

Global

Megatrends

2024

**People
Planet
Innovation**



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Foreword

The Project Management Institute (PMI) tracks the long-term forces that are shaping the future of the project management profession. We call them global “megatrends.”

These forces not only impact where and what types of project management jobs will be required in the future, but they also illustrate the enormous opportunity project professionals have to impact the world around us by delivering successful projects.

Our latest report, *Global Megatrends 2024: People, Planet and Innovation*, highlights the consequences of demographic challenges, the need for reskilling and upskilling, and a shift in the way of working for project professionals.

It makes a clear call to action to address sustainability and the daunting reality of climate change while urging us to keep up with the latest disruptive technologies driving business and industry transformations.

At PMI, the world’s leading authority on project management, we believe that successful projects can truly make a difference. We invest in advancing our profession so that project managers can lead successful transformations.

This latest report is another step in our consistent efforts to provide insights to help project professionals navigate the coming years and demonstrate the role of successful projects in building more resilient, agile organizations and delivering tangible value.

I encourage you to engage with PMI, and to take advantage of our research, reports, training programs, gold-standard professional certifications, and networking opportunities. Continuous, career-long learning will help you remain relevant to create value for enterprises, society, and our world.



Pierre Le Manh, PMP
President & CEO
Project Management Institute

Introduction

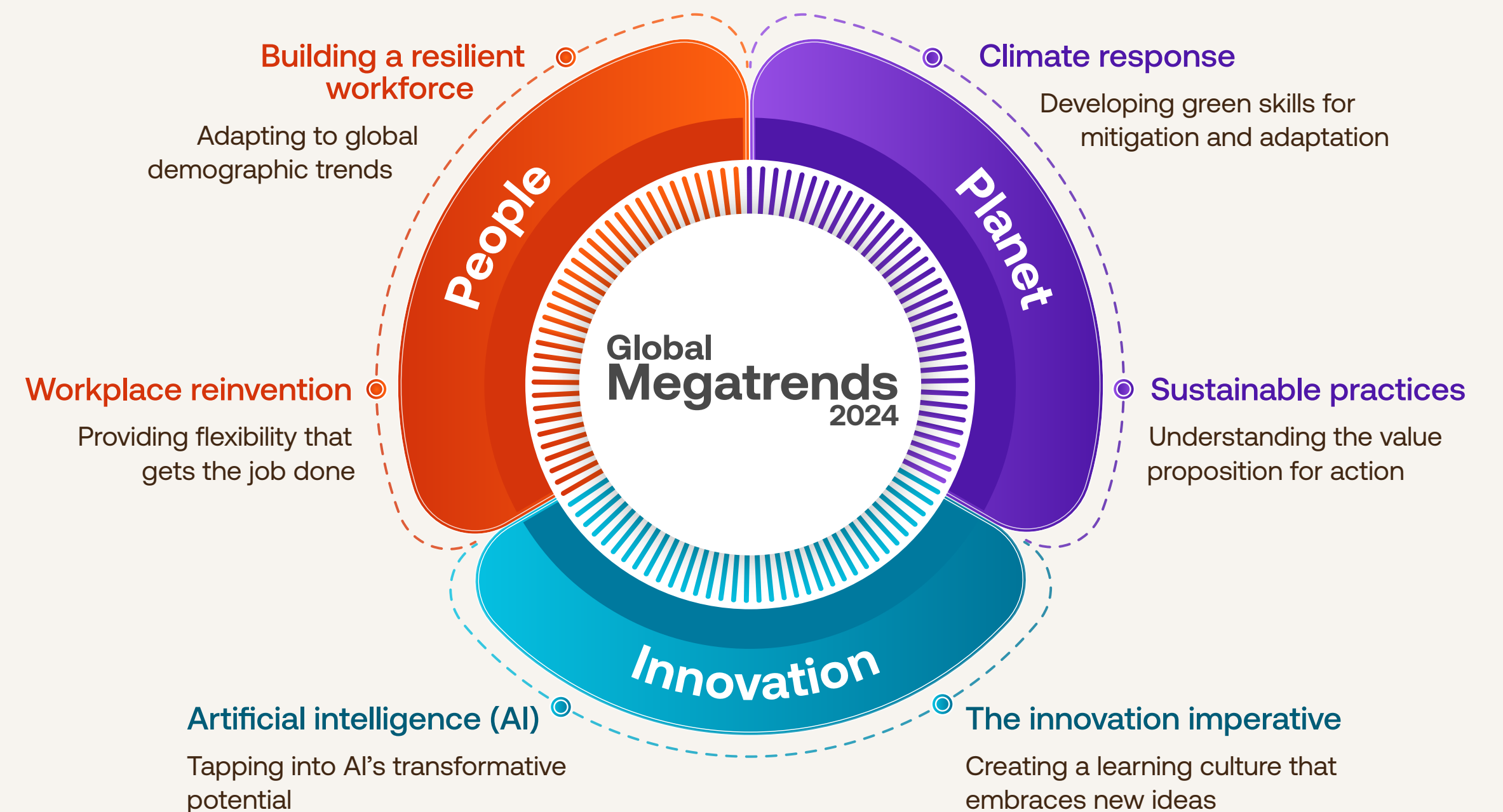
It has been a short but turbulent interval since Project Management Institute (PMI) published the Global Megatrends 2022 report. The expectation that the churn and friction we were experiencing would not let up proved to be accurate. But as the senior leaders we consulted have indicated, this is also a time of opportunity — to reevaluate and redesign the ways we get things done in a more mindful and productive way. Through a better understanding of the challenges we face and the benefit of insights and experience from experts in the project management field, Global Megatrends 2024 attempts to answer the question: “How do we enact effective strategies to thrive in the future?”

For this year’s Megatrends report, we view these global forces that will impact projects and programs as corresponding with three themes — people, planet and innovation. The way they are woven

together comprises the backdrop to our human existence. They are reflective of the changes we see in how people and organizations work and are shaping their transformation initiatives.

As we choose our tools and approaches, it will be necessary to understand how each megatrend impacts and is impacted by the projects we undertake. By learning from projects on the cutting edge and people who lead with innovative solutions, we can move forward with greater resilience.

In an environment that can be chaotic, it is more important than ever to step back from daily demands and train a broader lens on the future that is being shaped by these global megatrends. Anticipating and understanding future shocks and disruptors can enable us to go beyond resilience to grasp opportunities — what Nassim Nicholas Taleb calls becoming “anti-fragile.”¹



	People		Planet		Innovation	
	Building a resilient workforce	Workplace reinvention	Climate response	Sustainable practices	Artificial intelligence (AI)	The innovation imperative
Ways of working		✔		✔	✔	
Enterprise transformation	✔		✔			✔

Another way to view these megatrends —and to consider how we can thrive amid them — is to understand how they relate to different roles in the practice of project management:

- ▶ **Ways of working** (workplace reinvention, sustainable practices, AI): Encompassing experimentation and how we apply new influences and tools to our practice
- ▶ **Enterprise transformation** (building a resilient workforce, climate response, the innovation imperative): Embracing the changes needed to not only stay competitive and build resilience, but to be able to seize new opportunities and build anti-fragile organizations

How will AI and other advancements in technology impact employment, market structures and energy demands? Will we be able to harness learnings from the COVID-19 pandemic to be more prepared for future health crises? Can we find consensus solutions for climate change to mitigate its impacts on global ecosystems, human health and economic stability? What strategies can reduce socioeconomic inequality and improve access to education and opportunities to create thriving societies and a resilient workforce?

These are just a few of the challenges we face in the spheres of people, planet and innovation. They may seem daunting, but we can make an impact through projects that encompass collaboration, our interconnectedness, deliberate steps in the face of urgency, technological solutions and the cumulative effect of small actions — strategies for action discussed later in this report.

To illuminate our way forward, PMI has called on experts and thought leaders from around the world to share their reflections to guide and inspire us. There is always anxiety as we transition from the present to the future, but a clear understanding of where we have come from and where we're going helps us build a more flexible, creative mindset. Supported by the PMI community, project professionals can play an essential role in leading others to solve the challenges these megatrends present through successful projects that elevate our world.



“

It would be a fool’s errand to try to predict exactly what crisis is going to hit us next. So, it’s more of a question of now that we’ve survived, what can we learn about our resilience?

ALEXANDER BUDZIER
DIRECTOR, OXFORD GLOBAL PROJECTS; FELLOW IN MANAGEMENT PRACTICE, UNIVERSITY OF OXFORD'S SAÏD BUSINESS SCHOOL; MEMBER OF THE PMI PROJECT SUCCESS INSIGHT TEAM



“

Rather than predetermining anything in the future, we need to provide a culture centered on learning to increase the outcomes you are accountable for rather than only being accountable for an outcome with the resources you are given.

CHRISTOPHER GILCHRIST
PRINCIPAL AT FORRESTER RESEARCH, INC., MEMBER OF THE PMI THOUGHT LEADERSHIP ADVISORY COUNCIL



“

We've been here before – at these critical junctures where uncertainties strain our relationship with the future. By reframing uncertainty and ambiguity as a place of possibility and an opportunity for our curiosity and collective imagination, we can forge healthier, more sustainable paths forward.

TAMEKA VASQUEZ
FOUNDER & PRINCIPAL STRATEGIST, THE FUTURE QUO, MEMBER OF THE PMI THOUGHT LEADERSHIP ADVISORY COUNCIL



People

People

The Engine Driving Positive Change

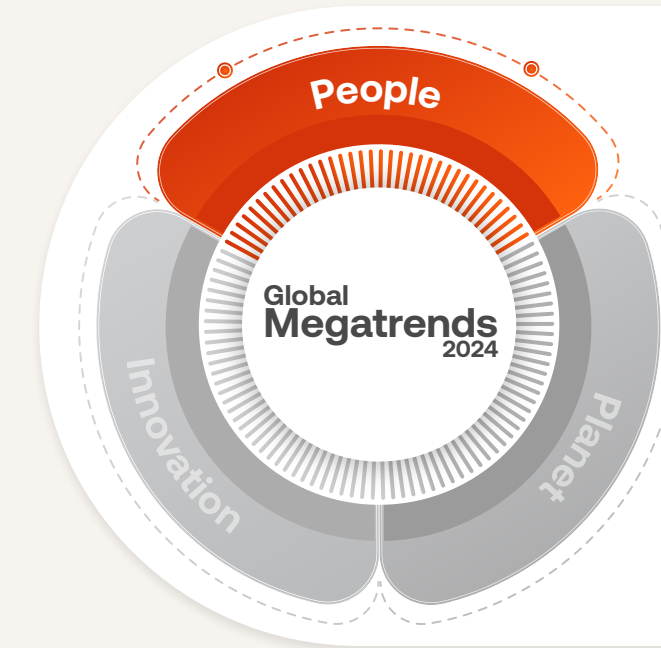
People are the most important asset to any enterprise.

Public policies must ensure that favorable circumstances exist for young people to gain the skills needed to fill the jobs of the future and to enable older populations to remain in the workforce. For organizations that seek to thrive in the future of work and position themselves to capitalize on opportunities to ensure business continuity, the principal investment they can make is providing access to training and professional development² for existing employees and actively recruiting talent with tech-focused skills like database modeling, prompt engineering³ and user interface design. Change is enacted through projects, and a guiding line for navigating change must be its impact on people.

According to the April 2024 report⁴ of the Organisation for Economic Co-operation and Development (OECD), labor markets have stabilized. Although rates vary by country, overall labor force participation has increased and unemployment rates remain near historic lows below 5%, in contrast to the last few years. Labor pools remain tight, however, placing continued pressure on employers to attract and retain talent.

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People Megatrends

- **Building a resilient workforce**
Adapting to global demographic trends
- **Workplace reinvention**
Providing flexibility that gets the job done

2.1 Megatrend: Building a Resilient Workforce

Industry and Government Support Are Needed to Reap Demographic Dividends

Demographics play a key role. The problem of aging populations is particularly acute in Asian countries like South Korea, Japan and China, where action is underway⁵ to raise the retirement age and increase incentives for older workers to remain in the workforce. In China, state-run media recently stressed that reemployment of the elderly was “an urgent and realistic problem to be solved.”⁶ The Japanese government is seeing positive results⁷ from efforts to incentivize women to join the labor force, and initiatives like Australia’s Adult Learners Week⁸ can provide ongoing skills enhancement for older workers. Greece recently took the controversial step of allowing some companies to enforce a six-day work week to meet operational demands, highlighting the problem of an aging workforce that is common throughout Europe.⁹

In contrast, Africa will be the primary contributor to world population growth. The United Nations forecasts that Africans will make up one-quarter of humanity, and at least one-third of all young people aged 15 to 24, by 2050.¹⁰ Governments and businesses will need to develop strategies to adapt to these changing demographics. Failure to provide young people with the requisite education and training to succeed in an increasingly technological job market could be destabilizing. Public-private partnerships, like Google Africa’s initiative¹¹ to help 20,000 Nigerian women and youth achieve digital competency, are key. Skills education and mobility of skills, such as through certification, provide an alternative to formal education and help build the workforce needed to fill the gap in talent¹² for skilled roles, including project management.

