

# PROVOCATIVE SCENARIOS

2023

By Futureworld

2023

futureworld  
create tomorrow together

# EDITOR'S NOTE

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## *Imagining the future...*

Almost every year, advisors, analysts, futurists, and even **bankers**, like to make predictions for the next 12 months. It's fun to see how controversial or far-fetched some of these predictions are, and instructive to revisit them later, to see how wrong – or how right – they might be. Often the more outrageous or crazy 'predictions' are the ones the future uses to surprise us!

At Futureworld, we don't believe that you can predict the future, beyond the obvious certainties of planetary orbits and movements of the stars. The one thing we're absolutely sure of though, is that the future will be different. Different from what we expect, and different from the past. But it helps to look at the exponential forces shaping the future and get some clues as to what might happen in the next decade or so.

In this issue of Provocative Scenarios, our Futurists have presented some possible futures for the '20s and '30s, sketched as scenarios for business leaders to consider. They are not predictions, but rather potential 'future news' stories.

Some might be considered eminently plausible, while others might be dismissed as too unlikely, or just plain crazy!

But ask yourself: What if this future does materialize? What are the risks to my country, business, or community? Even more important, what are the opportunities? For the planet, societies, or perhaps civilization itself? And what is the future you prefer?

The best way to predict the future is to create it. And that starts with imagining the future as it could be!

*Doug*



# LIFE

## or something like it

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### James Webb discovers alien life

Although scientists have confirmed the presence of water on the Moon and Mars, and other chemicals that are likely to be found on distant exoplanets, we have never found proof of living organisms beyond our own planet, Earth.

We have identified many planets in other star systems that lie in the so-called 'goldilocks zone' favourable to supporting an environment where the basic building blocks of life could flourish. Probes and rovers have

taken images of features that could be ancient fossils of bacteria or algae, and the Perseverance rover has taken samples and analyzed the soil on Mars. But no organic molecules have been found – no proof of life.

Then the James Webb space telescope launched and stationed itself more than a million miles away. Shielded from the Sun by a high-tech umbrella, Webb can peer out beyond our Solar System and examine the atmospheres of a wide variety of exoplanets.

Using its powerful infrared telescope, Webb **studies these planets** as they pass in front of their host stars, picking up the details of atmospheric chemicals.

In 2023 Webb was used to confirm the existence of an exoplanet for the first time. Known as LHS 475b, this Earth-sized world is just 41 light-years away and was the first of many planet discoveries by Webb.

