FUTURE TRENDS

Report

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Future Trends Report

Future Trends Report, published in English and Arabic by TRENDS Virtual Office in Montreal, stands out as a distinctive publication dedicated to highlighting:
1. the most important forward-looking studies that aim to identify future trends, analyze various variables that may influence these trends, and determine the best future scenarios.
2. the most important applied studies that explore the application of knowledge, scientific theories, and information to solve current problems and overcome future challenges.
3. the most important illustrative and graphic forms that visually summarize significant studies, helping readers understand the trends and challenges of the future world.

Editorial board

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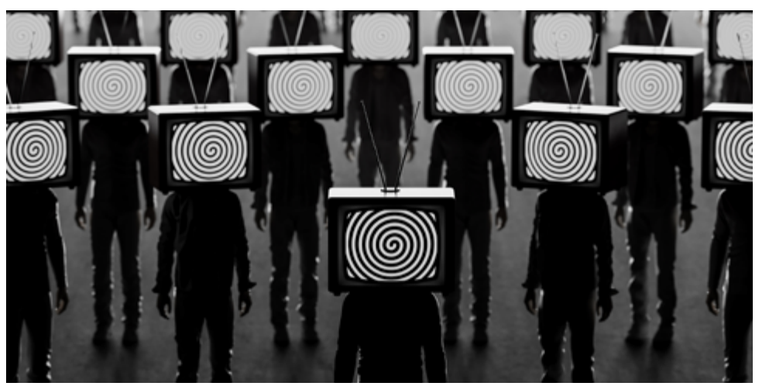
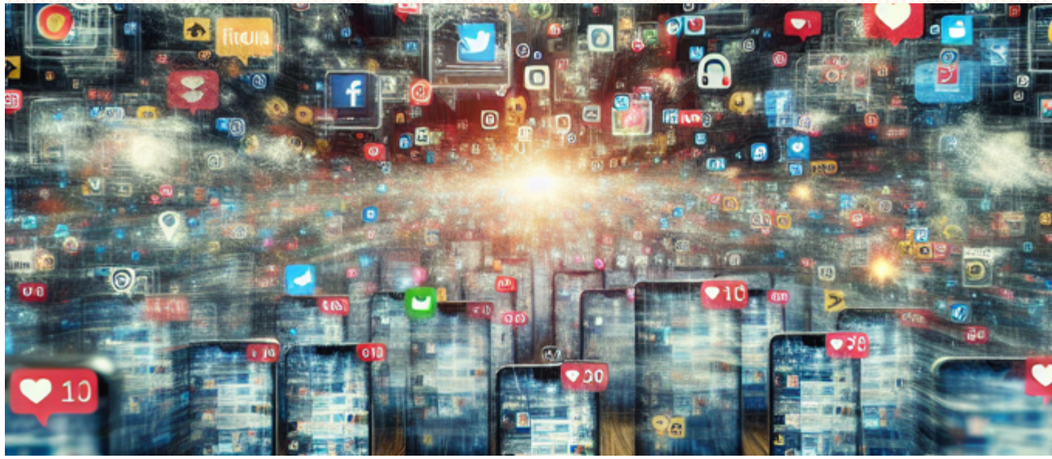
What will the world of information look like in 2050?

Le monde de l'information en 2050: des scénarios possibles, Institut National de l'Audiovisuel (INA), 2024 - https://larevuedesmedias.ina.fr/sites/default/files/202409-/EGI_RAPPORT_DE_PROSPECTIVE_INA.pdf

This report from the Institut National de l'Audiovisuel (INA), a public body that has catalogued and preserved all audiovisual archives of French radio and television since 1975, explores the future of information up to 2050 through a forward-looking approach, drawing on consultations with around forty experts from various fields. The aim is to understand the major transformations the information sector could undergo, while highlighting the challenges ahead, such as information manipulation, the economic fragility of the media, and risks to democracy. The authors emphasize that, although difficult to predict, the future of information remains uncertain, and media literacy will be essential to address the challenges of this rapid evolution.





The report is based on an impact matrix developed at the Information General Assembly (2024), which analyzes the effects of technological, economic, political, and societal transformations on information. Among the hypotheses formulated, the impact of cognitive sciences on the media ecosystem is considered, with technologies such as neural implants capable of delivering information directly to the brain. This analysis leads to three main scenarios for 2050: an optimistic one, a pessimistic one, and a median one.

The optimistic scenario imagines a "golden age" of information. After a major crisis in 2032, trust in the media would be restored, and information would become a common good, financed by citizens through donations, subscriptions, and royalties. Public regulation would guarantee the independence and quality of information, and generative AI would facilitate content production, making information more diverse and accessible. In this future, a global democracy would enhance citizen involvement in the production and financing of information.

The pessimistic scenario describes a "death of information," dominated by technology giants, where information would become volatile, unstable, and manipulable. Independent media would have disappeared, replaced by information flows controlled by technology companies. Fact-checking would become nearly impossible, and society would be fragmented, with neural implants enabling personalized access to information, creating informed elites and a population disconnected from shared realities.

The middle scenario, or "chiaroscuro," envisions a world of fragmented, saturated information. AI would increase information production, but the resulting content would become increasingly unreliable, generating a "collective immunity" to manipulation. Large traditional media would disappear in favor of niche outlets, while citizens would seek "comfortable information" aligned with their personal beliefs. A portion of the population would be excluded from direct access to information, and the fragmentation of the media landscape would weaken democracy, posing new challenges, such as the establishment of "neuro-rights" to protect individuals' mental integrity.

