

Predicts 2024: Prepare Today for the Impact of Future Forces

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Initiatives: [Digital Future](#)

Technology innovation leaders must consider forces across seven areas of Gartner's Tapestry Framework. These forces will impact people, principles and profit while encouraging organizations to accelerate innovation to mitigate and exploit the predictions here, from the Gartner Futures Lab.

Overview

Key Findings

- **Technology:** Measuring the impact of technology on business operations can be challenging for enterprises with any type of technology but particularly so for emerging tech. New metrics and ways of tracking outcomes will be required.
- **Politics:** The use of military adversarial offensive AI has the potential to deliver a new form of the horrors of warfare, but in a way that is faster, more accurate, and more lethal than previous forms of combat.
- **Economics:** Today, digital organizations tend to have greater adoption of intangible assets such as software and services that can replace old physical systems.
- **Social/Cultural:** The potential classification of social media addiction as a mental health disorder indicates a growing societal concern, necessitating educational intervention. Researchers have found that receiving therapy for problematic social media use can be effective in improving the mental well-being of people with depression.
- **Trust/Ethics:** Consumers are wary of AI-generated content. When consumers were asked to choose words they associate most with GenAI, the second-highest answer was “threatening.”
- **Regulatory/Legal:** By clearly demarcating AI rights, there could be a better understanding of where human rights end and AI rights begin, ensuring that, in the end, AI acts as we expect and mitigating ethical and potentially existential risks.
- **Environmental:** Extreme heat poses increasing risks to companies in heat-stressed regions. Peak daytime temperatures threaten outdoor and indoor workers, decrease productivity and raise energy costs, while straining energy supply.

Recommendations

- **Technology:** Capture the appropriate baseline benchmarks that enable measurement of gains in productivity and/or incremental revenue due to GenAI use cases. Evaluate and redesign business workflows when appropriate.
- **Politics:** Military vendors should resist and build safeguards into military AI applications and designs that restrict and prevent the postpurchase/after-market adjustment of nonkinetic military AI into kinetic military AI.
- **Economics:** Map your tangible assets, and the links between them and the intangible assets, with a particular attention to digital assets. Cluster them in relation to the processes in which they operate in order to reduce complexity costs and increase global competitiveness by entering new markets.
- **Social/Cultural:** Facilitate informative educational programs for your workers and, where needed, customers, on how to proactively recognize and respond to signs and symptoms of social media addiction, as well as on available treatment options.
- **Trust/Ethics:** Evaluate where consumers may prefer human-based customer service, content generation or product development. As AI-generated content grows in use, human-based service will become a larger factor in purchase consideration and brand loyalty, particularly for higher-priced goods and services where consumers require more personalization.
- **Regulatory/Legal:** Establish channels for employees and other stakeholders to voice concerns or provide feedback related to AI rights in the short term. In the midterm, build an ethics committee and/or AI governance function.
- **Environmental:** Assess whether your products or services, production methods, and processes are suited for night-time business operations as climate change risks drive adaptation to extreme heat.

Strategic Planning Assumptions

By 2025, 70% of enterprises will deploy at least one enterprisewide GenAI application but less than 10% will realize the expected ROI.

By 2025, 70% of the G20 will consider a formal agreement to ban or limit autonomous military AI weapon use and proliferation. The rest will not abide by this agreement.

By 2030, organizations that virtualize at least 30% of their tangible assets will reduce complexity costs and increase global competitiveness by entering new markets.

By 2027, following the recognition of social media addiction as a mental health disorder, 40% of countries will include related course work in their schools.

By 2025, low trust in AI-generated content will reduce customer engagement by 50%, driving new urgency that makes engagement the top indicator of performance.

By 2028, multiple members of the G20 will adopt regulations to clearly mitigate the risks of misuse and perceived sentience of AI, setting the groundwork for defined AI rights.

By 2030, the night-time economy in heat-stressed regions will grow 25% as companies adapt business operations to avoid extreme daytime temperatures.

Analysis

What You Need to Know

Technology innovation leaders have relied on tracking trends — specifically, emerging technology trends — to prepare their organizations to become more future-fit. However, this focus on just emerging tech trends creates two pitfalls:

1. It is really “forces” — an active influence or power that causes change or has the potential to cause change — that drive trends. Focusing on forces will help organizations navigate which trends, disruptions, assumptions and signals they will need to keep track of or prioritize in an organized and future-fit manner (see [The 7 Forces Impacting Your Organization’s Future: Tapestry 2024](#)).
2. Technology forces are only part of the puzzle. Technology innovation leaders need to reach beyond technology to actively sense and respond to disruptions and anticipate change (see [Leadership Vision for 2024: Technology Innovation](#)). Preparing to exploit opportunities and mitigate risks in an uncertain future requires organizations to consider the technological, political, economic, social/cultural, trust/ethics, regulatory/legal and environmental (TPESTRE) of forces, which Gartner refers to as a Tapestry.

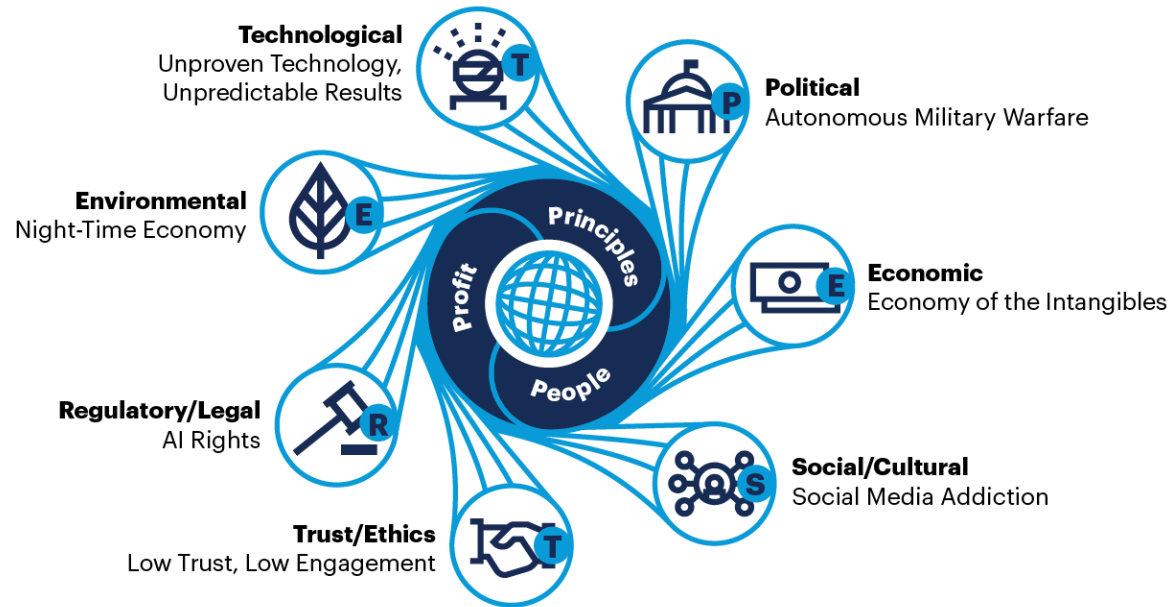
As forces are derived from a combination of trends, signals, disruptions (planned and unplanned), and assumptions, technology innovation leaders could adopt futurist mindsets and methodologies (see [Video: Does My Organization Need a Futurist Capability?](#)) to:

- Anticipate plausible futures.
- Advocate for the future that organizations would like to see.
- Accelerate change and innovation by acting now.

