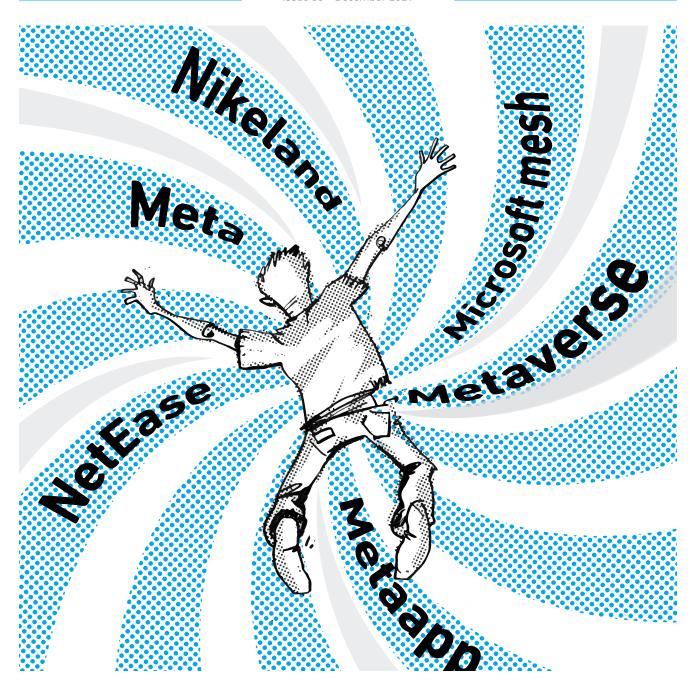


Issue 65 - December 2021



SPECIAL REPORT:

Metaverse under construction

NFTs

Non-fungible tokens, a(nother) new kid on the block, generated billions of dollars in 2021. We look at the technology and the craze behind it.

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APP STORES

A US court ordered Apple to start allowing developers to link consumers to alternative in-app purchases. This will be a significant departure from Apple's business model.

Pages 8-9

BAROMETER

The digital policy landscape

were debates on the IGF

changes daily. Making headlines

Leadership Panel, new antitrust

fines imposed on Big Tech, and

the world's first AI ethics rules.

IGF 2021

In response to calls for a more focused IGF, many of this year's sessions are related to two main issue areas: economic and social inclusion and human rights, and universal access.

Page 10

Special report: Metaverse under construction

When we wrote about the metaverse last month, Expression for the process. Although the concept has been around for years, companies' imaginations immediately fired up for the opportunities the metaverse could unlock.

One month later, we're seeing many developments take place – from new technology being developed to experience the metaverse (and the investment that goes with it), to emerging issues policymakers are already (or should start) thinking about. Let's recap the main metaverse trends from November.

1. The geopolitical race has started

A geopolitical race is inevitable every time a new shiny technology is unveiled, and the metaverse is no exception. As the concept of the metaverse gains steam, more companies are joining the fray, from the gaming industry to luxury fashion brands. However, the state of play is ultimately the same: Companies headquartered in the USA and China are at the forefront of the race.

Companies are not the only ones interested in the metaverse – governments are keeping a close eye on developments. Case in point: China.

US companies	Chinese companies	Other companies
At the forefront: Meta (Facebook)	At the forefront: Tencent	
Others:	Others: • ByteDance • NetEase • Bilibili (In China, tech companies have formed the Metaverse Industry Committee)	Dyson (UK) Aldin (Iceland) Sensorium (Russia)

(Sources: Euronews, South China Morning Post)

So far, the Chinese government is treading carefully. State newspapers have referred to the metaverse as 'grand and illusionary' and have cautioned that 'everyone still needs to stay rational in understanding the current metaverse mania'. Yet, the new Chinese industry group, the Metaverse Industry Committee was established under the state-supervised China Mobile Communications Association (CMCA) and may signal that China is ready to embrace the metaverse.

Metaverse Market Map



Other countries are jumping on the bandwagon, with Barbados and South Korea making announcements of their own. Barbados is planning to launch the world's first metaverse embassy. Located in the Decentaland metaverse, the embassy is tentatively scheduled to begin work in January 2022. The Barbados government is also finalising agreements with other metaverse platforms to buy land, build virtual consulates and embassies, provide e-visas, and build a teleporter that will allow users to transport their avatars between various metaverses.

Meanwhile, Seoul is claiming the title of the 'first major city' to enter into the metaverse. Its citizens will be able to access the cities' economic, cultural, tourism, educational, and civic services by 2023.