While these scenarios are unlikely to unfold exactly as described, the report encourages reflection on the future risks and opportunities for information and the proactive steps needed to address these developments. This forward-looking approach aims to open up perspectives and prepare society for a complex future, where information will play a central but uncertain role in sustaining democratic and social balance.

The future of information remains uncertain, and media literacy will be essential to address the challenges of this rapid evolution.

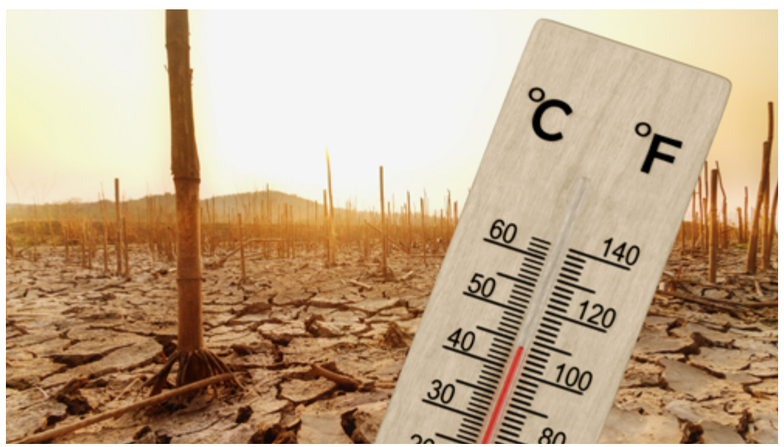
Society must be prepared for a future where information is uncertain, and where media literacy will be essential to address the challenges of this rapid evolution.

Prospective research

The world in 2050: how will our society have changed?

Le monde en 2050 : quels changements notre société aura-t-elle connu? (March 2024), Groupe Les Temps Nouveaux https://www.groupelestempsnouveaux.fr/articles/le-monde-en-2050-quels-changements-notre-societe-aura-t-elle-connus

This article explores the issues and prospects that will shape the future between now and 2050, with a focus on Generation Z, technological advances, and the societal challenges ahead. It suggests that, while the exercise of speculating on the future may seem bold, it is also necessary, due to an intergenerational responsibility, to ensure that future generations inherit an environment conducive to human flourishing and progress.



One of the main areas of focus is gene editing, particularly technologies such as CRISPR, which could soon make it possible to eliminate certain genetic diseases, treat cancers, and even resurrect extinct species. Genetics expert Samuel H. Sternberg sees colossal potential in these technologies to transform medicine over the next 10 to 15 years.

However, this technological advance raises profound questions about the job market. As robots, artificial intelligence, and algorithms increasingly replace repetitive tasks, concerns are emerging about the future of employment. AI, a fast-growing field, could revolutionize certain sectors, but the emergence of general AI, comparable to human intelligence, still seems a long way off, according to Robin Hanson, a researcher at Oxford University. While automation can lighten the burden of work, it also raises major economic and social issues, particularly regarding the distribution of the benefits of this evolution.

The most urgent threat to humanity remains climate change. The resulting disconnection from nature and lack of empathy complicate efforts to reduce greenhouse gases. Although limiting these effects is possible, political and economic obstacles hinder coordinated global action. This is where Gen Z, growing up with a keen awareness of environmental and social issues, could play a key role in implementing innovative solutions.

Young people of this digitally savvy generation are aware of the dangers of hyperconnection and place greater value on protecting their privacy. They are also open to diversity and inclusiveness, with strong awareness of gender issues and environmental advocacy. This group is particularly marked by its independence and ability to combine various disciplines of study to address social and ecological challenges. They favor collaborative approaches and use their technical and social skills to solve complex problems.

The future, according to this analysis, is being built today. For this future to be better than the present, it is imperative to think ahead, anticipating the consequences of technological advances and integrating them into political, economic, and social decision-making. Gen Z, with its values of diversity, sustainability, and innovation, seems ready to take up these challenges, offering a vision of tomorrow's solutions.

In conclusion, to shape a sustainable future, it is crucial to adopt a collaborative, responsible, and ethical approach, where technology and innovation are placed at the service of collective well-being, while preserving our planet.

The most urgent threat to humanity is climate change.

The future is being built today. Gen Z, with its values of diversity, sustainability, and innovation, seems ready to take up exiting challenges.

acronym for Clustered Regularly Interspaced Short Palindromic repeats, a technology that can precisely modify a piece of DNA or its chemistry (so-called epigenetics) in the human body.

Prospective research

Setting energy futures to music: scenarios

“Les scenarios mondiaux de l’énergie à l’horizon 2050 - Mise en musique des futurs de l’énergie», Conseil Français de l’Énergie, 2013 https://www.worldenergy.org/assets/downloads/Les-sc%C3%A9narios-mondiaux-de-lenergie-a-lhorizon-2050.pdf

The World Energy Council (WEC) has developed energy scenarios for 2050 to explore the world’s energy future. Unlike normative scenarios, which aim to achieve a precise objective (such as CO_2 reduction), the exploratory scenarios, inspired by the musical themes “Jazz” and “Symphony,” enable decision-makers to assess the impact of their choices. These scenarios were developed over a three-year period, with contributions from more than 60 experts from 28 countries.

The key messages of the scenarios highlight that the complexity of the energy system will increase, energy efficiency will be crucial, and fossil fuels will remain dominant, even if renewable energy sources grow. The “Jazz” scenario focuses on energy access and economic growth, while “Symphony” emphasizes environmental issues and international cooperation.