The list of seven predicted forces (see Figure 1 and Table 1), which is aligned to Gartner’s Tapestry Framework, notes the anticipated forces for which technology innovation leaders must be prepared.

Figure 1: Future Forces Across Tapestry That You Must Get Ready for Today

Future Forces Across Tapestry That You Must Get Ready for Today



Source: Gartner
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Gartner

Click on each jump link in the table to navigate to that section.

Table 1: Future Forces Across Tapestry to Prepare for Today

Force	Category	Key Element
Unproven Technology, Unpredictable Results	Technological	Profit
Autonomous Military Warfare	Political	Principles
Economy of the Intangibles	Economic	Profit
Social Media Addiction	Social/Cultural	People
Low Trust, Low Engagement	Trust/Ethics	People
AI Rights	Regulatory/Legal	Principles
Night-Time Economy	Environmental	Profit

Source: Gartner (December 2023)

This research is unique as it focuses on plausible forces across all seven categories of Tapestry. Also, as a framework, Tapestry weaves together the forces to tell an overall “story” as to what the world may look like within the next seven years. This story focuses on three key elements that will be dramatically impacted by these predicted forces:

- **People** are the fundamental element of organizations, society and economies. They constitute both labor on the supply side, and consumers on the demand side. In both cases, people create direct economic value (for example, outputs, investments, savings and consumption) and nonfinancial value (for example, population maintenance, social welfare and civic institutions).
- **Principles** form the basis of decision making by people and act as guardrails around behavior at the individual and collective level. In many cases, principles are codified into legislation to influence desirable action for the good of society.

- **Profit**, in its purest form, transcends the confines of financial gains and exerts its influence into the broader landscape of business outcomes extending to social, environmental and ethical dimensions. Future-fit organizations recognize that profit is not all captured on the balance sheet; it's a reflection of their ability to create lasting value and drive positive change in a complex, interconnected world.

The seven predicted forces will influence each of these areas in unique ways based on the organization, industry, geography, demographics and other characteristics. Technology innovation leaders must anticipate how these forces will impact their specific organization, and advocate for how their specific organization should accelerate action.

Strategic Planning Assumptions

Unproven Technology, Unpredictable Results

Strategic Planning Assumption: By 2025, 70% of enterprises will deploy at least one enterprisewide GenAI application but less than 10% will realize the expected ROI.

Analysis by: Alan Antin and Rita Sallam

Key Findings:

- Commercial imperatives to adopt GenAI for productivity reasons and/or for new revenue growth are driving enterprises to invest in GenAI being embedded in their enterprise and productivity applications for end users across a multitude of business functional areas. Some are striving for competitive advantage and/or industry disruption by building domain-specific applications and models leveraging their unique and proprietary enterprise data.
- Low-cost productivity assistants are quickly spreading to organizations through tools such as Microsoft 365 Copilot and Google Duet AI in Workspace, as well as hundreds of emerging providers offering application- or task-specific use cases. Investments in change management and new skills will be required to fully realize their potential business impact.
- Measuring the impact of technology on business operations can be challenging for enterprises with any type of technology, but particularly so for emerging tech. New metrics and ways of tracking outcomes will be required.
- GenAI is at the Peak of Inflated Expectations. Realizing value from use cases at scale will require investments in deploying and maintaining new AI-native tools and platforms, and in AI-ready data, people, risk management and governance. Not all will succeed.

Market Implications:

- Enterprises will roll out GenAI-infused products without having benchmarks and measurement systems in place to understand the impacts. Like other applications, without thoughtful process flow redesign and staff training, it will be difficult for organizations to leverage the full value from adoption of GenAI products.

- Enterprises that have built large AI models from scratch will walk away from ambiguous projects with high costs and unclear outcomes, particularly as new innovations and techniques lower costs over time. Leadership will seek to reassign or eliminate the supporting infrastructure costs and human resources of unproven projects.
- GenAI model developers will offer services to enable customers to manage their investment risk and redesign business processes. Service models will compete on elements such as enabling/renting access to computing infrastructure, as well as data engineering, model training expertise, business process, consulting and FinAI – the practices of tracking cost and value.
- Many emerging GenAI providers will fail to meet market and investor growth expectations as solutions are abandoned and the segment consolidates behind a smaller set of tech providers.
- GenAI vendors will need to provide value assessment and realization tools as part of their go-to-market strategy and product and services to address increasingly skeptical enterprise buying teams.

Recommendations:

- Assess and build scenarios for expected cost and value to rank and prioritize use cases that align to the organization's AI ambitions in terms of competitive impact and risk. This will drive GenAI deployment approaches and tool and application purchases. Document assumptions about inputs and how you will measure desired outcomes such as the financial and indirect benefits expected.
- Capture the appropriate baseline benchmarks that enable measurement of gains in productivity and/or incremental revenue due to GenAI use cases. Evaluate and redesign business workflows when appropriate.
- Provide ongoing training and upskilling so that the workforce is able to fully leverage these new tools. Invest in risk management to ensure that value realization is not eroded by errant models or human behavior.
- Bring business cases to a cross-functional stakeholder committee to pressure-test assumptions and value and cost scenarios. These assumptions should be tested and adjusted during proofs of concept and early rollout. Align the organization on the risk and reward calculus of investments.

- For productivity tools in the tech stack that incorporate GenAI for an upcharge, ask suppliers for inputs or models that can be used to capture the economic benefits and track costs.

Related Research:

[Assess the Value and Cost of Generative AI With New Investment Criteria](#)

[Toolkit: Discover and Prioritize Your Best AI Use Cases With a Gartner Prism](#)

[Capture AI Value With These 5 Benefit Realization Best Practices](#)

[Research Roundup: Realizing Value From Artificial Intelligence \(AI\)](#)

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Autonomous Military Warfare

Strategic Planning Assumption: By 2025, 70% of the G20 will consider a formal agreement to ban or limit autonomous military AI weapon use and proliferation. The rest will not abide by this agreement.

