

ADMM Cybersecurity and
Information Centre of Excellence

UPDATE ON THE INFORMATION DOMAIN

Issue 01/24 (January)

Navigating the Information Vortex: Surfing the Waves of 2023 and Anticipating the Storms of 2024

INTRODUCTION

1. The year 2023 witnessed rapid advancements and the blurring of lines between the physical and digital realms, fundamentally altering the way we work and learn. Information surged at an unprecedented speed, guided by powerful algorithms shaping our online experiences. Forbes highlighted that 2023 was the year when generative artificial intelligence (AI) entered the mainstream, playing a pivotal role in breaking down the distinctions between the physical and online domains, while the world scrambled to catch-up by implementing new regulations to govern the impact of AI technologies on privacy, ethics and accountability.

KEY TRENDS OBSERVED IN 2023

Prominence of Generative AI

2. **Generative AI emerged as a predominant force in the information landscape throughout 2023**, thanks to its ability to create new and original content by learning patterns in data, using complex algorithms and methods of learning inspired by the human brain. According to *WeForum*, the industry also witnessed a surge in the creation of AI-tools such as ChatGPT and Midjourney, as well as heightened consumer interest in them, particularly among younger demographics. Concurrently, the European Union lawmakers finalised the AI Act on 8 Dec 2023, heralded as the world's inaugural comprehensive legislation dedicated to AI. MIT Technology Review reported that the AI Act focuses on mitigating potential harms in sectors where AI usage poses substantial risks to fundamental rights, such as healthcare, education, border surveillance and public services. The EU also distinguishes itself by creating a platform for citizens to launch complaints about AI systems and receive explanations about the decision-making processes that affect them

Metaverse Integration

3. As reported by *Metanews*, another key trend observed was the **push towards seamless integration within the metaverse**. The most striking advancement in the metaverse in 2023 would be the leap in immersive experiences. Companies like Oculus and HTC have introduced sophisticated headsets that are more powerful and increasingly affordable. Eye-tracking and foveated rendering technologies have enhanced user interaction, making virtual environments more realistic and intuitive. The integration of haptic feedback has also added a tactile dimension, allowing users to ‘feel’ the metaverse, deepening the sense of presence. New job roles have also emerged, particularly in gaming, education, and healthcare, linked to Metaverse development and management.

INFO TRENDS: THE YEAR AHEAD

Generative AI Advancement

4. As we step into 2024, the echoes of 2023’s information trends will still resonate. We can expect a **more nuanced approach to generative AI from both tech companies and consumers**, with debate over open source versus closed AI models, increased reliance on licensed data from publishers, and the **emergence of AI-oriented wearable devices** – such as a wearable device that can predict Alzheimer’s disease¹.

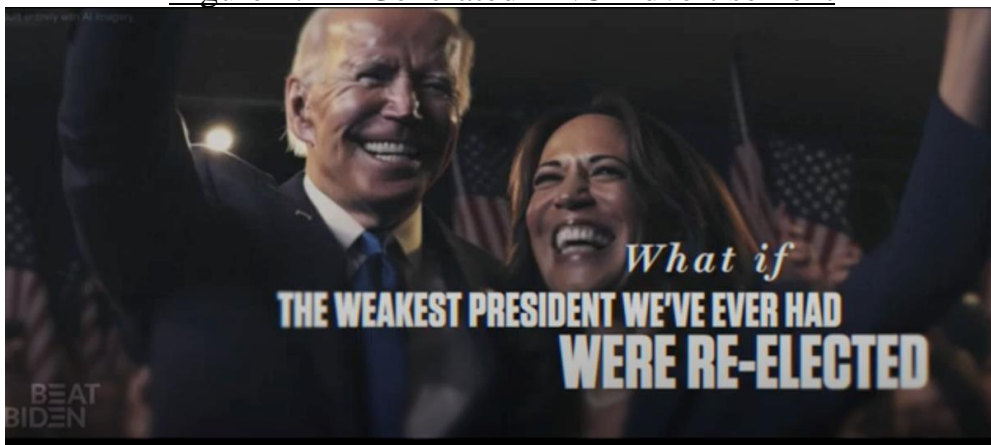
5. *MIT Technology Review* reported that AI giants Google and OpenAI are developing **user-friendly platforms that allow people to customise powerful language models as well as mini chatbots that cater to specific needs** – where coding skills are not required. State-of-the-art AI capabilities such as GPT-4 and Gemini – that can process not only text but also images and even videos – could unlock the potential for a whole bunch of new apps. For instance, a real estate agent could upload text from previous listings, fine-tune a powerful model to generate similar text with just a click of a button, upload videos and photos of new listings, and simply ask the generative AI to create a customised description of the property.

6. The anticipated evolution in AI development also has the potential to impact pivotal elections worldwide, spanning from the United States to India and Indonesia. According to *Route Fifty*, there has already been an influx of AI-generated content prior in the lead up to the 2024 US elections. *Forbes* reported that the Republican National Committee (RNC) advertisement – one of the most high-profile examples – portrayed how AI may be used in the 2024 elections.

¹ According to *Mobihealthnews*, a Japanese pharmaceutical company called Eisai, together with Oita University in Japan, has built the world’s first AI model that uses data from wearable devices to predict Alzheimer’s disease in Jan 24. Risk prediction algorithm for the early detection of mild cognitive impairment is underway as well.