By 2050, energy demand will be strongly influenced by population growth (reaching between 8.7 and 9.4 billion inhabitants depending on the scenario) and a sharp rise in global GDP, especially in Asia. The energy system will have to manage an increased supply of primary energy, estimated to rise by 61% in the Jazz scenario and 27% in Symphony. Energy efficiency should halve energy intensity in relation to GDP by 2050.

“Global electricity production will increase from 123% to 150% by 2050.” In 2010, it stood at 21.5 billion MWh. In the Jazz scenario, it is set to increase by 150%, to 53.6 billion MWh, while in the Symphony scenario, the increase will be 123%, to 47.9 billion MWh. This increase will require major changes in the power generation mix to meet future demand.

Fossil energy sources will still dominate in 2050 (77% in Jazz, 59% in Symphony), but renewable energy will grow significantly (from 15% in 2010 to 20% in Jazz and 30% in Symphony). Nuclear power will remain marginal, representing around 4% of global supply in Jazz. Electricity generation will increase sharply, by 150% in Jazz and 123% in Symphony.

The scenarios also show that Asia will become a major economic driver, accounting for almost half of global growth and increasing its share of global energy consumption. In contrast, Europe and North America's shares will decline.

With regard to climate, both scenarios anticipate global action to reduce emissions but take different approaches: Jazz favors adaptation, while Symphony focuses on climate change mitigation. Reducing CO_2 emissions and setting up emissions trading markets will be crucial to limiting climate impact.

In summary, the WEC scenarios indicate that achieving a balance between energy security, energy equity, and environmental protection (the “energy trilemma”) will require tough choices, massive investment in energy efficiency, and coordinated global policies.

By 2050, energy demand will be strongly influenced by population growth, reaching up to 9.4 billion, and a sharp rise in global GDP.

Between $19,000 and $26,000 billion in investment will be required for the world's power generation by 2050.

Prospective research

Prospects for Africa in 2050

“Enquête Afrique 2050 – l’Afrique de demain vue par celles et ceux qui la feront », 2024, Insitut Choiseul.https://www.choiseul-africa.com/wp-content/uploads/202403//Enquete-Afrique-2050_FR.pdf

This report, published in February 2024 by the Institut Choiseul, an independent think tank for international politics and geoeconomics based in Paris, France, aims to identify and connect the 200 most talented African economic leaders. The report, titled “Afrique 2050 - l'Afrique de demain vue par celles et ceux qui la feront” (Africa 2050 survey - tomorrow's Africa as seen by those who will make it), examines the outlook of African economic players, attempting to understand their views on economic, digital, energy, and trade dynamics with the rest of the world.

The first part presents what the authors describe as “An Afro-optimistic Africa.” African decision-makers adopt a global and pan-African vision, with a strong focus on a continental scale. Over 80% of leaders express confidence in Africa's socio-economic future, particularly between now and 2050. The concept of an African free-trade zone is widely supported, seen as beneficial for economic development. Agribusiness, energy, digitalization, and manufacturing are identified as primary growth drivers.

"The most important economic driver in the years to come could be regional integration and increased intra-African trade, thanks to projects such as the African Continental Free Trade Zone," says Stone ATWINE, Founder and Managing Director of Eversend, Uganda.

The second part tempers this optimism by identifying structural weaknesses. Major obstacles remain, mainly related to insecurity, political risks, and lack of investment. The quality and availability of infrastructure are perceived as insufficient, particularly in the energy, transport, and digital sectors. In addition, a shortage of skilled labor and gaps in education, especially in higher education, are holding back entrepreneurship and reducing the continent's competitiveness. The following section addresses the key challenges of this century. Issues of sustainable development and digitization are at the forefront. Climate change poses a major threat, particularly for agriculture, but also presents opportunities due to Africa's abundant natural resources. Ecological transition is seen as a long-term challenge that requires regional cooperation. At the same time, digitization, though still in its early stages, is viewed as essential for boosting competitiveness, with productivity gains anticipated by 2050.

In part four, the report emphasizes the importance of foreign direct investment (FDI) for Africa's development but highlights shortcomings in the current business climate and legal framework. Only 19% of executives consider the legislation satisfactory. Europe is viewed as the preferred trading partner, particularly in French-speaking Africa, while China and the U.S. are also seen as significant partners in certain regions. The European Global Gateway project, which aims to invest 150 billion euros in Africa, is positively regarded. Russia, on the other hand, is not considered a key partner and generates little interest.

In conclusion, African leaders are generally optimistic but cognizant of the challenges that must be addressed, particularly regarding infrastructure, education, and ecological transition. The continent's future success depends on advancements in these areas and the integration of new technologies.

Over 80% of leaders express confidence in Africa's socio-economic future, particularly between now and 2050.

The most important economic driver in the years to come could be regional integration and increased intra-African trade.

Prospective research

What will Asia look like in 2050?

Asia 2050 – Realizing the Asian Century (2011) – The Asian Development Bank https://www.adb.org/sites/default/files/publication/28608/asia2050-executive-summary.pdf

This report, published in 2011 by the Asian Development Bank, is aimed at policymakers, business leaders, and opinion makers within Asia to help forge a consensus on a vision and strategy for Asia by 2050.
Asia is in the midst of a historic transformation, with the prospect that, by 2050, its per capita income could increase sixfold in purchasing power parity (PPP) terms, reaching Europe's current level. This growth would enable around 3 billion more people to become affluent by today's standards. Asia could also see its share of global GDP double to 52% by 2050, regaining the dominant position it held before the Industrial Revolution 300 years ago. However, this ascent is not guaranteed, and many challenges must be overcome to make this "Asian Century" a reality.