2. Concerns are mounting

November saw a flurry of prospective metaverses be announced, such as Microsoft Mesh, NetEase metaverse, Fuxi metaverse, Leihuo metaverse, and Baidu's metaapp. We seem to be heading down a road that will include a range of different metaverses. These metaverses will have to be interoperable between themselves to enable users to seamlessly shift from space to space. This doesn't mean that a

singular metaverse will solve the problem: Users could still exist in different, personalised echo chambers and tailored realities.

Policing user behaviour will also be major issues. Harassment and misinformation could spread in even more vivid and harmful ways in the metaverse, especially for younger users. And as Meta CTO Andres Bosworth acknowledged, large-scale moderation in the metaverse will be impossible.

3. The technology is adapting fast

Users will enter the metaverse using augmented reality (AR) glasses, a device that has already been around for the better part of a decade.

Another long invented technology – haptics – is being adapted for the metaverse. Haptics are technologies that give the user a tactile response. Think about the vibration of your smartphone when you try to unlock it with the wrong finger or when someone else tries to unlock it with their fingerprint or face – it gives you feedback that something is wrong.

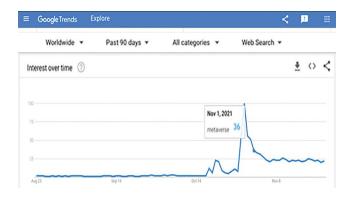
Because one of the main concerns about entering the metaverse was that users would have to give up their





An early stage haptic glove prototype from Meta's Reality Labs (left) and HaptX DK2 haptic gloves (right).

sense of touch, companies are now developing and/ or advancing haptic gloves. HaptXL has been working on a glove driven by pneumatics and is making its devices available to developers of VR and industrial robotics applications. Meta's Reality Labs has been working on a haptic gloveL that would add the sensation of touch to AR/VR. If users can retain their sense of touch, the metaverse is a step closer to the physical world we currently inhabit.



4. Users want to make money

The market potential of the metaverse is a huge incentive for users to invest in the technologies that will underpin it. Dubbed a trillion-dollar opportunity, the metaverse has also captured consumers' interest.

Throughout November, most metaverse-related searches on Google were related to money-making, in particular the use of cryptocurrencies in the metaverse (which existing metaverses use as payment), buying stock in companies which will build the metaverse (the lists of best metaverse stocks are numerous) and non-fungible tokens (NFTs). Read more about NFTs on page 9.1.

5. Still missing: What the metaverse actually is

There seems to be consensus on the main characteristics of the metaverse, as described by venture capitalist Matthew Ball. There's also widespread agreement that there should only be one, singular space. Yet, beyond these basic notions, the metaverse is still an elusive concept.

Can we say that the metaverse already exists in the form of games like Fortnite? Can those digital spaces

TOP 15 results for Google searches worldwide containing the term metaverse 11–25 Nov		
metaverse crypto	100	
the metaverse	70	
metaverse coin	70	
what is metaverse	61	
metaverse facebook	57	
meta	42	
metaverse stock	37	
metaverse coins	30	
metaverse meaning	25	

where more than one person can work or play at the same time be considered a metaverse?

Some claim that the metaverse does not exist yet and that what we currently have is in fact VR, the metaverse's predecessor. Others, like 3D internet pioneer Tony Parisi, think that the metaverse has been here for some time, and that it's now simply gaining mainstream attention due to the more immersive platforms like VR and AR. And for those who are hoping for a common definition of the term — including what it means, what it is supposed to look like, and how to build it — there are others still who claim that the metaverse is an abstract, evolving concept that cannot be rigidly defined.

Many of these answers will depend on who gets there first. To achieve a singular metaverse, if one company builds a metaverse, others will have to follow the same set of standards to ensure interoperability. For multiple companies, this will mean agreeing on the technologies and standards that will underpin it. The metaverse-rush has started.

NFTs: Brave new world?

Art and technology are strange bedfellows. But thanks to non-fungible tokens, or NFTs, digital art – and many other digital assets – are forming a very lucrative market.

What is an NFT?

In brief, an NFT represents a unique digital asset created by storing bits of digital data on a publicly-available blockchain.

NFTs are kept in cryptocurrency wallets – owning the private crypto key to that particular wallet grants you access to the NFT in question.

Why are NFTs 'non-fungible'?

A simpler term is non-interchangeable. NFTs are unique tokens, and have unique properties. In real life, examples of fungible assets include banknotes (which you can exchange for smaller banknotes, or even other currencies), bonds and shares (traded on stock exchanges), or precious metals. Non-fungible assets include artwork, copyright, or real estate.

