

Leading in a Time of New Intelligence

Part One: Artificial Intelligence.

A White Paper by Authentik Consulting and Training



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Part 1: Introduction

Executive Summary

Artificial Intelligence - Large Language Models (LLMs), image generators and more - are rapidly changing our world, and they are still very much in their earliest stages of adoption. Already, these technologies represent a massive disruption to the way all of us live, work, and play, and yet they are so new that most leaders have yet to wrap their heads around the scope and scale of this disruption, which is going to escalate rapidly as the true power and potential of this technology is explored in new and innovative ways over the coming weeks and months. Not years - this transformation is happening so quickly that even by the time this paper is published, AI will have made leaps and bounds beyond the capabilities described herein. We are living in the very definition of a disruption - war, societal change, new technology, pandemics, climate change, and more all contribute to what is being called “the Polycrisis”¹. History teaches us that times of existential disruption like this have the potential to be incredibly hard on people, but they also have the potential to be times of great growth and opportunity. Leadership is critical during these times of metamorphosis, and often makes the difference between difficult suffering or successful thriving. This paper contextualizes the challenges that AI will create and serves as an “AI Primer” for leaders. It is part one of a two part series that will prepare you for two major disruptions that are almost certainly in humanities near-term future, and help you lead through these highly volatile periods; It is intended to help you respond on purpose and with intention to this disruption, not just react to it out of fear, and thus you will be better positioned to succeed - and thus help those you lead succeed - during this transformation.

The Context

In November of 2022, OpenAI released ChatGPT to the general public. Overnight, a concept previously relegated to science fiction or niche technical specialists in computer science became a phrase in regular conversations in workplaces, classrooms and dinner tables around the world.

ChatGPT may be “just” a language model, but soon it’s capabilities were being tested to see what it could really do. The current version scores at the 93rd percentile for the Evidence-Based Reading and Writing section of the SATs, and in the 89th percentile for math². It scored in the top 10% of people who take the BAR exam and got straight A-s in AP Biology, Chemistry, and Physics³. It can write essays, code websites, and coach a person with interview skills for a job.

Of course, our system is naturally competitive, and in the year since ChatGPT was released, Google’s Deepmind project has already one-upped the Microsoft-backed OpenAI by releasing

¹ Michael Lawrence, Scott Janzwood, and Thomas Homer-Dixon, “What Is a Global Polycrisis?” Version 2.0, Discussion Paper 2022-4 (Cascade Institute, 2022), accessed December 12 2023, <https://cascadeinstitute.org/technical-paper/what-is-a-global-polycrisis/>

² OpenAI, “Research: GPT-4,” accessed December 24, 2023, <https://openai.com/research/gpt-4>

³ Josh Achiam et al., “GPT-4 Technical Report”, (2023), accessed December 12 2023 <https://doi.org/10.48550/arXiv.2303.08774>

Gemini to the world. Gemini can outperform expert-level humans on over 40 subjects⁴, and can out-code 85% of humans in competitive coding⁵. Gemini can process spoken word naturally, and understand nuance of tone⁶. It can review hand-written notes - like a kid's math homework - and not only read both text and hand-written numbers, but analyze the math being done and provide corrections and teach the student how and why they went wrong.⁷

In short - both Gemini and ChatGPT already perform better than a huge portion of the population on a wide range of tasks - not all tasks, but it is improving rapidly. This brief overview of capabilities should leave the reader with no question that these early AI tools - at a year old - have the potential to transform the way we do things - from planning kids birthday parties and selecting recipes, to creating complex strategic plans, drafting legal briefs, and even discovering new materials previously unknown to science in a relative blink of an eye⁸. As a Leader, you need to start thinking about the implications of AI on your context. Grappling with the adoption of AI isn't going to be something you choose - it's going to happen whether you like it or not. And once you get past the surface level awe of what this new intelligence is capable of, the implications and leadership challenges become clear.

Definitions

The truth about the media we consume is that there is an awful lot of hype and excitement surrounding this topic at this time, and with that hype comes new language and terms to describe the technology but whose definitions are not yet fully agreed upon. This paper will be using the definitions below.

Artificial Intelligence: These days in common parlance, artificial intelligence generally refers to Large Language Models & their kin. These are machine learning algorithms that are trained on massive amounts of data. Based on that training, they can generate creative human-like text and image responses based on what their training tells them is statistically likely to be what the user wants. In other words, if you ask them to write you a story, they can know that "once upon" is a common way to start a story, and it's statistically likely to be followed by "a time", and they can repeat that analysis and output to an incredibly high degree to generate a "new" body of media (text, image, or video) for the user. Additional features have been added from existing technology - the ability to scan images and identify text and handwriting for example, or the ability to generate a lifelike "voice" (like Siri or Hey Google) that will read the responses rather than only spitting out a wall of text. The pattern recognition capabilities of the algorithms can help the user create new ideas and knowledge, but AI itself is not creating this new knowledge nor does it have the ability to truly mimic human thought processes involved with knowledge discovery.

At least, not yet. That's what Artificial General Intelligence (AGI) can do.

