Top 10 Technology Trends for 2023:

THE DIGITAL SPEAKER

THE YEAR OF DIGITAL DISRUPTION

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TOP 10 TECHNOLOGY TRENDS FOR 2023: THE YEAR OF DIGITAL DISRUPTION

Intro to the trends

Every year, I look back at last year to reflect on last year's trend prediction, and I make new technology predictions. Last year, I coined 2022 the Year of Decentralisation. I forecasted that 2022 would see the dawn of the metaverse, which would get ready for mass adoption. Although the metaverse was everywhere in the news, an open metaverse is still far away. The second trend I forecasted was a Cambrian Explosion of AI. This certainly happened with the explosion of Generative AI tools currently available on the market.

Top 10 Technology Trends 2023: Digital Disruption

As digital technologies will converge in the coming year and cause more disruption in all levels of society, I have dubbed 2023 the Year of Digital Disruption.

As the pace of technological and social change accelerates, it becomes more important than ever to develop the ability to predict which innovations will have the most significant impact on business. Forward-looking businesses have always sought competitive advantage through their ability to identify and implement cutting-edge technology, but with technology becoming so disruptive, this has become more important than ever. Adapt and embrace this digital disruption or go home.

HERE ARE MY TOP TEN TECHNOLOGY TRENDS FOR 2023:

Trend #1: VR will move from winter to spring, with Apple joining the game.

VR has been on the market for many years but has yet to gain the level of traction we see with smartphones. This is partly due to its high cost and also because there has not been much VR content available, until recently. Despite these challenges, the industry has made significant progress in recent years, with more companies entering the space and making advancements in technology that will drive down costs and make them more accessible to consumers. In fact, according to the firm Magnopus, in 2023, it is expected that 18.8 million headsets and other AR/VR devices will ship worldwide.

For years, Apple has been quietly expanding its VR and AR capabilities, and we can expect these to come to fruition in 2023. In 2015, Apple acquired AR startup Metaio, which had developed technologies for facial recognition and gesture tracking, among other things. It also acquired Flyby Media in 2016, which had developed 3D mapping technology used in Google Maps and other applications. These acquisitions suggest from early on that Apple has been developing new ways to map physical objects in three dimensions using cameras on iPhones or iPads instead of relying solely on GPS data and gyroscopes as it does now.

Rumours have been swirling for months about what virtual reality might look like for Apple and what features it will have. The latest reports say it will consist of a standalone headset with its own display rather than being connected to an iPhone or iPad.

Apple's entry into the market could be a game-changer for the VR industry. It could help drive adoption among consumers who are more likely to buy from Apple than from Samsung, Google, or Meta. It could also help jumpstart the development of apps for ARKit, ARCore, and other platforms that have yet to take off with developers due to a lack of consumer interest. If Apple opens up a VR/XR/AR marketplace similar to the Appstore, it could kickstart a new era for these technologies.

The End of the iPhone is coming

Analyst Ming Chi-Kuo's latest report indicates that Apple will have difficulty releasing its headset until the second half of 2023. However, an announcement could still occur as soon as early January. The publication notes that Apple's headset plans could extend beyond mobile devices. "The company's goal is to replace iPhone with AR in 10 years", Kuo stated.

The headset could be as expensive as $2,000, with 8K displays and cameras that can scan the world and blend AR into VR—according to a report from The Information last year.

VR is expected to be worth over $28 billion by 2023, according to the Academy of Animated Art based on data from Statista. With Apple entering this high-growth market, it could easily surpass that. After all, Apple's Airpod business alone is already worth ~$10 billion.

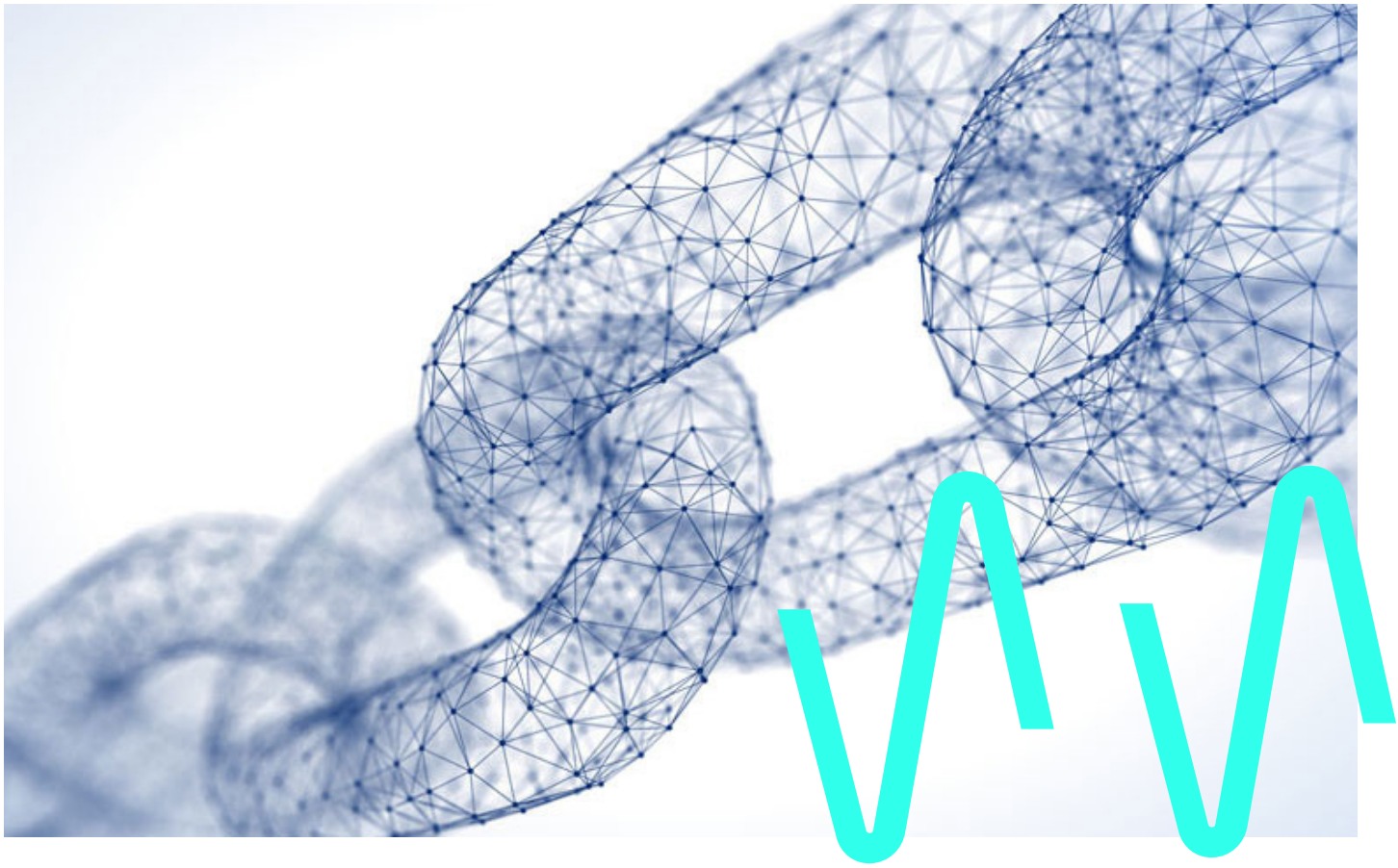
In short, the relevance of this development is that VR is moving toward mainstream adoption in the form of portable headsets. Depending on the capabilities and size of the headset, it could also have a big positive impact on AR. That is good news for game and non-game developers, who now have a larger market to target.