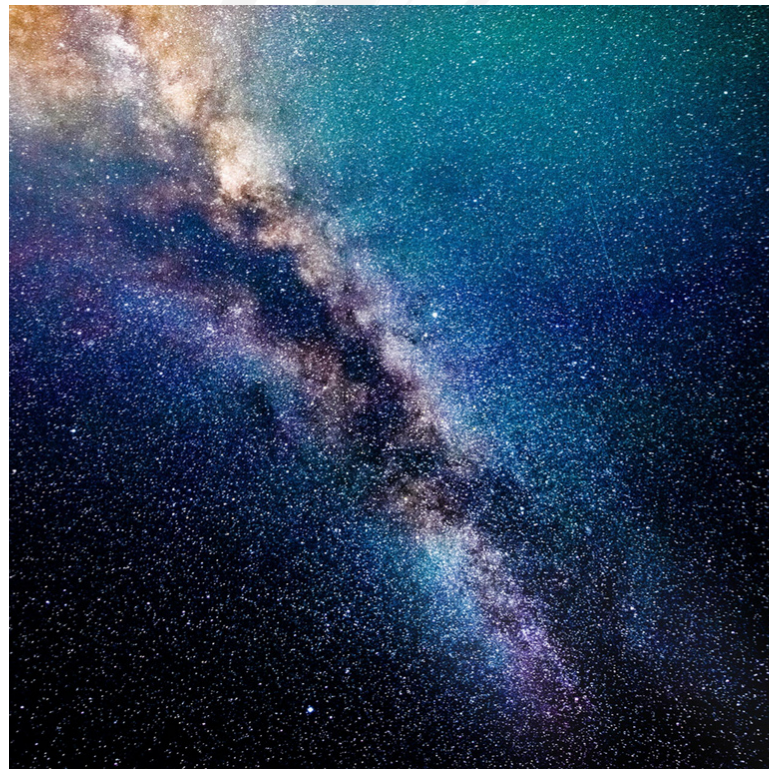
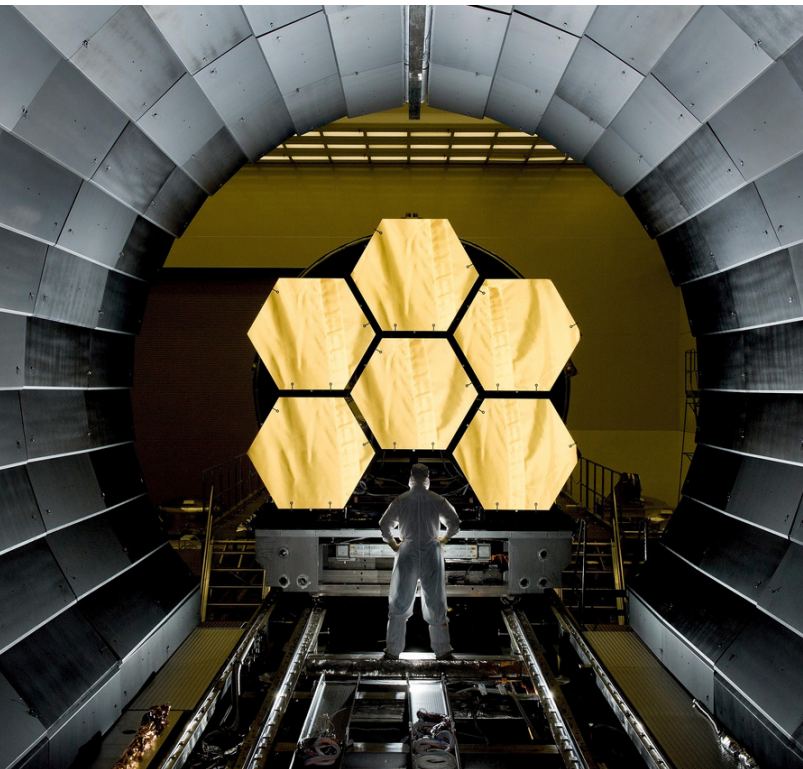
Most intriguing are the Earth-sized planets of the TRAPPIST-1 system, a mere 40 light-years away. Two of these, TRAPPIST-1e and TRAPPIST-1f, have come under the intense scrutiny of Webb's infrared 'scope, and they have indeed been revealed to have atmospheres. Another promising planet is K2-18b which has water vapour in its atmosphere and is in the habitable zone of its parent star.

Webb breaks previous barriers to examining the atmospheres of distant worlds, as it is far larger and more powerful than previous space telescopes and

has extremely sensitive instruments for detecting chemical signatures in the infrared spectrum. And scientists have identified more esoteric biosignatures – chemicals that indicate the presence of biological organisms that can exist in extreme environments.

Most importantly, Webb has discovered traces of methane, water, oxygen, and organic molecules (the building blocks of life) and several biosignatures. Although these lifeforms are likely to be simple things like bacteria, Webb has provided sufficient evidence that they do exist on certain exoplanets.

The soon to be launched Ariel mission will study exoplanets in even more detail, but for now, the consensus among the scientific community is this: **James Webb confirms that alien life exists.** 





# THREE SCORE AND FORTY

## 80 is the new 60

In early 2022, researchers discovered that they could **reverse the epigenetic clocks** of human tissue cells by about 30 years. Working in a lab, they subjected these cells to a short course of proteins that would eventually turn them into 'pluripotent' stem cells. But the cells did not lose their specialized function; they just rejuvenated and became more vigorous at healing wounds.

A flurry of institutes, biotech companies and startups focusing on extending healthy lifespans and slowing or reversing the effects of ageing in humans began to apply every genetic tool available,


from CRISPR to Yamanaka factors, to more fully understand how we can manipulate the ageing process at a cellular level.