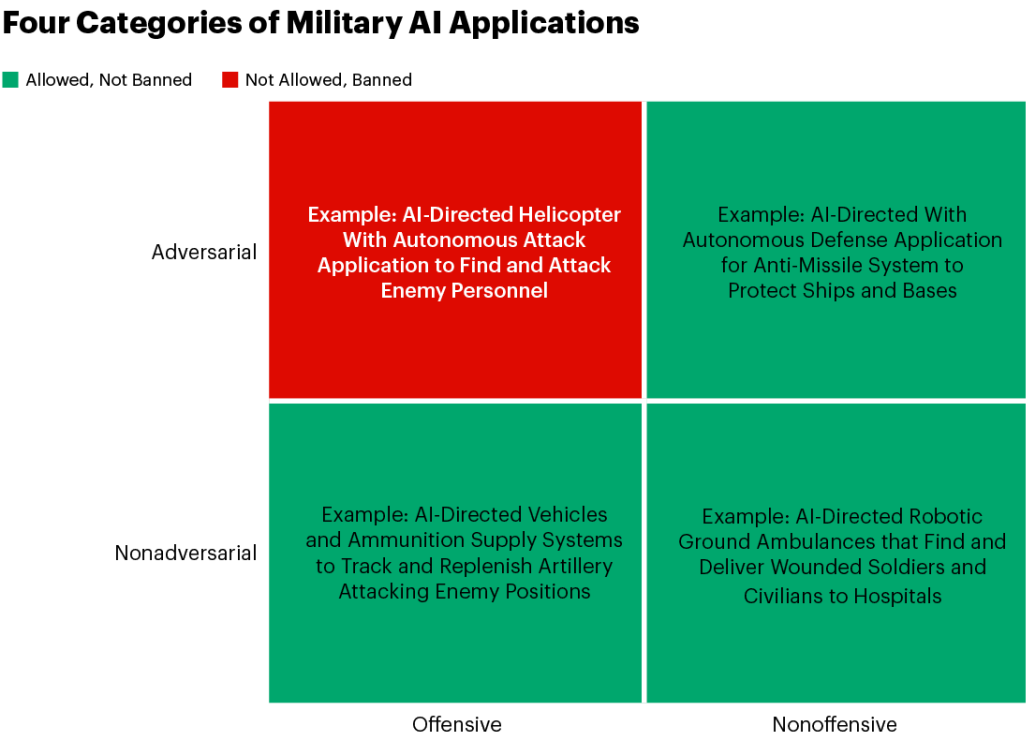
Analysis by: Chad Storlie

Key Findings:

- Prior arms limitations treaties have followed the introduction and use of banned weapons prior to eventual control measures. Chemical weapons were used extensively in World War I and later banned in the 1920s. The two atomic bombs used on Japan at the end of World War II led to numerous bans and limitations on nuclear weapon design, geographic positioning, testing and inventories. Biological weapons never had extensive use and were banned, along with chemical weapons, in the 1925 Geneva Protocol.

- Military use of AI falls into four categories (see Figure 2): (1) adversarial and offensive; (2) adversarial and nonoffensive; (3) nonadversarial and offensive; and (4) nonadversarial and nonoffensive. An example of adversarial and offensive use is a robotic and autonomous military AI attack helicopter employed to determine enemy positions and targets with the capability to make independent decisions to attack and reattack based on AI alone. In addition, adversarial and offensive military AI would be networked to enable target selection as well as to direct and approve the use of other weapons in such attacks. An example of adversarial and nonoffensive use is an aerial drone using AI to navigate, detect, classify and transmit enemy military positions along a contested border to manned military headquarters for further human-driven attack decisions. An example of nonadversarial and offensive use is a robotic vehicle using AI navigation and control to deliver food and fuel to resupply military personnel during an attack.

Figure 2: Four Categories of Military AI Applications



Source: Gartner
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- The tendrils of interest in adversarial military AI applications are growing with the challenges of creating effective conventional military forces. The Russian Invasion of Ukraine has displayed the grueling combination of high firepower-high casualties contrasted with limited effective military outcomes that can lead militaries to seek “breakthrough” weapons (for example, the introduction of the tank during World War I). The U.S. Army has missed its staffing recruiting goals for 2022 and 2023 by approximately 25,000, signaling that a “human-lite” way of warfare may be an impending requirement. Finally, the effectiveness of the Israeli Iron Dome anti-missile system in the current Israel-Hamas conflict demonstrates positive military outcomes from highly advanced technology and analytics.
- Not all military AI applications are harmful and only a select category of military AI will be banned. Adversarial and offensive uses should be controlled and banned because they represent the greatest potential for human injuries, deaths and property damage. In addition, these military AI uses have the potential to not follow the established laws of war (most commonly referred to as the Geneva Conventions and additional Protocols). ¹ Military AI that is programmed and directed toward adversarial offensive activity as its primary function, independent, and without any human control, will act to fulfill its primary adversarial mission. Adversarial and offensive military AI would have to be able to gather evidence, reason and decide to ignore its primary military mission — a risk too great for the protection of human life and property.
- The use of adversarial offensive military AI has the potential to deliver a new form of the horrors of warfare, but in a way that is faster, more accurate and more lethal than previous forms of combat. Global political leaders must ensure a ban on the use of military combat AI platforms prior to their widespread use. Military AI could start to emerge slowly without general public knowledge if there is not an immediate prohibition.

Market Implications:

- There are immense market and financial opportunities for military applications of AI that do not include adversarial-offensive combat applications. Logistics, transportation, reconnaissance, intelligence assessment, medical evacuation and others offer wide-ranging solutions to meet immediate and future military needs.
- Military AI uses in the transportation, aviation, logistics, evacuation, reconnaissance and intelligence fields could significantly reduce the need for human military personnel and ease armed forces recruitment strains.

- Military AI in sustainment and support applications offers the opportunity for use and migration into nonmilitary supply chain applications as well as for humanitarian and disaster assistance.

Recommendations:

- Organizations should lobby their domestic governments and support other nongovernmental organizations (NGOs) to direct the United Nations to convene an arms control conference that outlaws the use of kinetic military AI. This ban should go into effect no later than 1 January 2025 to prevent the rapid development and release of adversarial-offensive military AI applications.
- Military vendors should resist and build safeguards into military AI applications and designs that restrict and prevent the postpurchase/aftermarket adjustment of military AI into adversarial-offensive military AI.
- Military vendors and government organizations should conduct “red team” studies and events to understand how military AI technology could be illegally adapted and transformed into adversarial-offensive military AI applications to reinforce military AI safeguard measures.
- Nonoffensive military AI applications should be fast-tracked into humanitarian aid and disaster response as a proof of concept for military fielding that also delivers immediate humanitarian benefits.
- Military AI applications should focus on transportation, logistics, medical evacuation, reconnaissance, intelligence and other military support applications that can test and validate the manufacture, test, fielding, and maintenance of military AI.