Behind this growth will be applications that utilize position tracking as well as eye-tracking and facial expression tracking and tie into the broader IoT ecosystem. Above all, in 2023, we can expect VR and AR headsets to become better, lighter, more comfortable and cheaper (except for Apple's headset).

Trend #2: Blockchain is here to stay, and Non Fungible Tokens are a crucial innovation.

Non-fungible tokens (NFTs) are one of the most important and promising innovations in blockchain technology. NFTs are unique digital assets that you can use to represent real-world items, such as a car or a cup of coffee, or digital assets, such as digital fashion items or other wearables used in the metaverse. These digital assets have become so popular that they have their own dedicated marketplaces, such as OpenSea and RareBits.

They allow unique digital assets to be created and traded without needing a third-party intermediary. The NFT concept is not new; it has been around since 2014 but became popular when Axiom Zen launched Cryptokitties in 2017.



The idea behind NFTs is simple: you can prove digital asset ownership. NFTs have become popular with developers who want to create unique digital representations without physical counterparts. For example, an artist could create a custom NFT representing a painting, or a developer could create an NFT representing a piece of clothing in a game they are making. NFTs became popular in 2012 due to the hype around the Bored Ape Yacht Club or Cryptopunks. Unfortunately, there have also been a lot of challenges with NFTs, which will need to be resolved before NFTs can become mainstream.

The main difference between NFTs and fungible cryptocurrencies is that they do not try to compete with fiat currency or even gold reserves. Instead, they focus on specific use cases, even where there is no need for them to be backed by any physical asset.

NFTs have several advantages over traditional assets, including the following:

1. They offer greater liquidity than traditional securities because they can be traded on exchanges
2. They provide more transparency than traditional securities because they can be tracked on blockchains
3. With some exceptions, - such as a BAYC NFT - NFTs lower barriers to entry for investors because they require less capital than other investments.

This would also allow you to use one digital currency across multiple blockchains, which could be helpful if you wanted to use a token not supported by your wallet software or exchange account.

The NFT market is currently valued at approximately $3 billion and is projected to grow to $113 billion from 2023 to 2027. This growth will be driven by increasing demand from developers looking for ways to tokenise their digital assets.

NFTs and the Gaming Industry

In 2023, NFTs will grow in importance in the gaming industry. Traditional fiat currencies and centralised payment methods such as PayPal or credit cards currently dominate the gaming industry. However, as more developers use NFTs on their platforms, they will start looking for ways to integrate their businesses with other blockchains to expand their reach. This will open up new opportunities for NFT startups like OpenSea (the world's largest marketplace for NFTs) that can provide these services and make it easier for developers to build multi-chain applications (MApps).

Meta is one of the social media companies that has been viewed as a pioneer in adopting NFTs for the mainstream. Meta's founder Mark Zuckerberg said that NFTs are the future of social networking and that he sees them as an important tool for the growth of the most important social media platforms his company runs. As such, Facebook and Instagram have already implemented this technology on their platforms, allowing users to display their NFTs on their profiles. This move has been praised by many people in the blockchain industry who see it as the next step forward in social media.

The initiative from many social media platforms to include NFTs is expected to continue over the next year as they seek to increase their own user engagement and revenue and more people become more comfortable adopting this technology.

Apart from standard NFTs, in 2023, we can expect a rise in two new forms of tokens: Dynamic NFTs (called dNFTs) and Soulbound Tokens.

Dynamic NFTs

Dynamic NFTs are a type of non-fungible token that can change their characteristics and metadata under certain conditions, through the use of smart contracts. This allows for greater interactivity and customisation of NFTs and has the potential to be used in innovative applications, such as clothing that adjusts its appearance based on the location of the wearer. In 2023, we will see the luxury industry adopting dNFTs to provide consumers with a more personalised, engaging, and secure shopping experience. Brands that can effectively adapt and utilise dNFTs will likely attract more customers, increase sales, and improve profit margins.

Usually, the problem with NFTs is that they are not dynamic — they do not change over time or based on user interaction. If you buy an item in a game and then stop playing, your item will still be there when you come back months later — even though it might not make sense anymore because the context around it has changed. This is why the offer of dynamic NFTs is getting so much attention lately. Dynamic NFTs are still in their infancy but already showing tremendous potential. We are going to see a lot more of them in 2023.

Soulbound Tokens

Soulbound tokens are non-transferable digital tokens that permanently represent an individual's social status and identity on the web. The token, called a SoulBound Token (SBT), is permanently bound to a specific wallet and includes verified information about the individual's skills, training, and credentials. SBTs can be issued by one individual to another, serving as a way to attest to their identity and membership in a community or society. The SoulBound project aims to create a system of trust, credibility, and integrity in its interactions with other nodes on the network. Their importance lies in that they cannot be transferred.