What's the link between an NFT and blockchain?

Blockchain is an immutable, but slow database that does not scale very efficiently. It is used as a base for

the growing ecosystems of products developed by developers calling themself Web3.0 creators. Web3.0 is an idea based on open standards around blockchain technology, and many involved want to see it serve as a new large scale web infrastructure layer of the public internet, independent from major internet platforms. So far, applications have been developed to support privacy of users, as well as financial services. Major art platforms and the intellectual property industry are already using blockchain to store data about asset ownership, but this alone is not the main trait of NFT's.

As we know, digital information is notoriously easy to copy. We have witnessed this over and over again in the digital age. Enormous databases of videos, music, or printed materials are available for download on the internet. It is highly challenging to prevent digital information from being copied and shared if we are to preserve the open nature of internet protocols. So what is so different about NFTs?

NFTs have a characteristic of scarcity that is intrinsically related to the way these assets are created. Once an NFT is created on a blockchain, it becomes



Fidenza #313 by Tyler Hobbs. The generative art collection Art Blocks

unalterable in any way. Not even the creator of the asset in question can change anything, In particular, affect the scarcity by adding additional copies. Considering the way how NFTs are created they can be seen as digital objects interwoven in the blockchain fabric. This opens a space for all forms of digital collectibles for future digital collectors.

How did NFTs take off?

In 2017 a team of developers from Dapper Labs created a blockchain-based game called CryptoKitties, which introduced the first viral NFT in the form of a breedable digital cat. Each CryptoKittie had a unique number and carried a 256-bit distinct genome complete with DNA and different other *cattributes*. This uniqueness and element of rarity, alongside the (short-lived) popularity of this online game, set off the first NFT craze.

Some of the most influential contemporary digital artists started creating (or sequencing) *generative artworks* (pieces of art created by an autonomous system, usually an Al algorithm) on a blockchain. At the time, digital artists were creating unique digital objects for online games or as part of other Web 3.0



CryptoPunk #7523, LarvaLabs

utilities, but one series called CryptoPunks, garnered significant attention. The collection, by LarvaLabs, featured 10,000 uniquely generated characters, each 24x24 pixels in size.

As this form of digital art became more popular, NFTs took the collectors' world by storm. In June 2021, CryptoPunk number 7523, also known as *Covid Alien*, sold for 4,200 ethers, equivalent to US\$18 million using today's Ethereum price, at Sotheby's' Natively Digital: A Curated NFT Sale. That wasn't even the most expensive NFT: A few months earlier, the artwork called *The First 5000 Days*, created by US artist Mike Winkelmann (also known as Beeple!), sold for US\$69 million at Christie's.

How can one own an NFT?

There is no price attached to imprinting an NFT to a blockchain, aside from the fees one needs to pay for using the network. NFTs are not usually priced when they are created, or imprinted to a blockchain. This means that users can simply claim an NFT from the marketplace. Users can then trade them in auctions on secondary markets (such as OpenSeal?).

Being that NFTs are stored on cryptocurrency wallets, transactions between entities can be done publicly or privately. Whoever holds the private key of the wallet owns the NFT. Proof of authenticity is managed through a self-fulfilling set of blockchain commands called 'smart contracts'.

A meta, bright future

The spike in NTFs' value is a result of traditional industries embracing them. Artists are joining the movement by creating digital versions of their non-digital work. Beyond art, the World Wide Web Source Code, created by Sir Tim Berners-Lee, sold as an NFT for US\$5.4 million at Sotheby's. Other big players, such as the NBA, or Hollywood actors (Quentin Tarantino for example are fast becoming creators of high-value NFTs. Simply put, NFTs have become prized collectables.

There's also the promise of the metaverse. Tied to the potential of video gaming and augmented reality, L' NFTs' future is metaversely bright.

Apple's App Store: Opening up

Very often, proposals to tackle antitrust issues focus on reforms to antitrust laws or calls to break up Big Tech. But one recent court judgement cut right through Apple's business model: open up your App Store, the court ordered Apple.

Apple is but one of the companies in the line of sight of those calling for tougher measures to reign in the Big Tech. A major issue with Big Tech – including Google, Facebook, Microsoft, and Amazon – is that they are considered gatekeepers in the markets in which they operate. For Facebook, it's social networking; for Google, it's online search and search advertising; for Amazon, it's online retail; and for Apple, it's mobile operating systems.