Over the next few years, a number of successes in this field set the market on fire, and in the biotech community there is increasing confidence that we are nearing the point of being able to **partially reverse** age-related deficiencies like failing eyesight, creaking joints, and memory loss.

"I don't think there is any kind of absolute cap on how long we can live," says computational biologist Dr Arthur Stone. "I can't see a physical or biological reason why people couldn't live to 200 – the challenge is whether we can develop the biomedical science to make it possible."

The potential for anti-ageing treatments is estimated at trillions of dollars worldwide, which is why there are now hundreds of companies globally with huge R&D budgets dedicated to this nascent industry. Equality activists argue that it's not fair, as only the rich will be able to rejuvenate themselves, but this isn't stopping the boom.

It's not like we have FDA approval for **'youth pills'** – yet – but inevitable progress will see lifespans creep up to the point where 100 years becomes the norm rather than the exception, in developed countries at least. Dubious reports are already circulating on social media that illicit treatments at 'youth clinics' in Mexico and southeast Asia are attracting significant customers.

As we approach the 2030s, the economics of life will have to change. Who wants to retire at 70, **when you still have 35 years left**? Life insurers are salivating at the prospect! 

# FACTORY WORKERS AS A SERVICE

## Factories come back home but leave the workers abroad

Building on political polarization that characterized the Western world at the end of the 2010s, unions and politicians demanded corporates bring manufacturing back home, to stimulate the economy and create jobs for blue-collar workers – a group particularly hard hit by outsourcing, automation, and trade wars.

The Covid-19 supply chain disruptions, together with increased shipping costs caused by the war in Ukraine and the brewing US-China conflict, only highlighted what a strategic national interest manufacturing was.

For once, business leaders listened, but not to what the politicians and unions were saying, but rather to technology and balance sheets. While the politicians watched polling numbers and populist themes on social media, businesses were watching the technical evolution, seeing a convergence of several emerging technologies, and designed their future accordingly.

They saw advancements in Virtual Reality, Augmented Reality, 3D printing, robotics, and human-machine interfaces. They saw 5G wireless coverage and the Internet of Everything going from theory to practice. They drew important lessons from war zones and space, noting you can sit on one continent while managing and controlling drones on another.

The final piece of the puzzle fell into place in late 2020s when Education 4.0 became a generally accepted concept in several low-cost countries. This provided the crucial element: highly skilled employees comfortable with 21st-century technologies and collaborative problem-solving across distributed environments. And it came at a fraction of the labour cost of Europe and the US.



Yesterday, 3 August 2030, the first fully automated vehicle assembly plant opened in the United States, staffed with three shifts of 'Tech Workers': from Indonesia, West Africa, and Peru. Each shift works eight hours during normal office hours in their respective countries, eliminating shift pay and other additional labour costs.

So-called 'Tech Centers' have popped up all over the developing world, where people in normal street clothes don VR helmets and controls, grab a cup of coffee, and go to work. As with its predecessor, the Call Center, a Tech Center, and its Tech Workers, can serve many different clients at the same time.

The biggest differentiator is that once a Tech Worker is qualified on a VR system, they are not locked into a single Tech Center, but can shop around for the company providing the best employee benefits and work culture. Many global corporates have established their own Tech Centers to retain skilled and trained staff, offering them a variety of benefits.

For many workers from the developing world, this is a dream come true as they can now work with top tech, earn a good salary, live in their home city and culture, and share life's enjoyment with their friends and family. As for the disgruntled blue-collar workers back in Europe and the US, they are on the losing side of the **virtual worker metaverse!**



Until the end of the Russia-Ukraine War that started in 2022, the symbiotic and cozy relationship between politicians, the military, and arms manufacturers directed massive amounts of state funding toward what was best for the people in the network, rather than what was best for society. This was exactly what President Dwight D Eisenhower was afraid of when he coined the phrase and warned about the Military Industrial Complex back in 1961.

