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Nations preparing for an immersive digital future

An analysis of metaverse preparedness amongst world governments

By Isabella Williamson

A world in rapid transition

From virtual tourist trips and airline check-ins to virtual ministries and digital twins of whole cities, the world is rapidly transitioning to a more immersive digital era.[1] TakeTake Minecraft: between 2011 and 2022, the virtual sandbox game's monthly active user base grew from 10 million to 173 million.[2] With the rising importance of virtual worlds, governments are now considering how best to support their citizens and institutions in the years to come.

As public policies around the metaverse grow in number, this study explores which nations are best equipped to transition into, and thrive within, the emerging immersive digital era. The insights gained point to key actions governments large and small can take to best position themselves.

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A surge of metaverse initiatives

The concept of virtual worlds is not new to governments. Countries such as Sweden, Estonia and the Maldives started innovating in this space decades ago with the launch of embassies in ³D virtual world Second Life.[3] They recognised then that virtual spaces may be important for government services and global soft power in the internet of the future.

That future is now. With the consolidation of technological advancement, digital infrastructure, popular demand and environmental pressures, the metaverse and its core technologies –

including extended reality (XR), artificial intelligence (AI), and blockchain – have progressed at a startling pace. On cue, we've seen an explosion of related policy initiatives.

Over the past two years, countries such as the UAE, South Korea, Finland and Mainland China have launched national metaverse strategies, while the European Union has published a strategy on Web 4.0 and virtual worlds. Other initiatives include South Korea's Metaverse Fund and Metaverse Academy to support a growing metaverse ecosystem, Indonesia's Metaverse Collaboration Initiative to drive public/private-sector partnerships, the French government's public consultation on the representation of national identity in the metaverse, and China's development of industry standards to guide businesses as the metaverse economy grows.[4]

Here, we navigate this surge of policies to explore which nations seem best equipped to enter the metaverse space. The landscape is complex. For example, some digitally advanced nations that rose as early adopters are contending with low current public interest. Other smaller nations with resourcing constraints have shown remarkable proactivity in the metaverse, seeing the strategic advantages it can deliver in advancing global visibility and collaboration.

