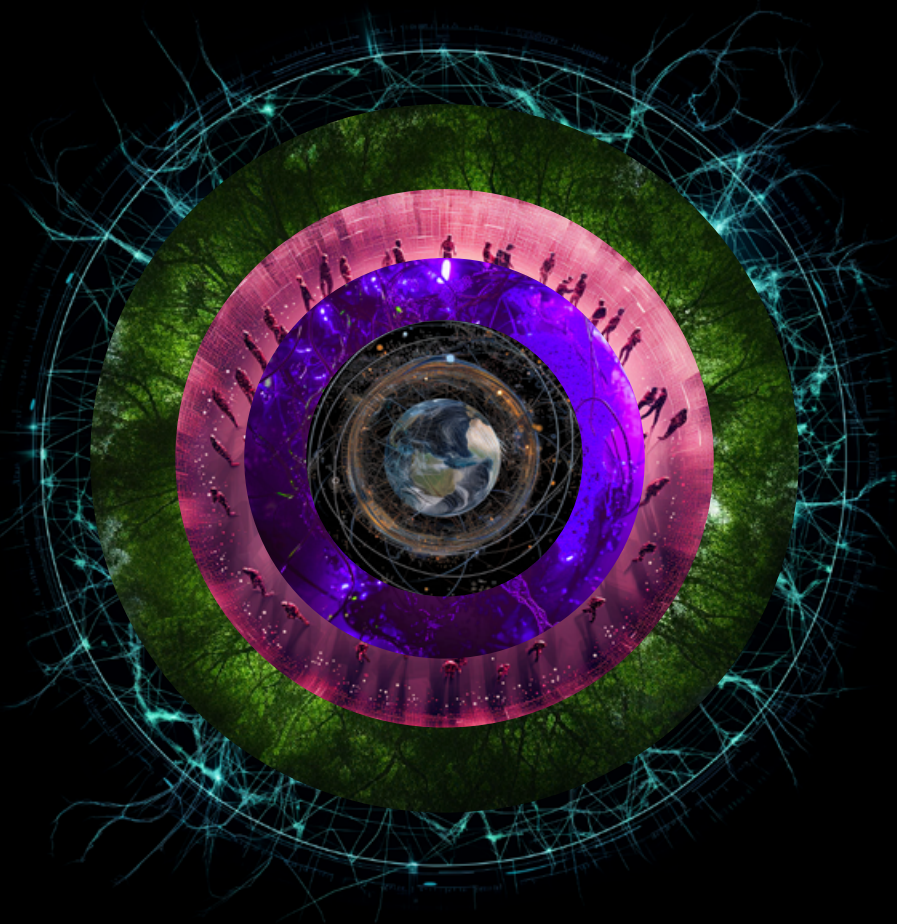




مؤسسة دبي للمستقبل
DUBAI FUTURE FOUNDATION



FUTURE OPPORTUNITIES REPORT

THE GLOBAL 50

2024

S U M M A R Y



INTRODUCTION

‘The Global 50’ focuses on the future through the lens of growth, prosperity, and well-being.

In our engagements with local and global stakeholders, we explain that **‘The Global 50’ is like a blueprint for the future:** through the **uncertainties**, we can form a plan to explore our strengths and weaknesses and the opportunities and threats that we may encounter, in any of the extremes that might materialise over the next 50 years. Through the **assumptions**, we can monitor the key things that we take for granted or assume to be true, which is important as the whole basis of a future opportunity might otherwise shift. We also use the 10 **megatrends**, which are valid over a decade or so, to identify areas of future opportunity, all with the lens of positively influencing future growth, prosperity, and well-being that translate into future **opportunities**.

The 50 opportunities are not exhaustive – they present some of the potential pathways to future growth, prosperity, and well-being. Some opportunities may seem more pertinent than others – some contexts will have the conditions in place to share in the benefits of certain opportunities while taking into account risks as well.

Together with the 50 opportunities in each of the 2022 and 2023 editions of ‘The Global 50’, readers now have 150 opportunities to consider for the future resulting in potentially over 700 ideas and initiatives either in preparing for, enabling, capturing, or mitigating the risk of, a future opportunity.

As has been the case throughout history, the next 50 years are set to bring both opportunities and challenges for all generations. **Through collaboration, we can better manage uncertainties, navigate shifts, take advantage of opportunities for ourselves and future generations.**



We're delighted to present you with this **summary**, highlighting the key points from the report. To access the complete report, please visit the Dubai Future Foundation website.

www.dubaifuture.ae/the-global-50



THE 50 OPPORTUNITIES

HEALTH REIMAGINED

1. Germinating Treatment
2. Clothes that Care
3. Fixing the Flex
4. Mental AI
5. Organ Printing
6. The Power of Radio
7. Petri Dish on the Go
8. Orbiting for Answers
9. Aquatic Breakthroughs
10. Pulse over Pills
11. At your Fingertips
12. A Warning Glow

NATURE RESTORED

13. Mother City
14. Virtual Nature
15. Carbon for Water
16. Green Spurt
17. Tidal Energy

SOCIETIES EMPOWERED

18. School for Wisdom
19. Safeguarding Civilisation
20. The 'Network' Divide
21. Stepping through Time
22. Circle Up
23. 'Public' AI
24. Unconventional Progress

SYSTEMS OPTIMISED

25. The Responsible Robot
26. Balanced Books
27. Zero Margin
28. Walls That Talk
29. Global Precedents
30. Sociologist-in-Chief
31. Phaster Pharma
32. Data Helix
33. Research 101
34. No A'I' in Team
35. Limitless Connection
36. Ambassador of Scenarios
37. The 'Global' Protocol for Small Businesses

TRANSFORMATIONAL

38. Flipping the Career Ladder
39. The In-sync Knowledge Economy
40. Seeing is Feeling
41. The Post-Turing Era
42. Perpetual Power
43. Sunshine Steering
44. Restful Retention
45. Forever Machines
46. Finally Graphene
47. Open-source Science
48. Green Plastics
49. The Quantum Jump
50. The Network of Networks



NAVIGATING THE OPPORTUNITIES

The opportunities shared in this report are not exhaustive – they present some of the potential pathways to future growth, prosperity, and well-being.