Latin America,¹³ with the second-highest share of young adults after Africa, and India,¹⁴ now the world’s most populous nation with more than one-quarter of the population between the ages

of 10 and 20, also stand to reap a demographic dividend. EquipYouth,¹⁵ a joint effort of the Caterpillar Foundation and the International Youth Foundation, is another partnership that is preparing young people to bridge the skills gap and be catalysts for change. It provides students in Latin America with project-based learning opportunities to acquire power skills like critical thinking, teamwork and persistence and prepare them for jobs in fields like manufacturing and information technology (IT).

In India, Atul Kumar Tiwari, secretary, Ministry of Skill Development & Entrepreneurship (MSDE), recently announced the launch of Skill India Digital (SID),¹⁶ an application that centralizes the country’s training and skills development initiatives. To foster collaboration around this initiative, the World Bank sponsored a summit in New Delhi that brought together representatives from 20 nations to exchange information about technology-driven practices in education.

Technology and Immigration Will Augment an Aging Workforce

Robots also offer a solution to augment an aging workforce; in fact, a recent study¹⁹ found that an aging workforce is a main driver in the adoption of robotic and other automation technologies. Germany is moving forward with a plan to augment its aging workforce with robots.²⁰ Japan, a leader in robotic technologies, has been experimenting with robots to supplement its workforce for years, in industries including construction,²¹ food and beverage²² and healthcare.²³

As projects become more digitalized with the introduction of robots and AI, however, human workers will need upskilling in power skills like problem-solving, negotiation and communication. “Ultimately, the goal of integrating robots into the workplace is to augment human capabilities,” says Cagri Pehlivan, CEO of robot services provider Robot4Work, “not replace them.”²⁴



The global population is aging¹⁷

By 2050, older adults aged 65+ will outnumber adolescents and youth aged 15 to 24. The impact on workforces will be significant; by the end of this decade, roughly 150 million jobs will shift to workers 55 and older.¹⁸

Countries with low birth rates can also expand their workforce by recruiting migrant labor; the United States has so far been able to sustain modest population growth through immigration,²⁵ a factor that contributes to economic growth and helps control inflation.²⁶ Japan loosened immigration rules²⁷ in 2019 to encourage skilled workers to come to the country, but the COVID-19 pandemic and extended shutdown of the country to foreigners restricted the program's success.

Upskilling and Lifelong Learning Are More Important Than Ever

The ability to adapt and learn throughout the arc of one's work life is more critical than the acquisition of any particular capability. "Specific technical skills, like coding, quickly become outdated due to rapid technological advancement," says Vered Holzmann, professor, School of Management & Economics, The Academic College of Tel Aviv-Yaffo, Israel. "It is important to explain the basics, the rationale; but the skills students will need are what we used to call 21st-century skills, like critical thinking, problem-solving, creativity, teamwork and an additional, very important skill — lifelong learning. Because no matter what we teach them today, we can just give them the foundation. They will have to learn by themselves continuously."

Executives believe one-half of their workforces' skills²⁸ won't be relevant in just two years as a result of generative AI (GenAI), a stark example of the need for constant upskilling as ways of working evolve.

This skill evolution, coupled with labor shortages in many parts of the world, makes it impractical or even impossible to simply hire new workers with the needed skills. Retraining staff to add tools to their existing toolbox — the kind of personalized training Holzmann says is being developed in academia, and that may be enabled by GenAI²⁹ — can prove to be quicker and cost-effective. Upskilling can also be carried out gradually by utilizing external training providers to "train the trainers." Once a pool of trained, capable people has been created, the process can be scaled up to extend to the entire organization.

Companies, including McKinsey and Exact Science, are turning to "job swapping" to keep workers engaged and provide opportunities to learn new skills. Job swapping, in which employees can switch roles or take on short-term projects in a new city, for example, is particularly applicable in the project management field and can also help workers expand their worldview.³⁰



Largest working-age share of population



Sources: U.N. World Population Prospects, World Bank • Graphic includes countries with at least 50 million people in 2023. Largest economies are determined by gross domestic product. New York Times. <https://www.nytimes.com/interactive/2023/07/16/world/world-demographics.html>

2.2 Megatrend: Workplace Reinvention

Remote and Hybrid Work Arrangements Get the Job Done

Flexible work arrangements are an ongoing area of negotiation. Owl Labs State of Hybrid Work 2023³¹ found a misalignment between what employers mandate and what employees want when it comes to in-office work: the employer-preferred working style is 66% in-office work versus the employee preference for 22% in-office time. Nearly one-third of workers said this mismatch would cause them to look for a new job. The PMI report, *Pulse of the Profession® 2024: The Future of Project Work: Moving Past Office-Centric Models*,³² found that employees are more likely than senior leaders to say that remote work is as effective or more effective than in-person work.

Significantly, the report found that organizations can provide flexibility and empowerment in work arrangements without worrying it will have a negative impact on project execution and performance. As organizations mediate work from home versus in-person arrangements, they will need to develop meaningful modes of collaboration and provide opportunities to come together for things like learning, celebratory lunches and recognition.

PMI Future 50 honoree Janice Hsu³³ began Eslitec, a software startup, to build chatbots that help save local farmers time when responding to customer queries. Hsu uses 104, a leading human resources platform in Taiwan, to recruit a fully remote workforce for her growing company. “The capital for our company came just from me and another co-founder,” says Hsu. “We didn’t get any outside investment. We are not a very rich company, so the salary is not very, very high. If I want to hire young people or smarter staff, I can’t give higher salaries, but I can give them more free time and flexibility. It’s a change in our company’s culture — they don’t need to work overtime. So, they can work at home, and they can have their time to do other side projects or to enjoy their life.”

The Need for New Skills*

44%

of workers’ skills will be disrupted in the next five years.

60%

of workers will require training in new skills by 2027.

42%

of companies will prioritize skills in utilizing AI and big data.

45%

of companies view government-funded skills training as an effective way to connect talent to employment.

Green Skills**

Job postings requiring green skills have grown by

15%

1 in 8

workers has green skills. (LinkedIn defines green skills as those that enable the environmental sustainability of economic activities.)

Artificial Intelligence Skills†

Postings for AI jobs have grown

3.5x

faster than the average.

Required skills change

25%

faster in AI-exposed occupations than roles less exposed to AI.

Wage premium up to

25%

can be found for jobs that require AI skills.

Power Skills‡

According to LinkedIn, these power skills are among the most in-demand skills for 2024 (numbered in ranking order).

#1

Communication

#2

Leadership

#7

Teamwork

#9

Problem-solving

Top skill of the moment:

Adaptability

(According to LinkedIn’s measure of the difference in demand of a given skill in the current six months versus in the same six months from the year before.)

* World Economic Forum. (2023, April 30). The future of jobs report 2023. Retrieved June 8, 2024, from <https://www.weforum.org/publications/the-future-of-jobs-report-2023/digest/>

** LinkedIn. (2023). Global green skills report 2023. Retrieved June 10, 2024, from <https://economicgraph.linkedin.com/research/global-green-skills-report>

† PwC. (2024, May 21). AI jobs barometer. Retrieved June 10, 2024, from <https://www.pwc.com/gx/en/issues/artificial-intelligence/ai-jobs-barometer.html>

‡ Bodnitz, D. (2024, February 8). Data insights: The most in-demand skills for 2024. LinkedIn. Retrieved June 10, 2024, from <https://www.linkedin.com/business/talent/blog/talent-strategy/linkedin-most-in-demand-hard-and-soft-skills>

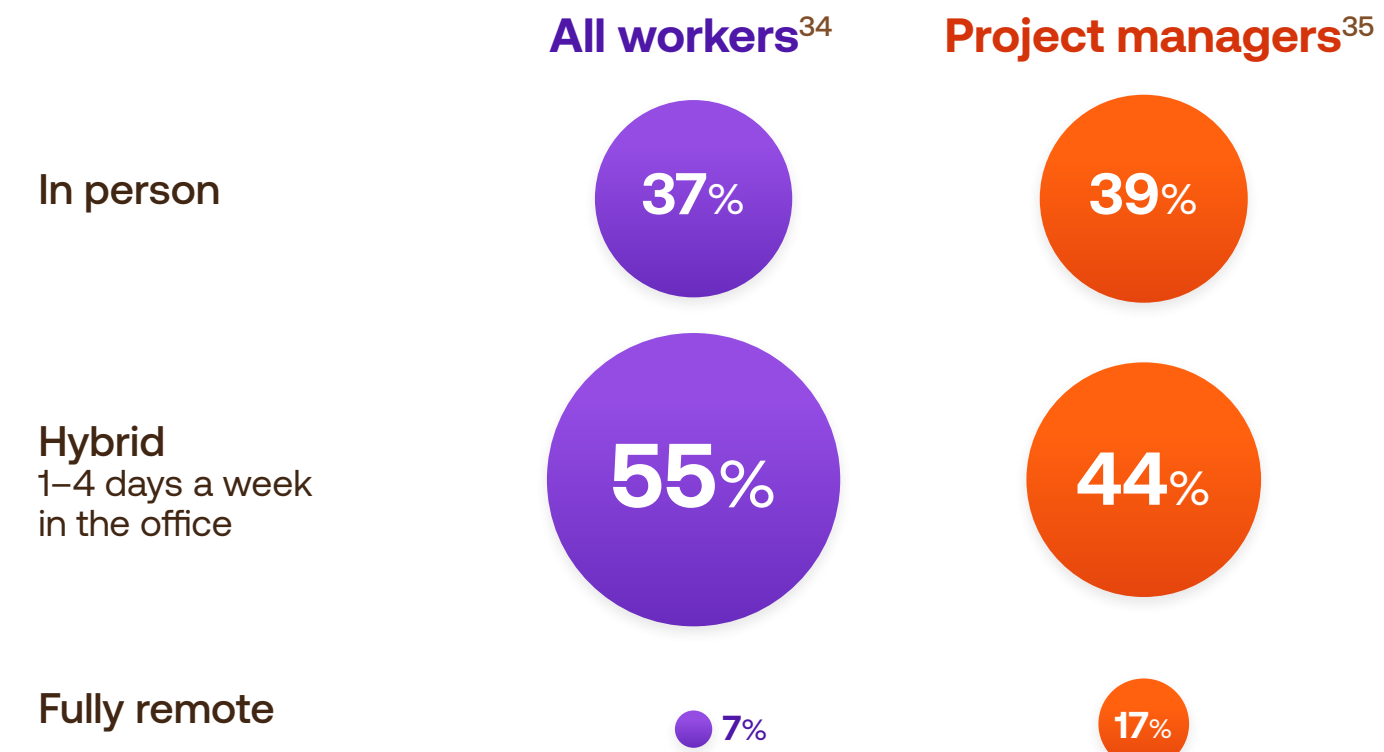
The Value of Happiness in the Future of Work

When shaping the future of work, we should not underestimate the value of happiness in getting the job done. A recent study found that a one-unit increase in happiness can increase productivity by 12%.³⁶ However, according to the latest World Happiness Report³⁷ from the World Economic Forum, happiness among young people is in decline, a threat to the productivity of the workforce of tomorrow. The report points to three contributing factors (see Graphic: Threats to Happiness) and offers recommendations for organizations and communities.

Combating economic insecurity starts with educating young people for the jobs of the future, providing mentoring support along with instruction in life skills and financial literacy, and developing funding sources for young entrepreneurs. The Human Employment and Resource Training Trust/National Service Training Agency or HEART, an agency of the Office of the Prime Minister of Jamaica, recently joined with Studica Canada, a leading developer of robotics, to conduct a training camp to inspire future innovators, just one example of how public-private partnerships can achieve these aims.

With the growth of social media and possible isolation due to remote work, care must be taken to provide mental health support, promote healthy social engagement through professional affinity groups and create opportunities for collaboration to share knowledge and expertise. Engagement can also help alleviate uncertainty and anxiety over global events by providing opportunities to work on projects with social impact, promoting cultural diversity and working across geographic boundaries.