Barbados:	In November 2021, the Barbados Ministry of Foreign Affairs and Foreign Trade partnered with Decentraland to establish a digital embassy. The country has further plans to establish diplomatic properties in other virtual worlds.
El Salvador:	El Salvador's Technology & Economy International Affairs Director has announced the development of an NFT-based Crypto Casino, which will include both land-based and metaverse versions.
USA:	The US government has signalled interest in the development of the metaverse through 2022's CHIPS and Science Act, which directs the National Science Foundation (NSF) to research immersive technology. Several other government bodies, including the US Army and NASA, are exploring metaverse opportunities - for example, the Army uses a Synthetic Training Environment (STE) to simulate realistic scenarios and help soldiers train effectively.
Madagascar:	The government of Madagascar has plans to establish an embassy and National Exhibition Centre in the Metasense metaverse to drive trade and business opportunities and improve service delivery through emerging technologies.
UK:	The UK Spring Budget mentions leading in Web3 and the metaverse, an effort to be spearheaded by the Department of Science, Innovation and Technology. There is a National Digital Twin Program to support national infrastructure development. In 2013, the UK's Ordinance Survey used Minecraft to create a georeferenced virtual Great Britain, allowing players to explore and build on a realistic landscape. The UK is also using Virtual Reality to enhance training for soldiers, sailors and aviators.
France:	The French Ministry of Culture has allocated a €150 million fund for metaverse and Web3 projects to foster French cultural sovereignty in virtual environments. The government has also initiated a public consultation to shape a metaverse framework, reflecting its commitment to developing a "French Strategy" for the metaverse, engaging with stakeholders to enrich customer experience and showcase French culture through immersive virtual environments.
Spain:	Spain has allocated up to €3.8 million in grants for projects driving the metaverse and Web3 audiovisual industry. Additionally, the Ministry of Culture and Sports plans to direct €8 million from EU grants towards developing video games and the metaverse. These grants, managed by the Ministry of Economic Affairs and Digital Transformation, are aimed at companies and individuals working on metaverse projects in Spain or the European Union, reflecting Spain's ambition to become a global metaverse hub.
Norway:	The Bronnoysund, a government body under Norway's Ministry of Trade, Industry and Fisheries, has established the world's first tax office in Decentraland, with the goal of delivering services to young, tech-native citizens.
Israel:	Former Deputy Foreign Minister Idan Roll has spoken of a multi-million-shekel investment for developing metaverse apps and games to promote Israeli culture and heritage. Projects like "Treasures of the Holy Land" and "The Falafel King" are among the ventures supported by the Foreign Ministry. The aim is to connect individuals globally to Israel through virtual experiences, leveraging digital transformation and the metaverse for cultural promotion.
Latvia:	In December 2022, a Memorandum of Understanding was signed to make Riga a "metacity", which would establish a virtual presence for the capital city in the metaverse. Also, discussions have been underway between industry representatives and the Latvian government regarding the development of metaverse solutions.
Estonia:	Engagements like the renowned event NFT Tallinn have highlighted governmental interest in metaverse technologies, particularly through discussions around transposing e-Residency into the metaverse. This would involve a virtual e-Estonia within the metaverse.
Kingdom of Saudi Arabia:	Saudi Arabia has committed over $6.4 billion to advanced technologies, including a $1 billion investment in the NEOM Tech & Digital Company dedicated to metaverse developments. In collaboration with Meta Platforms, the country launched the Middle East's first metaverse academy to drive technological growth. The Royal Commission for AlUla launched a metaverse project to give tourists virtual access to the Hegra World Heritage site, the Tomb of Lihyan, while the NEOM project's Tech & Digital sector introduced XVRS, a "cognitive digital twin metaverse"
Japan:	In 2022, Prime Minister Fumio Kishida expressed interest in promoting the Web3 ecosystem, indicating a broader move to integrate metaverse technologies into Japan's digital-transformation agenda. Currently, metaverse projects are emerging across local and national government. In Yabu city, Hyogo Prefecture, local authorities partnered with entertainment giant Yoshimoto Kogyo on a metaverse project. Nationally, several industry leaders including Mitsubishi, Fujitsu, and others are collaborating on the "Japan Metaverse Economic Zone", aiming to build an interoperable virtual structure to advance Japan's metaverse plans.
Mainland China:	Mainland China recognises the strategic importance of the metaverse, especially for economic productivity. China's Ministry of Industry and Information Technology (MIIT) released a Three-Year Action Plan for Metaverse Industry Development and recently announced plans to form a working group to establish standards for the metaverse sector. On a sub-national level, cities including Beijing, Nanjing, Shanghai and Shandong unveiled metaverse plans, striving for significant economic growth.
UAE:	The UAE is advancing as a digital powerhouse with ambitious projects like the Dubai Metaverse Strategy, aiming for innovation, economic growth, and the creation of 40,000 virtual jobs. Key projects include a digital twin of Dubai, Metaverse Dubai, Dubai Electricity and Water Authority's DEWAVerse, and the Sharjah government's Virtual Transaction Centre in the metaverse.
Thailand:	The Board of Investment of Thailand, recognising the metaverse's potential, has been collaborating with ministries to establish Thailand as a global metaverse leader, implementing supportive measures like tax exemptions and incentives. In 2023, the Tourism Authority of Thailand signed an agreement with Bitkub Blockchain Technology as part of the authority's ongoing strategy to leverage the latest technologies to shift Thai tourism to Smart Tourism.
South Korea:	In 2022, South Korea launched a Digital New Deal 2.0 with 223.7 billion KRW ($186.7 million) dedicated to a national metaverse strategy. The Metaverse Seoul Master Plan (2022-2026) introduced a virtual municipal platform, offering administrative services. The country also established a Metaverse Growth Fund and has plans for a Metaverse Academy and Metaverse Labs to support technology development, all highlighting its commitment to the metaverse industry's growth.
Singapore:	As part of its Smart Nation initiative, Singapore has become one of the first nations to create a digital twin of itself using topographical and real-time data. The purpose of the digital twin was to simulate and test virtually new solutions to urban-planning problems. It is designed to be collaborative, encouraging citizens to influence future Smart City projects. 'Indonesia: Indonesia's government recently launched the Metaverse Collaboration Initiative, a public-private partnership aimed at promoting collaboration, research, innovation and development in metaverse technology. Furthermore, through PT Telkom Indonesia, the government is supporting the development of MetaNesia, a state-owned metaverse designed to support and promote SMEs.
Tuvalu:	Tuvalu has proposed building a digital version of itself, replicating islands and landmarks and preserving its history and culture as rising sea levels threaten to submerge the tiny Pacific island nation. This campaign drew global recognition when it was awarded the top honour at the Cannes Lions 2023.