Each opportunity includes a question for the future with a tagline that succinctly covers the most essential aspects of the opportunity, enough to spark curiosity and prompt further questions. Additionally, each opportunity includes the most significant megatrend relevant to it – because of the interrelated nature of the megatrends, some may be more prominent than others at different times. The scope provides a general indication of relevance, complexity, and future horizon.



A GUIDE TO NAVIGATING THE OPPORTUNITIES

Category

Scope (transitional, visionary futures within reach,)

Question for the future

Inspired by GenAi

Opportunity title

Opportunity

Most significant Megatrend

Areas to look for relevant signals

Health Reimagined

OPPORTUNITY 5 SCOPE **VISIONARY**

What if organ transplant waiting lists were eliminated?

ORGAN PRINTING GenAi

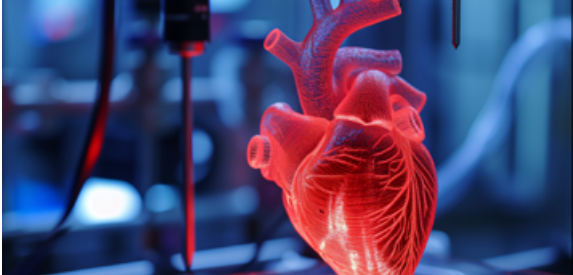
Personalised bioprinting and genomics transform organ transplantation, reducing or potentially eliminating waiting lists, reducing organ rejection and improving survival rates.

MEGATRENDS

Materials Revolution

TRENDS

- 3D Printing
- Biomaterials
- Biotechnology
- Genomics
- Personalised Medicine





HEALTH REIMAGINED

Redefine mental and physical health, support longer lives, drawing on science, technology and nature towards better health and new ways to personalise access for individuals and communities everywhere.



OPPORTUNITY

1

SCOPE

VISIONARY

What if bacteria was a cure?

GERMINATING TREATMENT

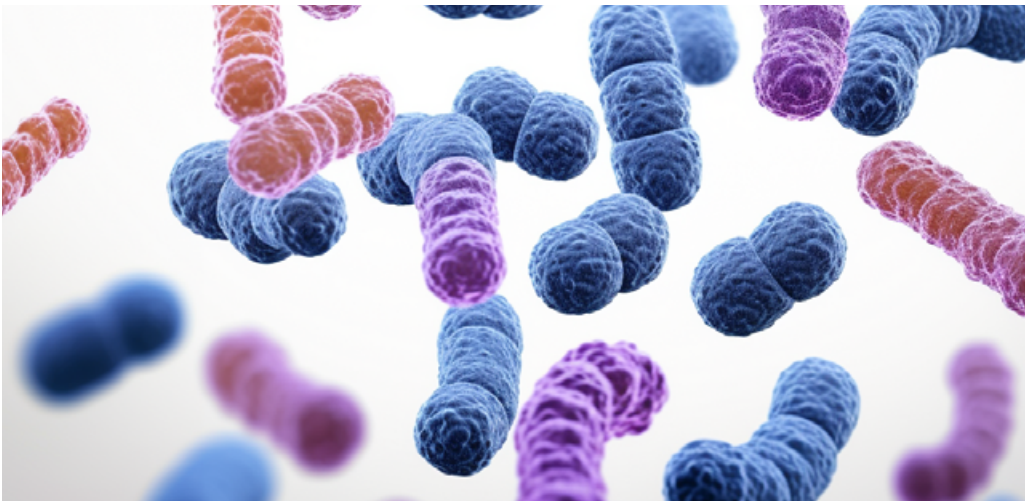
A global databank of bacterial strains from humans and the environment aids personalised treatments and novel therapies for various diseases.

MEGATRENDS

Advanced Health and Nutrition

TRENDS

Artificial Intelligence
Biotechnology
Genomics
Open Data
Personalised Medicine





OPPORTUNITY **2**

SCOPE **TRANSITIONAL**

What if clothes kept us healthy?

CLOTHES THAT CARE

Smart fabrics with nanobiomaterials autonomously deliver health-boosting nutrients that meet minimum daily requirements, promote wellness, and address nutritional deficiencies.

MEGATRENDS

Materials Revolution

TRENDS

Biomaterials
Longevity & Vitality
Mobilising Innovation
Nanomedicine
Personalised Medicine





OPPORTUNITY

3

SCOPE

TRANSITIONAL

What if we stayed physically strong?

FIXING THE FLEX

Nanobots engineered for muscle repair and regeneration, prevent age-related muscle deterioration and provide targeted therapy for musculoskeletal pain and disease.

MEGATRENDS

Life with Autonomous Robots and Automation

TRENDS

Advanced Computing
Biomaterials
Longevity & Vitality
Nanomedicine
Personalised Medicine





OPPORTUNITY

4

SCOPE

WITHIN REACH

What if AI in mental health was empathetic and culturally informed?

MENTAL AI

Multidisciplinary teams advance AI in mental health through benchmark datasets that incorporate empathy and diverse cultural perspectives, laying the foundation for toolkits for AI in mental health and algorithm validation.

MEGATRENDS

Advanced Health and Nutrition

TRENDS

- Artificial Intelligence
- Cross-sectoral Partnerships
- HealthTech
- Mental Health
- Mobilising Innovation





OPPORTUNITY **5**

SCOPE **VISIONARY**

What if organ transplant waiting lists were eliminated?