To illustrate how important Soulbound NFTs could become in the near future, the second-largest bank in Japan, Sumitomo Bank, plans to use soulbound tokens for identity verification during the first trimester of 2023. In 2023, we can expect to see educational and financial companies experimenting with this new type of token before becoming more mainstream in 2024.

With these new token standards, the amount of data that smart contracts need to access continues to grow. As such, blockchain oracles will become increasingly important in 2023. The goal of an oracle is to provide secure, decentralized data. It is too early to tell which projects will succeed—and whether their efforts even qualify as “oracles” at all.

As the blockchain industry advances, anything from sports betting to post deliveries may eventually require state-of-the-art oracle providers to guarantee reliable Web3 applications.

NFT Standards

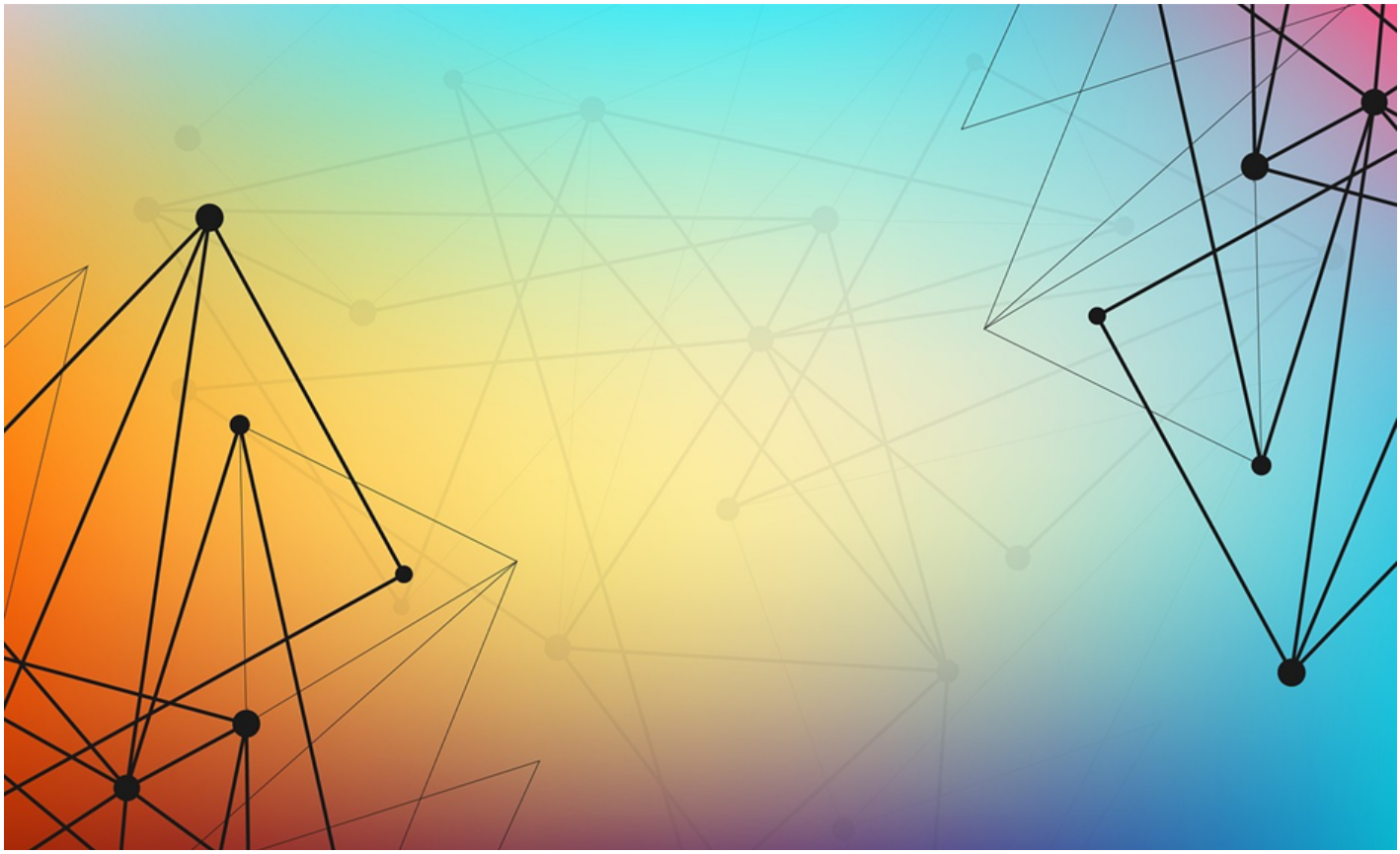
Some of the standards around NFTs are being developed as we speak, with ERC-721 getting most of the attention. But there are other standards like ERC-998 — a standard for non-fungible tokens that allows them to own other non-fungible or ERC20 tokens — are also being developed.

The ERC-1155 is another NFT standard that Enjin Coin CEO Witek Radomski and Fabian Vogelsteller developed. The main difference between this standard and ERC-721 is that it allows for a wider range of digital assets to be represented as non-fungible tokens on the blockchain — including digital goods such as software licenses or DLCs (digital downloads), and digital currencies like cryptocurrencies, to name a few.

The new NFT standards include dynamic NFTs. They represent an evolution in this technology, enabling users to interact with their digital assets beyond simple trading or collecting. They can now be used for real-world applications such as creating digital gifts, licensing virtual goods, and creating digital bonds between parties.

The future of blockchain in global businesses is exciting and unlimited, but it will have some growing pains. In the end, however, Forbes predicts it will be positive for businesses and consumers – especially since it will de-unify unnecessary systems that needlessly burden the already complicated IT environment.

Trend #3: Web3 Progress Report: from Proof-of-Concept to Alpha



The technology behind Web3 has evolved significantly over the last few years, and the industry is ready for more than just Proof of Concepts. With this in mind, I believe we are witnessing a change in how people think about Web3 solutions — from "How can I build a better Bitcoin?" to "What problem can I solve using Web3?"