The main challenges, according to the authors, are: 1) Growing inequalities within countries, threatening social cohesion; 2) The middle-income trap, where some countries risk failing to transition from middle-income to high-income status; 3) Intense competition for natural resources in the face of an increasingly affluent Asian population; 4) Growing income disparities between countries, which could lead to instability; 5) Climate change, threatening agriculture, coastal populations, and large cities; and 6) Weak governance and institutional capacity, a recurring problem in many Asian countries.
These challenges are interconnected and could reinforce each other, threatening the region's growth, stability, and security.
The report presents two scenarios for Asia's future. The first is the "Asian Century Scenario." This optimistic scenario assumes that Asian economies will sustain their growth momentum over the next 40 years, enabling Asia to become a major economic player, with GDP reaching $174 trillion by 2050—half of the world's GDP.
The second scenario is the "Middle Income Trap." This pessimistic scenario envisions the region's fast-growing economies stagnating, falling into a trap where they fail to diversify and increase their competitiveness. In this case, Asia's GDP in 2050 would be reduced to $65 trillion, less than half of what is projected in the optimistic scenario, and per capita income would not exceed $20,600 (PPP).
To achieve the best-case scenario, reforms are required at multiple levels:
1. National: Promote inclusive growth, innovation, sustainable urbanization, and financial stability. Shift to a greener economy and improve governance.
2. Regional: Strengthen Asia's economic integration and cooperation, fostering openness and free movement of goods and investment.
3. Global: Asia should actively shape global economic rules, contributing to shared prosperity and global stability. These efforts will help secure long-term prosperity for the region.
Thus, Asian leaders will need to demonstrate visionary leadership to navigate these challenges and seize the opportunities ahead. If these reforms are successfully implemented, Asia could witness an unprecedented transformation by 2050, with billions lifted out of poverty and a central role in the global economy. However, failure to meet these challenges could limit economic and social gains and leave Asia in a less favorable position on the world stage.

Asia could see its share of global GDP double to 52% by 2050, regaining the dominant position it held 300 years ago.

Asian leaders will need to demonstrate visionary leadership to navigate challenges and seize opportunities ahead.

2 Applied research

Global challenges & the importance of applied research

Green, P.F. Ameliorating global challenges: Globalization, geopolitics, basic & applied research, and research security. MRS Bulletin 48, 964–967 (2023). https://doi.org/10.1557/s4357700600--023-w

This article by Peter F. Green, former president of the Materials Research Society (MRS), examines the global challenges we face and emphasizes the crucial importance of scientific research and international collaboration in addressing them. He highlights growing environmental, economic, and social issues, such as climate change, food shortages, water insecurity, and over-reliance on fossil fuels that generate greenhouse gas emissions. The author emphasizes that preserving our standard of living and tackling these challenges will require significant advances in both fundamental and applied research, particularly in fields like engineering, materials, resilient infrastructures, renewable energies, energy storage, and supply chains.

However, Green points to rising tensions between globalization, geopolitics, and scientific advancement. While globalization has significantly accelerated collaboration among researchers worldwide, geopolitical forces can disrupt these partnerships by imposing restrictions on investment, controlling exports, and increasing economic uncertainty. Such tensions create obstacles to implementing technical solutions for global crises, such as the energy transition and food security.

One of the main arguments in the article is the need to reassess the rules governing international collaboration. The current era is marked by increasingly rapid scientific discoveries and global partnerships, making traditional boundaries less relevant. The author notes that once-dominant countries, such as the U.S. and China, are now sharing scientific output with other nations, reflecting a shift toward a more diverse scientific leadership. For example, the COVID-19 pandemic illustrated how researchers worldwide collaborated to understand and treat the disease.

Green advocates a collaborative approach that includes researchers from all regions and disciplines, emphasizing that diversity, equity, and inclusion (DEI) are essential to this process. Adopting these principles fosters innovation and encourages participation by all, especially by historically underrepresented groups. He suggests that scientific societies, such as the MRS, should address specific global challenges and promote interdisciplinary and international research.

Another key point the author addresses is the future of energy systems and associated technologies. Green cites several promising research areas, such as artificial intelligence/machine learning (AI/ML) and quantum information science, which are poised to play major roles in the discovery of new materials and the development of autonomous, resilient energy infrastructures. At the same time, he highlights the importance of electrifying the energy and industrial sectors to meet global climate targets, while emphasizing that innovations in energy storage and greenhouse gas emissions reduction are also crucial.

Finally, Green calls for a review of current mechanisms for sharing scientific knowledge to balance the necessary openness for collaboration with security concerns. In his view, a coherent and inclusive approach to global challenges will be essential to ensure a secure and prosperous future for all, not just the most developed nations.

In conclusion, the article calls for collective action and strengthened international collaboration to tackle global challenges, while integrating the values of diversity, equity, and inclusion.

> **Preserving our standard of living and tackling global challenges will require significant advances in both fundamental and applied research.**

> **We need a collaborative approach, which includes researchers from all regions and disciplines, emphasizing diversity, equity, and inclusion (DEI).**

Applied research

“Big tech wants to privatize the future”

https://www.philonomist.com/en/interview/big-tech-wants-privatise-future “Technopolitique”, Asma Mhalla (2024), Paris, Seuil Editions. Interview by Apolline Guillot

In her book Technopolitics, political analyst Asma Mhalla argues that we have unwittingly become soldiers in a war led by technology giants, or "Big Tech." In her view, these companies, such as Meta, Microsoft, and OpenAI, represent a new form of geopolitical power that goes far beyond mere technological issues. Their ambition is to control not only technologies but also minds, thereby redefining politics, society, and even the future of democracy.