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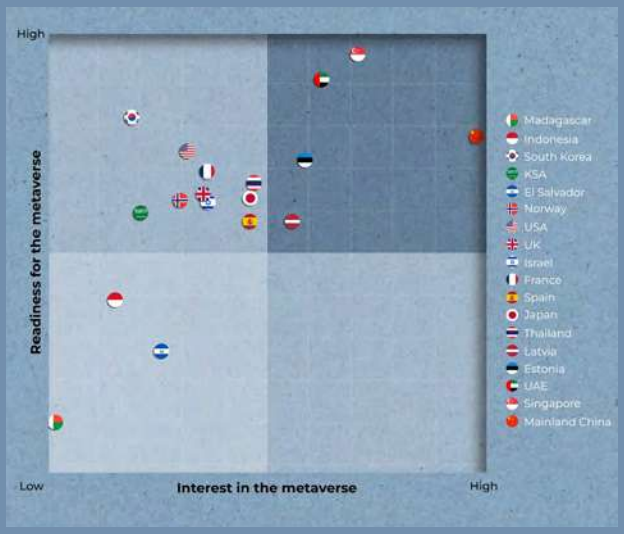
Benchmarking preparedness for the metaverse

Which nations are doing the right things to prepare themselves? We explored that question across 18 governments, examining each country's current readiness to support their metaverse ambitions as well as citizens' level of interest in this endeavour.[5] Both factors are crucial in shaping a robust metaverse ecosystem.

Readiness scores were computed by assessing the local digital talent, physical infrastructure and business environment, while interest levels were derived from search-engine statistics (specifically, the frequency of searches for the word "metaverse").

Benchmarking levels of readiness and interest in this way provides a richer understanding of where each country stands on its metaverse journey and provides insights into the ideal recipe for prospering in the future.



In our survey, we discovered that nations varied widely in metaverse readiness and interest, falling into three broad clusters:

High readiness / high interest

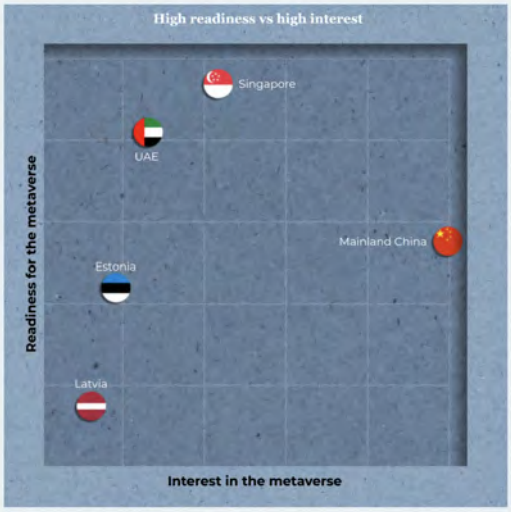
- **Mainland China**, the **UAE** and **Singapore** all have high readiness combined with high interest.
- **Singapore** leads in readiness, while **Mainland China** shows the highest population interest.

Mainland China has a strategic focus on digital transformation and the power of data to boost growth. It boasts a robust digital ecosystem of tech giants like Alibaba, Tencent and Huawei, and invests heavily in new technologies such as 5G infrastructure, AI and blockchain. China's Ministry of Industry and Information Technology (MIIT) has released a Three-Year Action Plan for Metaverse Industry Development, and recently announced plans to work towards establishing standards for the sector.[6] Individual cities, including Beijing, Nanjing, Shanghai and Shandong, have also unveiled ambitious metaverse plans.[7]