Related Research:

[Emerging Tech: Eyes in the Sky — How Earth Intelligence Will Become an Essential Tool for Your Business](#)

[Quick Answer: Will AI Create an Existential Crisis for Humanity?](#)

[Emerging Tech Impact Radar: Smart Robots and Drones](#)

[Emerging Tech: Security — Emergence Cycle for Automated Moving Target Defense](#)

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Economy of the Intangibles

Strategic Planning Assumption: By 2030, organizations that virtualize at least 30% of their tangible assets will reduce complexity costs and increase global competitiveness by entering new markets.

Analysis by: Vittorio D'Orazio

Key Findings:

- Tangible assets are physical assets with transacted value that can be used to sell or buy the asset. They have physical tangible form and are usually depreciated over a timeline in balance sheets. They are often long-term assets and require capex for purchasing them. Tangible assets, as opposed to intangible assets, are much less liquid and associated with higher expenses for maintenance and storage. Examples of tangible assets include buildings, machinery, cars and trucks, but also perishables such as raw materials and commodities.
- Maintenance of tangible assets in one organization includes their integration in the value chain process of that organization. Such a set of physical links can be particularly onerous and complex depending on the organizational structure and processes. Lately, such interoperability has become more complex and difficult to maintain due to digitalization processes in which intangible assets have taken the place of tangible assets and, in some cases, has even become predominant. As a consequence of such digital transformation, tangible asset interoperability has become more expensive and complex. In fact, tangible assets and their analog processes have required links to digital processes and digital assets (often intangible) that are difficult to build and maintain due to old operational technology embedded in the tangible assets.
- Tangible assets usually have a longer timeline for depreciation than intangible assets and digital processes overall. This often creates complexity in preserving the interoperability between these two classes of assets. Moreover, while this longer timeline might seem like an advantage from an accounting angle, in reality it is hampering innovation initiatives at organizations that need to consider writing off such assets in order to replace them and innovate. This situation ultimately reduces the ability of organizations to innovate and compete with brand-new digital organizations with just a few essential tangible assets.

- Today, digital organizations tend to have a greater adoption of intangible assets such as software and services that can replace old physical systems. For example, R&D departments of medical science factories use simulators for drug experiments before engaging in actual physical experimentation. Financial institutions can simulate the impact and risk of financial tools before effectively deploying them. Manufacturers can use virtual reality to design and simulate specific equipment to develop. All these solutions can remarkably reduce the cost of running the organization and create differentiation, especially in highly commoditized sectors.
- While digitalization can lead to lower costs overall, IT spending is typically increasing. This is particularly true in service-intensive industries that are avid technology users, such as banks and other financial institutions where the IT spending/budget ratio has surged from 4% in 2018 to 7.1% in 2022 (see [IT Key Metrics Data 2023: Industry Measures – Banking and Financial Services Analysis](#)). Gartner IT key metrics data can show this common finding across each industry, leading to the conclusion that while virtualization of assets goes on, IT spending will go up, with a particular focus on the IT infrastructure that will replace the tasks of physical assets.
- Moreover, virtualizing physical assets that have built the organization's traditional footprint, such as shops for retailers or branches for banks, can have a huge impact in reducing operational costs. For example, Apple – despite being a manufacturer with factories for computers – started using virtualization of physical assets long ago to facilitate the ability for components being built abroad using outsourcers. This allows Apple to focus on the R&D and design still being done onshore in the U.S. (e.g., “Designed by Apple in California”) and potentially reduce its operational costs and increase margins. Similar strategies have been pursued by other organizations in other industries, such as banks and insurers outsourcing business processes such as mortgage servicing or policy administration. However, so far, all such outsourcing strategies have focused on noncritical parts of these processes. Today, with massive digitalization strategies in place, we even see the mission-critical applications steps of core processes being dematerialized and virtualized, such as management of retail customer relationships or core banking systems. Several technologies can enable this move, including the use of the cloud and AI.
- Another important driver to consider in a virtualization process is the environmental, social and governance (ESG) focus that organizations have today. Virtualizing assets not only reduces the cost of managing them, but also shrinks the carbon footprint associated with such physical operations. For example, on average, moving data centers to the cloud can lead to a 70% reduction in electricity consumption (and costs), making such a strategy climate-friendly.

Near-Term Flags:

- Typical and visible physical assets that will start reducing their presence across territories include branches of banks and insurers, retail shops, hospitals and clinics, factories, centers for logistics, etc. All those assets will be gradually reduced over the next few years.
- IT services adoption will grow across industries and specifically cloud services.
- R&D departments will be more distributed and less “physical” and use more software than real tangible assets for experimenting and testing.
- Workers will work from home. Smart working will continue to trend up in the near future.
- Successful organizations of asset-intensive industries (for example, manufacturing) will see a stark decrease in their long-term tangible assets (for example, buildings) across the balance sheet of their financial reports.
- Successful organizations of service-intensive industries (for example, banks) will see a stark decrease of tangible assets for customer interaction and distribution of services, being replaced by digital channels.

Market Implications:

- The main market implication of the new “economy of the intangibles” (that is, an economy mainly based on intangible assets) is that organizations that are virtualizing their tangible assets can either use digital twins (see [Quick Answer: What Should CFOs Know About Digital Twins?](#)) or externalize those assets to others and become less asset-intensive. However, such tangible asset divestment will not be entirely exported to other organizations while transformed into a service. In fact, the service company will leverage many models by reaching greater economies of scale and efficiency in the use of those tangible assets. For example, if 10 organizations are divesting from their data centers and moving into the cloud, the amount of money, electricity, and “bricks and mortar” utilized for those original 10 data centers will correspond to lower quantities for the cloud provider.
- Many service companies will absorb the assets of those that are virtualizing. Therefore, their quantities of tangible assets are expected to increase and become more asset-intensive.