Mhalla introduces the concept of "total technology," a form of technology which, she argues, carries an ideological and political agenda, seeking to impose total control over all aspects of human life. Contrary to the conventional view of technology as a simple tool, these companies use their innovations to reshape public space, influence discourse, and, most worryingly, militarize their inventions.

One of the greatest dangers of Big Tech is its ability to manipulate information and collect massive amounts of data, creating a form of "hyperknowledge" that can be used for surveillance and control purposes. For example, technologies such as Neuralink, although presented as therapeutic advances, pose major risks of militarization and privatization of the human body, opening the way to profound vulnerabilities, notably through brain hacking.

Mhalla warns against the simplistic approach in current debates on technology: the question is not whether technology is good or bad, but how the giants of the sector are shaping our future without any real democratic oversight. She criticizes the way AI and surveillance are often approached from the binary perspective of "security versus freedom," which limits truly nuanced reflection on these issues.

Another fundamental aspect of this analysis is the idea of the "hyper-personalization" of modern societies, notably through social media and recommendation algorithms. These tools fragment societies, making them more atomized and vulnerable to authoritarian forms of governance. Mhalla also discusses Big Tech's role in creating an ideological vacuum, in which figures like Elon Musk or Sam Altman assume pre-eminent roles, filling the gap left by the absence of a genuine political project from states.

Finally, Mhalla questions the future of Europe in the face of Big Tech's rising power. In her view, Europe must reclaim its industrial and technological sovereignty if it is not to become a mere consumer in a world dominated by Big Tech. The future of democracy and society itself depends on it. In short, Technopolitics calls for collective awareness of the geopolitical and social stakes involved in technological advances and argues for a reorientation of political priorities to better regulate these technological giants before it's too late.

We have unwittingly become soldiers in a war led by Big Tech.

The question is not whether technology is good or bad, but how Big Tech is shaping our future without any real democratic oversight.

Kroeber, A. L., & Kluckhohn, C. (1952). Culture: A critical review of concepts and definitions. Peabody Museum Press. https:// iiif.lib.harvard.edu/manifests/view/drs:4276929551$i

Applied research

What is the future of the planet?

“Time to focus research on past, present and future climate change, say Earth Scientists” – Nature Research Custom Media, 2024. https://www.nature.com/articles/d424732-00095-024-

A recent survey of over 1,100 geoscience experts highlights research priorities for the future of the planet, with a particular focus on past, present, and future climate change. According to the results, these issues are crucial for understanding and anticipating the impact of human activity and natural phenomena. The researchers emphasized the importance of studying climate change throughout history, as this could provide models for understanding the evolution of today's climate.

The survey revealed that, in addition to climate change, topics such as carbon capture and storage, as well as energy resources, are also considered essential for controlling greenhouse gas emissions. The researchers stress the need for solid data to inform future policy choices, noting that information on the Earth's climatic past could be vital in addressing future climate upheavals.

One key aspect of current research is the analysis of deep geological data, dating back millions of years, to better understand the evolution of the Earth, life, climate, and tectonic movements. This data, often scattered and difficult to compare, needs to be standardized, as the Deep-time Digital Earth (DDE) initiative is striving to achieve. This platform aims to consolidate geoscientific data and make it accessible to better understand the planet's evolution and predict future changes.

An important outcome of the survey was the growing importance of technologies such as machine learning and “big data” analysis, which are helping to bridge gaps in current knowledge, particularly in the study of fossils and ancient geological processes. Recent projects, such as one that reconstructed the history of carbon dioxide levels over the past 66 million years, are providing a more accurate picture of past climate variations and lessons for the future.

Finally, geoscientists emphasize the importance of understanding the evolution of minerals, which played a central role in the origin of life. According to Carnegie Science researcher Robert Hazen, it is crucial to continue studying the interactions between minerals and life to better understand past ecological processes and their impact on today's climate.

This survey shows that geoscience must focus on a global and interconnected vision of the Earth's evolution to better address the climate challenges of the present and the future.

Studying climate change throughout history could provide models for understanding the evolution of today's climate.

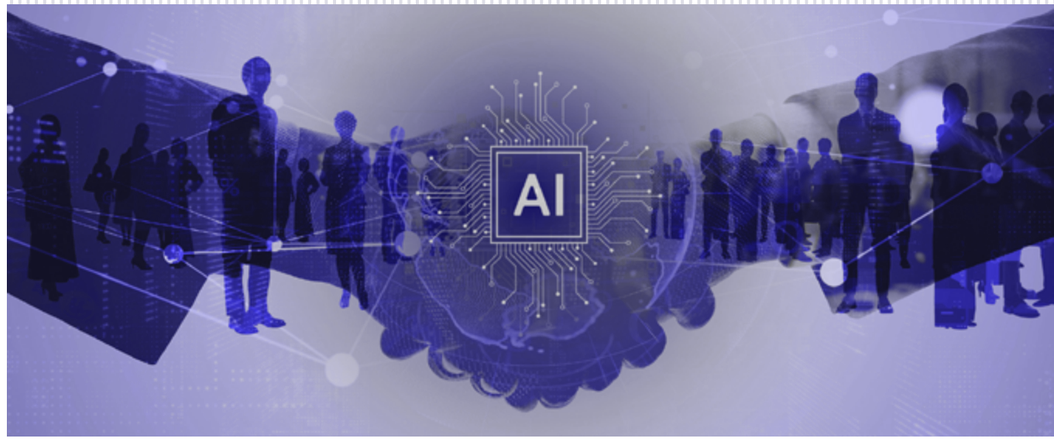
“There is no other way to understand evolving geography without understanding the evolving solid Earth,” says Hazen.