In Apple's case, the ongoing legal battle with Epic Games has started to shake things up. In September, the US District Court of California ruled that although Apple's conduct in the market of mobile gaming apps was not proven to be anti-competitive, it must change its rules to allow developers to link users to alternative in-app purchases (the so-called anti-steering rules).

In response, and in parallel to its appeal, Apple asked the court to stay an injunction to its order to change the company's anti-steering approach. But Apple's request was flatly denied by the court in a November ruling. In practice, this means that Apple will need to start allowing developers to tell customers that they do not have to use Apple's payment system. This will

also mean that developers won't owe the company the usual 15 to 30% cut from their sales.

The ruling affects Apple's business model directly. Instead of breaking up its corporate structure, the court ordered it to change what lies at its core. It will be a big change for Apple, which will need to comply as of 9 December, 90 days after the judgement, unless it finds a way to alter the injunction.

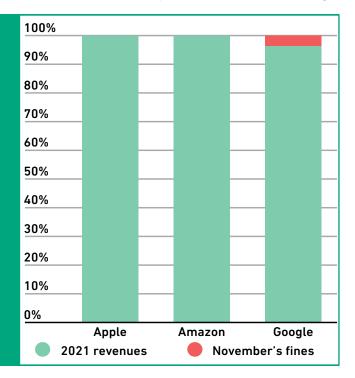
Legislation taking off

South Korea has already made it a legal requirement for companies to allow developers to use alternative payment systems. The Telecommunications Business Act bans companies from forcing developers to use their proprietary online payment systems, which in practice also means that Apple and Google won't be able to charge commission on in-app purchases.

Although companies may still find ways around this new rule, the South Korean legislation is just a start. Several bills introduced in the US Congress are quickly gaining support and will provide authorities much more muscle they can flex. The tide is turning.

Of revenues and fines

Fines have, and will remain, a preferred way of punishing bad behaviour and of cautioning against repeat offences. Just last week, Italy fined Amazon €68.7 million (US\$77.6 million) and Apple €134.5 million (US\$151.9 million) for alleged anti-competitive cooperation in the sale of Apple and Beats products. Earlier in November, the EU General Court dismissed Google's appeal against a decision by the European Commission, and confirmed the original €2.4 billion fine that came out of that decision, for favouring its own comparison shopping service across 13 countries in the European Economic Area. Yet, profits dwarf even the heftiest of fines.



Digital policy developments that made headlines

TThe digital policy landscape changes daily, so here are all the main developments from November. We've decoded them into bite-sized authoritative updates. There's more detail in each update on the Digital Watch observatory.



Global digital governance architecture

The IGF Secretariat issued a call for nominations for the new IGF Leadership Panel. While some experts have backed the call, other civil society groups are strongly opposed.

Meanwhile, this year's IGF is around the corner. Read our top highlights of what to expect. More on page 11.12



Sustainable development

The UN Climate Change Conference (COP26), held in Glasgow, Scotland, emphasised the need for digital collaboration to help achieve net zero.

Data published by UNCTADIZ shows generally higher rates of trade in ICT goods (which is crucial to improve access to the equipment needed in the digital economy), but sharp drops in least developed countries.

Security

The US Justice Department indicted Ukrainian and Russian nationals, believed to be part of the REvil group, responsible for the ransomware attack on IT firm Kaseya. Read more in the latest Cyber Detente newsletter.



The Council of Europe's Committee of Ministers adopted a Second Additional Protocol to the Cybercrime Convention on enhanced cooperation and the disclosure of electronic evidence.

The FBI was the victim of an email hack, in which thousands of messages were sent by hackers from FBI accounts. No data was compromised.

Apple has sued the Israeli spyware company NSO Group, alleging that it targeted Apple customers and products, most notably via the Pegasus tool.

European and US officials called for new solutions to help authorities in their fight against child sexual abuse material (CSAM) during a two-day virtual ministerial conference.



increasing relevance

E-commerce and the internet economy

Economy ministers from the EU have agreed on common positions related to the draft Digital Markets Act (DMA). and Digital Services Act (DSA). Negotiations with the European Parliament can now start.

In a pilot which will run in three British cities, ride-hailing company Bolt announced that it will allow drivers to set their own prices.



Infrastructure

The USA passed a US\$1.2 trillion infrastructure spending package, which includes major investments for improving broadband access and infrastructure.



Digital rights

The US Department of Justice is suing Uber over claims that the company discriminates against passengers with disabilities, violating the Americans with Disabilities Act.