Remote Work Realities



Threats to Happiness



Economic insecurity

- ▶ 3 in 10 millennials and Gen Zs do not feel financially secure³⁸
- ▶ Unemployment is 3x as high for young people (aged 15–24) as for adults aged 25+³⁹



Feelings of inadequacy

- ▶ 27% of young people aged 19–29 say they are fairly or very lonely, the highest of any age group⁴⁰
- ▶ 48% of lonely young people in the U.K. say these feelings make them “less likely to want to progress in work”⁴¹



Anxiety over world events

- ▶ 75% of young people aged 16–25 say climate change makes them think the future is frightening⁴²
- ▶ 468 million children worldwide live in areas affected by armed conflict⁴³

Diversity Correlates with Better Project Outcomes

Everyone has a role to play in envisioning the workplace of the future and driving organizational culture. In the period since the last megatrends report, there has been increased pushback on diversity, equity & inclusion (DE&I) initiatives⁴⁴ for reasons that include perceived threat to status and poor understanding of long-term financial return on investment (ROI) from benefits like improved collaboration and talent retention. New models are being formulated to correct an overreliance on metrics with a narrow focus on diversity, such as the “inclusion score,” an international standard for people management developed by James Felton Keith.⁴⁵ But in our interviews with Vered Holzmann and Tameka Vasquez, futurist and strategist, Columbia University, both stressed that prospective employees, especially younger workers, are demanding change and will be attracted by positions where they can expand their social impact. In fact, 89% of millennials and 86% of Gen Zs say a sense of purpose is key to their job satisfaction.⁴⁶

In the project sphere, diversity has been shown to correlate with better project outcomes.⁴⁷

“I think businesses realize that if they do what we call good, it will actually result in better financial results,” explains Holzmann. “I’m talking about intentionally doing the organizational processes and producing the products in a way that will contribute to society and protect the environment and result in higher income. For example, we know that if you have a diverse team that includes people with different backgrounds, this team will be more effective. It will produce better results, more innovative, more creative. When the organization creates this culture, then the project managers feel much more connected, much more valuable.”

Holzmann identifies collaborative impact as a way to actuate meaningful change: “We face many grand challenges in the world. It’s not enough that one person will do something. It’s not enough that one organization will do something, no matter how big the organization is. It’s not enough that the government will decide whether it is allowed or not allowed to do this or that. The only way to address the grand challenges is through collaboration. You must have the joined efforts of everybody. I usually refer to that in terms of ecosystem because we have to see the complexity and interdependency.”

“**We face many grand challenges in the world. It’s not enough that one person will do something. It’s not enough that one organization will do something, no matter how big the organization is. It’s not enough that the government will decide whether it is allowed or not allowed to do this or that. The only way to address the grand challenges is through collaboration. You must have the joined efforts of everybody. I usually refer to that in terms of ecosystem because we have to see the complexity and interdependency.**”



VERED HOLZMANN
PROFESSOR, SCHOOL OF MANAGEMENT & ECONOMICS, THE ACADEMIC COLLEGE OF TEL AVIV-YAFFO,
MEMBER OF THE PMI ACADEMIC INSIGHT TEAM



Planet



Planet

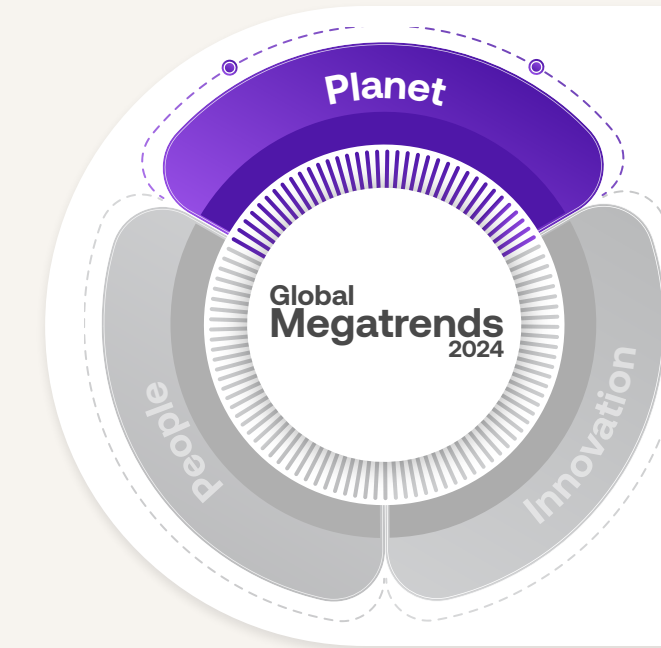
Applying Urgency and Agency to the Climate Crisis

Planet Earth has nurtured humanity from the Stone Age to the current epoch, the Anthropocene. But in just the last 75 years — the Anthropocene is thought to have begun in the early 1950s — humans have exerted their greatest impact on the planet, intensifying environmental degradation through the accumulated effects of pollution, deforestation, overgrazing and most significantly, the release of CO₂ into the atmosphere through the burning of fossil fuels.

According to a 2024 study⁴⁸ published in the scientific journal *Nature*, our failure to address the climate crisis will result in US\$38 trillion in global economic loss by 2050, compared with US\$6 trillion for mitigation efforts if we act to limit global warming to below the 2°C proposed by the nearly 200 parties to the Paris Agreement, the international treaty on climate change.

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Planet Megatrends

- **Climate response**
Developing green skills for mitigation and adaptation
- **Sustainable practices**
Understanding the value proposition for action

3.1 Megatrend: Climate Response

Eliminating Net CO₂ Emissions Is a Focal Point for the Green Economy

The focal point for the green economy is the drive to achieve net zero — a balance between the amount of greenhouse gas released into the atmosphere and the amount removed — through the elimination of fossil fuels and the transition to clean energy, along with mitigation projects to remove carbon from the atmosphere. Larry Fink, chairman and CEO of BlackRock, the world’s largest asset manager, told *The New York Times*⁴⁹ that the transition to green energy was inevitable. “It’s a mega force, a major economic trend being driven by nations representing 90 percent of the world’s GDP.” Fink also pointed to traditional energy firms that are investing in new carbon-capture technologies.

The transition is complex as demands on electrical grids increase to support the vast data centers needed for the rapid expansion of AI, cloud computing, crypto mining and other new technologies. Using an AI tool like ChatGPT consumes approximately 10 times as much energy as a common Google search according to the International Energy Agency (IEA),⁵⁰ in addition to increased water resources. The IEA⁵¹ predicts global data centers’ total electricity consumption could exceed 1,000 terawatt hours in 2026, roughly equivalent to the electricity consumption of Japan.

As global economies improve, the IEA projects energy demand will increase by 3.4% annually through 2026. As projects are undertaken to expand the energy infrastructure, it will also be necessary to build resilience into the power grid to mitigate risk from extreme weather events, cyberattacks and threats by rogue actors. The energy production picture is also subject to the whims of politics as the regulatory landscape and financial support fluctuate with changes in government leadership.

Australia is prototyping an innovative approach to stabilizing the power grid. “A really exciting application of AI-enhanced process

controls is taking place,” says Alexander Budzier, director, Oxford Global Projects. “With a network of wind and solar panels in residential areas and battery packs in everybody’s garage, they’ve created a virtual power plant. With similar capacity to a conventional nuclear power plant but without a building, they can store the excess energy and return it to the grid, and they’re generating gigawatt-scale electricity in small suburbs. New technology to control and monitor, and advancements we’ve made to batteries, solar cells and wind turbines make it possible.”

The Shift to Electric Vehicles Is a Key Step in Limiting Carbon Emissions

The transportation sector accounts for nearly 21% of global CO₂ emissions,⁵² a number that has risen dramatically over the last 50 years. In the United States, where the sector is the largest single source of emissions, the number is closer to 30%.⁵³ The drive to increase adoption of electric vehicles (EVs), in part to mitigate this source of greenhouse gases, is another complex challenge. Although the number of EVs continues to grow,⁵⁴ global sales are centered in China, the United States and Europe, where government regulations, such as new tailpipe emissions limitations⁵⁵ recently passed in the United States, help to incentivize their wider adoption. Electric vehicles are an additional source of demand on overstretched power grids. But experiments are underway to utilize EV batteries⁵⁶ as a distributed network of backup power during periods of peak demand.

Global competition for lithium, a crucial component in the manufacture of EV batteries, is a connected issue. Lithium mining can exacerbate limited water supplies and is a source of environmental pollution, a side effect that must — and can — be remedied. For example, EnergySource Minerals is looking to pilot an innovative technology that will derive “green” lithium from California’s Salton Sea while preserving water levels and limiting toxic waste



through the elimination of evaporation ponds.⁵⁷ Chile, the country with the world's largest lithium reserves, seeks to exploit this valuable resource, but more sustainable practices are necessary to preserve the biodiversity of the Atacama Desert and respect indigenous communities.⁵⁸

Project Managers Are Perfectly Positioned to Lead in the Green Economy

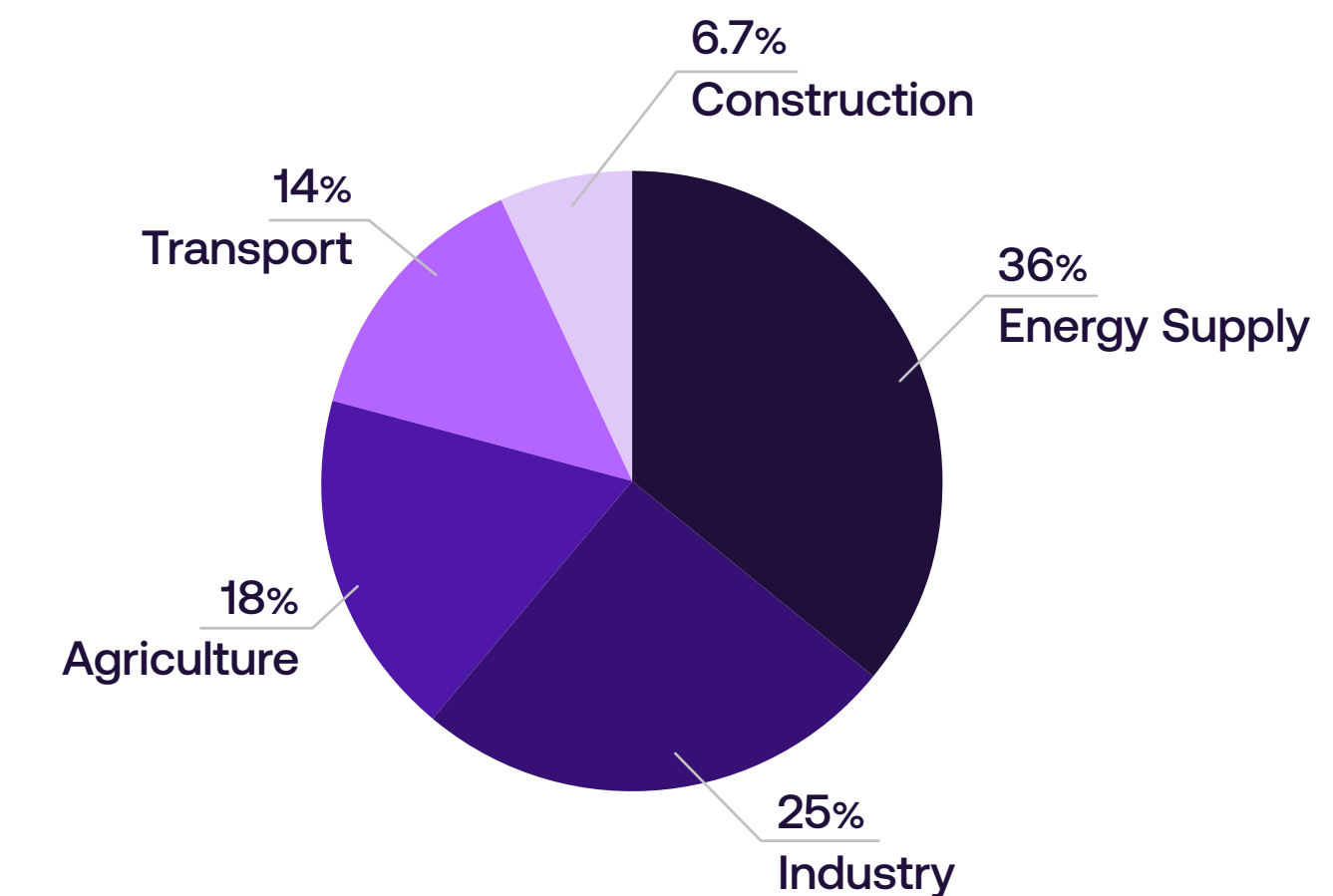
Projects and project managers are key to the effort to adapt to and mitigate climate effects through a greener economy. According to LinkedIn's Global Green Skills Report 2023,⁵⁹ job postings requiring personnel with at least one green skill — technical competencies that enable the effective application of green technologies, like carbon accounting, sustainability reporting, package design and supply chain management — outpace the increase in supply by nearly two to one. Notably, for workers without green experience, LinkedIn identifies project management as one of the fields where individuals likely possess the expertise that will allow them to transition into green jobs.

These roles are expected to be relevant long into the future, as the green economy expands and provides opportunities for advancement. But the need for collaboration and upskilling is significant. A recent EY article⁶⁰ urges governments to join with the business community, academia and trade associations to nurture future talent and expand green competencies. One such partnership is BlocPower's Civilian Climate Corps,⁶¹ a collaborative program with New York City to train youth at risk of gun violence for the green workforce. A side benefit of this initiative is the ripple effect of helping to build safer and healthier communities.



Greenhouse Gas (GHG) Emissions by Industry⁶²

Greenhouse gases include CO₂, methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆).