ORGAN PRINTING **GenAI**

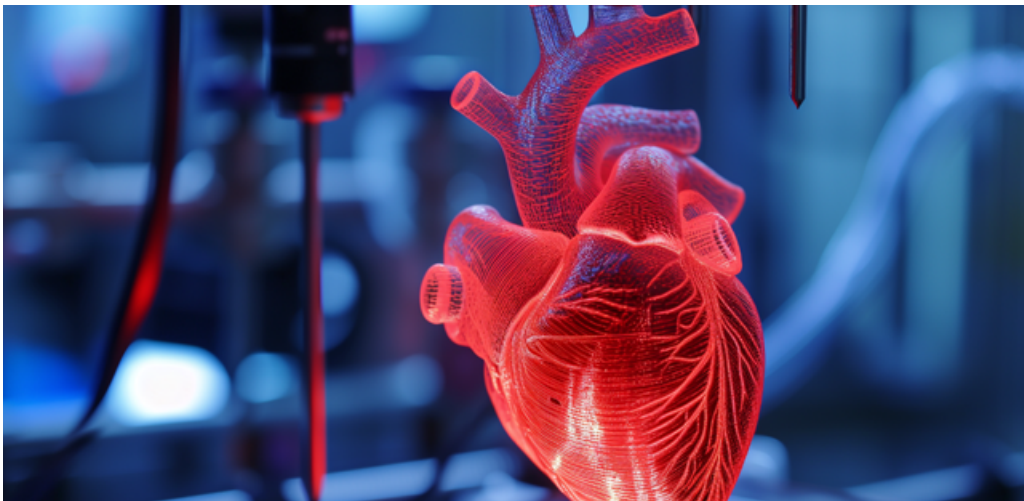
Personalised bioprinting and genomics transform organ transplantation, reducing or potentially eliminating waiting lists, reducing organ rejection and improving survival rates.

MEGATRENDS

Materials Revolution

TRENDS

- 3D Printing
- Biomaterials
- Biotechnology
- Genomics
- Personalised Medicine





OPPORTUNITY

6

SCOPE

TRANSITIONAL

What if the future of radiology was personalised?

THE POWER OF RADIO

Advances in imaging, genomics, and advanced machine intelligence enable personalised radiology, improving diagnoses, treatment, and related public health policies on communicable and non-communicable diseases.

MEGATRENDS

Advanced Health and Nutrition

TRENDS

Artificial Intelligence
Genomics
Human–Machine
Personalised Medicine
Sensor Technologies





OPPORTUNITY

7

SCOPE

TRANSITIONAL

What if we knew more about infections in seconds?

PETRI DISH ON THE GO

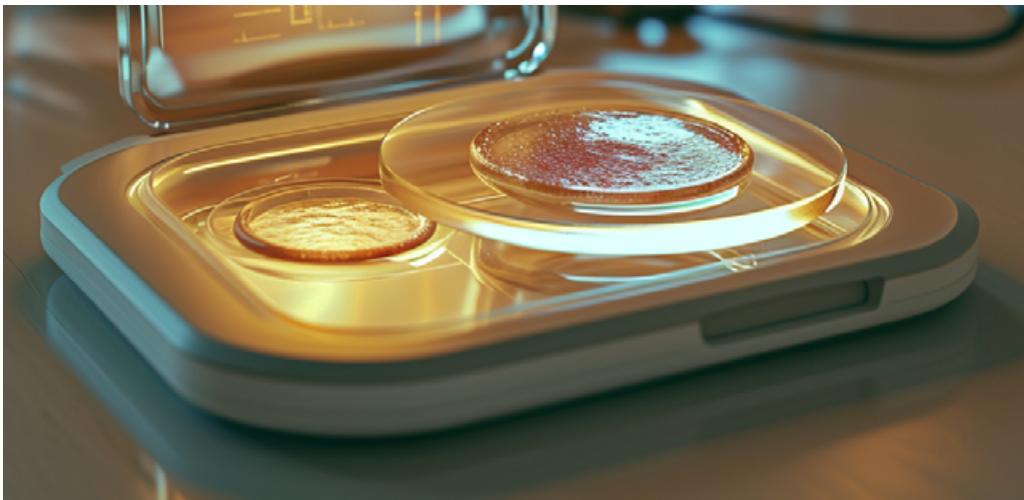
Portable devices and advanced nanotechnology allow real-time identification of bacteria, enabling more precise and timely treatment and the bypassing of lengthy bacterial culture tests.

MEGATRENDS

Advanced Health and Nutrition

TRENDS

Artificial Intelligence
Biotechnology
Mobilising Innovation
Nanotechnology
Sensor Technologies





OPPORTUNITY

8

SCOPE

WITHIN REACH

What if we used lessons from space to better handle loneliness on earth?

ORBITING FOR ANSWERS

A global consortium of interdisciplinary experts – academics, clinical psychologists, space psychologists, and neuroscientists – bridging insights from astronaut isolation and space habitat studies to enhance understanding and management of loneliness on earth.

MEGATRENDS

Advanced Health and Nutrition

TRENDS

Cross-sectoral Partnerships
Future of Space
International Collaboration
Longevity & Vitality
Mental Health





OPPORTUNITY **9**

SCOPE

TRANSITIONAL

What if oceans unlocked innovations in health and food?

AQUATIC BREAKTHROUGHS **GenAI**

Oceans, containing vast unexplored biodiversity, offer opportunities in marine biotechnology and pharmacology, enabling advances in medicine and food industries.

MEGATRENDS

Advanced Health and Nutrition

TRENDS

Biomaterials
Biotechnology
Blue Economy
Food Innovation





OPPORTUNITY 10

SCOPE TRANSITIONAL

What if treatment for depression was drug-free?^a

PULSE OVER PILLS

Advances in neuroscience, neuromodulation technologies, miniaturisation, advanced computing, and advanced machine intelligence, bring new, affordable and drug-free treatments for depression.

MEGATRENDS

Advanced Health and Nutrition

TRENDS

Health Tech
Mental Health
Mobilising innovation
Neuroscience

a. May not be entirely drug-free. Medical opinions may vary, and this may not be the case for every individual.





OPPORTUNITY

11

SCOPE

TRANSITIONAL

What if we restored a lost sense of touch?

