

The Exponential Tech Stack Starts to Converge

Regular readers of the OODA Loop know we cover exponential technologies daily and we expect disproportionately disruption where these technologies start to converge. For example, AI + Bio Tech or Robotics + AI. We will be tracking and re-orienting you to developments in the following areas:

- **Quantum Tech**: This is the ultimate in first principles engineering. With new insights into how the quantum world really works this is becoming foundational science for all other engineering disciplines. Quantum Computing may be a decade away, but quantum engineering is a reality today resulting in more powerful microelectronics, more capable sensors and improved cybersecurity solutions.
- **Bio Tech**: Until this day, all biological science was based on observation and experimentation. New Bio Tech enables the application of engineering principles to life itself. In 2024 we expect Bio Tech to continue to improve health and pharmaceutical outcomes and to start disrupting fields such as mining, manufacturing, agriculture and energy. Watch for mainstreaming of Brain Machine Interfaces towards the end of the year.
- **Narrow AI**: The next year will bring more sophisticated narrow AI applications like OpenAI's ChatGPT into areas like healthcare diagnostics, marketing and customer service. Employee disruption is already well underway. Companies, governments and individuals will adopt or not ("Adopt or you're toast").
- **General AI**: General AI is a term used to describe technology so sophisticated that it can solve things across multiple domains, like a human. We do not believe reaching a General AI is a simple binary event. We will more likely see a continued improvement in multiple AI tools in 2024. Prepare to be amazed.
- **Advanced Robotics and Automation**: The most advanced robots are giving physical form to AI. In 2024 we expect to see humanoid robots in manufacturing and warehousing. In 2025 some of your neighbors will have them in their homes. Autonomous vehicles and drones are posed to disrupt transportation and logistics.
- **Materials Science**: Innovations in materials science, particularly in additive manufacturing and 3D printing, will lead to more sustainable and efficient manufacturing processes across multiple industries in 2024. The cost of capital to modernize industries is inflationary, but the ability to manufacture in new ways with automation is a long-term deflationary trend.
- **AR, VR, and the Metaverse**: Augmented and virtual reality technologies are becoming more immersive, making the metaverse a more integral part of entertainment, education, and remote work. The Apple Vision Pro is the latest along a long evolution of these technologies.
- **Space Technologies**: In the coming year we will witness new milestones in space technology, opening new avenues for pharmaceutical production, earth observation, telecommunications, and human space travel.
- **Blockchain and Distributed Ledger Technologies**: OODA has been tracking this domain closely and see the foundations being laid for new applications across multiple aspects of society. Solutions will accelerate in domains like finance, healthcare, security, supply chain management and even voting systems. One measure of potential disruption in this domain is the number of developers creating blockchain based solutions. There were 22,000 blockchain developers in the US in 2022. By the end of 2024 we expect that number to more than double.

Conclusion - The Future Does Compute

The essential reorientation required for executives, leaders, and experts for 2024 should be focused on the increasing role of computation in nearly all elements of business, governance, finance, and culture coupled with the fact that exponential technologies are now improving at a pace that humans have a hard time comprehending.

It is critical that you continually seek out new observations that can help you reorient towards the future, but also engage in strategic planning in how to adapt to the impact of inevitable exponential technologies and existing global geopolitical realities.

If tracking these issues and discussing their impact with the top leaders and experts in the world is appealing to you, please consider joining the OODA Network. Comprised of over 300 members, the OODA Network enriches our thinking about the world through a dedicated and independent research team, monthly member-only meetings, our annual OODAcon, and other networking and learning opportunities.

About OODA Loop

OODA helps our clients identify, manage, and respond to global risks and uncertainties while exploring emerging opportunities and developing robust and adaptive strategies for the future. We are a global strategic advisory firm with deep DNA in global security, technology, and intelligence issues.

Powered by the OODA Network

The OODA Network is comprised of the world's leading global experts, business executives, and strategic advisors focused on managing the next generation of disruptive innovation, emerging technologies, and global geo-political and cyber risk. Members participate in monthly meetings, strategic forecasting events, and in-person networking events in Washington DC, San Francisco, Las Vegas, and New York City.

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