3.2 Megatrend: Sustainable Practices

Failure to Act Will Result in Productivity and Financial Losses

Examples of the human and financial effects of failure to act with urgency on climate change are all around us. Millions of people have been affected by drought-induced food insecurity, with the most acute effects seen in East Africa, and the World Health Organization (WHO) predicts that as many as 700 million people are at risk of displacement due to water scarcity by 2030.⁶³

Climate.gov, the website of the National Oceanic and Atmospheric Administration (NOAA), an agency of the U.S. Department of Commerce, confirms that 2023 was the world's warmest year on record.⁶⁴ In addition to the impact on climate, excessive heat is a major factor contributing to productivity loss, with heat stress projected to reduce total working hours by 2.2% globally in 2030, according to the International Labour Organization (ILO).⁶⁵ Workers in the agricultural and construction fields are expected to feel the greatest impact. Reinforcing this data point, a recent study from the Workers Compensation Research Institute (WCRI) reports that the probability of work-related accidents increases by 5% to 6% when the maximum daily temperature rises above 90°F (about 32°C), relative to a day with temperatures in the 65°F to 70°F range.⁶⁶

Consumer Reports has estimated the personal cost of climate change to an individual born in the United States in 2024 will be US\$500,000 over the course of their lifetime due to increases in the prices of insurance, energy, food and healthcare.⁶⁷ Wages will see a hit from increased taxes to support mitigation and adaptation efforts, as well as work stoppages. For example, wildfires caused by record heat were seen in many parts of the globe in the summer of 2023. In the United States, utility companies in several states have announced they may have to shut down the electrical grid as a preventative measure,⁶⁸ with the result that many businesses may experience temporary closures; and

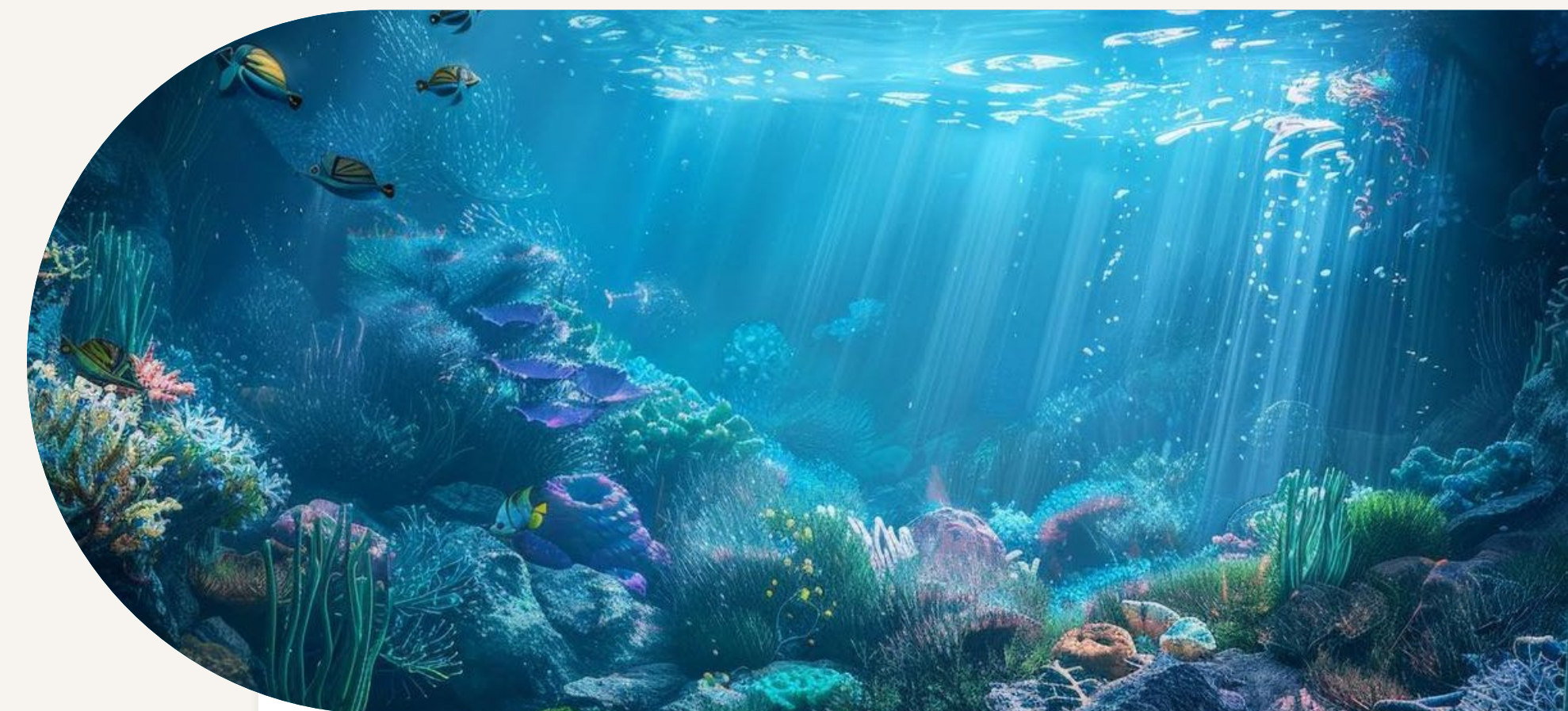
overloaded systems due to high temperatures recently caused power outages in several Balkan states.⁶⁹

More recently, extreme flooding in Dubai, United Arab Emirates,⁷⁰ and Rio Grande do Sul, Brazil,⁷¹ in the spring of 2024 epitomized the need to incorporate sustainability practices and climate resilience into existing and future projects. In Dubai, the combined effects of increased rainfall, overbuilding in previously uninhabitable areas — by paving over porous sand with concrete — and plastic-clogged drainage systems meant that there was simply no place for the water to go. Record rainfall in Rio Grande do Sul — generated by increased humidity due to high temperatures — caused disruption of transportation systems and posed a health threat from waterborne diseases.

Planet Ocean Is a Hub for Sustainability Projects

The shift to more sustainable projects is not just happening on Planet Earth. Planet “Ocean” is a key to the transition to a greener future as well. Oceans play a massive role in mitigating rising temperatures, absorbing nearly one-quarter of human-caused CO₂ emissions and 90% of excess heat, according to the World Bank.⁷² The Sustainable Energy Authority of Ireland (SEAI) is developing the Atlantic Marine Energy Test Site (AMETS) off the west coast of Ireland, near County Mayo, for deployment of full-scale wave energy converters and floating offshore wind technologies.⁷³ Organizations like Oceanic Global⁷⁴ leverage volunteer networks focused on eliminating plastic pollution — plastic production is also a source of carbon emissions — while also nudging people to adopt more sustainable practices through their Blue Standard.

“We hear every day about going green,” says Katrina Pugh, Ph.D., lecturer, Columbia University, Info and Knowledge Strategy Master’s Program, “but often forget that we live on a blue planet: every other breath we owe to the oceans, and 95% of the earth’s biosphere is the oceans.”



The Importance of Planet Ocean

- ▶ **Oxygen production:**⁷⁵ Oceans produce approximately 50% to 80% of the Earth’s oxygen, primarily through marine plants like phytoplankton, kelp and algal plankton.
- ▶ **Biodiversity:**⁷⁶ Oceans are home to an estimated 2.2 million species, though only about 226,000 species have been formally described. Coral reefs, which occupy less than 1% of the ocean floor, support about 25% of all marine life.
- ▶ **Biosphere coverage:** Oceans cover about 71% of the Earth’s surface and contain 97% of the Earth’s water, representing 95% of the planet’s biosphere.
- ▶ **Economic contribution:**⁷⁷ The ocean economy contributes significantly to global economic activity, with marine and coastal tourism alone representing at least 50% of total global tourism, equating to US\$4.6 trillion, or 5.2% of the global GDP.

Everyone Must Apply Urgency and Agency to Address the Climate Crisis

It can seem overwhelming. But for every example of a climate disaster, there are inspiring examples of individuals, organizations, governments and other entities seeking to leverage new technologies and collaboration to adapt to and mitigate climate effects and environmental degradation. Those who are doing so see benefits ranging from improved reputation to more innovation to enhanced employee engagement and talent attraction.⁷⁸

Project professionals are in a unique position to respond to externalities and identify points of impact. By incorporating the organization's sustainability priorities into project planning, execution and monitoring, they can ensure a clear connection between vision and action.⁷⁹ Adopting a sustainability focus as organizations deliver projects provides value for successful strategy execution and the broader community.⁸⁰

In his book, "Our Fragile Moment: How Lessons from the Earth's Past Can Help Us Survive the Climate Crisis," U.S. climate scientist Michael Mann asserts that once carbon emissions drop to zero, global temperatures will stop warming.⁸¹ Mann, director of the Penn Center for Science, Sustainability, and the Media (PCSSM), at the University of Pennsylvania, Philadelphia, Pennsylvania, USA, says we all must use "urgency and agency" for climate action and particularly calls on young people to get involved.⁸² The recent announcement by the U.S. Environmental Protection Agency (EPA) of US\$4.3 billion (about US\$13 per person in the United States) in funding for 25 climate projects illustrates the imperative for action and the need to train and develop workers to fill these crucial roles.⁸³

While some scientists dispute the notion that global temperatures would immediately stabilize and are looking for more accurate climate models,⁸⁴ they would all surely agree with the hopeful words of Kate Marvel, climate scientist and former associate research scientist at NASA Goddard Institute for Space Studies: "It's worth pointing out there is no scientific support for inevitable doom."⁸⁵

The Cost of Climate Change



US\$
16.3 million

per hour in costs from damage by extreme weather between 2000 and 2019⁸⁶

US\$
38 trillion

in global economic loss by 2050 due to climate change⁸⁷

700 million

people at risk of displacement by 2030 due to water scarcity⁸⁸

19% reduction

in future global income over the next 25 years due to climate change impacts⁸⁹

2.2% reduction

in total working hours due to lost productivity from heat stress⁹⁰

US\$
500,000

cost to each individual (born in the United States) due to cost increases caused by climate change⁹¹



Innovation

Innovation

Creating Solutions and Driving Positive Change

When we think about innovation, we may conjure up high-tech scenarios and futuristic visions that lie just out of reach, like AI engines with a fully human range of emotions, flying cars or permanent settlement on the moon.

More crucially, developing an innovative mindset means embracing change, meeting disruption with resilience and actively seeking new ideas and creative solutions to apply to existing situations or problems to improve our planet, enhance our way of living, make things easier and increase productivity.

Whether innovations are high-tech, headline-stealing advances like GenAI or low-tech, localized solutions like shifting livestock to support biodiversity, they must add value. Innovation thrives best when each person is enabled with the tools and training to contribute. Given the myriad of challenges we face, and the exciting new tools we have to work with, the present moment is rich with opportunities for experimentation to improve our world.

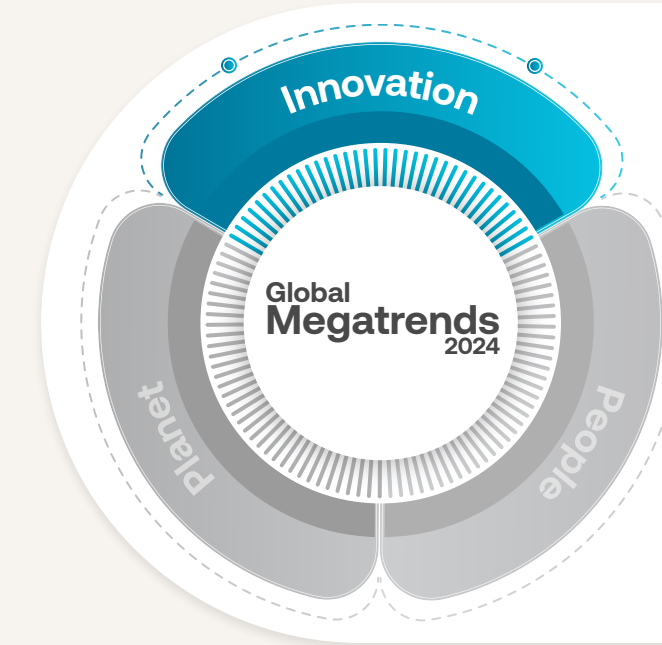
Tameka Vasquez believes embracing experimentation is crucial for innovation: “I love thinking about serendipitous discoveries of things we use today like the pacemaker and sticky notes – accidental inventions born from unrelated pursuits. It underscores a vital truth that our world is shaped by those willing to venture into the unknown, whether driven by necessity or curiosity. We must cultivate a societal inclination to shift and explore complexities and unknowns, acknowledging that while outcomes may diverge from our initial goals, the insights gained along the way are the seeds of future possibilities. This mindset is essential for our collective advancement.”