AT YOUR FINGERTIPS

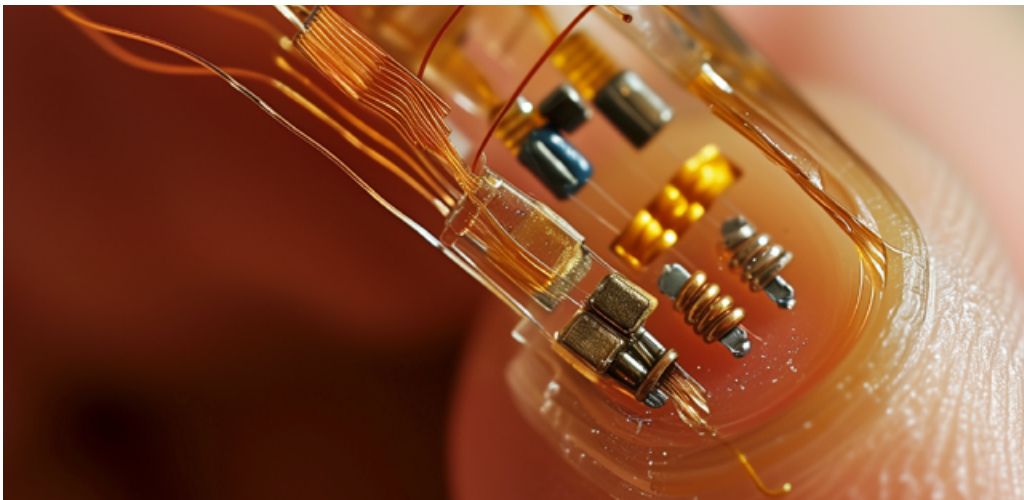
Implantable tactile sensors, combined with nanomedicine, aid in restoring the sense of touch, enhancing the quality of life for those who have lost it.

MEGATRENDS

Materials Revolution

TRENDS

Biomaterials
Brain-Computer Interfaces (BCI)
Immersive Technologies & Wearables
Longevity & Vitality
Neuroscience





OPPORTUNITY 12

SCOPE TRANSITIONAL

What if expiry dates were unnecessary?

A WARNING GLOW

Bioluminescent food packaging materials detect food deterioration and contaminants, extending shelf life and reducing waste, transforming food safety in retail, restaurants, and homes.

MEGATRENDS

Materials Revolution

TRENDS

Biomaterials
Biotechnology
Food Innovation
Mobilising innovation
Sustainable waste management





NATURE RESTORED

Minimise environmental risks, harness nature's capacity to restore itself or have a positive impact on crucial environmental ecosystems and habitats, creating a more stable, healthier planet for all.



What if cities mirrored nature?

MOTHER CITY

Nature-inspired solutions, guided by biological sciences and advanced machine intelligence, are used in early urban planning to transform cities to become sustainable, self-regenerating, and lower maintenance, for optimal impact.

MEGATRENDS

Saving Ecosystems

TRENDS

- Biomaterials
- Cross-sectoral Partnerships
- Net Zero
- Repurposing assets
- Urban design





What if digital biodomes shaped eco-policies?

VIRTUAL NATURE GenAI

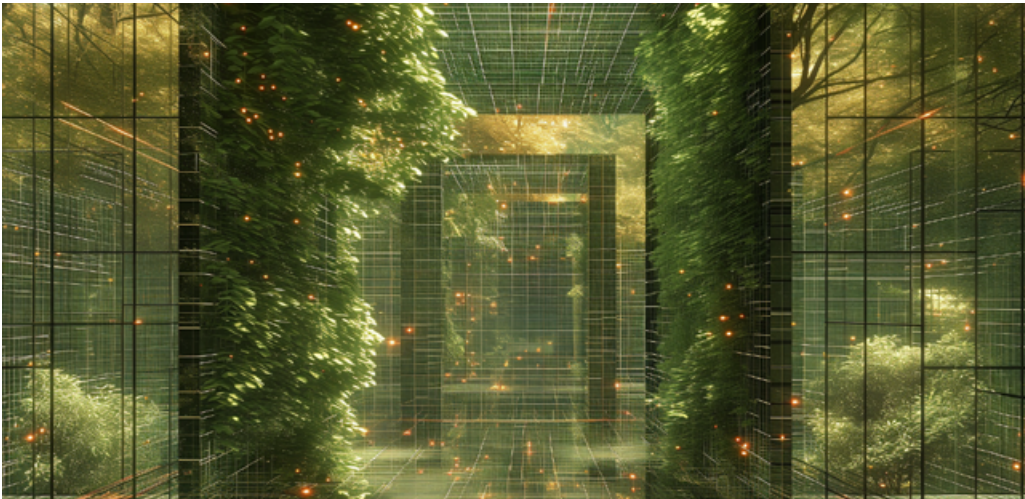
Digital biodomes, simulated using advanced machine intelligence, provide a basis for policies where nature conservation and restoration are a priority, aligning human activities with nature's health.

MEGATRENDS

Saving Ecosystems

TRENDS

- Artificial Intelligence
- Climate tech
- International collaboration
- Open data
- Restoration





OPPORTUNITY 15

SCOPE TRANSITIONAL

What if carbon nanomaterials ensured global access to clean water?

CARBON FOR WATER

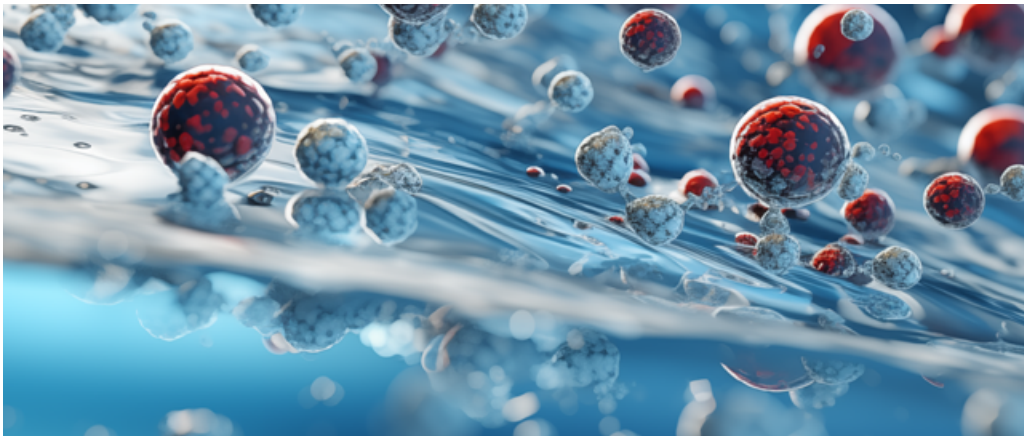
Carbon-based nanomaterials transform global access to potable water through their ability to effectively remove pollutants at the nanometre scale, in both small and large volumes, allowing for point-of-use applications and larger scale operations reducing the cost and environmental impact of desalination processes.