In 2019 and 2020, we saw many companies experimenting with blockchain technology. Using blockchain as a database or a ledger has become common practice in many industries such as finance and supply chain management. In 2021 and 2022, more companies started using blockchain as a ledger for their businesses, and there will be more mainstream adoption of blockchain technology in these areas in the coming year.

Challenges of Web3

However, there are still many challenges facing this technology that need to be overcome before it can truly take off - one such challenge being scalability. If you want your application to run on top of Ethereum, you need to pay gas fees in Ether (ETH) - which means that if you want to scale up your application by adding more users or transactions, then you need to pay more ETH per transaction. This could be very costly in terms of money as well as time, especially if you want your application to be used by millions or even billions of users at once.

Web3 has been in development for several years. However, we have to get one misconception out of the way that Web3 is not the next iteration of the internet, also known as the metaverse. Web3 can be used for the metaverse, should be used, but there is no guarantee it will be used.

Web3 technology is the infrastructure for an open internet, which is a direct threat to Big Tech. As such, I expect Big Tech to do whatever it can to prevent Web3 from becoming the new infrastructure of the next internet, but instead embrace it in its centralised ecosystem, allowing them to retain control over the internet user.

Apple's decision to charge a 30% tax for purchases related to NFTs in the App Store is a perfect example of this. Apple does not accept payments through cryptocurrencies and does not want to give up its power. Another example is the strategic partnership between Google and Coinbase to launch a pilot program to enable crypto payments and expand the current Web3 ecosystem.

Improving UX/UI of Web3

However, at the same time, the Web3 community will continue to develop the technology. As the UX/UI of Web3 becomes better, it will move from the Proof of Concept phase to Alpa, allowing more users to interact with decentralised applications. Over time we have seen many changes in technology that have affected Web3 as well - from improvements in scalability to increased privacy protection and safety of user data. This has enabled Web3 to move into an alpha stage - where we can see how things actually work in real life before becoming mainstream products or services.

In addition, the current internet has many problems: it is centralised and controlled by a few companies that control our data and use it for their own purposes, it is not secure against attacks, it is easy to censor, it is slow to load, and its monetisation model is not sustainable, among other issues.

Web3 solves all these issues using decentralised technologies such as Ethereum or other blockchain solutions to store data instead of traditional servers. This allows developers to build apps without having to trust anyone else with their code or data privacy because everything is stored in an immutable database that cannot be hacked or censored by anyone but its owners (who are its users).

Bring Back Control to the Users

In short, the fundamental idea behind Web3 was to bring back the internet as it was originally intended to be — decentralised and free from third-party control. And while this sounds great on paper, there were two major problems: technology and adoption.

Web3 has been an exciting space to follow. There have been a lot of announcements and partnerships in the past months. But most importantly, there is a ton of innovation in the space, making it worth exploring within the following year, 2023.

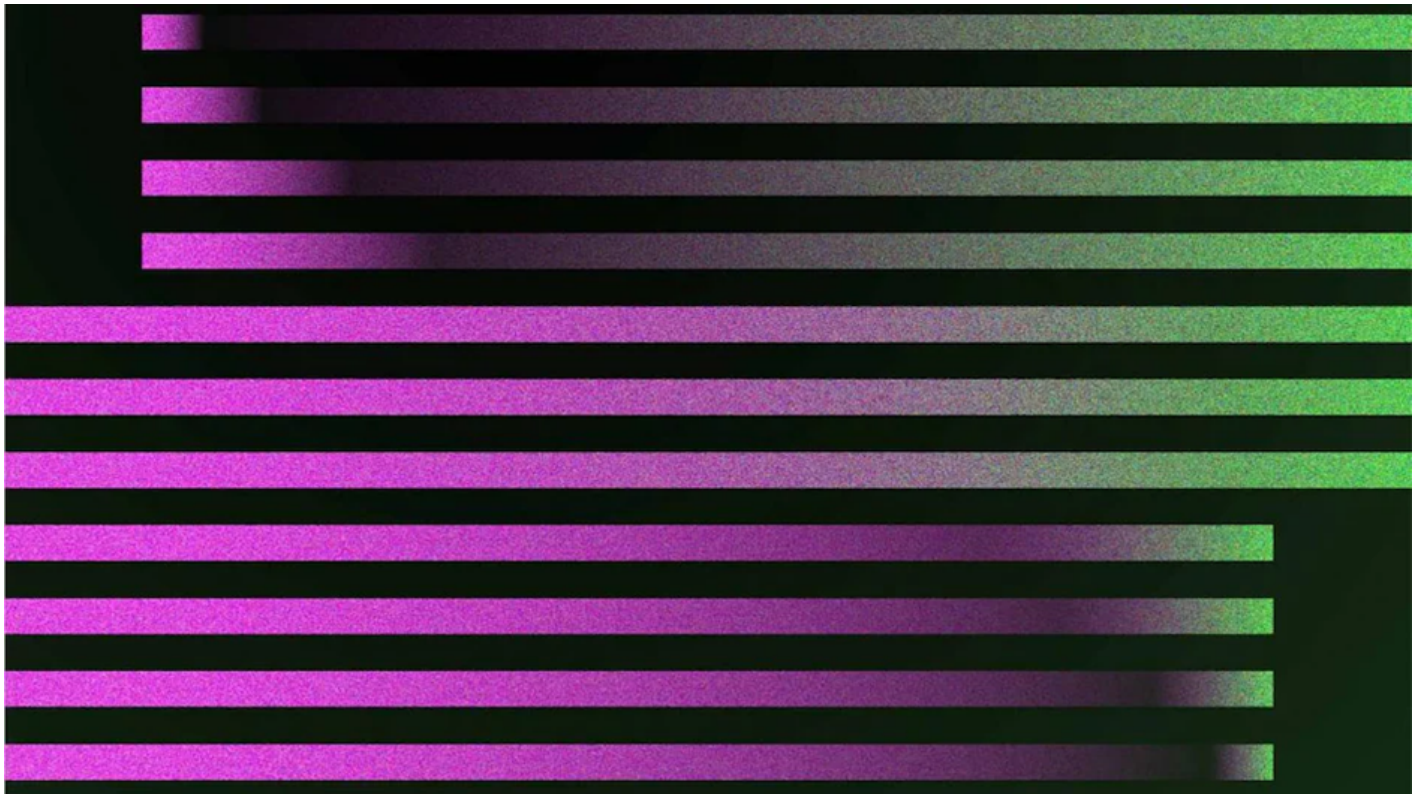
For example, the Internet of Things (IoT) and blockchain technologies are made for each other, and as these technologies converge, they are set to change our daily lives significantly. As the UX/UI improves of Web3, we can expect Web3 to become a larger part of our day-to-day activities in 2023.