⁴ Google, "Welcome to the Gemini Era", accessed December 15 2023, <https://deepmind.google/technologies/gemini/#capabilities>

⁵Google, "Gemini: Excelling at Computer Programming" *YouTube Video*, (December 6 2023) <https://www.youtube.com/watch?v=LvGmVmHv69s&t=3s>

⁶ Google, "Gemini: Processing and Understanding Raw Audio" *YouTube Video*, (December 6 2023) <https://www.youtube.com/watch?v=D64QD7Swr3s>

⁷ Google, "Gemini: Explaining Reasoning in Math and Physics", *YouTube Video*, (December 6 2023) <https://www.youtube.com/watch?v=K4pX1VAxaAI&t=1s>

⁸ Gregory Barber, "An AI Dreamed Up 380,000 New Materials. The Next Challenge Is Making Them," *Wired*, January 1, 2024, <https://www.wired.com/story/an-ai-dreamed-up-380000-new-materials-the-next-challenge-is-making-them>

Artificial General Intelligence: This is a level of Artificial Intelligence that exhibits the same cognitive capabilities as the human mind, and can perform any intellectual task that a human can. While this has not been publicly achieved, the fact that Google’s Gemini AI can already outperform expert-level humans on over 40 topics suggests that this is a “when”, not an “if”, and the “when” might be very soon.

Artificial Super Intelligence: This is a hypothetical type of artificial intelligence that can surpass human-level capabilities of reasoning, learning, and problem solving. However, we will argue below that ASI is not necessary in order for humanity to see the bulk of the disruptive/transformative power of artificial intelligence; this disruption exists currently and manifests in an even more significant way at the AGI-level.

Non-Human Intelligence: From a Western/material science perspective⁹, mankind has until recently been the only “intelligent” creature on earth; some species like dolphins and chimpanzees demonstrate facets of intelligence, but none that we would regard as equal to human intelligence. However, the advent of AI - especially AGI - means that humans will be contending with intelligence that is non-human in nature for the first time. Non-Human Intelligence is a catch-all term for any type of intelligence that isn’t human, and includes all types of AI that we have produced or may produce in the future. It has implications on human rights, ethics, and our place in the world that have significant and profound implications.

Ontological Shock: This term describes the feelings and disruption experienced on an individual level when that individual realizes that their base assumptions about reality are no longer true. For example, unknowingly encountering an AI that is convincingly human in its interactions, but then finding out afterwards that it was artificial, can induce a state of ontological shock in a person who didn’t realize that such a thing was possible, for example when a parent has a phone call with an AI version of their child generated by scammers¹⁰. Not only is it possible, you have probably already had an interaction like this and you just don’t know. This realization is often accompanied by a sense of a loss of identity or sense of self, a sense of fear or anxiety, and can be incredibly destabilizing to experience - ranging from minor stress all the way to a panic attack-like symptoms.

The Authentik Thesis

Axiom 1: People thrive when they feel psychologically safe and their basic needs are met. Disruption tends to make people feel unsafe, and it tends to interfere or threaten a person’s confidence in their ability to keep meeting those basic needs.

Axiom 2: Disruption is inevitable.

Our society has seen countless disruptions in history, and since the end of WWII in an accelerating fashion. Change is not linear or stepwise; it’s often exponential and made in leaps

⁹ This western perspective is contrary to the way many land-based indigenous cultures view intelligence and sentience. From that perspective and some others, this will not be the “first” time humanity deals with NHI, but for the majority of the western world, this will be a “first”. It is beyond the scope of this paper but we encourage leaders to understand Indigenous ways of being, knowing and doing - not only does that help honour our shared responsibility to truth and reconciliation, but this knowledge and perspective can help you support and guide others as they cope with the reality of non-human intelligence.

¹⁰ Gary Schildhorn, “How I nearly fell victim to an AI scam”, presented at the Senate Special Aging Hearing on AI and Fraud, Washington D.C., November 16, 2023. <https://www.c-span.org/video/?c5093648/philadelphia-attorney-tells-lawmakers-fell-victim-ai-scam>

and bounds, especially as it relates to technology. New developments are regularly orders of magnitude more powerful than what came before. For example, IBM has recently (Q4 2023) released a scalable, modular quantum supercomputer - and if you don't know why that matters, here's a quick explanation: The first computers were made with vacuum tubes and were programmed via punch cards; they'd often occupy entire rooms just to have the ability to do relatively basic calculations, and were accessible only by the wealthiest organizations on the planet; even with these limitations, they were orders of magnitude better than using a slide rule and abacus for those calculations. Then, along came silicon transistors, and that invention has allowed the creation of things like a typical smart phone, which is orders of magnitude more powerful than vacuum-tube systems in terms of calculations, and currently is accessible from your pocket. Quantum computing is to silicon what silicon is to vacuum tubes and what vacuums tubes were to the abacus - it's the next leap forward, and represents orders of magnitude more computing power than we have today. And you can buy one from IBM right now, if you have enough cash.