A Sudanese court ordered telecom companies in Sudan to restore internet access, which has been cut off for more than two weeks following a coup by military leaders.



Content policy

Google warns that Canada's plan to fight online hate is 'vulnerable to abuse' due to the possibility of removing legitimate content.



same relevance

Jurisdictional and legal issues

New antitrust rulings: The EU General Court dismissed Google's appeal against a decision by the European Commission and confirmed the original €2.4 billion (US\$2.7 billion) fine. Italy fined Amazon and Apple a total of €200 million (US\$225 million) over anti-competitive cooperation. Apple's request to stay an injunction against its anti-steering rules was denied by the court. *More on page 8.* □

The Cyberspace Administration of China proposed new rules to classify online data – and how to protect it – based on its importance to national security, public interest, and business interests.



New technologies (IoT, AI, etc.)

UNESCO member states adopted the first-ever global framework for ensuring that Al-driven digital transformations promote human rights and contribute to the achievement of the SDGs.

Meta announced it was dropping its face recognition tagging feature from Facebook and Instagram, and will delete data on more than one billion people.[2]

#ICYMI:

A right to repair? Apple will allow users to repair their own devices

As of next year, a new Apple repair shop will start selling iPhone parts and tools to the public. Until now, only Appleauthorised service providers were allowed to perform repairs on Apple products. But Apple and other manufacturers have been facing pressure: over 20 states in the USA have introduced right-to-repair draft legislation.



Policy updates from International Geneva

Many policy discussions take place in Geneva every month. In this space, we update you with all that's been happening in the past few weeks. For other event reports, visit the Past Events section on the GIP Digital Watch observatory.

Harnessing Al's power for health 23 November 2021

Forming part of the 'Reflections on Digital Future' series, this event looked at how we can harness the power of AI for public health and reduce risks related to the use of new technologies. As data, analytics, and AI drive innovation across sectors, the pandemic triggered the acceleration of modelling and predictive capacity, both for diagnostics and drug development. Panellists also discussed how to best strike

a balance between innovation and regulation. The series is organised by the EU Delegation to the UN in Geneva, the Permanent Mission of Switzerland to the UN in Geneva, the Permanent Mission of Slovenia to the UN in Geneva (currently holding the Presidency of the Council of the EU), and GIP, in partnership with the International Research Centre for Artificial Intelligence.

Capacity building on e-commerce: from lessons to solutions 211 November 2021

The event, organised by GIP, discussed the ways in which capacity building can contribute to strengthening the participation of trade negotiators from developing countries and LDCs in trade discussions. Speakers looked at the main capacity-building needs of developing countries and LDCs and to what extent

these needs are being covered by provisions currently under negotiation at the Joint Statement Initiative (JSI) on e-commerce. The needs of Geneva-based trade negotiators from developing countries and LDCs were also taken into consideration against those of capital-based trade officials.

Security Tour | 12 Tours to Navigate Digital Geneva 22 November 2021

Speakers discussed Geneva-based security processes and the synergies that exist among Geneva institutions and other multilateral hubs. In particular, panellists discussed the work of the Group of Governmental Experts on Lethal Autonomous Weapons Systems and the CyberPeace Institute,

and presented a few insights regarding the Geneva Dialogue on Responsible Behaviour in Cyberspace which maps the roles and responsibilities of actors in cyberspace. Moreover, views from the private sector on efforts towards a more secure cyberspace were also shared.

Digital Economy Forum 2021: Responsible digital strategy <a>™ 19 November 2021

This edition of the forum, dedicated to the digital responsibility of companies, aimed to support entrepreneurs by offering practical tools. The event primarily targeted business leaders who want to start or develop their digital transition. Opened by Fabienne Fischer, state councillor in charge of the Department of the Economy and

Employment, the event was organised by the General Directorate for Economic Development, Research, and Innovation at the State of Geneva, in collaboration with FER Geneva, the University of Geneva, the Geneva School of Management, the Office for the Promotion of Industries and Technologies, and ALP+ICT.

What to expect from IGF 2021

Between 6 and 10 December, the Government of Poland will host the 16th annual meeting of the Internet Governance Forum. To be held in Katowice and online, this year's IGF promises to feature debates on some of the most pressing internet and digital policy issues. Here are the top six highlights of this year's IGF.