Applied research

AI & diplomacy – tools and opportunities

“Harnessing artificial intelligence in diplomacy: examples of opportunities, applications, and challenges”, 2024, Warin T, HEC Montreal.https://www.linkedin.com/pulse/harnessing-artificial-intelligence-diplomacy-examples-thierry-warin-9p5ze/

Artificial intelligence (AI) is gradually transforming the field of diplomacy, offering new opportunities and tools for diplomats while raising ethical and practical challenges. This article explores how AI, particularly through massive data analysis and scenario modeling, can improve decision-making, diplomatic influence, and conflict resolution.



What are the potential strategic applications of AI in diplomacy?

1. Influence diplomacy: AI enables diplomats to better understand international relations by analyzing voting behavior, geopolitical trends, and diplomatic relations. It helps predict countries' positions on crucial issues, facilitating the formation of strategic alliances. It also supports economic and commercial diplomacy by identifying market opportunities and aiding in the adoption of international standards.

2. Cultural and reputational diplomacy: AI helps countries promote their values on a global scale, enhancing their image through culture and favorable policies. It also assists in building coalitions based on common goals, an essential aspect of the “soft power” described by Joseph Nye.

3. Scientific diplomacy: In global crises, such as the COVID-19 pandemic, AI has enabled faster scientific collaboration by analyzing large volumes of data to identify potential partners. It also plays a significant role in promoting a country's scientific achievements, enhancing its international reputation.

4. Economic diplomacy: AI enables diplomats to analyze complex economic data, identify investment opportunities, assess risks, and understand the geopolitical implications of economic policies. By analyzing trade flows and global supply chains, AI helps formulate more effective strategies, particularly in trade negotiations.

5. Conflict resolution: AI facilitates real-time monitoring of conflict zones, enabling diplomats to adjust their strategies based on local developments. It also helps analyze the root causes of conflicts, such as economic inequalities, and aids in predicting negotiation outcomes, thereby increasing the chances of achieving lasting peace.

Despite its advantages, AI poses several ethical challenges:

6. Disinformation and bias: AI can be used to spread disinformation on a large scale, posing a risk to public trust and international relations. Furthermore, if the data used to train AI systems is biased, it can lead to unjust decisions, particularly concerning human rights or international law.

7. Lack of transparency: The opacity of AI algorithms, often referred to as the “black box” problem, can create mistrust and compromise diplomatic efforts, especially when crucial decisions are made without a clear explanation.

8. Ethical dilemmas: AI, by making automated decisions without regard for human empathy, can overlook important moral considerations, raising questions about the role of humans in AI-powered diplomacy.

AI has the potential to transform diplomacy by increasing diplomats' ability to manage the complexities of international affairs. However, its integration requires caution, balancing its benefits with ethical considerations. AI should be viewed as a tool to enhance human capabilities, not replace them, allowing diplomats to navigate global issues with a blend of human wisdom and technological support.

Applied research

The myth of rationality: how neuroscience challenges centuries of western philosophy on human nature

"The myth of rationality: How neuroscience challenges centuries of western philosophy on human nature and why it matters to leader", Noll, Douglas, October 2024 https://www.linkedin.com/pulse/myth-rationality-how-neuroscience-challenges-centuries

The Myth of Rationality explores the evolution of the concept of human rationality, challenging the longstanding assumption in Western philosophy that humans are fundamentally rational beings. Historically, thinkers such as Plato, Aristotle, Descartes, and Kant upheld the idea that reason should guide human morality and actions, with emotions seen as disturbances to be controlled. However, recent advances in neuroscience reveal a different reality: emotions, far from being obstacles to rationality, are actually essential to it.

Neuroscience and Human Decision-Making

Research in neuroscience, notably by Antonio Damasio, shows that emotions play a crucial role in decision-making. According to Damasio's "somatic marker hypothesis," emotions act as markers that guide choices. For example, without these emotional cues, a person may struggle to make a decision, even in a rational context. Findings on the role of the amygdala and prefrontal cortex also show that emotions activate the brain's response more quickly than logical thinking. This hierarchy of responses suggests that in emotional situations, our reactions often precede our capacity for logical reasoning. Furthermore, cognitive biases, such as confirmation bias or the availability heuristic, demonstrate that our decisions are frequently influenced by unconscious emotions, challenging the idea that humans act purely rationally. Jonathan Haidt's research also indicates that moral judgments are often based on emotional intuitions rather than objective reasoning.

Neuroscience shows that rationality, far from being the primary driver of our behavior, often serves as a tool to justify our emotional decisions. Philosopher David Hume anticipated this concept, declaring that "reason is, and ought only to be, the slave of the passions." Recent neuroscientific discoveries support this view, demonstrating that emotions guide decision-making and that rationality often follows to justify choices made on an emotional level.

The implications of this understanding of human nature are profound for leadership and ethical practices. Recognizing that emotions shape our decisions, leaders should adopt emotional intelligence skills to manage conflict, make informed decisions, and build strong relationships. Techniques such as "emotional labeling" (identifying and acknowledging emotions) enable leaders to defuse tense situations and encourage more rational, collaborative decision-making.

Effective leaders today understand emotional dynamics, regulate their own emotions, and know how to manage conflict by engaging with the emotions of others. Ignoring emotions not only reduces decision-making effectiveness but can also be counterproductive. In contrast, recognizing and addressing emotions leads to more thoughtful and positive outcomes.