The **UAE** is advancing as a digital powerhouse with ambitious projects like the Dubai Metaverse Strategy, aiming for innovation, economic growth, and the creation of 40,000 virtual jobs.[8] Key projects include a digital twin of Dubai, Metaverse Dubai, Dubai Electricity and Water Authority's "DEWAVerse", and Sharjah's government's Virtual Transaction Centre in the metaverse.[9]

Singapore's thriving tech industry is renowned across Southeast Asia and it enjoys high digital literacy with widespread internet access. This is in part a result of the 2014 Smart Nation initiative, which aims to transform the nation by leveraging technology and data across government, economy and society. In terms of the metaverse, the Asian city-state was one of the first globally to launch a digital twin of an entire nation using topographical and real-time data. The digital twin simulated and tested solutions to urban-planning problems and offered a platform for citizens to participate in Smart City projects.[10]

OBSERVATIONS:
These are technology-forward nations with robust digital infrastructure, high digital literacy and thriving tech start-up ecosystems, guided by comprehensive digital-transformation strategies that stretch society, economy and government. Both public and private sectors have identified the potential of the metaverse and taken quick action to seize its benefits while managing its risks. Poised to emerge as leaders in the global metaverse economy, these nations may find collaboration challenging as they vie for leadership. [11]



High readiness / low interest

- **South Korea** scored fourth in readiness – but came close to the bottom in public interest. A similar disparity is found in the **United States.**

- The **United Kingdom, Norway** and the **Kingdom of Saudi Arabia** (KSA), while in the mid-range of readiness, also show relatively low public interest – with KSA ranking fourth lowest overall.

South Korea was one of the first nations to create a roadmap for developing a competitive metaverse ecosystem, which it titled the "Expanded Virtual World".[12] The Minister of Science and ICT, Lim Hyesook, called the metaverse "an uncharted digital continent with indefinite potential".[13] Building on its Digital New Deal, which takes a comprehensive approach to developing a competitive digital economy, in 2022 the government launched a Digital New Deal 2.0 – dedicating 223.7 billion KRW (186.7 million USD) to a pan-government metaverse strategy.[14] The strategy has several foci: boosting metaverse platform growth and its wider ecosystem; developing metaverse talent and encouraging participation in metaverse activities; supporting specialised metaverse companies with infrastructure and funding; and building a model virtual world.[15]

The **United States** government signalled interest in the development of the metaverse with its 2022 CHIPS and Science Act, which directs the National Science Foundation (NSF) to research immersive technology.[16] Several other government bodies, including the US Army and NASA, are exploring metaverse opportunities; for example, the Army uses a Synthetic Training Environment (STE) to simulate realistic scenarios and help soldiers train effectively.[17] However, the United States doesn't have an explicit strategy for the metaverse.

The **United Kingdom** aims to become a global science and tech superpower and its Digital Strategy is designed to cultivate the digital economy required to support this ambition.[18] According to the UK's Spring Budget, the UK wants to "lead on the future of web technology, sometimes known as Web3 or the metaverse".[19] This effort will be led by the government's newly formed Department of Science, Innovation and Technology. In parallel, the UK recently passed an Online Safety Bill, which also applies to the metaverse.[20] In terms of immersive-technology initiatives, the country's Roadmap 2035 commits the UK to supporting businesses in innovative sectors such as Augmented Reality (AR) and Virtual Reality (VR).[21] VR is currently being used to enhance training for soldiers, sailors, and aviators under a GBP 7.2 million contract secured by Defence, Equipment and Support in 2022.[22]

In **Saudi Arabia** (KSA), the government supports numerous digital projects as part of its ambitious Vision 2030 programme, several with metaverse components. KSA has committed over $6.4 billion to advanced technologies, including a $1 billion investment in the metaverse-dedicated NEOM Tech & Digital Company.[23] In collaboration with Meta Platforms, the country launched the Middle East's first metaverse academy to drive technological growth.[24] In addition, the Royal Commission for AlUla launched a metaverse project to give tourists virtual access to World Heritage site the Tomb of Lihyan, son of Kuza, in Hegra; while the NEOM project's Tech & Digital sector introduced XVRS, a "cognitive digital-twin metaverse".[25]

The Ministry of Local Government and Modernisation in Norway released a digital strategy to support digital transformation of the entire public sector. The Brønnøysund, a government body under the Ministry of Trade, Industry and Fisheries, has established the world's first tax office in Decentraland, with the goal of delivering services to young, tech-native citizens.[26]

OBSERVATIONS:
Most of these governments are early adopters, taking proactive steps to craft plans around the metaverse. In this they anticipate both future demand (for example, Seoul's Digital New Deal 2.0) and associated risks to consumers (for example, the UK's Online Safety Bill's metaverse references).