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TAMEKA VASQUEZ
FOUNDER & PRINCIPAL STRATEGIST, THE FUTURE QUO, MEMBER OF THE PMI THOUGHT LEADERSHIP ADVISORY COUNCIL



Innovation Megatrends

- Artificial intelligence (AI)
Tapping into AI's transformative potential
- The innovation imperative
Creating a learning culture that embraces new ideas

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4.1 Megatrend: Artificial Intelligence

Artificial Intelligence Provides a Transformational Advantage for Innovation

Any discussion of future trends in innovation must begin with AI. Ever since OpenAI announced the launch of ChatGPT on Nov. 30, 2022,, there has been an explosion of interest in its potential. Although it was not used to draft this report, ChatGPT has been the subject of countless recent articles. A recent review⁹² observed the expansion of research interest across a variety of disciplines, noting that the increase in articles indexed in Google Scholar on ChatGPT ballooned from 250 in 2022 to over 2,000 in 2023.

Generative AI (GenAI), able to produce new content like text, images and computer code, offers a transformational advantage for businesses with its potential to make people and processes more productive and innovative. As of May 2024, three out of four employees were using AI at work,⁹³ nearly twice as many as six months earlier. It's helping them save time, prioritize, enhance creativity and enjoy work more. Truly tapping into that potential requires strong data governance, however — something organizations continue to struggle with, as only 44% are fully confident in their data quality.⁹⁴

Staying Ahead of the Curve on Artificial Intelligence

These trends and issues straddle industries and professions, including project management. One in five project professionals who use GenAI, labeled Trailblazers, report using it for over 50% of their recent projects, indicating that they are experimenting and discovering innovative ways to leverage the technology according to *First Movers' Advantage: The Immediate Benefits of Adopting Generative AI For Project Management*,⁹⁶ published by PMI in June 2024. Small and medium language models — or “smaller AI” — currently gaining traction may hold promise for integration into project management practices due to their ability to be trained on smaller data sets.⁹⁷ Organizations that articulate clear goals for GenAI use while supporting adoption with enterprise-wide enablement will see the greatest impact on projects.

Organizations will need to be structured to absorb new information, assimilate it efficiently and apply it productively to reap the benefits of AI, according to Christopher Gilchrist, principal at Forrester. Many organizations view the capacity to innovate and drive operational productivity as separate and distinct efforts. “But if we think about value conversion, operating and innovating are not separate and distinct,” says Gilchrist. “There is a Venn diagram where the input of operations creates an output, and that output is an input to what we need to innovate, and that innovation has an output, which becomes an input to further operations.” The closer that loop is, and the greater the continuity, the better organizations will be at creating a learning culture that anticipates future developments like artificial general intelligence (AGI) — AI with human-level cognitive abilities.

Three areas of concern

Vered Holzmann identifies three areas of concern as organizations train employees at every level on the use of AI: practical aspects, compliance aspects, and moral and ethical aspects.

Practical aspects

“Deciding which tools to adapt, how to integrate them into existing platforms and creating the connections between all of them. While doing that, organizations should consider the different levels — portfolio, program, project — and the overall network that the organization is working in. They must consider their suppliers, subcontractors, sponsors and all other external organizations they are collaborating with to make sure that they're all aligned.”

Compliance aspects

“We'll see standards developed soon; some are already underway. The European Union recently passed the AI Act [finalized on 21 May 2024]⁹⁵ and organizations will need to make sure they comply with these regulations.”

Moral and ethical aspects

“We should be very cautious about the way we use data. How can we ensure that the decisions we make based on AI tools are ethical and not discriminatory? If the raw data has some bias, it will affect the recommendations, so we must be aware of that and make sure we are not falling into one of those traps.”

Holzmann notes that tools exist to help project professionals accomplish specific tasks like building the project schedule or budget, but she expects to see more advanced tools as investment grows. “There are so many things around the overall world of project management that are interrelated. You can take information from one process and map it to another process, and you can apply data from the outside sources for the benefit of the project. I think we will see some tools commonly shared, but we will also see in the near future some tools that are more specifically tailored to projects and organizations.”

4.2 Megatrend: Continuous Innovation

Innovation Can Be Implemented in Many Ways to Create Value

Innovation can be high tech or decidedly low tech, as seen in two approaches to carbon sequestration. Project Bison⁹⁸ is taking a modular approach to filter CO₂ out of the air and funnel it through injection wells for permanent storage deep in saline aquifers. The modular units can scale up, and Project Bison plans on being the largest single atmospheric carbon removal project in the world by 2030.

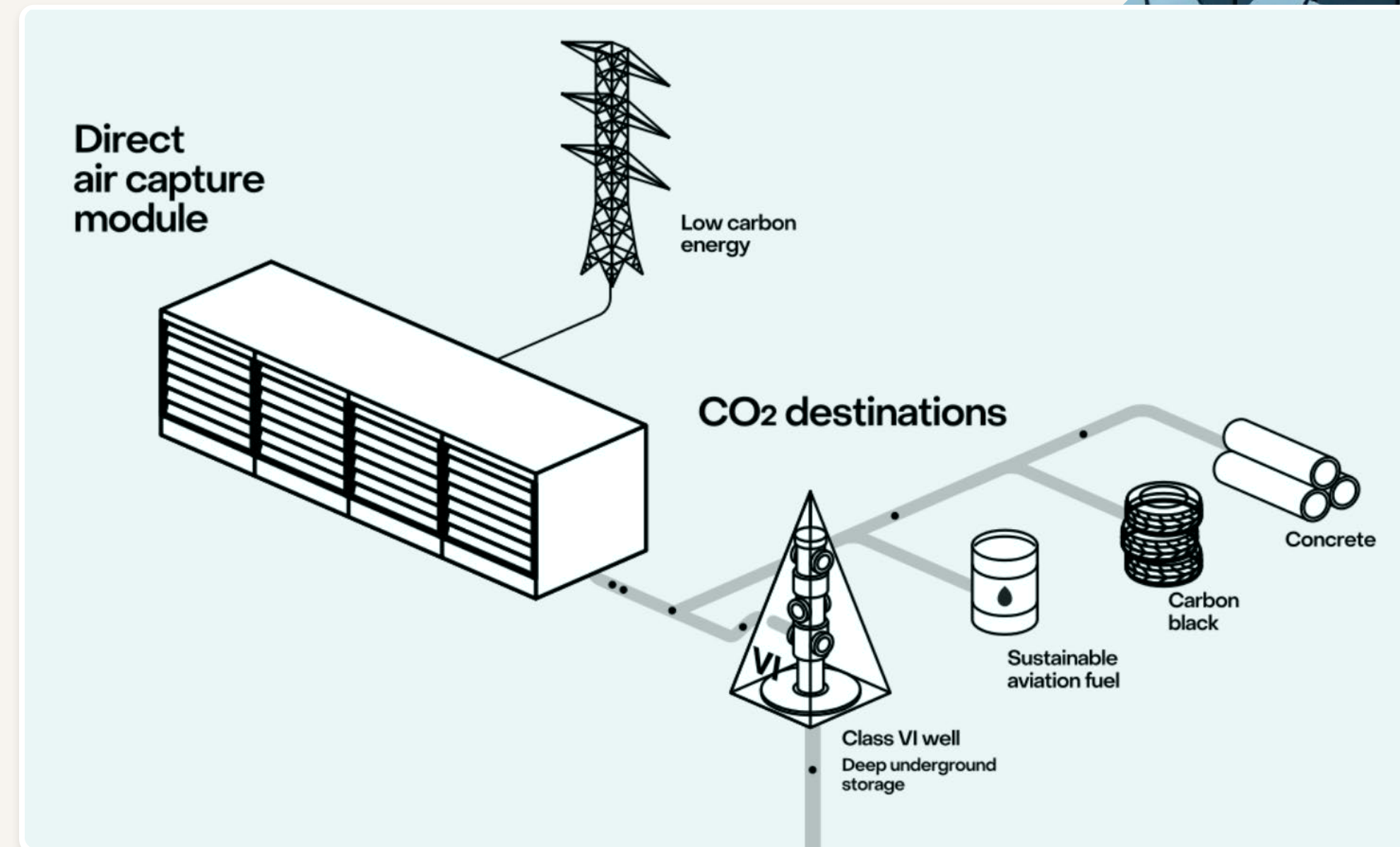
Compare this to experiments in regenerative practices,⁹⁹ such as AMP or adaptive multi-paddock grazing, being conducted by researchers at Arizona State University. By periodically shifting cattle between plots of land, farmers can increase plant growth, sustain greater biodiversity and encourage microbes that store carbon to thrive. On one 9,000-acre farm in northern California, cows helped sequester 50 tons of carbon per day in this way. Added benefits were seen in increased water retention and reduced fertilizer costs.

Innovation is also about more than creating something new. It can help us identify better ways of doing the things we already do. “We should never forget that a lot of innovation also exists in processes and those kind of soft things like procurement, financing, design and all those other tasks that fall under the project management profession,” explains Alexander Budzier.

“ We should never forget that a lot of innovation also exists in processes and those kind of soft things like procurement, financing, design and all those other tasks that fall under the project management profession.



ALEXANDER BUDZIER
DIRECTOR, OXFORD GLOBAL PROJECTS, FELLOW IN MANAGEMENT PRACTICE, OXFORD UNIVERSITY SAID BUSINESS SCHOOL, MEMBER OF THE PMI PROJECT SUCCESS INSIGHT TEAM



Source: Infographic of how Project Bison generates carbon removal credits (left). CarbonCapture's Direct Air Capture (DAC) module.



Diversity Supports Innovation

One of the hardest questions to answer is, “Where does innovation come from?” It is understood that diversity — enabling an organization to benefit from the knowledge and experience of individuals with a wide variety of backgrounds, skills and perspectives — is central to innovation. AI can facilitate collaboration by breaking down language barriers with tools like GPT-4o, which powers real-time translation.¹⁰⁰ Collaboration tools were used to conduct interviews for this report.

The *Pulse of the Profession® In-Depth Report: The Case for Diversity*,¹⁰¹ published by PMI, demonstrated that diversity was linked to better project outcomes. More recently, the National Bureau of Economic Research (NBER)¹⁰² outlined the significant role immigrants play in innovation in the United States. While accounting for just 16% of U.S.-based inventors, immigrant inventors produced nearly one-quarter of total innovation output gauged by the number of patents and their economic value. The study traced the gap to two factors: immigrants tend to live in innovation hubs like cities and work in transformational sectors like computers, communications and medicine.

Organizations that nurture a culture of innovation that enables the greatest number of employees to contribute new ideas and engage in problem-solving will build resilience to change. 3M’s 15% Culture¹⁰³ is an example of how decentralizing the innovation process can bring a diverse group of voices together.

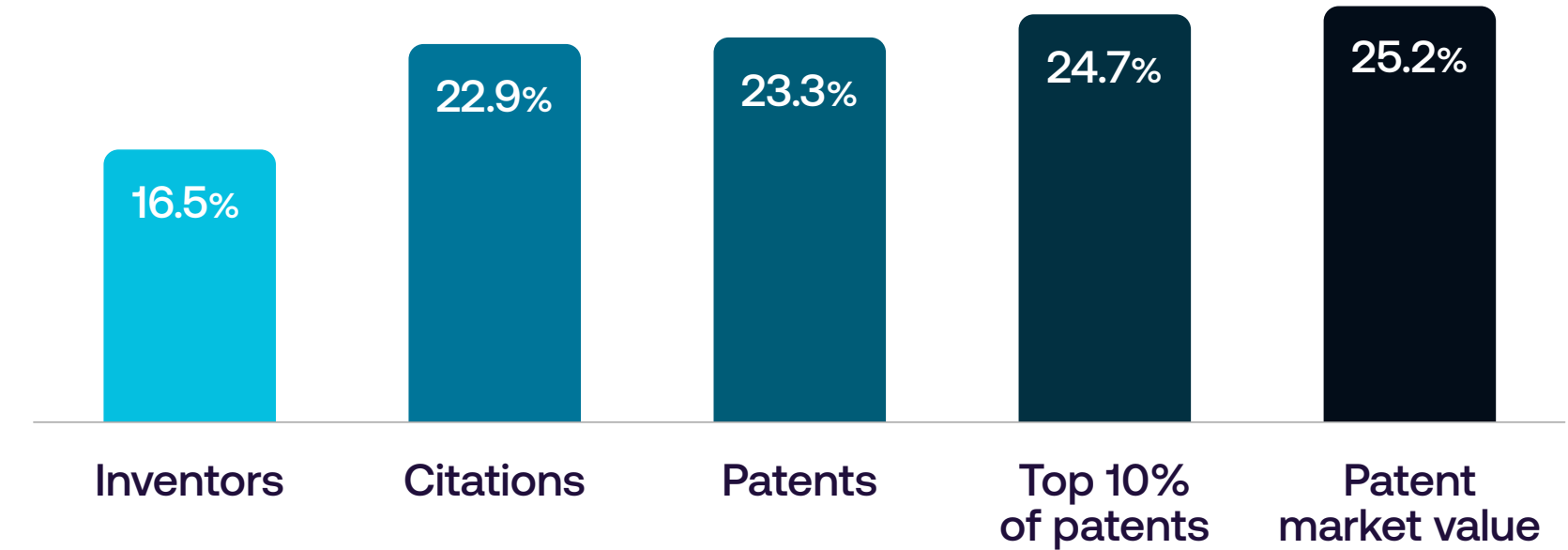
“In order to survive as a business, you have to have a long-term view because the environment is very competitive,” says Mdu Mlaba, president of the National Society of Black Engineers in South Africa.