In conclusion, the Western philosophical assumption that humans are primarily rational beings is challenged by modern neuroscience. Emotions, far from being mere distractions, play a central role in our decisions and actions. Leaders today need to reevaluate the balance between rationality and emotion, understanding that emotional intelligence is essential for navigating complex human interactions and strategic decisions. Emotional skills such as empathy and emotional labeling are not just trends but fundamental tools for informed decision-making and effective human relations.

Recent advances in neuroscience reveal a different reality: emotions, far from being obstacles to rationality, are actually essential to it.

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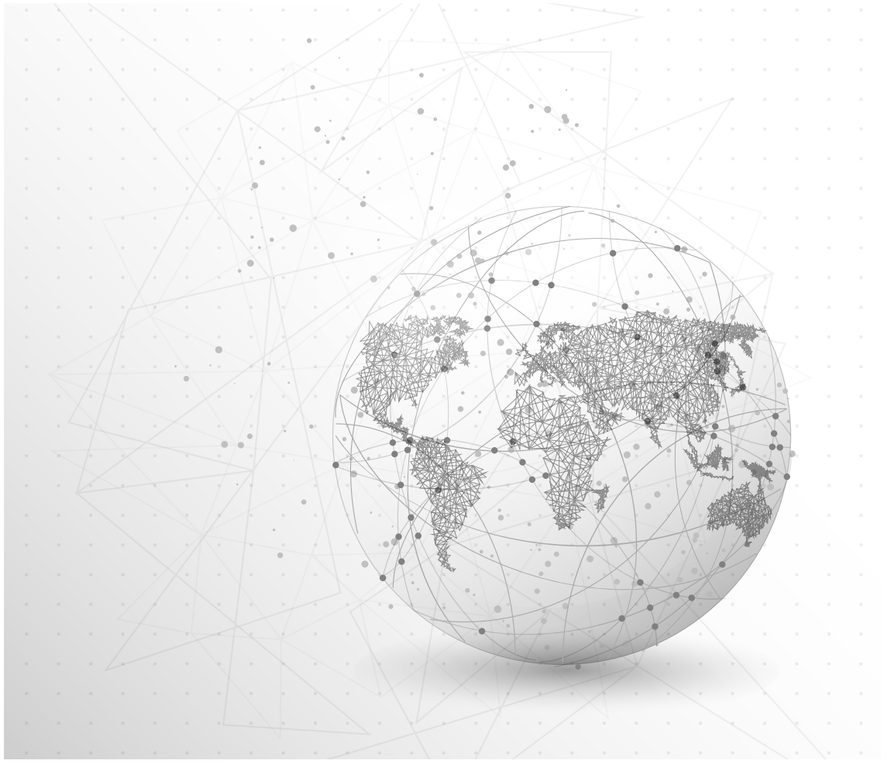
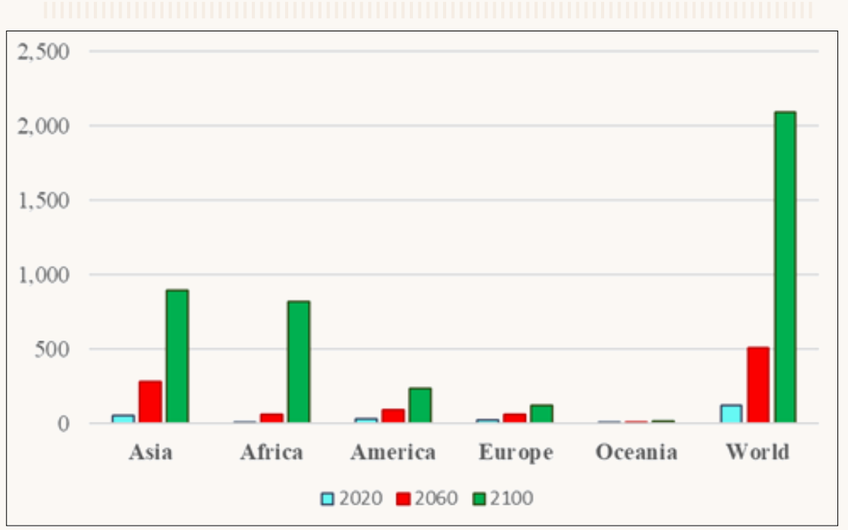
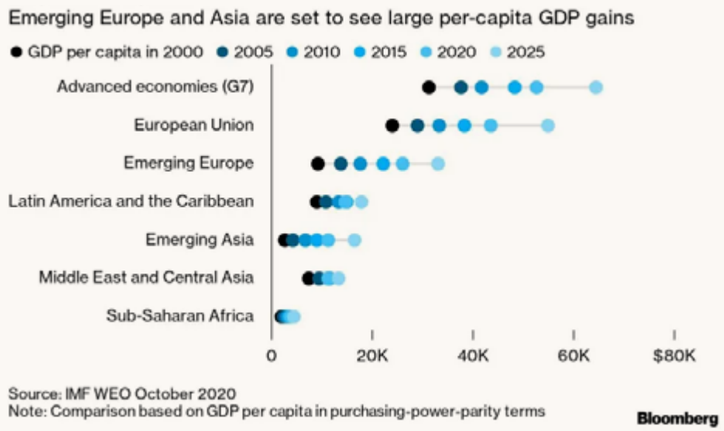
3 The future in numbers