Web3 is the next decade of web development. It is a journey that will take us from where we are now to a world of decentralised applications and open-source technologies. It is still early days, but there is no doubt that Web3 has the potential to eventually become mainstream and replace traditional web applications completely. However, this trend may not achieve its goal so easily in the coming years, especially for companies and organisations that currently

operate in a centralised way, since it represents a paradigm shift in the power they currently wield and give in to adopting web3 as the norm could mean compromising their own interests.

In any case, it is interesting to keep an eye on the evolution in the digital world from Web2 to Web3 during the course of next year within our society and how this change could occur gradually, taking into account the different power dynamics behind this transformation. In the end, we decide which direction the internet will take; a centralised controlled by Big Tech or decentralised controlled by the people. As the technology continues to develop in 2023, consumers have to become aware that they can vote with their data and directly influence the direction of the internet.

Trend #4: How language models will change online content in the next 12 months.



As you know, in the past decade, we've seen AI and machine learning make their way into our lives. We use them in products like Apple's Siri and Amazon's Alexa, which are able to understand natural language and respond to commands.

Language models are the backbone of these systems; they allow us to communicate and interact with computers in a natural way. These models can be trained on huge amounts of data — like words in a sentence — but they also need knowledge about how the world works to understand what you mean when you ask them something.

In the future, language models will become significantly larger and better than they are today. These models will be able to answer complex questions about the world around us by using large amounts of data from the internet and other data sources involving machine learning techniques for text understanding, such as question-answering systems (QAS). Language

models will also become increasingly accurate at understanding natural language input from humans.

The Disruptive Rise of ChatGPT

The most notable advance in this technology is undoubtedly ChatGPT. OpenAI, a San Francisco-based research company that was cofounded, among others, by Sam Altman (former president of Y Combinator and current CEO at OpenAI) and Elon Musk, developed the technology.

ChatGPT is an artificial intelligence tool that can produce text based on prompts in a creative way, much more advanced than chatbots from other Silicon Valley initiatives. It is the technology I used to write a book in just five days: Future Visions.

ChatGPT is a language-generation program designed to carry on conversations with humans by mimicing natural speech patterns.

The language model includes features such as answering follow-up questions, challenging incorrect premises and rejecting inappropriate inquiries. ChatGPT was trained on a large quantity of text data, learning to recognize patterns that enable it to produce its own text mimicking various writing styles. For training ChatGPT, OpenAI says it used data gathered from the web and books.

ChatGPT's wide-ranging understanding and responsive exchange with users are unprecedented, leading some to suggest that it could revolutionize technology as we know it today. Some experts believe that ChatGPT's advanced capabilities in fields such as customer service and market research will be valuable to companies.

So far, ChatGPT has received an overwhelmingly positive response. Many people have praised its advanced capabilities and ease of use. However, there are also limitations, and even Sam Altman tweeted that "ChatGPT is incredibly limited but good enough at some things to create a misleading impression of greatness". It is too early to predict the long-term effects of ChatGPT, but its creators have demonstrated that it has a major role to play in natural language processing. We can only guess how ChatGPT will develop once GPT-4 is launched in 2023.

ChatGPT is proof that language models will become more sophisticated over time, ultimately impacting how we interact with other people and machines. The most important trend that we see ahead is that the language models used by search engines and chatbots will become significantly larger and better. This will make it possible to answer more complex questions and provide more accurate answers, making voice marketing much more important in 2023. This trend has been ongoing for some time, but it has accelerated recently with the introduction of more sophisticated neural networks as well as the introduction of new types of hardware specifically designed for machine learning tasks (e.g., GPUs).

For instance, developers at Neeva—considered the world's first ad-free and private search engine—created a set of language models for an innovative search engine that guarantees greater security and privacy by not tracking your online activity for ads. This gives users greater control over their data. What impressed me the most is that it is designed to prevent bias in the results, which can mean a very important first step in the search engine ecosystem to guarantee greater privacy and security for all users.

The Launch of GPT4

In the coming months, we can expect the launch of GPT-4. GPT-4 will be a new type of large language model with better performance on similar-sized bodies of text as GPT-3. The final version of OpenAI's artificial intelligence program will be more aligned with human commands and values. You might hear conflicting news on GPT-4 consisting of 100 trillion parameters and only focusing on code generation—but they are all just speculation at this point.

Given the success of GPT-3, we can assume that OpenAI is going to launch its next-generation language model in a few months. High demand for large language models has proven that people expect better accuracy from these systems and are willing to pay more for them if they meet expectations.

As with GPT-3, GPT-4 will be a universal language processing tool used to generate code, summarise the text and translate between languages. The new version of the model will have better security, less bias, higher accuracy, and improved cost-efficiency.

Also, Google is moving ahead with large language models. Recently, Google announced an ambitious new project to develop a single artificial intelligence language model capable of supporting the world's 1,000 most spoken languages. Towards this goal, the company has released an artificial intelligence model trained to understand speech in over 400 languages—a broader range than is common for today's AI models.

In simple terms, Google is trying to build a leading universal translator that will enable people worldwide to communicate more easily with one another, regardless of what language they speak. Although nothing has been officially said about this AI model's launch, it will surely give something to talk about during the course of the next year, 2023.