MDU MLABA
PRESIDENT OF THE NATIONAL SOCIETY OF BLACK ENGINEERS IN SOUTH AFRICA

“**Project managers must be encouraged to explore new ideas and challenge conventional thinking. If you don’t invest in your people, providing them with access to resources, tools and training to solve problems, the chances are you won’t be able to retain core talent. Individually, an innovative mindset helps them to be resilient, to stay abreast of emerging technologies and industry trends.**”

Immigrant Share of U.S. Inventors and Innovative Output*



* Source: National Bureau of Economic Research (NBER). Adapted from <https://www.nber.org/digest/20233/outsize-role-immigrants-us-innovation>

Inequality and Lack of Opportunity Stifle Innovation

Inequality and lack of opportunity can impede innovation, a problem identified as “lost Einsteins” in a paper by a team of researchers at The Equality of Opportunity Project.¹⁰⁴ They outline how innovation may have been stifled when individuals were prevented from making an impact not because of insufficient innate abilities, but due to lack of opportunity.

Reeta Roy, president and CEO of the Mastercard Foundation, discussed the need for investment in people at a recent forum on inclusive futures. “When I think about what we’re doing in Africa, I just look first at the young people, young women, and what they are already doing. They’re not waiting for us; they’re not waiting for some foundation or some charity to show up. Most of them have multiple income streams, which they’re working on because that’s survival. But at its very core it’s ingenuity, it’s innovation. It’s thinking about how do I get ahead and how do I invest in myself. And when you tap into that type of energy, what comes back — ideas around climate, ideas around regenerative agriculture, ideas around how do we close gaps and make maternal child health safer. It’s about asking and it’s about listening. If you put it out there, it’s going to come right back.”¹⁰⁵

Projects Are Vehicles for Innovation to Support Positive Change

The project management profession has long been a nexus for innovation in both high-tech and low-tech ways. “PMI started as the solution to a problem,” was how Jim Snyder, the late co-founder of PMI, explained it. The problem was how to develop and share emerging scheduling and planning practices in fields like aerospace, construction and defense. In the decades since, project professionals have looked for ways to create value through knowledge sharing, digital transformation, and applying innovations like remote collaboration tools, agile practices and business analytics.



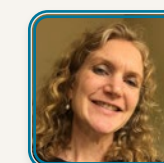
The Pulse of the Profession® In-Depth Report: The Innovation Imperative,¹⁰⁶ published by PMI in 2020, asserted that organizations that invest in innovative practices see better results. Now, facing new challenges, projects are vehicles for applying innovation for positive change. Examples include when a project manager incorporates sustainable practices by sourcing low-carbon concrete for a building project,¹⁰⁷ or executes the design for a new airport in Lima, Peru,¹⁰⁸ that not only reflects local Nazca culture but is built with ultramodern technology to withstand earthquakes.

Katrina Pugh sees networks as essential to spreading innovation and achieving scale, reach and positive impact for our society and environment. Networks strive for one or more of these outcomes:

- ▶ Supporting members and giving them a sense of belonging
- ▶ Sharing ideas and innovating quickly
- ▶ Scaling up those ideas or solutions (or bringing scale for those who have the ideas, like cooperatives and unions)
- ▶ Translating ideas or solutions and adapting them across time and space

The impact from these is improvements to economies, societies and nature.

“Whenever we do something divergent or bring something in from the outside of the organization or community, we benefit from networks.”



KATRINA PUGH, Ph.D.
LECTURER, COLUMBIA UNIVERSITY, INFORMATION AND KNOWLEDGE STRATEGY
MASTER'S PROGRAM, PRESIDENT, ALIGNCONSULTING

“In my own engineering profession, but it applies as well in medical and other professions, I’ve found that professional certification can improve expertise in specific areas, and I would strongly encourage young people to engage in training programs to make sure that their skills remain relevant in the workplace.”



MDU MLABA
PRESIDENT OF THE NATIONAL SOCIETY OF BLACK ENGINEERS IN SOUTH AFRICA

The Next Disruptors

Technology is constantly evolving, enabling new ways to innovate and address the world's challenges. Here are some nascent technologies that have the potential to change the landscape.

Digital Humans

What they are

Chatbots and other computer interfaces that look and feel human, thanks to advances in natural language processing and computer graphics.

What they will impact

- ▶ Customer service and sales support
- ▶ Advertising
- ▶ Healthcare, especially mental health
- ▶ Education and training
- ▶ Communication across language barriers

Decentralized Autonomous Organizations (DAOs)

What they are

A digital organization model where finances and governance are decentralized and executed via a digital ledger. According to blockchain organization ConsenSys, DAOs are “governing bodies that oversee the allocation of resources tied to the projects they are associated with and are also tasked with ensuring the long-term success of the project they support.”

What they will impact

- ▶ Financial services and investing
- ▶ Politics
- ▶ Nonprofit and charitable organizations
- ▶ Supply chains
- ▶ Technology and software development

The Next Disruptors

Technology is constantly evolving, enabling new ways to innovate and address the world's challenges. Here are some nascent technologies that have the potential to change the landscape.

Quantum Computing

What it is

Computers built on quantum mechanics that process exponentially faster than traditional computers, enabling them to solve currently unsolvable complex problems.

What it will impact

- ▶ Cybersecurity and cryptography
- ▶ Drug discovery
- ▶ Supply chains and logistics
- ▶ Sustainable agriculture
- ▶ Aerospace

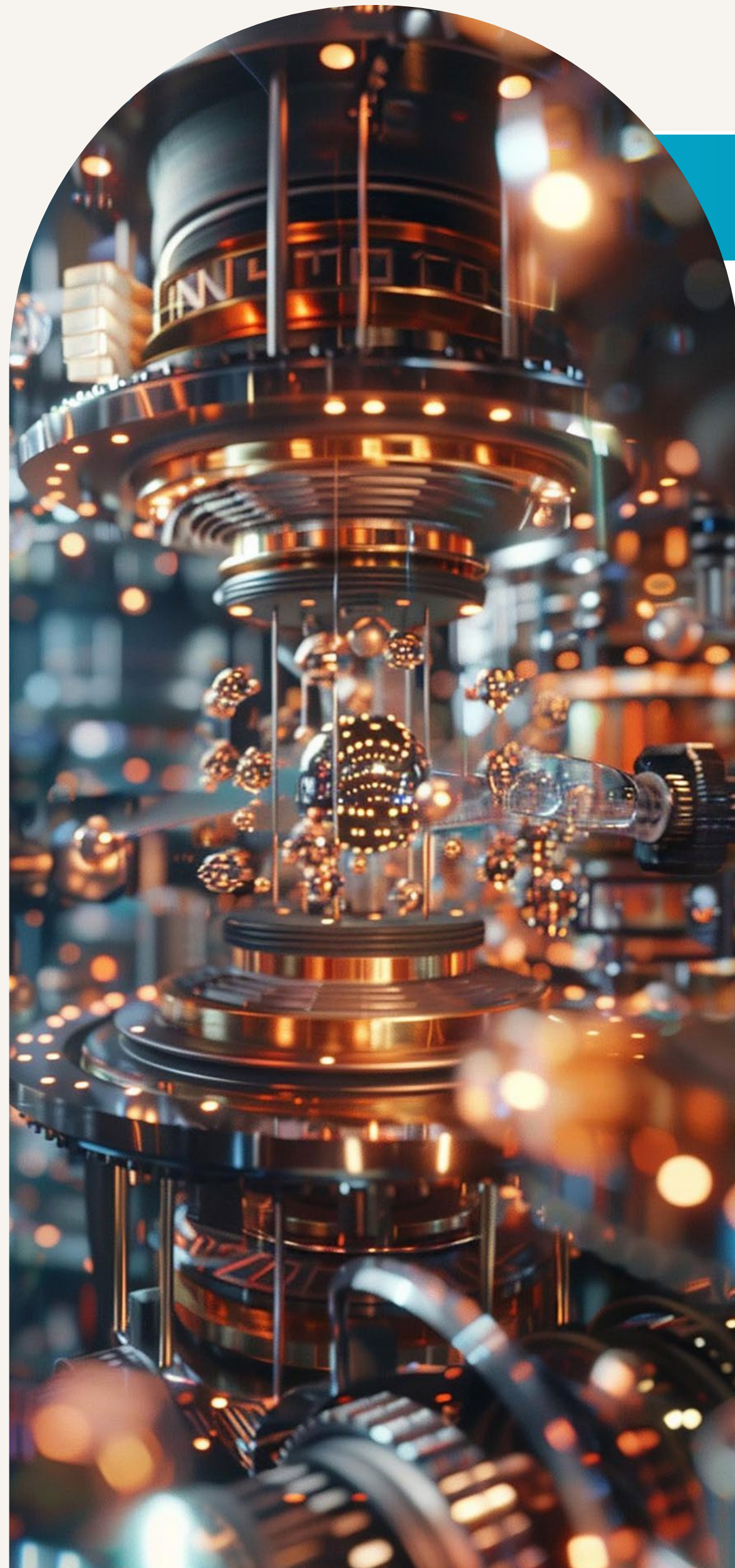
Small Language Models (SLMs)

What they are

Neural networks trained on smaller data sets, often for a specific purpose. Small language models (SLMs) require less computing power, which makes them cheaper to operate, more accessible and easier to fine tune. With lower resource requirements, SLMs are a practical option for developing project management applications focused on a particular set of data.

What they will impact

- ▶ Mobile devices
- ▶ Internet of Things (IoT)
- ▶ Personalized or localized applications
- ▶ Smart sensors
- ▶ Environmental compliance