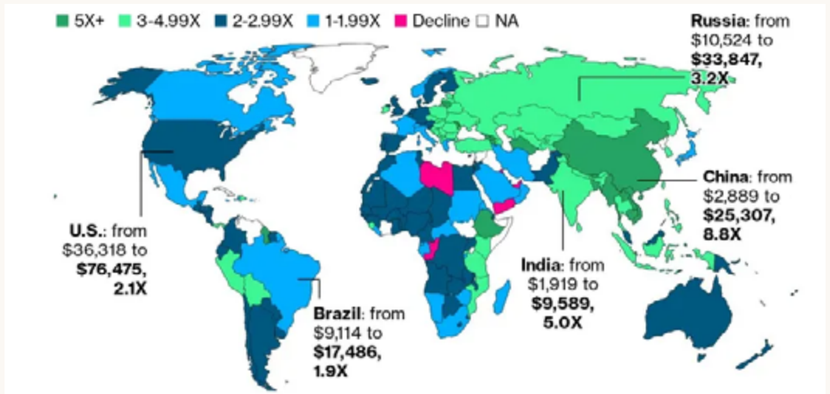
GDP of major regions and the world, 2020-2100



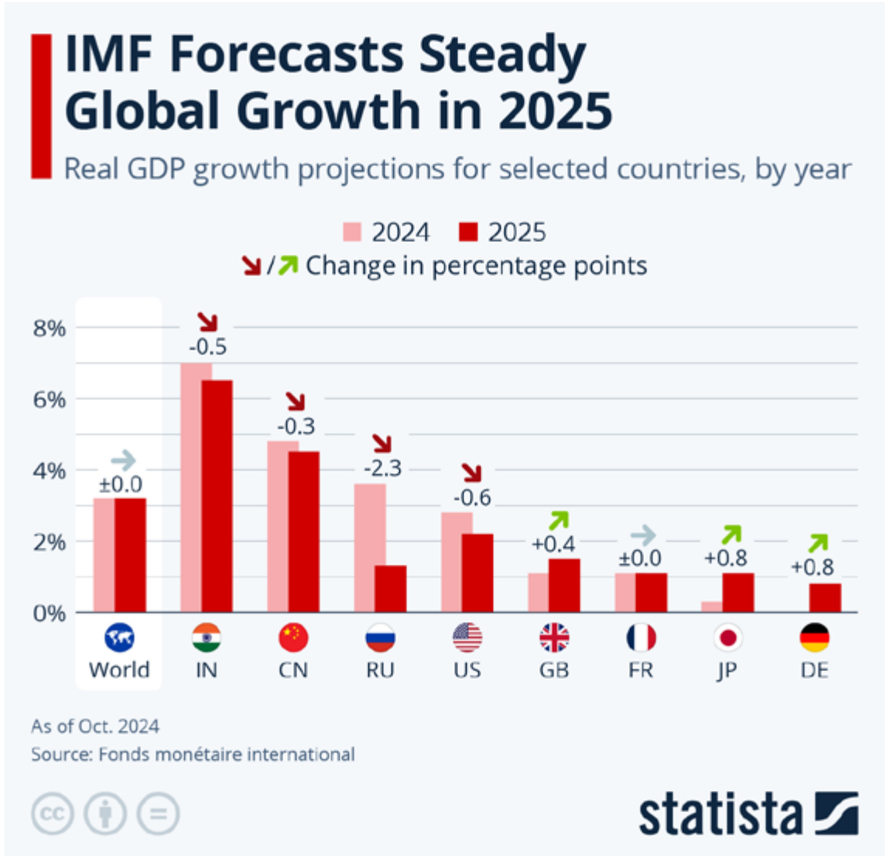
Angus Hooke & Lauren Alati, What Will the World Economy Look Like in 2100? 29.7.22, UBSS Independent MBA Business School.



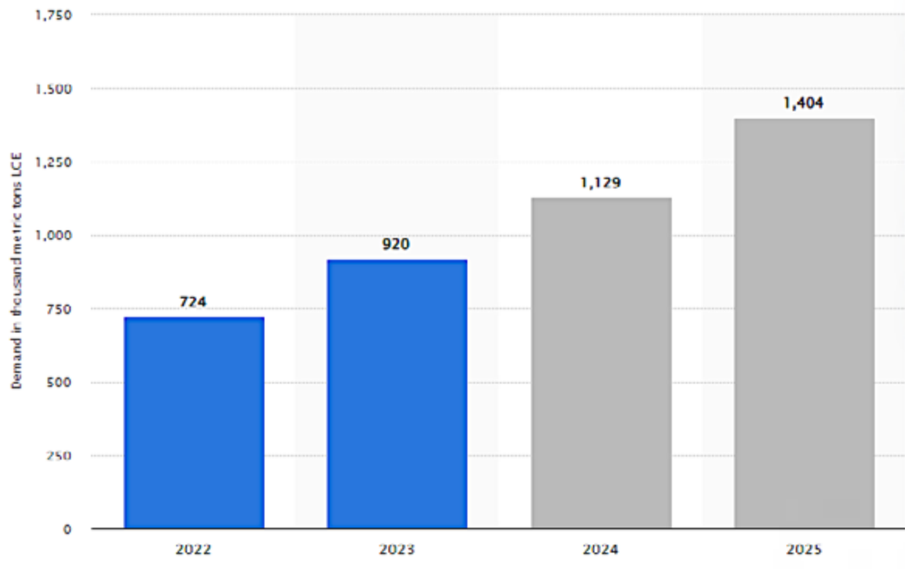
Living standards will at least doubled in many nations by 2025



IMF Forecasts Steady Global Growth in 2025



Global lithium demand 2022-2025



STATISIA: https://www.statista.com/statistics/452025/projected-total-demand-for-lithium-globally/