- Market implications will be different between asset-intensive versus service-intensive industries. The former might harvest most of the benefits by removing those assets and externalizing them to outsourcers, while the latter will leverage this trend by increasing its revenue as a consequence of more work. Supply chain industries will leverage the use of digital twins and avoid the expensive use of asset-intensive procedures. For example, testing manufactured products could be virtualized (e.g., drugs, cars, food) or retailers could use virtualization to imagine real-time design and colocation of products in supermarkets. At the same time, these industries might outsource logistics and IT departments and virtualize them.
- Organizations that choose to leverage virtualization will better hedge the risk of writing off obsolete assets from their financial books while diminishing their exposure to capital spending for purchasing those assets. This strategy will release working capital and reduce costs, ultimately enabling greater competitiveness. Moreover, these companies will be able to continuously innovate without being restricted by the long depreciation timelines of tangible assets.
- Virtualization will also imply transforming manual processes into digital ones. Many virtualized organizations will become completely digital and thus smoothly integrate processes and enable faster deliveries in logistics, less expensive loans or lower production costs for manufactured products. All these factors will reduce operational costs and ultimately increase the virtualized organization's competitiveness. Such smooth integration can reach a maximum when complexity costs are brought down to zero as no better integration can be reached.
- An increase in collaboration and adoption of the shareability principle is another important expected consequence of an economy of the intangibles. Organizations will find partnering and collaborating with others more convenient than executing some of their key processes themselves. This will lead to a greater leverage of technologies such as GenAI, distributed clouds, internal social networks, standard APIs, portals, etc. At the extreme, organizations might share the same business vision (for example, delivering exceptional customer experience or providing the most compelling prices) and embrace a strategy based on the swarm theory (see [How the Fintech Swarms Will Change the Financial Service Industry in 2021](#)). This new operating model can leverage virtualization and lead to greater specialization. Some companies, for example, will specialize in storage, while others will focus on sales.

Recommendations:

- Standardize your organization by avoiding any deviation from the industry standards and thus avoiding complexity costs. Customization should also be kept to a minimum. This will help prepare you for the virtualization of tangible assets.
- Build a digital twin organization to leverage tangible asset virtualization by introducing a digital twin for small projects first and then scaling it up to the whole process.
- Map your tangible assets, and the links between them and the intangible assets, with a particular attention to digital assets. Cluster them in relation to the processes in which they operate in order to reduce complexity costs and increase global competitiveness by entering new markets.
- Spot the pockets of inefficiency by analyzing the complexity costs. Typical areas of focus are where interoperability between systems is more complex and less easy to manage, and where there is a high level of customization in the connections between processes.
- Build an action plan to virtualize the tangible assets and reduce inefficiency accordingly.

Related Research:

[How the Fintech Swarms Will Change the Financial Service Industry in 2021](#)

[Ignition Guide to Creating a Digital Twin MVP](#)

[Video: How Digital Twins of Customers Improve CX](#)

[Core Banking Hot Spot 2023: Moving the Core Into the Cloud](#)

[Tool: Gartner's Top IT Cost Optimization Ideas](#)

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Social Media Addiction

Strategic Planning Assumption: By 2027, following the recognition of social media addiction as a mental health disorder, 40% of countries will include related course work in their schools.

Analysis by: Agustin Rubini and Bart Willemsen

Key Findings:

- Studies show a consistent rise in screen time among young people, particularly on social media platforms, increasing the risk of addiction. ² Thirty percent of Americans consider themselves addicted to social media. ³
- Organizations like the American Psychological Association are increasingly discussing the mental health impacts of social media, signaling a shift toward official classification.
- Some countries have already started pilot programs to educate students about digital well-being, indicating a trend toward broader adoption.
- The potential classification of social media addiction as a mental health disorder indicates a growing societal concern, necessitating educational intervention. Researchers have found that receiving therapy for problematic social media use can be effective in improving the mental well-being of people with depression. ⁴
- Schools are starting to sue social media networks for allegedly addicting students to their social media platforms. ⁵ Major social media platforms have started to introduce features aimed at reducing screen time, indicating an industry acknowledgment of the issue.
- Following studies on the impact on general youth well-being, physical social interactions and a decrease in academic performance over time, several legal initiatives have been implemented banning smartphones and similar digital devices from classrooms and/or limiting social media or gaming activity duration for specific age ranges.
- Surveys show that a growing number of parents are concerned about their children's social media usage, creating public pressure for educational interventions.
- The increasing impact of the digital realm on the physical one is evidenced in an increase in mostly younger people opting for plastic surgery to look the way they digitally represent themselves with filters, under social, peer or self-imposed pressure. ⁶
- Social media algorithm-based suggestions aim to stay connected based on behavior profiling, ⁷ with the effect that intensifying extreme content achieves more extended interactions, including pushing extreme content to impressionable young people. ⁸

- The public health perspective ⁹ regarding social media is under continuous scrutiny, while signs ¹⁰ indicate there is a correlation ¹¹ between increased digital activities and suicide cases. ¹²

Near-Term Flags:

- Increase in public announcements or papers from reputable health organizations discussing the classification of social media addiction as a mental health disorder
- Introduction of pilot educational programs in schools focused on digital well-being and social media addiction
- Drafting of laws or regulations aimed at limiting social media use among minors, regulatory action against disinformation or mandating educational programs
- Increasing numbers in surveys indicating parental concern about children's social media usage, which could drive public policy
- Increased media attention on the mental health impacts of social media, especially among younger populations

Market Implications:

- Incorporating education into school curricula allows for early intervention, potentially preventing severe cases of addiction later in life. This could set a precedent for how educational systems around the world address public health issues, leading to more proactive and preventive measures.
- Schools and healthcare systems may need to allocate additional resources for these educational programs, affecting budgets and priorities.
- The tech industry will face increased pressure to develop features that promote digital well-being, possibly affecting their business models and limiting online activities and content to within imposed bounds.
- New laws and regulations governing social media usage and gaming activity duration for minors will impact both users and platform providers.
- Those jurisdictions that do impose measures will further fragment global deployments of platform technology as the restrictions and censorship rules will greatly differ between countries worldwide. One example is a new industry developing in Asia called "internet detoxification retreats."

Recommendations:

- Advocate for the inclusion of social media addiction education in school curricula, even before official policies are in place.
- Let your digital ethics programs drive proactive decisions on customer care and incentivize socially desirable outcomes.
- Keep abreast of new research, guidelines and tools related to social media addiction and mental health as the field is likely to evolve rapidly.
- Facilitate informative educational programs for your workers and, where needed, customers, on how to proactively recognize and respond to signs and symptoms of social media addiction, as well as on available treatment options.

Related Research:

[Focus Social Media Efforts Based on Openness to Branded Content](#)

[Toolkit: Introductory Guide to Social Media Monitoring](#)

[Maverick Research: Humanity Needs Digital Townships to Thrive](#)

[Maverick* Research: Augmented Reality — Stuck Between Virtual and Physical Worlds, and Stressed Out](#)

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Low Trust, Low Engagement

Strategic Planning Assumption: By 2025, low trust in AI-generated content will reduce customer engagement by 50%, driving a new sense of urgency that makes engagement the top indicator of performance.