MEGATRENDS

Materials Revolution

TRENDS

Biomaterials
Food-water-energy nexus
Mobilising innovation
Nanotechnology





OPPORTUNITY 16

SCOPE VISIONARY

What if nature grew and regenerated faster?

GREEN SPURT GenAI

Advances in environmental science and biotechnology foster the development of plants, soils, and tools that accelerate nature’s regeneration, promoting biodiversity, carbon sequestration, and ecosystem services.

MEGATRENDS

Saving Ecosystems

TRENDS

- AgriTech
- Air Pollution
- Biotechnology
- Geoengineering
- Restoration





What if tidal energy took over solar and wind?

TIDALS OF ENERGY

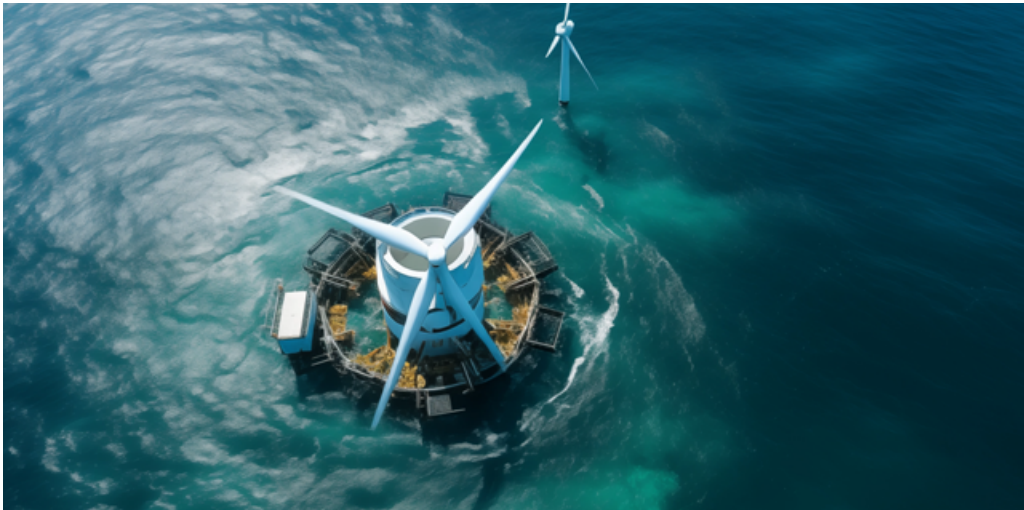
Advances in turbine technology with advanced machine intelligence enhance tidal energy's cost-effectiveness and its resilience against rising sea levels, making it a sustainable and scalable power source.

MEGATRENDS

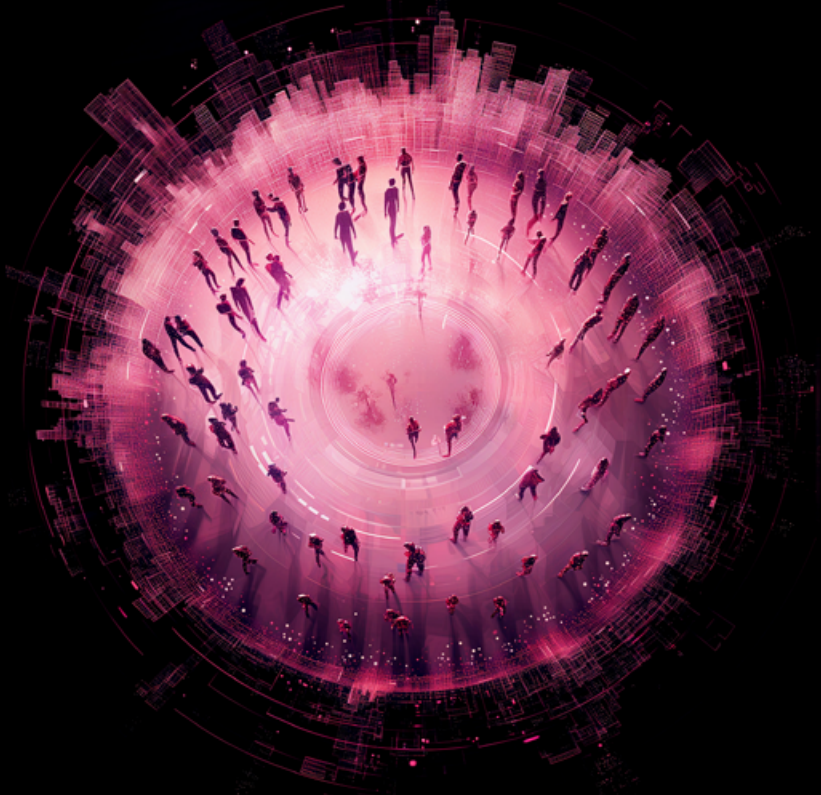
Energy Boundaries

TRENDS

Transforming Energy
Mobilising innovation
Net zero
New Materials







SOCIETIES EMPOWERED

Empower societies by offering solutions to humanity's most complex and universal needs, optimising systems they rely on, safeguarding risks that could make societies more fragile in the face of crises and extending individual and collective potential for growth and development.



What if wisdom was taught?

SCHOOL FOR WISDOM

Schools are transformed with wisdom-based education programmes, fostering culturally informed reasoning and skills to tackle complex challenges posed by emerging technologies for both young and old.

MEGATRENDS

Future Humanity

TRENDS

Artificial Intelligence
Future of purpose & work
Generational & cognitive Diversity
Human–Human
Transforming Education





What if culture was integral to policymaking?

SAFEGUARDING CIVILISATION

Incorporate culture into public policy for effective conservation of both tangible (physical aspects of culture) and intangible (cultural practices and rituals) heritage.

MEGATRENDS

Future Humanity

TRENDS

Cross-sectoral Partnerships
Culture & Heritage
Government Agility
Restoration
Urban Design





What if we designed inclusive networking economies?

THE 'NETWORK' DIVIDE

As the network-based economy expands creating opportunities for those in it, design inclusive networks that through strategies focused on synergy, value, and progress, reduce exclusive dominance and enhance innovation.

MEGATRENDS

Borderless World–Fluid Economies

TRENDS

Digital Communities
Future of Purpose & Work
Human–Human
Mobilising Innovation
Cross-sectoral Partnerships





What if digital realities provided deep insights into history and culture?