The RNC advertisement (see Figure 1) showed AI-generated images of Biden and Vice President Kamala Harris winning on election night, followed by simulated scenes of explosions in Taiwan, police in tactical gear lining the streets of San Francisco, migrants flooding the southern border and Wall Street buildings abandoned. Despite the concerns raised about such malicious and fake content duping voters and campaign teams, both the Democrat and Republican teams have expressed plans to leverage generative AI during the 2024 election cycle in an effort to streamline operations.

Figure 1: AI-Generated RNC Advertisement



7. Similar AI-generated content has emerged prior to the Taiwan Presidential Election held on 13 Jan 2024. *Taiwan FactCheck Center* reported a deepfake video that surfaced in Nov 2023 at a time when the Kuomintang Party (KMT) and the Taiwan People's Party (TPP) were discussing the formation of an alliance and having their candidates, KMT's Hou Yu-ih and TPP's Ko Wen-je, jointly run for the presidential election. A YouTube video was edited to make it sound like William Lai, one of the presidential candidates from the ruling Democratic Progressive Party (DPP), was praising the alliance between Ke and Hou (see Figure 2) and how this represented the majority views of Taiwanese. In reality, Lai conveyed that neither the KMT or TPP represent the mainstream perspective in Taiwan and that both Ko and Hou were unsuitable for leadership roles in Taiwan.

Figure 2: AI-Generated Voice on Fabricated Video



A screenshot of the fabricated video in which the DPP presidential candidate Lai Ching-te appeared to support the cooperation of the KMT and the TPP party in the 2024 Taiwanese presidential campaign. The Taiwan FactCheck Center has debunked this video as untrue.

Thinning Distinction Between Reality & Digital

8. Apart from generative AI, the convergence of the real and the digital will become more prominent in 2024. Across industries, the concept ‘digital twin’ – a virtual representation of a real-world object, system or process has emerged. As *Forbes* reported, **distinction between the real world and the virtual world would gradually fade, where the digital is becoming increasingly realistic.** According to *Blockchain Magazine*, the rise of virtual reality (VR) and augmented reality (AR) are normalised. Concerts, conferences and social gathering may gradually transit into the metaverse, offering a dynamic and inclusive experience for participants worldwide.

WAY FORWARD

9. Moving forward, as the realm of AI undergoes significant growth alongside other developments, it becomes imperative to conduct periodic reviews of the existing regulations. This serves as a proactive measure to address emerging challenges, uphold ethical standards, and maintain a harmonious integration of technology into our ever-evolving society. By embracing a responsive and adaptable regulatory approach, we can strive to harness the full potential of AI and emerging technologies while upholding ethical and legal standards.

10. A closer examination of information trends also reveals its multifaceted nature. Instances of manipulated narratives and misinformation campaigns have not only influenced public opinion, but have also raised critical questions about the reliability of information in our interconnected world. The blurred lines between truth and falsehood challenge our ability to discern fact from fiction, emphasising the need for heightened media literacy and critical thinking skills, which are all essential in cultivating a resilient and discerning society. Businesses, policymakers, and individuals must remain agile in adapting to the dynamic information landscape, and mitigate the potential adverse effects of these evolving trends by addressing these challenges heads-on in the coming year.

CONTACT DETAILS

All reports can be retrieved from our website at www.acice-asean.org/resource/.

For any queries and/or clarifications, please contact ACICE at ACICE@defence.gov.sg.

Prepared by:

ADMM Cybersecurity and Information Centre of Excellence

••••

REFERENCES

News Articles

- 1 The Top 5 Tech Trends in 2024 Everyone Must Be Ready For
[Link: <https://www.forbes.com/sites/bernardmarr/2023/09/11/the-top-5-tech-trends-in-2024-everyone-must-be-ready>]
- 2 Top 10 Emerging Technologies Of 2023: Flagship Report By World Economic Forum
[Link: https://www.www3.weforum.org/docs/WEF_Top_10_Emerging_Technologies_of_2023.pdf]
- 3 Five Things You Need to Know About The EU's New AI Act
[Link: <https://www.technologyreview.com/2023/12/11/1084942/five-things-you-need-to-know-about-the-eus-new-ai-act>]
- 4 2023: Year In Review & Looking Ahead
[Link: <https://www.medium.com/ipg-media-lab/2023-year-in-review-looking-ahead-a3b80f10849b>]
- 5 2024 Is The Biggest Global Election Year In History
[Link: <https://www.vox.com/future-perfect/2024/1/3/24022864/elections-democracy-2024-united-states-india-pakistan-indonesia-european-parliament-far-right-voting>]
- 6 Eisai Harnesses Wearable Data For AI-Led Alzheimer's Prediction
[Link: <https://www.mobihealthnews.com/news/asia/eisai-harnesses-wearables-data-ai-led-alzheimers-prediction>]
- 7 Republicans Launch Eerie AI-Generated Attack Ad On Biden
[Link: <https://www.forbes.com/sites/saradorn/2023/04/25/republicans-launch-erie-ai-generated-attack-ad-on-biden/>]

- 8 Seeing Is Not Believing – Deepfakes And Cheap Fakes Spread During The 2024 Presidential Election In Taiwan
[Link: <https://www.tfc-taiwan.org.tw/articles/10025>]
- 9 The Top 5 Tech Trends In 2024 Everyone Must Be Ready For
[Link: <https://www.forbes.com/sites/bernardmarr/2023/09/11/the-top-5-tech-trends-in-2024-everyone-must-be-ready-for/?sh=1eef8c8b9a6b>]
- 10 Top 10 Metaverse Trends In 2024 That Are Shaping The Future Years
[Link: <https://www.blockchainmagazine.net/top-10-metaverse-trends-in-2024>]