In 2023, the trend of ever-larger language models will bring about several changes:

1. Language models will be able to understand the context better than ever before. This means they will be able to answer questions much more accurately than they can today – and even understand jokes! However, this could also mean that they continue to struggle to understand slang or colloquial phrases!
2. Language models will be able to deliver personalised content based on your preferences – this means that if you ask Google Assistant, "what is the weather like?" it may give you an answer in British English rather than American English, depending on where you live. This could also mean that someone with a strong accent might struggle to get through to customer service because there are not enough data points for the AI to learn from.
3. AI assistants will become much more personalised over time; we will see this with our phones and in other areas, such as shopping or transportation, bringing both new opportunities for business and new challenges for society. Voice will be the new text.

The next decade will see a shift from language models based on simple rules to more advanced statistical methods. This will be driven by the availability of large amounts of data and the development of new techniques for analysing it efficiently. We will see many other language model solutions hitting the headlines in 2023 as it has shown tremendous potential throughout this year and has laid the foundation for faster and more efficient language models for the mainstream.

Trend #5: Generative AI will drive the metaverse: What lies ahead?

Generative AI will allow us to create more complex and realistic 3D environments than ever before. It will generate new content that makes it possible to quickly create virtual worlds where people interact with each other and with virtual objects in a realistic way. These virtual worlds will be indistinguishable from real life.

Generative AI is a type of artificial intelligence being developed that enables machines to create their own code and even entire programs without any human intervention. This technology was in development for years when Google released its own version, AutoML, but it recently made headlines after many important developments.

AutoML uses deep learning techniques to teach itself how to build different neural networks based on existing ones and then tweak them until they reach their desired goals. This is an important step as it means that with enough time, these systems could be used to create new neural networks that have never been seen before. At first, it will be small changes like adding or removing an extra layer or changing some weights, but eventually, these algorithms could become powerful tools for creating new types of software beyond anything we've seen before.

For example, the metaverse will be the next iteration of the internet, an immersive, 3D internet where we move from actively making a decision to go on the internet to be in the internet. In this convergence of the physical and the digital, Generative AI could be the perfect tool to create the most incredible digital assets and 3D environments to build realistic virtual worlds and engage within the metaverse. Eventually, just with your voice. Some examples of groundbreaking Generative AI tools that will allow us to immerse ourselves more in the metaverse are:

Text to image (T2I)
Text to image (T2I) is a sub-category within generative AI that allows users to convert text into pictures or videos through machine learning techniques. Companies such as Prisma and Magisto have developed their own algorithms for T2I that allow users to create unique photos from words or phrases they type into their apps. OpenAI recently released its latest neural network, which is the most advanced AI in this field, DALLE-2, and is able to create realistic images and art from a description in natural language.

DALLE-2 is an extension of the original DALLE system, which was announced last year. The new system uses an improved version of OpenAI's language model, with a new architecture that allows for more sophisticated blending between different styles and layer representations. The results are much better than before.

Another great example is Stable Diffusion, a free AI tool that emerged in 2022 as a new way of generating high-resolution images based on text descriptions. Its uses range from reconstructing missing parts of images to figuring out what is inside an image and creating another resembling it. I used Stable Diffusion to design the cover of my new book.

Lastly, a new phenomenon has arisen on social media with custom-made avatars created with AI through an app called Lensa. Prisma Labs—the company behind Lensa—uses the open-source neural network model Stable Diffusion to generate images from small pieces of text describing the desired output. In other words, Lensa uses artificial intelligence to turn photographs into artwork based on text prompts. The app has categories like “cosmic,” “fantasy," and “pop."

The results are impressive: It can take any image and turn it into something that looks like a painting by Picasso or Van Gogh or any famous artist who did a work of art with paint on canvas.

The app is not just limited to art; you can also use it to add filters to your photos or turn them into watercolour paintings.

Lensa has been available since 2018 but started to gain popularity in late November when Magic Avatars was launched. In just 12 days of December, the app saw around 13.5 million installs worldwide—more than six times the 2 million downloads seen in November.

Text to Video (T2V)
T2V is a new technology that uses artificial intelligence to generate high-quality video from text. The technology allows users to create videos by simply typing a script and uploading images or video clips.

The resulting videos can be used for advertising, marketing and social media campaigns. Some examples of startups using this technology are Lumen5 and Steve.ai. One of the features they offer is adding a script or blog post URL from your website, which the software then uses as input to generate a new video in just seconds. You can choose from different formats, and it includes copyright-free images, text, and music and can be easily customised to meet your brand identity guidelines.

In 2023, Generative AI tools will definitely become more sophisticated and accessible to marketers who no longer need to hire a team of video editors or videographers to create engaging social media content or promotional videos for their products or services.

Text to Motion (T2M)
Text-to-motion is a new type of generative AI technology that creates animations from text. It can be used for both motion design and video production. Text-to-motion is also known as character animation, text animation, or simply T2M.

For decades, this technique was limited to professional animators who could create an animation manually. However, with the advent of machine learning algorithms, it became possible for non-experts to create animations using their own writing style and voice.

Animaker is an amazing software that allows you to transform any text into original animations and has been used by world-renowned companies such as McDonald's, Visa, and Bosch, to name a few. In addition, Nvidia recently released a tool to create 3D assets simply by giving a text input.

In 2023, Generative AI will continue to make it easier for everyone to create their own digital experiences. This will also open many opportunities for the metaverse. The second decade of the 21st century will see our expectations of what it means to be human challenged by machines that can think, learn and even create. Generative AI will enable creative interactions between humans and machines, allowing us to work together in ways we never imagined.

Moreover, as Generative AI continues to be improved, it will change how we interact with computers. To date, most of our interaction with technology has been through touchscreens or voice commands — limited interactions that provide us with access to information or services at the expense of physical interaction or emotional engagement. In 2023, we will start seeing more devices and applications that allow us to interact with AI in new ways — by creating content through generative algorithms, for example — which will have massive implications for all aspects of life.

Trend #6: Blockchains to become more sustainable, except Bitcoin's.

Blockchain will become more secure and transparent. With the rise of quantum computing and AI, blockchain networks may need additional security against quantum attacks. Blockchains will become interoperable with each other. As smart contracts become more common in everyday use cases, we will see them being used on multiple blockchains at once. This means that users will be able to send tokens between different chains without having to convert them into a different currency first (which could incur fees). As more people get involved with cryptocurrencies, the need for electricity to power blockchains grows. This raises concerns about the sustainability of such systems.