STEPPING THROUGH TIME

Digital realities enhanced by brain–computer interfaces change how we experience history and culture, providing real-time immersive insights into the development of communities and cities helping to enrich education and preserve cultural heritage.

MEGATRENDS

Digital Realities

TRENDS

Brain computer interfaces (BCI)
Culture & heritage
Extended Reality
Future of education
Immersive Technologies & Wearables





OPPORTUNITY **22**

SCOPE **WITHIN REACH**

What if neighbourhoods were key to accessible mental health?

CIRCLE UP

Community-based mental health support groups provide an informal and accessible option for adults to seek and share mental health concerns, reduce stigma, create social support, and foster social cohesion.

MEGATRENDS

Future Humanity

TRENDS

Community-based Solutions
Community Engagement & Volunteerism
Human–Human
Longevity & Vitality
Mental Health





What if (part) of artificial intelligence (AI) was a public good?

'PUBLIC' AI

A framework and toolkit for AI as a public good that specifically addresses the challenges of sustainability and on-going performance applied to specific use cases related to global challenges from climate and food security, to healthcare and sustainable development.

MEGATRENDS

Boundless Multidimensional data

TRENDS

Advanced connectivity
Artificial Intelligence
Human–Machine
International collaboration
Mobilising innovation





What if the Global South inspired new models of growth, well-being and climate response?

UNCONVENTIONAL PROGRESS

The Global South's unique pathways of progress offer global research and innovation opportunities inspiring new approaches to the response to global challenges and inspiring new models for growth, well-being, and climate response.

MEGATRENDS

Future Humanity

TRENDS

ESG & beyond GDP
Future of Purpose & Work
Government Agility
International Collaboration
Mobilising Innovation







SYSTEMS OPTIMISED

Improve and build more effective and resilient systems underpinning advances to services and solutions at various levels of business, government, and society.



What if sustainable development was central to robotics?

THE RESPONSIBLE ROBOT

Sustainable development drives robotics strategies and research, advancing sustainable agriculture, construction, disaster relief, and healthcare, aligning with global sustainable development goals.

MEGATRENDS

Life with Autonomous Robots and Automation

TRENDS

Automation
Cross-sectoral partnerships
Human-Machine
International collaboration
Mobilising Innovation





What if we no longer needed monetary policy?

BALANCED BOOKS

Advanced machine intelligence, edge computing, and the internet of things (IoT) make traditional methods like interest rate adjustments obsolete, enhancing financial stability and fostering sustainable growth.

MEGATRENDS

Boundless Multidimensional Data

TRENDS

Artificial Intelligence
Cross-sectoral partnerships
Edge computing
FinTech
Government Agility





OPPORTUNITY **27**

SCOPE

VISIONARY

What if mobile edge computing (MEC) made data centres obsolete?

ZERO MARGIN

Mobile/multi-access edge computing (MEC) and the internet of things (IoT) merge to accelerate signal and data processing, enhancing real-time decision-making and enabling seamless, latency-free digital services across various sectors making centralised data centres obsolete.

MEGATRENDS

Boundless Multidimensional Data

TRENDS

Advanced Computing
Data Protection & Privacy
Edge Computing
Mobilising Innovation





What if smart buildings evolved into smart urban ecosystems?

WALLS THAT TALK

Connected, eco-intelligent buildings form biomimicking ecosystems that optimise resources and minimise environmental impact to support sustainable, affordable, and healthier cities.

MEGATRENDS

Boundless Multidimensional Data

TRENDS

Advanced computing
Advanced connectivity
Air pollution
Automation
Urban design





What if advanced machine intelligence enhanced global justice in future areas of transformative change?

GLOBAL PRECEDENTS

Global working groups, using advanced machine intelligence, review the relevance and extract insights from existing global legal precedents⁹ in anticipation of future scenarios in areas of transformative change such as climate, well-being, and digital realities enhancing global collaboration, adaptability, and reducing legal uncertainty in an increasingly global and borderless world.

MEGATRENDS

Borderless World–Fluid Economies

TRENDS

Artificial Intelligence
Human–Machine
International collaboration
Legal Transformation
Mobilising innovation





What if every government appointed a chief sociologist?

SOCIOLOGIST-IN-CHIEF

Governments appoint a chief sociologist to advise on the impacts of policy on society and shape more effective and equitable policies to address the needs of communities and society in the future.

MEGATRENDS

Future Humanity

TRENDS

Cross-sectoral Partnerships
ESG & beyond GDP
Generational diversity
Government Agility
Heritage & culture





OPPORTUNITY

31

SCOPE

VISIONARY

What if synthetic DNA met our need for indefinite and unlimited data storage?

PHASTER PHARMA

Synthetic DNA chips meet humanity's increasing need for durable, large-scale data storage by offering a solution that can preserve information indefinitely while also reducing the environmental footprint of the digital world.

MEGATRENDS

Advanced Health and Nutrition

TRENDS

Artificial Intelligence
Biotechnology
Government Agility
HealthTech
Real-time analytics

What if synthetic DNA met our need for indefinite and unlimited data storage for critical information?

DATA HELIX

Synthetic DNA chips meet humanity's increasing demand for durable, large-scale data storage, for critical information indefinitely and reducing the digital world's environmental footprint.

MEGATRENDS

Boundless Multidimensional Data

TRENDS

Advanced Computing
Bioinformatics
Biotechnology
Data Protection & Privacy
Nanotechnology



What if the future of innovation goes back to basic (research)?

RESEARCH 101

Advanced machine intelligence accelerates basic research and enhances its translation into applied research and tangible societal benefits, making nations around the world engines of innovation and productivity.

MEGATRENDS

Future Humanity

TRENDS

Artificial Intelligence
Cross-sectoral Partnerships
Ideation, IP & Entrepreneurship
Mobilising innovation
Open Data





What if the future of advanced machine intelligence is interdisciplinary?

NO A'I' IN TEAM

An integrated, interdisciplinary, collaborative approach to AI education, research, development, and deployment leads to increased successful deployment of AI and associated public trust and tangible benefits.