But while these countries' technological infrastructure is robust, relatively low interest rankings suggest that the public is still catching up with the tech evolution. Ensuring that metaverse initiatives are developed in ways that tangibly benefit society, and that this is effectively communicated through public-awareness campaigns and education opportunities, may help to drive up engagement.

Low readiness / low interest

The government of **Madagascar** has plans to establish a virtual embassy and virtual National Exhibition Centre to drive trade and business opportunities, and aims to improve service delivery through the latest technologies.[27]

El Salvador's government is actively striving to enable digital innovation through the Digital Agenda 2020-2030. The country's Technology and Economy International Affairs Director has announced the development of an NFT-based Crypto Casino, which will be accessible physically and virtually.[28]

Indonesia's government recently launched the Metaverse Collaboration Initiative, a public-private partnership aimed at promoting collaboration, research, innovation and development in metaverse technologies.[29] Through PT Telkom Indonesia, the government is supporting the development of MetaNesia, a state-owned metaverse designed to support and promote SMEs.[30]

Indonesia, Madagascar and **El Salvador** score low in both readiness and interest.

OBSERVATIONS:
Madagascar and El Salvador, like several other small nations such as Barbados and Tuvalu, were among the first to launch metaverse initiatives, specifically in diplomacy and tourism.[31] These countries may have smaller economies and populations and limited access to resources, but this hasn't stopped them being proactive in exploring the metaverse's strategic potential for enhancing global visibility.[32] For example, Barbados has a metaverse embassy and plans to develop more, positioning itself as a trailblazer in a new era of global diplomacy.[33]

Combining local initiatives with international collaboration is a practical way of driving development in the metaverse space without putting pressure on government resources or distracting from more pressing socio-economic and environmental considerations. However, to benefit truly, these countries may have to improve key aspects of their metaverse ecosystems, such as physical infrastructure and availability of tech talent.

Gearing up for success in the metaverse

As nations progress along their varied metaverse paths, certain actions will help them position themselves for success in this space:

- Governments with the right capabilities can focus on creating cohesive, clear policies to support the growth of a metaverse ecosystem. Guided by an overarching vision, these policies should be developed with industry experts and centred on the needs of citizens, ensuring all parts of society feel included in this future.

- Collaborating with an international expert network or organisation can be an effective support mechanism for realising metaverse ambitions if resources are under strain. This can facilitate collaboration on large-scale projects, enable knowledge sharing across industries, and bolster global brand-building efforts.

- Striking a balance between global metaverse opportunities and the needs of citizens is important for ensuring the long-term success of a government's metaverse vision. The recent hype around the metaverse has made navigating its opportunities challenging. Governments should focus on practical use cases that offer a clear value proposition – one that is tangible and communicable to its people.

Conclusion

Our exploratory research shows governments are taking varied approaches to ensuring their citizens and institutions are prepared for the metaverse-enabled future. While we did not measure for causal relationships between "metaverse success", "readiness" and "interest", we can infer that high levels of both readiness and interest will give governments to the tools and environment they need to make the metaverse transition – and thrive.

To achieve this, governments are well advised to create policies that tackle the whole metaverse ecosystem: fostering a business-friendly environment, drawing in talent and investment, encouraging collaborations between public and private sectors, and promoting education in new technologies. Governments also play a crucial leadership role, providing strategic direction for the self-sustained growth of this ecosystem around principles that positively impact society.

About the Author

Isabella Williamson is an emerging technologies strategist at Consulum. She advises governments on the implications of the metaverse, artificial intelligence and blockchain technologies for their organisations from a strategy, policy and communications perspective.

Isabella is also an international public speaker on emerging technologies, contributing to platforms like GITEX's Future Blockchain Summit and the UAE Tech Podcast, and authored one of the first pieces on the intersection between governments and the metaverse "Enter the Metaverse: Time for governments to be bold – and choose wisely"