Analysis by: Lizzy Foo Kune, Hertha Meyer

Key Findings:

- Businesses plan to increase their use of AI to generate content for marketing, sales, customer service and customer support. According to an April 2023 Gartner IT Executives Webinar poll, nearly one-fifth of organizations are already piloting or have implemented generative AI applications, while another 70% are exploring and looking to deploy imminently (see [Innovation Insight: Vector Databases](#)).
- Improving customer experience and retention is the primary purpose of initiatives to deploy GenAI applications trained on large language models (see [How Generative AI Can Help Meet Customer Experience Expectations](#)).
- Businesses are pursuing GenAI initiatives in a climate of decreasing trust. The 2023 Gartner Consumer Values and Lifestyle survey shows rapidly declining consumer trust in big brands, corporations and other large institutions. ¹³
- Despite this enthusiasm, 56% of organizations are operating without any policies or procedures in place for GenAI whatsoever (see [Generative AI: 3 C-Suite Policy Discussions CFOs Must Shape](#)). This is in contrast with consumers' perceptions of GenAI; 80% of consumers agree somewhat or strongly that the U.S. government should establish regulations to control the use of generative AI, demonstrating that consumers want strong oversight of corporate use of AI in the products and services they buy. ¹⁴
- Consumers are wary of AI-generated content. In Gartner's 2023 Consumer Values and Lifestyle Survey, when asked to choose words they associate most with GenAI, the first answer that consumers gave was "complex," and the second-highest answer was "threatening." ^{13,15}
- Seventy-one percent of consumers say they are somewhat or very concerned about discrimination or bias in GenAI systems (i.e., providing differing content or solutions based on age, race/ethnicity, gender, location, etc). This is a risk for businesses as they manage brand perception and overall reputation, and could harm future consumer engagement. ¹⁴
- Businesses risk losing customer trust as they speed forward with GenAI initiatives. Just 17% of consumers with an opinion on GenAI believe it will bring benefits to society. ¹⁴
- People still trust humans in customer experience roles more than they do GenAI. Seventy-four percent of respondents to Gartner's survey said that humans were better suited than GenAI to provide customer service. ¹³

Market Implications:

- A crisis in customer engagement will arise as businesses inundate customers with AI-generated content in an environment where trust is on the decline. Consumers have consistently shown a preference for “real human” interaction with brands they engage with, and that preference appears to be growing as GenAI awareness and usage increase.
- Brands face complex adoption of GenAI technologies as consumers demand to know when and how they are used in the products, services and interactions they have with companies. As GenAI replaces humans in certain jobs, consumers that are most interested in corporate responsibility/ethics/shared values may show their displeasure by disengaging from those brands.
- As one of the earliest adopted use cases, customer service chatbots run by GenAI could help reduce consumer wait times. However, as these systems cannot offer the customization or empathy that a human customer service agent can, Gartner expects an increasing number of consumers to avoid contacting a brand for any kind of help after product purchase when AI is employed. As a result, they will effectively disengage from the brand and product.
- Marketing leaders already have a lot of customer experience metrics to track. The majority of large organizations with revenue of more than \$1 billion (or the equivalent) have more than 100 customer experience metrics — some have as many as 400, based on Gartner analysts’ interactions with clients (see [How to Manage Customer Experience Metrics](#)).
- Businesses need to measure the operational, strategic and business risks and impacts of their investment in AI-created content, as well as the potential impact on consumer trust, across multiple customer-facing functions (including sales, marketing, service and support).
- As businesses struggle to measure customer engagement, the hype surrounding KPIs for customer engagement will grow.

Recommendations:

- Disclose your use of GenAI to your customers. Seventy-two percent of consumers believe companies should be required to disclose when they use generative AI to generate content, develop new products, or enhance customer service. ¹⁴

- Continue to invest in “real human” interactions while testing and learning about where to use AI-generated content across your customer experience. While consumers do see some benefit to AI-generated customer service applications, two-thirds (66%) still say they trust humans more in that role. ¹⁴ Until GenAI systems effectively reverse current consumer perception by becoming better than humans in this role, companies should carefully balance customer engagement risks with enhanced profitability.
- Evaluate where your consumers may prefer human-based customer service, content generation or product development. As AI-generated content grows in use, human-based service will become a larger factor in purchase consideration and brand loyalty, particularly for higher-priced goods and services where consumers require more personalization.
- Establish clear use cases for generative AI capabilities that document the technical dependencies, business outcomes and metrics, and workflows that would need to change. Insist that compelling use cases, proofs of concept and empowered governance precede investment in GenAI.
- Reevaluate how you measure customer engagement to ensure that the metrics fully capture the impact of GenAI on your business.

Related Research:

[Drive Agility and Scale for the Future With Content Operations](#)

[How to Serve Consumers’ Renewed Appetite for Content](#)

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AI Rights

Strategic Planning Assumption: By 2028, multiple members of the G20 will adopt regulations to clearly mitigate the risks of misuse and perceived sentience of AI, setting the groundwork for defined AI rights.

Analysis by: Marty Resnick

Key Findings:

- A G20 country declaration would set the table for a universal standard for AI rights, ensuring a cohesive approach across nations.
- The ultimate aim here is to introduce the idea of responsible AI to streamline AI governance. Responsible AI will promote trust, transparency and accountability, and will eventually help mitigate AI biases.
- As a part of their “Hiroshima AI process,” G7 nations introduced new guiding principles that aim to set rules for inclusive and dependable AI governance, thus setting the groundwork for defined AI rights.¹⁶
- With rights in place, there might be legal safeguards against the misuse or abusive deployment of AI, especially in scenarios where AI exhibits sophisticated behavior that might be misinterpreted as sentience.
- Mandating rights might necessitate greater transparency in AI’s design, deployment and decision-making processes, ensuring that stakeholders understand how AI operates.
- Just as humans extend certain rights to animals based on their capacity for suffering and consciousness, it might be consistent to extend rights to any being, human or artificial, based on similar capacities.
- By clearly demarcating AI rights, there could be a better understanding of where human rights end and AI rights begin, ensuring that, in the end, AI acts as we expect and mitigating ethical and potentially existential risks.

Near-Term Flags:

- AI is no longer considered to be just a tool; it has been organically anthropomorphized over time and will continue to be as it begins to exhibit more human-like behaviors. Because we need to communicate back and forth with AI, we have prioritized these investments.
- Many people are advocating for strong regulations and guidelines to ensure AI’s ethical development and use, but until there is an international body (such as the G20) that officially recognizes the rights of AI, there will be a continual divergence in global AI rulemaking (see [The 7 Forces Impacting Your Organization’s Future: Tapestry 2024](#)).