MEGATRENDS

Future Humanity

TRENDS

- Artificial Intelligence
- Cross-sectoral partnership
- Future of purpose & work
- Human–Human
- Human–Machine





What if new materials enabled internet of things (IoT) devices to run indefinitely?

LIMITLESS CONNECTION

Triboelectric nanogenerators (TENGs) enable an interconnected IoT across rural and urban contexts, powering digital twins, optimising policies without external power needs, and advancing the IoT towards energy autonomy.

MEGATRENDS

Materials Revolution

TRENDS

Advanced computing
Advanced connectivity
Edge computing
Internet of Things (IoT)
New materials





What if foresight was a form of diplomacy?

AMBASSADOR OF SCENARIOS

Formal intergovernmental cooperation and mechanisms for scenario planning and foresight facilitate global cooperation to pre-emptively address global challenges by integrating futures and futures studies into global negotiation and diplomacy.

MEGATRENDS

Future Humanity

TRENDS

Digital communities
Government Agility
International Collaboration





OPPORTUNITY **37**

SCOPE **WITHIN REACH**

What if we had a global trade licence for small businesses and start-ups?

THE 'GLOBAL' PROTOCOL FOR SMALL BUSINESSES

An international treaty facilitates a global trade licence for small businesses and start-ups in multiple countries.

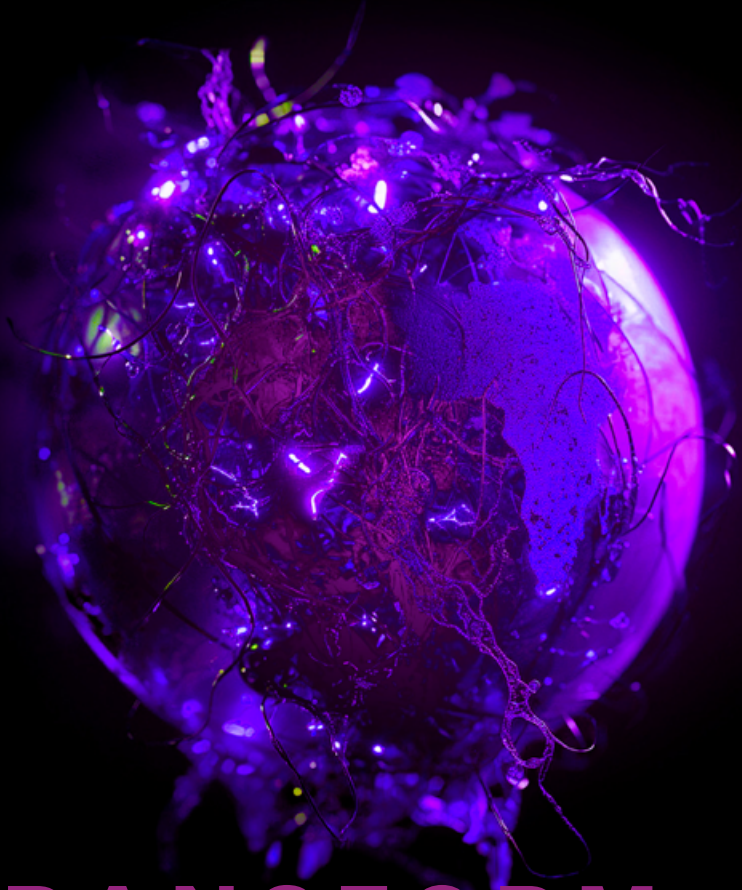
MEGATRENDS

Borderless World–Fluid Economies

TRENDS

Cross-sectoral partnerships
Future of purpose & work
Ideation, IP & Entrepreneurship
International collaboration
Mobilising Innovation





TRANSFORM- ATIONAL

The power to radically change ways of life by replacing the models that countries, communities and individuals live by. These new models enable individuals and communities to innovate and improve and aid the transformation of humanity to new digital and non-digital realities.



What if the youth were paid to explore careers and retirees never retired?

FLIPPING THE CAREER LADDER

Reversing career trajectories: 'pension' for youth, a growth period, then 'internships' for retirees, encourages dynamic, diverse hiring and societal engagement across generations.

MEGATRENDS

Future Humanity

TRENDS

Future of education
Future of purpose & work
Generational & cognitive diversity
Longevity & vitality
Mental health





What if the future knowledge economy was shaped by the welfare of societies?

THE GOOD ECONOMY

In a distant future that will pivot on advanced machine intelligence and major technological breakthroughs, the future of the knowledge economy will revolve around the sustained well-being of societies where education and innovation thrives. This era will be shaped by globally aligned societal values about technology, harmonisation of related laws and regulations, and technological progress that enhances quality of life and access to services towards the common good.

MEGATRENDS

Life with Autonomous Robots and Automation

TRENDS

Artificial Intelligence
Automation
ESG & beyond GDP
Future of Purpose & Work
Human–Machine





What if contactless haptics transformed gaming and healthcare?

SEEING IS FEELING **GenAI**

Contactless haptic technology enhance gaming, digital realities, healthcare, and everyday life, offering immersive, wearable-free experiences for both sighted and visually impaired individuals.

MEGATRENDS

Digital Realities

TRENDS

Advanced Computing
Advanced Connectivity
Artificial Intelligence
Extended Reality (XR)
Human–Machine





What if we had a Turing declaration for human intelligence?

THE POST-TURING ERA

A declaration of original thought and the extent of human-machine intelligence ushers in a new era of innovation and creative thinking, encouraging greater accountability and integrity.

MEGATRENDS

Future Humanity

TRENDS

Artificial Intelligence
Digital communities
Future of purpose & work
Human-Machine
Transforming education





What if the future of batteries is internal?

PERPETUAL POWER

Innovative battery energy storage redesign using non-lithium or minimal lithium materials and advanced machine learning offers opportunities for flexibility, reliability, and sustainable applications in various sectors.

MEGATRENDS

Energy Boundaries

TRENDS

3D Printing
Artificial intelligence
Net Zero
Transforming Energy
New Materials





OPPORTUNITY 43

SCOPE

VISIONARY

What if fully solar-powered vehicles were everywhere?

SUNSHINE STEERING

Advanced machine intelligence – for novel materials and solar technology design – and nanotechnology enhance solar photovoltaic (PV) cells and storage, enabling weather-resilient solar vehicles that rival electric ones.