The military, through the location of its bases, and arms manufacturers, through the location of their factories, held enormous financial influence over politicians. That, coupled with their mutual interest in consuming more arms, kept the manufacturing wheels spinning, generating income and employment.

The Russia-Ukraine war showed that warfare had changed forever – rather than being dominated by lots of men with guns, it was now controlled by a few motivated people with access to high-tech weapons marshalling international support on social media.


The rise of Silicon Valley in the early 2000s brought financial success with it to California, seeing the state become the world's fifth largest economy; politicians all over the world took notice. High-tech and science-based economies were the future!

With moral ease, the politicians cozied up to universities, high-tech start-ups, and the new royalty: scientists and tech entrepreneurs.

Forming the same symbiotic relationships as before, each participant brought their value-add into the network, once again focusing on what generated tax breaks, government funding, re-elections, and city prestige. This in turn drove the economy upward with more job creation and higher revenues.

And like before, the greater good for society was left out in the cold. Old-school politicians talking guns on duck hunts had no clue what 30-year-old scientist-cum-entrepreneurs were talking about when discussing rules and regulations around artificial intelligence, crypto, blockchain, biotech, human augmentation, human-computer integration, genetics design, and DNA coding.

Fortunately, a younger cadre of politicians began to emerge, tech-savvy youngsters who rocked hoodies and black turtlenecks like the best tech billionaires, and who had science PhDs rather than law degrees. In the late 2020s, they started a relentless regulation drive, ensuring science was guided by ethical and social standards that benefitted all of society, not just the politically connected.

With massive amounts of government funding, science has replaced manufacturing as the driver of economic growth. **The Scientific Industrial Complex is born.** 



# THE AGE OF CREATION

## The end of the extraction economy

For thousands of years, humans have relied on extraction of resources to fuel the economy and move society forward, to progress civilization. Now, in the early 2030s, we see signs of the age of extraction coming to an end. Not only is the global economy driven more by services than goods, but the digital revolution is ushering in a new age, based on the creation economy.

Digital technology has spurred the exponential advance of scientific knowledge and expertise, and the convergence of technologies like machine learning, artificial intelligence, augmented reality, 3D printing, biotech, and nanotech has given us new tools and techniques for producing everything from food to energy, to metals and 'designer' materials.

We can now create things from base materials or 'starter-packs'. We culture beef cells from gourmet lines and grow steaks and burgers without the need for a farm or feedlot. We make an endless variety of proteins, fats and carbs in reactor vessels and fermentation vats. Fine dining is not an art – it's science, with the help of 3D printers.

True nanotech, the ability to manipulate and re-arrange matter at the molecular level, is allowing us to synthesize almost anything we need, without having to dig it up or pump it out of the ground. We can combine nanoparticles in microscopic layers to produce materials that don't exist in nature, with amazing new properties.