Clearly, the Proof of Work consensus mechanism is unsustainable, and any blockchain that wants to be relevant should move away from it. Most will do, driven by Ethereum's The Merge, though bitcoin will continue to stick to PoW, slowly making it less desired from a sustainability perspective.

Proof of Stake (PoS) is now being used by a number of projects such as Cardano and EOS, but there are still issues with it, such as centralisation – but hopefully, these will be overcome in time.

The most sustainable way of running a blockchain is through Proof of Authority (PoA). This is when a group of people agrees on what should happen on permissioned networks and use their combined computing power to secure it rather than having miners compete against each other for rewards.

The problem with blockchain technology is that the most popular application today is Bitcoin, designed specifically to consume as much electricity as possible and to be inefficient in terms of transactions per second. To make blockchains more sustainable, we need to find ways to reduce the energy consumption associated with maintaining these public ledgers. Alternatively, we could use those computations for something useful, similar to the CAPTCHA — however, I do not foresee this happening with Bitcoin any time soon.

Reducing the Energy Consumption

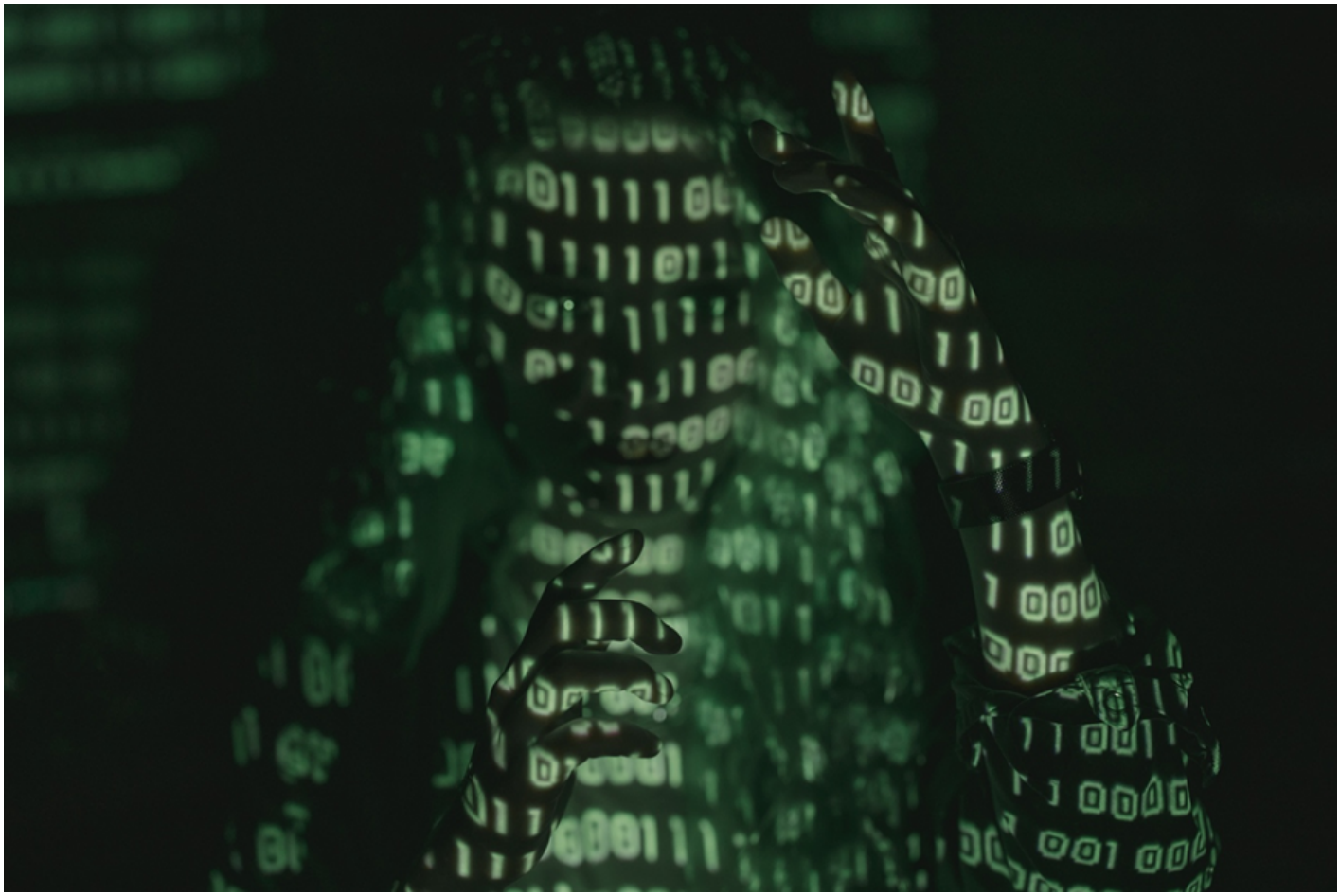
The biggest development made by the Ethereum community could be The Merge. This is a move to a PoS consensus, meaning that the work needed for mining and verifying transactions will be significantly reduced. There will also be a fixed maximum of tokens at 1,500,000,000 ETH to reduce inflation. The Merge signals a new stage in blockchain development, where sustainability and real-world utility come before anything else. However, The Merge is only the first step in a long roadmap to improve Ethereum. Thanks to this initiative, the Ethereum network is now powered by PoS, and this new method has significantly reduced the platform's energy consumption by 99.9%.

In fact, the Ethereum Climate Platform (ECP) is a newly formed group that seeks to address Ethereum's historical contributions to climate change by conducting and supporting carbon offset projects. The coalition, called Climate-KIC, is a collection of industry luminaries, including Ethereum Enterprise Alliance, ConsenSys, and Microsoft, that was created at COP27's UN climate change hub.

For 2023, I expect to see greater adoption of sustainability-focused systems in digital environments since Ethereum is creating an important precedent to boost it. Governments and regulators could set standards for environmental impact across various industries, using blockchain systems to monitor companies' compliance.