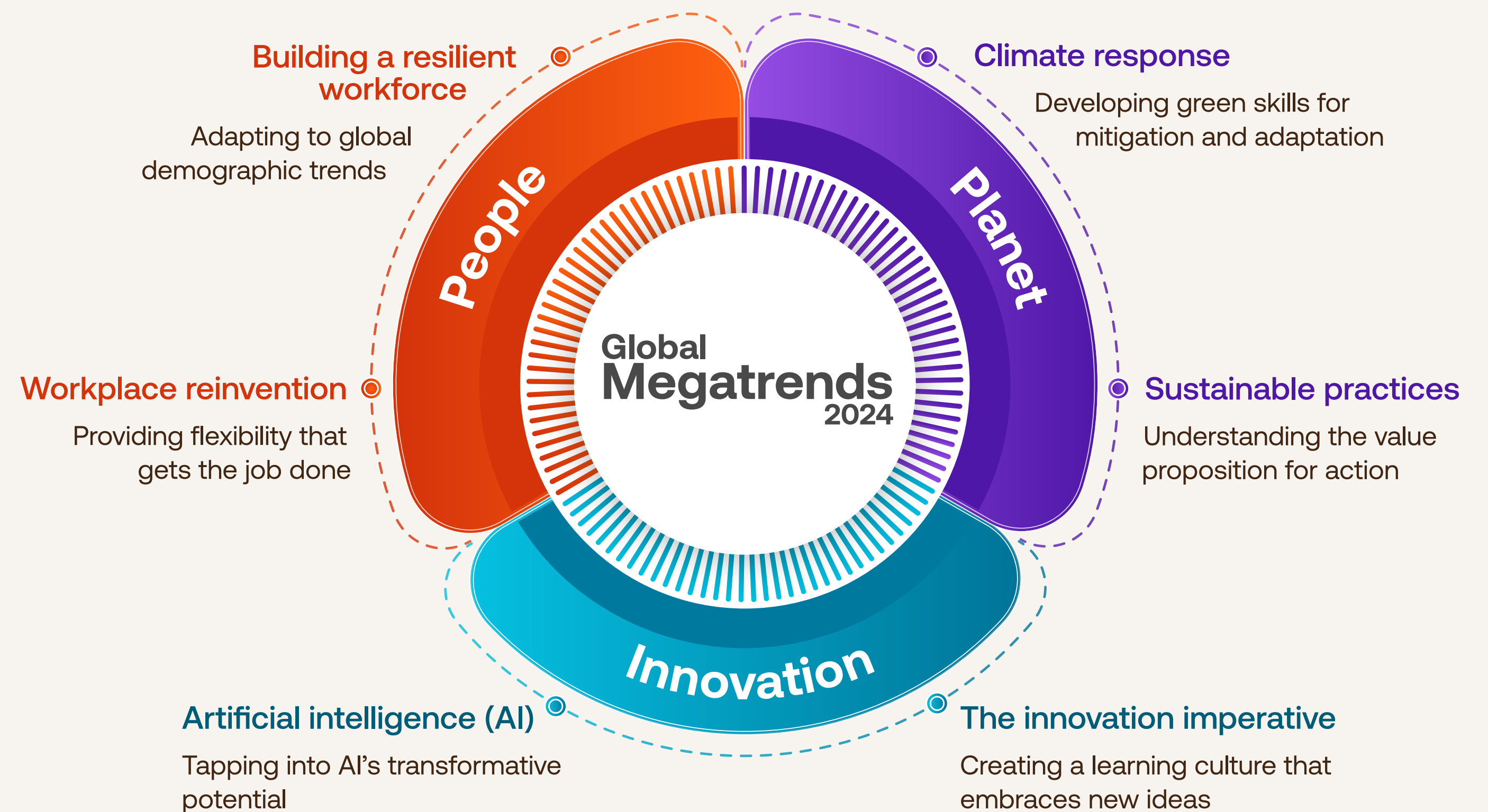
Embrace the Megatrends

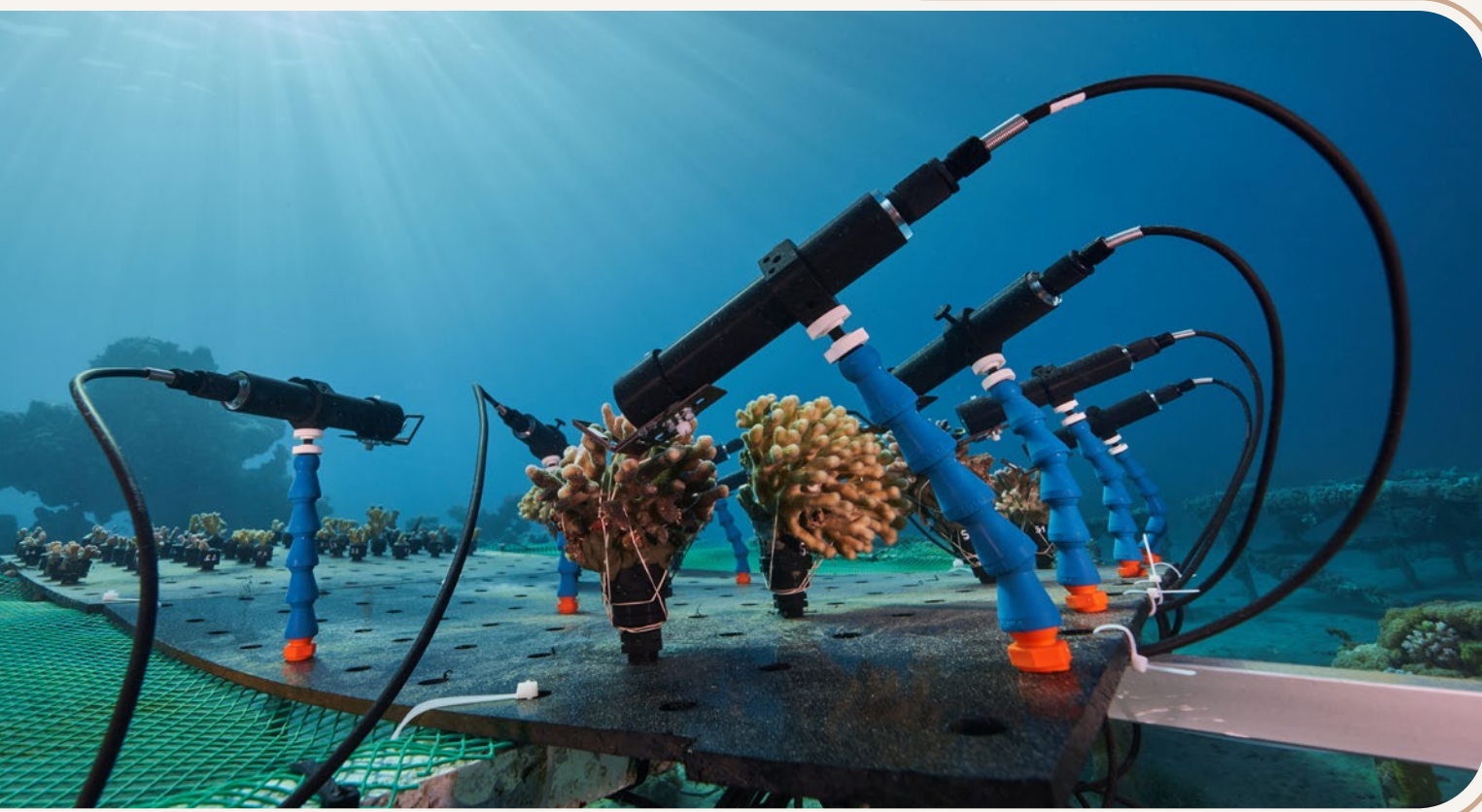
Strategies to Transform Our World

How can we — as individuals, organizations and societies — turn the megatrends we've identified to our advantage, rather than be swamped by them?

In our extensive discussions with senior leaders, subject matter experts and thought leaders across various domains — including AI, energy production, education, finance and urban planning, among many others — five key strategies emerged as essential components of a plan of action for making the most of these six forces that are shaping our world.

These strategies can help project professionals and organizations address the multifaceted challenges and opportunities in today's dynamic environment, providing a robust framework for action. By embracing these approaches, we can tackle the projects and programs that will transform our world.

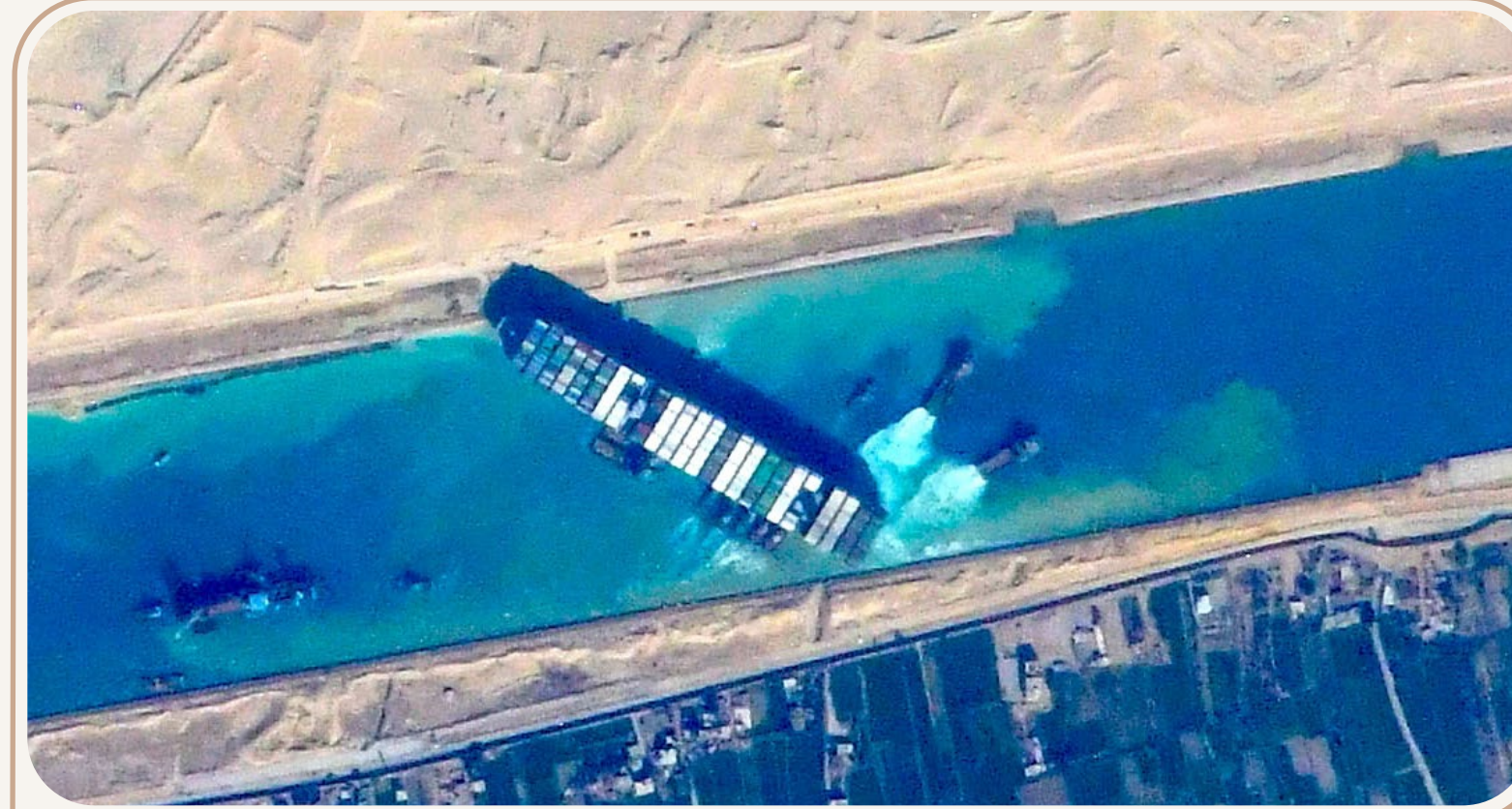




5.1 Seek Collaboration

Collaboration is imperative if we are to solve the wicked problems in the world. For project managers, developing power skills like conflict management and empathy is critical to fostering collaboration and making an impact. Focusing on shared goals and cooperating with others to achieve them *is* possible. For example, the Transnational Red Sea Center¹⁰⁹ is a Swiss initiative that brings together public and private entities to study climate-related destruction of coral reefs in the Gulf of Aqaba. Navigating the political and cultural differences of the countries surrounding this arm of the Red Sea is challenging. But the knowledge and data gained can be used to extend this “science diplomacy” to other regions of the world.

Collaborative networks — powered by a diversity of voices and perspectives — foster innovation by providing support and spreading new ideas between public and private entities, educational institutions and business and across national borders. These networks amplify the reach of their members, help transmit knowledge and adapt solutions, and drive critical initiatives to grapple with the megatrends; for example, Decent Jobs for Youth¹¹⁰ mobilizes investment to tackle youth unemployment.



5.2 Recognize Our Interconnectedness

The megatrends we examined in 2022 — digital disruption, climate crisis, demographic shifts, economic shifts, labor shortages, and civil, civic and equality movements — are ongoing and affect everyone regardless of country or region. Though these trends may have spurred realignments, and we may be impacted in different ways, the COVID-19 pandemic taught us the important lesson that what affects one, eventually affects all.

For example, although actions were taken to create resilience in global supply chains to alleviate pandemic-related shortages, new challenges have emerged from hostilities in the Suez Canal region and low water levels in the Panama Canal due to drought. In addition to causing higher shipping costs, resource shortages can impact projects in fields like renewable energy and construction. Applying a systems-thinking mindset¹¹¹ to understand these connections means not only preparing for them but also being able to exploit them for better project outcomes.

More than any other megatrend, the climate crisis demonstrates the interconnectedness of humanity, not only with each other, but also with the planet we live on and other living things.



5.3 Respond to Urgency in a Deliberate Way

Action is necessary, but we should not let panic compromise our ability to move forward effectively. “The future is not something we’re going to arrive at,” says Tameka Vasquez, futurist and strategist. “The reason I say that is because typically people feel like they’re already behind. But there is no finish line. The future is present, continuous and it’s meant to be a participatory space.” Therapist Brené Brown says the number-one skill leaders need now is to be a “calm space maker” who provides time to reflect before acting.¹¹²

Project professionals are well-positioned to coordinate efforts to step into the unknown and apply the requisite methodology to projects intended to create a better future. This approach is exemplified by the CDL Rapid Screening Consortium (RSC), led by Creative Destruction Lab, recipient of the of the PMI Project of the Year Award in 2022.¹¹³ The CDL RSC leveraged collaboration to implement a system capable of conducting COVID-19 screens across 3,497 screening sites in service of putting people back to work and jump-starting the Canadian economy.