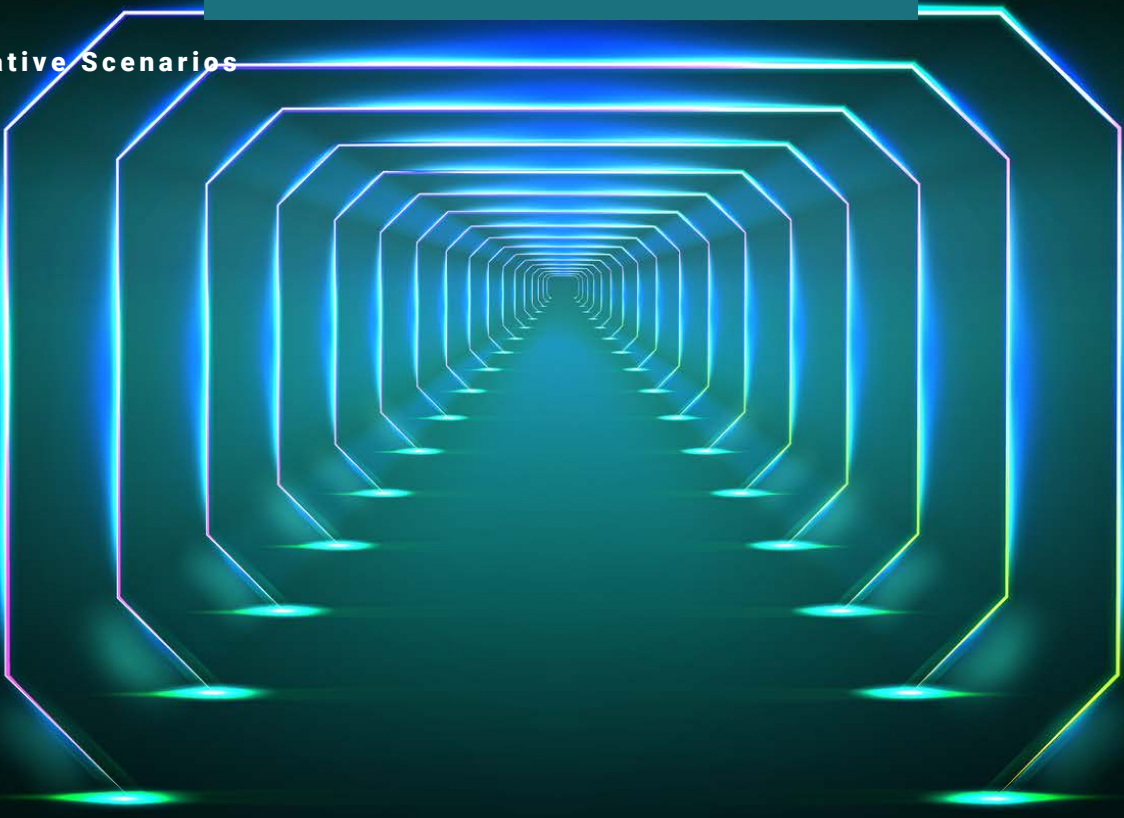
With the help of artificial intelligence, we have learned how to predict the structure of proteins, to express the genes and create the enzymes we need for production. Using organic molecules like DNA, we can construct **molecular machines** that turn out all sorts of products, from hydrocarbon fuels to medicines.

In the creation economy, the real workers, besides the robots, are the microbes. Modified microbes can be programmed to efficiently do everything from eating plastic waste to absorbing pollution and **producing hydrogen**. And all they typically need is a bit of sunlight and some water to keep them going.

Water is the one thing we can't create. But luckily there's a lot of it on the planet and it never gets destroyed, just endlessly recycled. In the age of creation, we have finally learned how to do proper recycling. And it's much more economical to re-use waste and old materials than to extract fresh commodities from the earth.

As the extraction economy winds down, we **are entering the age of creation.** O





# PROVOCATIVE THINKING INDEED!

That's what we do at Futureworld. We challenge and provoke our clients to shatter the business-as-usual mindset, to help them understand the future, so they can design and create new game-changing businesses that will propel their enterprises into that chosen future.

Our proprietary **Strategy from the Future™** process uses a combination of divergent thinking and outside-in research to identify future market forces that will create large scale opportunities. We help our clients **understand the future and design exponential growth strategies, and create game-changing new businesses** to capitalise on that future. Our network of international thought leaders, futurists, and speakers deliver mind-shifting **keynotes** and leadership experiences to help you and your executive team futureproof your business.

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**Where has all the money gone?**



**Breakup of the Century**



**No chip? No job.**



**VR Tripper loses his mind**

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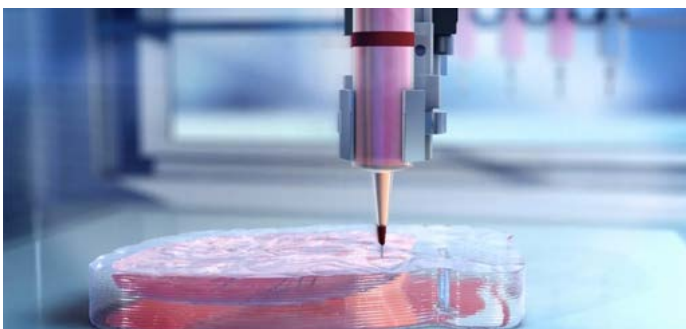
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