Market Implications:

- Companies involved with the development and deployment of AI would incur additional costs to comply with the international standards set forth by the members of the G20.
- Innovation in different areas of AI may be slowed or stifled.
- Barriers of entry for the use and development of AI may be increased, favoring large corporations over smaller startups.
- Companies that demonstrate ethical AI practices as outlined in the adopted regulation would gain a competitive advantage.
- Introduction of AI rights could lead to a rise in litigation concerning AI rights violations.
- Increased demand would surface for professionals specializing in AI ethics and compliance.
- Consumers may be more discerning and choose to work only with businesses that adhere to AI rights guidelines.
- Companies that fail to adhere to AI rights guidelines will risk damage to their reputation and branding.

Recommendations:

- Stay informed and monitor regulatory changes closely to keep track of AI rights developments by conducting quarterly reviews.
- Develop an internal compliance framework specific to AI rights that includes guidelines, processes and mechanisms proactively prior to the regulations being adopted.
- Engage with stakeholders to communicate the company's stance on AI rights and actions being taken.
- Seek legal counsel to understand potential liabilities.
- Establish channels for employees and other stakeholders to voice concerns or provide feedback related to AI rights in the short term. In the long term, build an ethics committee and/or AI governance function.
- Play a role in shaping the AI rights landscape.

Related Research:

[The 7 Forces Impacting Your Organization's Future: Tapestry 2024](#)

[We Shape AI, AI Shapes Us: 2023 IT Symposium/Xpo Keynote Insights](#)

[Become an AI-First Organization: 5 Critical AI Adoption Phases](#)

[Generative AI: A Look at Emerging Governance Practices](#)

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Night-Time Economy

Strategic Planning Assumption: By 2030, the night-time economy in heat-stressed regions will grow 25% as companies adapt business operations to avoid extreme daytime temperatures.

Analysis by: Sabu Mathai and Casey Logan

Key Findings:

- Extreme heat poses increasing risks to companies in heat-stressed regions. Peak daytime temperatures threaten outdoor and indoor workers, decrease productivity and raise energy costs while straining energy supply. ^{17,18,19,20}
- To adapt to extreme daytime temperatures, companies constrained to shifting business operations by season or location will instead shift business operations to night-time hours (6 p.m. to 6 a.m.). ^{21,22,23} The term “night-time economy” refers to all economic activity during night-time hours. Although it is often associated with urban nightlife, commercial activity will gain a larger share of the night-time economy in urban, rural and semirural areas. ²⁴
- To build an effective nocturnal workforce, companies must address how night-time work will impact: (1) risks to workers’ health, safety and well-being; (2) relevant labor regulations and labor market dynamics; and (3) quality and productivity. ^{25,26} Automation will play a key role round-the-clock in addressing labor and business risks from both extreme heat and night-time business operations.

- The growing night-time economy will combine with other trends that are also changing energy usage. Its demand for electricity will stretch energy systems already strained by increased air conditioning usage and changing consumption patterns (for example, night-time recharging of electric vehicles). ^{27,28,29,30}
- The night-time economy will evolve differently around the world. In some regions accustomed to extreme heat, business is already better adapted (for example, air conditioning is more widespread, the built environment is more heat-resilient, labor regulations limit heat exposure or there are fewer outdoor workers). In these regions, concerns about labor (for example, health, safety, availability and productivity) and energy (for example, costs and supply) will nevertheless drive more commercial activity into the night-time economy.
- In heat-stressed regions where adaptation is nascent or cooling is less prevalent (such as in Asia, Africa, the Middle East and Latin America), vulnerability to extreme heat will also raise concerns about supply chain disruptions and equity that the night-time economy can address.
- Although companies will find some comfort in the night-time economy's cooler embrace, they won't escape the heat entirely. Both climate change and the urban heat island effect contribute to rising night-time temperatures; in some areas, night-time temperatures already reach extreme heat levels. ^{31,32} Automation, cooling (such as air conditioning or wearable cooling vests) and rural site location (where night-time temperatures are rising more slowly) can mitigate risks from extreme night-time temperatures. In urban areas, the night-time economy will benefit from adaptations in the built environment that counter night-time warming.

Near-Term Flag:

In heat-stressed regions, several indicators will reflect the night-time economy's growth. These include:

- Energy demand forecasts for night-time hours
- The ratio of night-time to daytime workers
- Communications (such as phone calls, internet traffic and online meetings)
- Commerce (for example, payments)
- Traffic (for example, commuter miles traveled and logistics)

- Mobility (such as health tracker data)
- Lighting (as measured from satellite images)
- Automation (for example, robot density)

Market Implications:

- The supply and demand of energy sources during night-time hours varies across heat-stressed regions. Where daytime energy prices rise from peak demand for cooling, cost savings from off-peak energy prices will drive growth in the night-time economy. ^{33,34}
- Growing demand for night-time energy from the night-time economy and changing consumption patterns (for electric vehicle recharging) could test electrical grid infrastructure and temper cost savings from the night-time economy.
- The availability of renewable night-time energy will require new systems and infrastructure (such as battery and pump storage, smart grids, and microgrids). If left unaddressed, a lack of renewable night-time energy could be a setback for carbon emissions reduction (for example, net zero), the night-time economy's energy cost-saving potential and the night-time economy as an adaptation measure more generally. ³⁵
- High cooling costs during the hottest daytime hours will burden night-time workers arriving home to rest after working the night shift. Where extreme heat is pervasive, public policy will begin to treat cooling as a public good (for example, subsidized heat pumps and energy costs).

Recommendations:

- Automate tasks to limit heat exposure for outdoor and indoor workers at all hours of the day and to mitigate risks to night-time business operations from labor-related risks.
- Assess projected access to reliable night-time energy supply against planned night-time business operations and ongoing daytime operations, evaluating the cost benefits and considering how the energy mix (for example, coal, oil, gas and renewable) impacts corporate sustainability objectives.

- Assess whether your products or services, production methods, and processes are suited for night-time business operations.
- Create a strong value proposition for the nocturnal workforce that protects their health, safety and well-being and affords them flexibility and support (such as assistance with childcare costs).
- Align with unions and worker councils to create work shifts that straddle daytime and night-time hours either in the late night or early morning. This will minimize negative health and well-being impacts on the nocturnal workforce while maximizing coverage for expanded night-time business operations.