MEGATRENDS

Energy Boundaries

TRENDS

Advanced mobility
Mobilising innovation
Net zero
New Materials
Transforming Energy





OPPORTUNITY **44**

SCOPE **VISIONARY**

What if we could learn new skills while we sleep?

RESTFUL RETENTION

Advanced sleep studies, neuroscience, and brain-computer interfaces augmented by advanced machine intelligence, deepen our understanding of learning during sleep enabling our ability to retrieve learning when awake.

MEGATRENDS

Advanced Health and Nutrition

TRENDS

Brain computer interfaces (BCI)
Neuroscience
Transforming Education





What if machines could self-repair?

FOREVER MACHINES

Self-repairing machines, integrating preventive maintenance, smart materials, and advanced sensors, enable downtime-free manufacturing and sustainable, long-lasting consumer products and robotics.

MEGATRENDS

Life with Autonomous Robots and Automation

TRENDS

Advanced computing
Artificial intelligence
Automation
Cross-sectoral partnerships
New Materials





What if graphene were mass produced?

FINALLY GRAPHENE

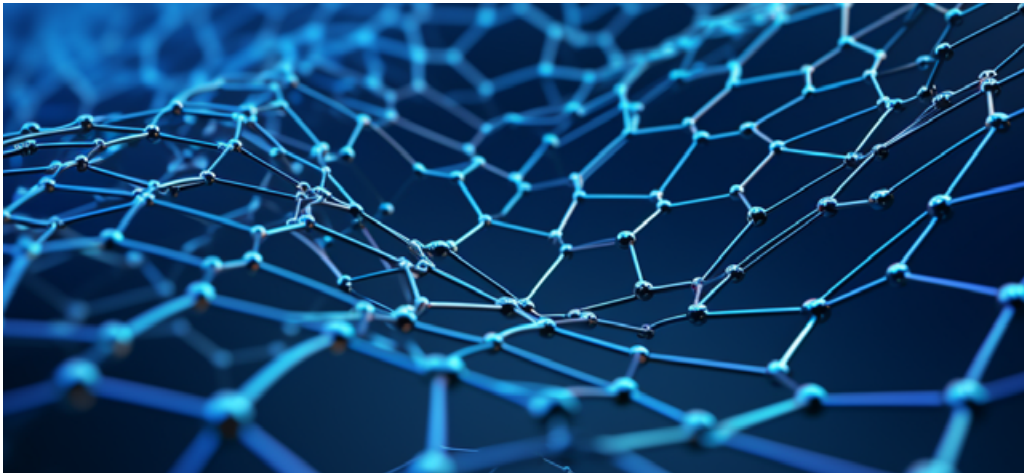
By unlocking solutions for mass production, graphene could transform energy storage, hydrogen fuel efficiency, air filtration, water desalination, sensor technologies, and healthcare, particularly in drug delivery and personalised medicine.

MEGATRENDS

Materials Revolution

TRENDS

Artificial intelligence
Immersive technologies & wearables
New Materials
Nanomaterials
Transforming energy





What if multimodal large language models (LLMs) allow disruptive science once again?

OPEN-SOURCE SCIENCE

A global scientific task force trains LLMs on scientific theories and data prioritising concerns related to bias, privacy, and reliability to accelerate research, enhance science communication, and inform policy.

MEGATRENDS

Future Humanity

TRENDS

Artificial Intelligence
Ideation, IP & Entrepreneurship
International collaboration
Open Data
Transforming Education





What if food waste was the key to sustainable flexible electronics?

GREEN PLASTICS

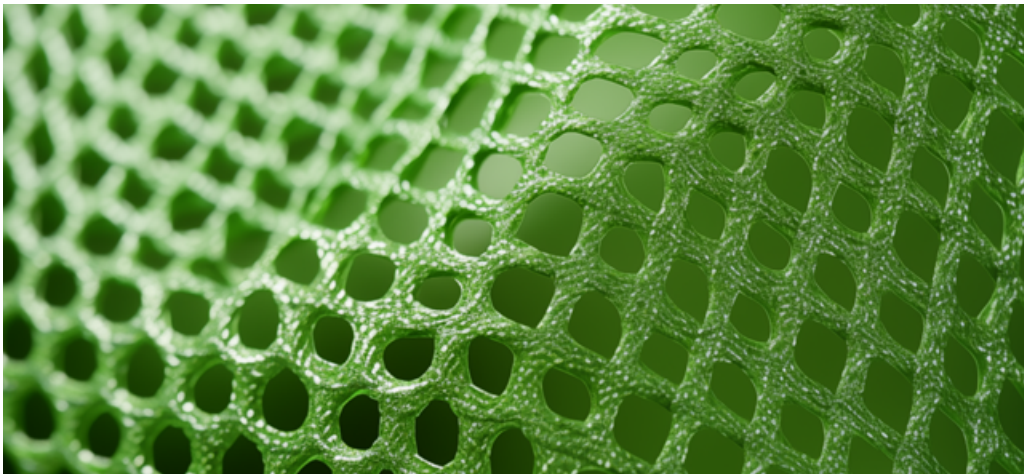
Advanced machine intelligence with sustainable agriculture bioengineer starch from food waste transforming it into fully biodegradable plastics for electronics, wearables, and packaging, supporting a fully circular bioeconomy.

MEGATRENDS

Materials Revolution

TRENDS

Artificial intelligence
Biomaterials
Immersive technologies & wearables
New Materials
Sustainable Waste Management





What if we seamlessly transitioned into quantum computing?

THE QUANTUM JUMP

A data interoperability bridge that enables a secure and seamless data transition between quantum and classical computers.

MEGATRENDS

Technological Vulnerabilities

TRENDS

Advanced computing
Cross-sectoral partnerships
Data protection & privacy
Interoperability
Quantum technology





What if we had a global, seamless internet?

THE NETWORK OF NETWORKS

Advances in satellites and advanced machine intelligence enable seamless, global internet access, supporting the internet of things (IoT) and reducing network disruptions through intelligent transitions between cellular and satellite networks.

MEGATRENDS

Borderless World–Fluid Economies

TRENDS

Advanced Connectivity
Artificial intelligence
International collaboration
Mobilising innovation
Space economy





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