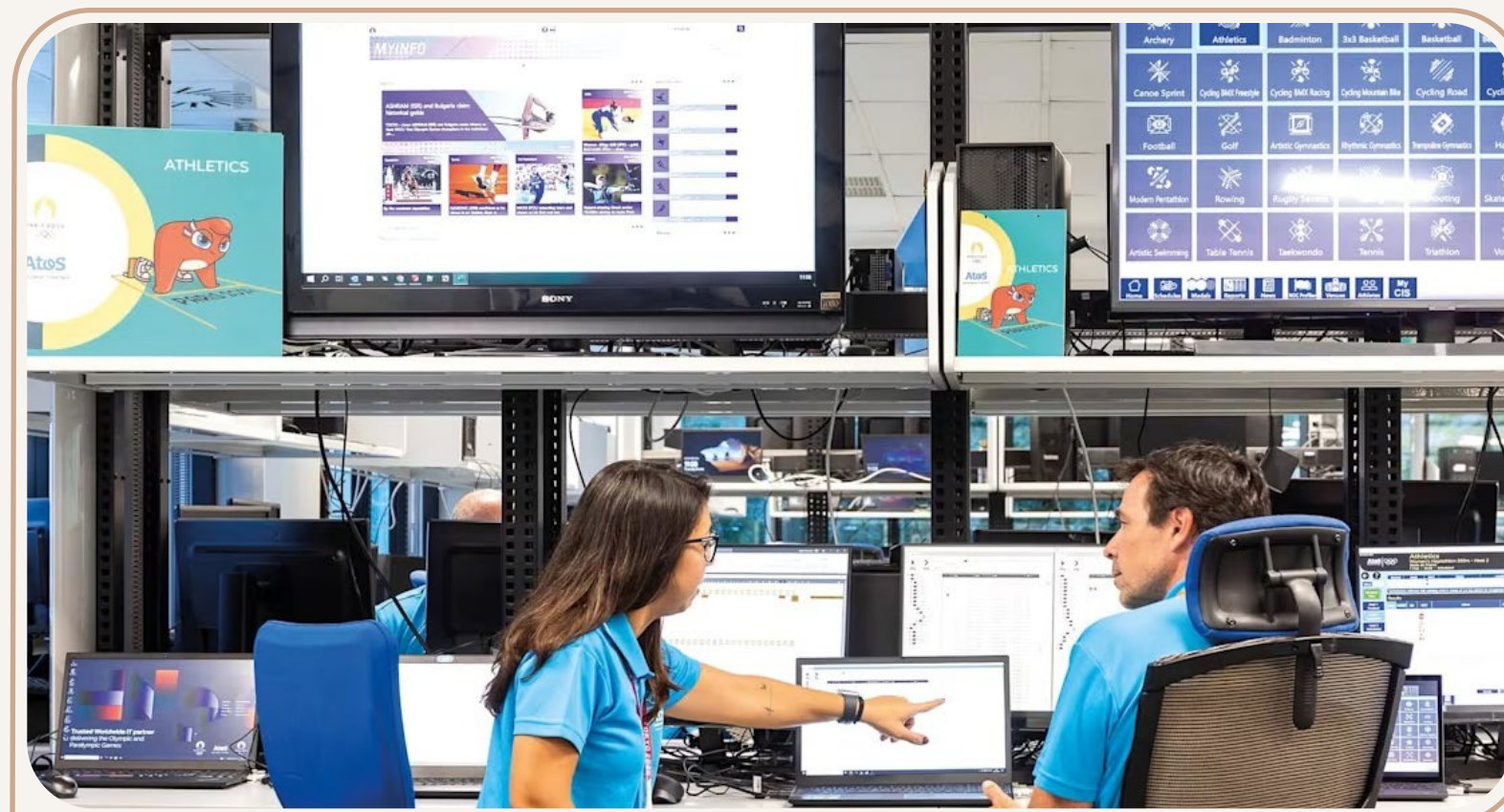
“Resilience, and the ability to overcome obstacles and bounce back as they encounter setbacks, is the bedrock of project success,” says Mdu Mlaba, president of the National Society of Black Engineers of South Africa. “Not everyone has the flexibility to remain calm and deal with uncertainty.”



5.4 Propel Change with Small Actions

Small actions add up and propel ripple effects. Experimentation and innovation are key to being able to mitigate the negative impacts of global megatrends while capitalizing on opportunities. Process improvements and low-tech projects can be as impactful as high-tech, more costly initiatives. The collective effect of small actions is the idea behind Hours for Impact,¹¹⁴ the program in which members of the PMI community have applied their expertise in support of the U.N. Sustainable Development Goals (SDGs).¹¹⁵

Problem-solving and teamwork can amplify small actions. After a tanker truck crash destroyed a highway bridge in Philadelphia, Pennsylvania, USA, in June 2023, officials were expecting “carnageddon.” A series of well-coordinated actions enabled the rebuilding project to dodge this dire scenario: a communications plan encouraged commuters to work from home where possible, extra trains were added to local rail lines, union crews worked 24/7 in 12-hour shifts and the gap was backfilled with a lightweight material made from recycled glass — a new technology obtained locally. The temporary bridge reopened to traffic within two weeks. Breaking problems down into manageable pieces is a good strategy for addressing complexity.



5.5 Leverage Technology

Advances in technology have been a driving force behind almost all trends for decades. Organizations will need to continue intentionally developing strategies that address their most compelling business problems and deploy technological solutions to deliver value and support productivity gains. The project management community should be motivated by the words of Scott Shell, an architect and industry director at the ClimateWorks Foundation, an environmental philanthropic organization, who recently said, “It feels like we’re on the cusp of a second industrial revolution.”¹¹⁶

New technologies, especially AI, provide abundant opportunities for experimentation and are only just beginning to be scaled up. Technology will augment our approach to future projects, but upskilling will be needed to exploit new digital tools. Recently, AI was deployed at the Paris Olympics¹¹⁷ to produce enhanced broadcast experiences, monitor abusive social media messages and create digital twins of sports venues to optimize resource allocation. These tools, as well as attaining the knowledge to use them, will enable new solutions to the challenges of global megatrends and build resilience for the new trends that will impact us tomorrow and beyond.

Conclusion

Change will come, regardless of our tolerance for it. Leaders of successful organizations recognize that they must change — and help their people change — to ensure business continuity. Many organizations have already undertaken transformation initiatives to respond to digital disruption and harness the opportunities of advanced technologies like AI, IoT, blockchain, virtual and augmented reality and facial recognition.

They have implemented initiatives to expand the reach and diversity of their hiring practices to find the employees they need and offer opportunities to those employees to continually develop the skills required for success today and tomorrow. They are working toward sustainable business practices that are both the right thing to do and the right way to deliver business value.

As we continue to adapt and learn from the massive disruptions that the COVID-19 pandemic introduced or accelerated, we have an opportunity to consider how and why we do the things we do. The unavoidable fact is that being responsive to change will not be enough. Urgency is needed. It is essential to develop an innovative mindset to stay ahead of the curve through awareness of global megatrends, the ability to acquire proficiency in new technologies and the drive to exercise power skills to lean in and collaborate with others.

Our global experts emphasized the need for intentionality, mindfulness, reinvention, experimentation and negotiation.

As we move forward and deploy new technologies, such as leveraging AI for training and education, working alongside “co-bots” to enhance productivity, or envisioning data centers in space to reduce our carbon footprint,¹¹⁸ we must always do so with awareness of the impact they make on people’s lives and our planet. We can start with small actions. We can leverage knowledge networks to learn from others and gain their support. We can achieve our business goals while at the same time making a positive impact on the interconnected challenges we face.

“ You have a lot of dynamic, young entrepreneurs with ideas that evolved from their everyday struggle. We call this frugal innovation because everything was built from scratch using local material. It’s built out of a need and this type of innovation needs to be supported.



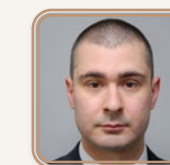
OLOLA VIEYRA
PMP, COUNTRY REPRESENTATIVE, GLOBAL GREEN GROWTH INSTITUTE, PRESIDENT, PMI BENIN CHAPTER

“ When we find that it’s all too crazy for us, we can look at the people who thrive on uncertainty and see how they embraced these elements of risk to their advantage.



ALEXANDER BUDZIER
DIRECTOR, OXFORD GLOBAL PROJECTS; FELLOW IN MANAGEMENT PRACTICE, UNIVERSITY OF OXFORD’S SAID BUSINESS SCHOOL; MEMBER OF THE PMI PROJECT SUCCESS INSIGHT TEAM

“ If you look at history, we always jump forward. When we built coal plants, it was the most natural thing to do — people need electricity; we have coal; it’s a reliable way to make electricity. What I tell my Ph.D. students they should understand is not the what, but the why. That’s the interesting bit.



GIORGIO LOCATELLI
FULL PROFESSOR OF COMPLEX PROJECTS BUSINESS, POLITECNICO DI MILANO, EDITOR-IN-CHIEF OF THE PROJECT MANAGEMENT JOURNAL*

More or Less

Thinking about positive change, if you could tell people to immediately start doing more of something and less of something, what would it be?

⊗ **Do less:** Worrying about every single uncertainty that's out there.

✔ **Do more:** Asking why does it matter to me? The question allows us to come up with better ways of dealing with uncertainty. I know many people at the moment feel like they are victims of external circumstances, but just stop and ask the question. And if it turns out to matter, then we can do something about that. We can get our projects to do something about it. When it comes to uncertainty, stop boiling the ocean.

| ALEXANDER BUDZIER

⊗ **Do less:** Have less meetings. In one meeting we might have 10 people join the meeting and even though it means we occupy 10 people's productivity, the meeting will have some important conclusion. So, I think each meeting could be short and streamlined.

✔ **Do more:** Learning and self-study. This era is progressing very quickly and there are AI tools and so many other new things that pop up. So, I think to live and learn is a very important thing. Taiwan is an aging society, and my mother is still at work so it's important for her too.

| JANICE HSU

⊗ **Do less:** Think about what you are doing and ask why you're doing things in that way. If it is indeed the answer that we always did it like this, that's the worst answer you can come up with. And recognize change.

✔ **Do more:** There is a phenomenon called industrial learning, which is very important.

The first time that you do something, like making a cake, you are going to make a mess. You make the kitchen super dirty, and the cake probably is not very good, but the second time is better. My grandma makes a perfect cake every time because she started to make cakes when she was 15 and she has the knowledge and all the right equipment in the kitchen.

When we discuss megaprojects, it's the same. If you start from a small modular reactor, it is maybe 300 MW. That is relatively small, and even if you make a mess on 300 MW, the damage and the extra cost is far less than the extra cost of 1.1 GW. And you don't do two at the same time. You do one cake; you see how it comes up and you do another one.

| GIORGIO LOCATELLI

⊗ **Do less:** Stop trying to find a new ingredient for success.

✔ **Do more:** Instead, focus on a better recipe with the ingredients you have. AI is not going to be your savior or the reason why you couldn't be saved. It's how you use it, and that only works given the context of your reality. If I've never cooked in my life, I'm not going to start with the Michelin three-star restaurant menu. I'm going to look at the back of an easy mac bowl and ask, can I achieve this first? But by doing that I build momentum. Maybe it'll take me three years and my competitors one year, but you trying to think you're on a one-year path is going to cost you five years instead of the three years if you just did it right.

| CHRISTOPHER GILCHRIST

⊗ **Do less:** Maybe chase after money less. I mean, this is not the most important thing. Money comes, money goes. But you know, people are here, and this is all we have in society is people.

✔ **Do more:** Be much more aware about other people. I think this is one of the imperatives that we have to embrace and I think it is more important than everything.

| VERED HOLZMANN

More or Less

Thinking about positive change, if you could tell people to immediately start doing more of something and less of something, what would it be?

⊗ **Do less:** Doing ad hoc things for a quick solution. Look upstream and see where the plastic or climate issue starts or downstream, where the earth and oceans thrive. We have fads and fixes, but this is a long-term, many-generation approach.

✔ **Do more:** Learning to be multilingual, to know how to listen to different ways of knowing, communicating and learning. We need multilinguality to help us to collaborate on solutions that are much bigger than ourselves and interdependent.

| KATRINA PUGH

⊗ **Do less:** Be less reactive to trends without understanding their driving forces and meaning. Resist the allure of “shiny and cool” without purpose. Despite pressure to act quickly, your organization will thrive by adopting more thoughtful approaches.

✔ **Do more:** Be more human-centered and embrace our symbiosis with our planet. Be more appreciative of the unknown as an opportunity to interrogate the status quo and forge new pathways. Invite broader cultural perspectives and ancestral knowledge and wisdom as we grapple with new intersections in our world.

| TAMEKA VASQUEZ

⊗ **Do less:** I believe we need to produce less pollution, have less overconsumption and less individualism.

✔ **Do more:** In the context of growing needs for development and with a growing young population in Africa, I would tell young people to prioritize sustainability and engage more in “green-preneurship” activities. Investment in green economies and transformational activities can reduce our environmental impact, empower youth and women, and enhance our contribution towards a greener future for the planet.

| OLOLA VIEYRA

⊗ **Do less:** I don't believe that help must come in terms of hand-outs, because that only works in the short term. There must be investments in communities and people must see a return on their investments. It must be created in a sustainable way.

✔ **Do more:** I wish there could be more tolerance and peace in the world to allow the economies of developing nations to prosper and to have less people living below the poverty line. You know, it's not just two or four countries fighting because of their relationships in the world, and things can quickly get out of hand. I'm advocating for stability so that there can be free trade globally and with very little disruption in terms of goods movement.

| MDU MLABA

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About this report

The Global Megatrends 2024 report is based on year-long research from wide-ranging regional and global sources, including over 120 reports from news sources, think tanks and non-governmental organizations. It is supported by ongoing PMI strategic research which outlines the social, economic, political and environmental issues that could have a long-term impact on PMI and its stakeholders. This report is supplemented by in-depth interviews with 10 project professionals and subject matter experts representing North America, Europe, Middle East, Asia and Africa across a range of industries. Research was conducted between October 2023–September 2024.

Endnotes

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