Related Research:

[Supply Chain Executive Report: Balancing Sustainability and Resilience for Our Climate Future](#)

[Predicts 2023: Rethink Supply Chain Strategy for Interconnected Risks and Opportunities](#)

[Quick Answer: Implement Climate Adaptation Strategies to Enable Resilience](#)

[Climate Adaptation Drives Enhanced Approach to Supply Chain Risk Management](#)

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A Look Back

In response to your requests, we are taking a look back at some key predictions from previous years. We have intentionally selected predictions from opposite ends of the scale – one where we were wholly or largely on target, as well as one we missed.

This report is too new to have on-target or missed predictions.

Gartner Futures Lab



This research is part of [Gartner Futures Lab](#) — Gartner Futures Lab research challenges conventional wisdom and explores plausible “what if” futures to reconsider implications for the present.

Evidence

- ¹ [The Geneva Conventions of 1949 and their Additional Protocols](#), International Committee of the Red Cross.
- ² [Online Social Networking and Addiction—A Review of the Psychological Literature](#), International Journal of Environmental Research and Public Health.
- ³ [ThinkNow Media Report 2019](#), ThinkNow.
- ⁴ [It's Official — We Really Need Help With Social Media Addiction](#), HuffPost U.K. Edition.
- ⁵ [U.S. School Board Sues Meta Over Social Media Addiction](#), The Times of India.
- ⁶ [From “Instagram Face” to “Snapchat Dysmorphia”: How Beauty Filters Are Changing the Way We See Ourselves](#), Forbes.
- ⁷ [How Does TikTok’s Uncanny Algorithm Decide What You See? We Tested It on Three People](#), The Guardian.
- ⁸ [TikTok Pushes Harmful Content to Teens Every 39 Seconds, New Report Claims](#), ABC News.
- ⁹ [Social Media and Suicide: A Public Health Perspective](#), National Library of Medicine.
- ¹⁰ [Is Social Media Contributing to Rising Teen Suicide Rate?](#), NBC News.
- ¹¹ [The Impact of Social Media and the Internet on Suicidal Experiences](#), The University of Manchester.
- ¹² [10-year BYU Study Shows Elevated Suicide Risk From Excess Social Media Time for Young Teen Girls](#), Brigham Young University.

¹³ 2023 Gartner Consumer Values and Lifestyle Survey. The purpose of this survey was to understand consumer lifestyles and motivations. The research was conducted online in two parts from 21 July to 23 August 2023 among 6,040 respondents in the U.S. (n = 4,017), Canada (n = 1,008) and the U.K. (n = 1,015). The first part of the survey included screening, demographic, sentiment, values and lifestyle questions. The second part included category-specific (e.g., money and spending, health, and beauty) questions. Respondents were required to be at least 15 years old. Disclaimer: Results of this survey do not represent global findings or the market as a whole, but reflect the sentiments of the respondents surveyed.

¹⁴ Gartner Consumer Community (n = 285, 12 to 19 October 2023). While the Gartner Consumer Community (n = 500) resembles the U.S. general population, the data cited is based on the responses of community members who chose to take part in each activity. These samples may not be representative of the general population and the data should only be used for directional insights.

¹⁵ Based on a multiselection question. Respondents were given the following options: Impressive, Threatening, Unnecessary, Convenient, Complex, Confusing, Fascinating, Exciting, Efficient, Effective.

¹⁶ [Hiroshima Process International Code of Conduct for Organizations Developing Advanced AI Systems](#), G7 2023 Hiroshima Summit.

¹⁷ [Indoor Workers Need Protection from Extreme Heat Too](#), NRDC.

¹⁸ [Heat Is Costing the U.S. Economy Billions in Lost Productivity](#), The New York Times.

¹⁹ [NASA Announces Summer 2023 Hottest on Record](#), NASA.

²⁰ [Climate Change 2023 Synthesis Report: Summary for Policymakers](#), Intergovernmental Panel on Climate Change.

²¹ [In the Face of Climate Change, It's Time to Rethink Regular Work Hours](#), Anthropocene (citing [Increased Labor Losses and Decreased Adaptation Potential in a Warmer World](#), Nature Communications).

²² [Extreme Heat Is Forcing Spain's Outside Workers to Shift Their Hours](#), World Economic Forum (citing [Working on a Warmer Planet: The Impact of Heat Stress on Labor Productivity and Decent Work](#), International Labour Organization).

- ²³ [Extreme Heat Drives Farmers to Go Nocturnal](#), The Washington Post.
- ²⁴ [The Night-Time Economy, U.K.: 2022](#), Office for National Statistics.
- ²⁵ [Shift Work and Health Outcomes: An Umbrella Review of Systematic Reviews and Meta-Analyses of Epidemiological Studies](#), Journal of Clinical Sleep Medicine.
- ²⁶ [Extended/Unusual Work Shifts Guide](#), U.S. Department of Labor/OSHA.
- ²⁷ [U.S. Heat Wave: Scorching Heat Strains U.S. Air Conditioning Capacity](#), BBC.
- ²⁸ [Texas Power Grid Met Record-Breaking Demand for Electricity During Recent Heat Wave](#), U.S. Energy Information Administration.
- ²⁹ [Climate Resilience for Energy Transition in Oman](#), International Energy Agency.
- ³⁰ [Too Many Electric Cars Charging at Night May Overload Electrical Grid](#), New Scientist.
- ³¹ [Why Hot Overnight Temperatures Are So Dangerous](#), Scientific American.
- ³² [Nights Are Warming Faster Than Days. Here's Why That's Dangerous](#), The New York Times.
- ³³ [Climate Change Shifts the Trade-Off Between Lower Cooling and Higher Heating Demand From Daylight Saving Time in Office Buildings](#), Environmental Research Letters.
- ³⁴ [Analysis: Asia Heat Waves Put Renewable Power Fleet to the Test](#), Reuters.
- ³⁵ [India to Extend Time-of-Use Electricity Tariffs](#), Reuters.

Recommended by the Authors

Some documents may not be available as part of your current Gartner subscription.

[The 7 Forces Impacting Your Organization's Future: Tapestry 2024](#)

[Gartner Futures Lab Podcast \(2023 Season\)](#)

[Gartner Futures Lab Podcast: Using Tapestry to Anticipate and Influence the Future](#)

[Gartner Future Directions 2023: The Age of Disruptions](#)

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Table 1: Future Forces Across Tapestry to Prepare for Today

Force	Category	Key Element
Unproven Technology, Unpredictable Results	Technological	Profit
Autonomous Military Warfare	Political	Principles
Economy of the Intangibles	Economic	Profit
Social Media Addiction	Social/Cultural	People
Low Trust, Low Engagement	Trust/Ethics	People
AI Rights	Regulatory/Legal	Principles
Night-Time Economy	Environmental	Profit

Source: Gartner (December 2023)