- 1. Online participation has always been part of IGF meetings. This year, however, the plan is to have a **fully hybrid meeting**, in which onsite and online participants can enjoy equal engagement opportunities with the use of digital tools. A 3D venue, a mobile app, and opportunities for hybrid feedback are among the elements that are expected to make participation in IGF 2021 meaningful and inclusive for all.
- 2. In response to calls for a more focused IGF, many of this year's sessions are related to **two main issue areas**: (1) economic and social inclusion and human rights and (2) universal access and meaningful connectivity. Other issues such as emerging regulation, environmental sustainability, inclusive IG and digital cooperation, and trust, security and stability will also be covered. With over 250 sessions spanning 5 days, there's something for everyone in the programme.
- 3. The **traditional workshops**, **main sessions**, **and open forums** are this year again complemented by several high-level leaders sessions. discussing issues such as global economic recovery, digital growth, and the future of work; an extended track for parliamentarians to explore legislative approaches for a user-centric digital space; and a global youth summit for young people to advocate for 'good digital policies'.

- 4. IGF intersessional activities dynamic coalitions dealing with a wide range of issues, best practice forums on cybersecurity and gender and digital rights, and newly introduced policy networks on meaningful access and environment will showcase the results of their year-long work. National and regional IGF initiatives will come together to exchange experiences in addressing topics such as child safety online and digital transformation.
- 5. A first at this IGF is an open forum where **UN** agencies, funds, programmes, and regional commissions will come together to highlight their work in support of digital transformation.
- 6. There is also an expectation that the **IGF's inaugural Leadership Panel** will be announced in December. To include high-level representatives of various stakeholder groups, the panel is intended to help increase the visibility of the IGF and act as a bridge between the forum and decision-making spaces.

The Geneva Internet Platform will be actively involved by providing reports from IGF sessions and publishing IGF Dailies throughout the week. A final report will be published after the IGF. Read the reports on the Digital Watch observatory.

Download the app to follow the reports on your device:







What to watch for: Global digital policy events in December and January

Let's look ahead at the global digital policy calendar. Here's what will take place around the globe. For even more events, visit the Events section on the Digital Watch observatory.

December

30 NOVEMBER-3 DECEMBER, Freedom Online Conference 2021 (online) □

To mark the 10th anniversary of the Freedom Online Coalition, the coalition's chair – Finland – is organising a series of events including a high-level ministerial meeting and a Freedom Online Conference. The theme of FOC 2021 is 'Openness, Accessibility and Inclusion – Human Rights Online in the 2020s.' The conference will feature high-level plenary sessions, interactive discussions, and workshops thematically guided by FOC priorities identified in the Program of Action 2021, including digital inclusion, cybersecurity, disinformation, AI, and challenges related to authoritarian regimes.

The second UN Open Ended Working Group (OEWG) on developments in the field of ICTs in the context of international security will hold its first substantive session 13–17 December. The OEWG is tasked with study of existing and potential threats to information security, and possible confidence-building measures and capacity building. It should also further develop rules, norms, and principles of responsible behaviour of states, to discuss ways of implementing them, and to explore the possibility of establishing regular open-ended institutional dialogue under the auspices of the UN. The group will also discuss how the OEWG can become an action-oriented process. A report from the event will be available on the Digital Watch observatory.

27-29 JANUARY, Trinidad and Tobago IGF (online)

The sixth edition of the Trinidad and Tobago IGF will be held under the theme 'The Future of the Internet...What's Next?'. The event is framed as a brainstorming session about the future of the internet in Trinidad and Tobago, inviting all internet users to join the discussion.

13-17 DECEMBER, Convention on Certain Conventional Weapons - Sixth Review Conference (Geneva, Switzerland) △

The Sixth Review Conference represents an opportunity for the High Contracting Parties to strengthen the implementation of the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects. The Convention, which is considered a key instrument in international humanitarian law, is reviewed every five years. Lethal autonomous weapons systems (LAWS). will be discussed at the conference, and in particular the report of the Group of Governmental Experts on LAWS.

17-28 JANUARY, Cybercrime Ad Hoc Committee 1st substantive session (New York, USA)

This intergovernmental committee composed of experts and representatives of all regions mandated with drafting a new cybercrime convention will hold the first of its sessions in January 2022. At the first meeting, UN member states are expected to share views on the scope, objectives, and elements of the draft convention, which is to be published by 2023. Session reports from the event will be available on the Digital Watch observatory.

About this issue

February

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On the cover

Metaverse under construction. Credit: Vladimir Veljasević © DiploFoundation (2021) https://creativecommons.org/licenses/by-nc-nd/4.0/