Similarly, AI's progress has recently been rapid and in massive leaps. Image generation has gone from blotchy, barely recognizable shapes to photorealism *in one year*:



Fig 1: Midjourney AI in March of 2022 (left) vs March of 2023 (right) based on this text prompt: "Donald Trump and Barack Obama playing basketball". Image credit: @interestingaf on Instagram

We cannot predict what the future will look like with any greater certainty than someone in the 1950's coding via punch cards could have accurately predicted the existence of TikTok today, but what is clear is that things are changing, and changing fast. This is going to have an impact on people. Already, jobs today look different than they did a year ago - Lawyers are using AI to help them draft briefs, and it's saving them a ton of effort - right now, its also getting them into

trouble as the initial weaknesses of the technology present themselves¹¹, but those weaknesses are almost certainly temporary. AI is already better than doctors at consistently diagnosing people in some cases^{12,13,14}, and given that medical errors are the third leading cause of death in both the US and Canada, this metric alone is one of incredible promise. People are already adopting this technology every single day, and as it's adoption continues to grow, more and more folks are realizing just how disruptive this is going to be.

It's absolutely going to change the way we are productive - and in many cases it already has.

It's absolutely going to change the number and types of jobs that our society requires.

And it's absolutely going to change our relationship with technology and, fundamentally, each other. As a leader, this should make you sit up and pay attention (if you haven't been doing so already!) because as leaders, our relationships with those we lead are critical. Many of these people are going to have a tough time. Take those legal briefs mentioned above; they are currently done by human beings. Now imagine being a paralegal, where just a few months ago your job was safe, secure, and specialized - your work had value, and you contributed to society by doing it. But today, you are seeing a computer generate the that same legal brief in a fraction of the time that it takes you to do the work, and it's potentially doing it better than you can. This is a shock to the system - an ontological shock, where a person's "normal" is shattered and they must shift and adapt to a "new normal".

Change is the common factor here. Often people are afraid of it. According to John P. Kotter in "The Psychology of Change", change often triggers negative reactions and feelings in people due to fear of the unknown, and to effectively lead people through that change, leaders need to effectively understand what causes people's resistance to shifts in what they consider "normal". Kotter identifies that Leaders must create a supportive environment, where people feel safe to communicate authentically in order to be able to engage in these ontological shifts.¹⁵ In Robert E. Quinn's "The Fear of Change" (2016), the author posits that fear of change is a normal human reaction, as we crave predictability and stability and without that, we have a difficult time embracing new ideas and processes¹⁶.

At Authentik, we have a lot of experience in leading through transformations - the most dramatic type of change there is - and there is a recipe for the "secret sauce" that other leaders can follow. Clearly identifying and articulating our values - the frames that we deem most important as leaders - and ensuring regular engagement about what those values mean within the team we lead is essential. Referring to and relying on those values when making decisions is even more important for psychologically safe, predictable leadership. As Kotter said, people crave predictability and that can be hard to find in times of great disruption. But leaders can be

¹¹ Kathryn Armstrong, "ChatGPT: US Lawyer admits to using AI for Case Research", BBC, May 27 2023, <https://www.bbc.co.uk/news/world-us-canada-65735769>

¹² Lun Dai, Liang Wu, Hui Li et al. "A Deep Learning System for Detecting Diabetic Retinopathy Across the Disease Spectrum," *Nature Communications* 12, no. 3242 (2021): [page range if available], <https://rdcu.be/dtq0x>.

¹³ Hao Liu, Li Li, Ian M. Wormstone, et al., "Development and Validation of a Deep Learning System to Detect Glaucomatous Optic Neuropathy Using Fundus Photographs," *JAMA Ophthalmology* 137, no. 12 (2019): 1353-1360, <https://doi.org/10.1001/jamaophthalmol.2019.3501>.

¹⁴ E. Mahoro and M. A. Akhloufi, "Applying Deep Learning for Breast Cancer Detection in Radiology," *Current Oncology* (Toronto, Ont.) 29, no. 11 (2022): 8767-8793, <https://doi.org/10.3390/currenconcol29110690>.

¹⁵ John P. Kotter, *Leading Change* (Boston: Harvard Business Review Press, 1996).

¹⁶ Robert E. Quinn, *The Fear of Change: Why People Resist It and How to Overcome It* (San Francisco: Jossey-Bass, 2016).

the source of that predictability, and the best way for a leader to provide that is by leading consistently from these articulated frames and values (which of course are unique to your leadership context or organization).

This approach to leadership makes leaders predictable in the best way possible - when your people know what frame you are using to make decisions, they can reasonably predict what your decisions will be in times of uncertainty. When a leader then follows through with decisions from that frame, odds are good the people following will be reasonably accurate in their prediction, and they'll know and feel that when it happens. This creates trust. When folks feel like they can trust their leader, they are more likely to feel safe, and when people feel safe they are more able and willing to engage in complexity and change and to embrace the new ontology.

This trust cycle is foundational to successful leadership in times of disruption and transformation - but before we spend too much time on the solution, let's make sure you as a Leader can fully understand the depth of the problem.

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