Businesses would benefit from clear expectations for emissions, and the planet itself would also be better off with a streamlined business process—a win-win.

Trend #7: Digital Illiteracy: A rising concern in the digital age.



As the world becomes more digital, many people will be left behind if they do not embrace technology. Those who are digitally literate are better equipped to handle change and adapt well to new technologies, while those who are not digitally literate will struggle to survive in today's world.

Digital illiteracy is becoming a bigger problem as technology continues to evolve and our reliance on it grows stronger. In fact, this generation may be the last generation that can survive without being digitally literate. This is because being digitally native does not mean being digitally literate. It is necessary to promote the effective, ethical, and responsible use of the technology surrounding us to create a generation of highly literate people in the digital field and ensure a thriving digital future.
This trend will continue as technology becomes more advanced and integrated into our daily lives.

Digitally Literate Employees
One of today's biggest challenge facing business leaders is managing their employees' digital literacy. Employees who have no idea how to use social media or software are costing companies time and money. For example, employees could fail to file mandatory expenses on time because they do not know how to use an expense reporting system.

A 2020 survey by The Boston Consulting Group revealed that 26% of people say they find it difficult to cope with or keep track of technology in the workplace and would like some help learning how to use it properly.

In 2023, there will be no more excuses for not having digital skills, whether you are a business person or an individual. People must understand how technology works to operate in this new environment.

There will be an increased demand for people who know how to use technology in their daily lives - this does not only involve the basics but will also involve more advanced technologies such as generative AI or NFTs.

The increasing importance of IT can also be seen in schools where children are encouraged to learn coding languages such as Python and Ruby on Rails as part of their curriculum instead of just learning how to use Microsoft Word and Excel programs.

Improving Digital Literacy
With this in mind, here are three simple ways to improve your digital literacy:

1. Get involved in coding clubs or education programs at schools or universities if they exist. If not, consider starting one yourself.
2. Learn basic HTML and CSS skills to make your own website or blog. If this is not your thing, then at least learn how to use WordPress so that you can manage content on someone else's site.
3. Experiment. Try out different applications, technologies and even games every day. This will help keep you engaged with technology and show off what is possible with software development today.

Enterprise organisations must invest more in training their staff members to use new technology and systems effectively. They also need to ensure their staff is using these systems appropriately to avoid putting sensitive information at risk.

For example, if employees are sending and receiving emails on their devices, this could potentially lead to data breaches if those devices are lost or stolen because they do not have

proper encryption on them or if they are not being properly protected by antivirus software (if applicable).

For individuals, it means they need to educate themselves about how technology works to keep themselves safe online (and offline).

In addition, enterprises and organisations not only need to train their staff on how to use new technologies but help them understand the impact that emerging technologies, such as AI, will have in the coming years in the workplace so that they learn to use it effectively and get the best benefits from it.

Digital illiteracy is also becoming a problem for the general public as they are unable to keep up with changes in technology. The digital illiteracy problem will be even bigger in 2023 than today due to the rapid convergence of emerging technologies.

The digital revolution has already had a significant impact on education, with many schools now offering computer science classes as standard. However, this is not enough. It is becoming increasingly important for children to understand how to use technology safely and responsibly, stay secure online and behave in the digital realm.

We are also seeing an increasing number of businesses offering digital literacy courses for their employees, which is a good sign that they are aware of their responsibilities when it comes to educating their workers on how to use technology in their day-to-day life at and at work.

There are still some areas where this is not happening, though, especially among older people who have not grown up with computers being such an integral part of everyday life as younger generations have done.

With the public's reliance on technology growing by the day, digital literacy will be key to finding employment in the future. Students in schools and colleges need to be taught technology as comprehensively as they have been taught reading, writing, and arithmetic. In other words, tech literacy will soon give way to a world where digital cultures go hand-in-hand with traditional ones. Now is the time to address this challenge before it becomes an insurmountable obstacle for generations to come.

With more people getting connected online every year, there is an increasing number of people who remain digitally illiterate or are digitally vulnerable (people who are not able to protect themselves from cyber threats).

The Digital Divide

In 2023, it will likely become a bigger problem as more devices become connected and more data becomes available online. As access to digital technology becomes more commonplace, and the technology becomes more advanced, it creates "digital divides" – between those who know how to use technology strategically and those who do not. The former are ahead in the global game of business, with a clear focus on how technology can be used to improve productivity and drive success.

We will see a larger emphasis on digital literacy over the next five years in business and our personal lives. Digital literacy will move from basic computer skills to being comfortable with

advanced technologies such as generative AI or Decentralized Finance. Knowledge of these digital tools among the general public will become more important in different aspects of life.

Trend #8: Cybersecurity threats will cost trillions in damages by 2023.

Cyber security is a critical issue for every organisation in this digital age. The importance of cyber security has increased manifold over the years with the increasing usage of technology by organisations and individuals alike. As more and more organisations have become digital, many have forgotten to close the gates properly. This has led to data loss, theft, fraud, ransomware attacks etc., which caused significant losses along with reputational damages.

Cyber security is becoming more important than ever as new technologies emerge every day that cybercriminals can use to gain access to sensitive data or even cause physical damage to properties such as power plants or water treatment facilities.

For context, two major data breach scandals happened a few months ago in Australia, evidencing how vulnerable organisations are to cybercrime.

Major Cybersecurity Breaches

In a major cybersecurity breach, the second largest Australian telecommunications company Optus revealed that 10 million customers—about 40% of the Australian population—had had personal data stolen. Some experts have called it the worst data breach in Australian history, and this scandal has also raised questions about how Australia protects the data and privacy of its citizens.

The Australian insurer Medibank has also suffered from cyberattacks. The Medibank hack began with the theft of credentials belonging to a privileged user. The hacker then used those stolen credentials to access Medibank's internal system, from which they were able to steal data and sell it on the dark web. The threat actor found the location of a customer database and then used stolen privileged credentials to write a script that automatically exfiltrated data —which was also used in the Optus breach.

The names, birth dates and passport numbers of 9.7 million Medibank customers were compromised as part of the breach. This information was also linked to details on their Medicare claims.

Unfortunately, cyber security threats continue to grow rapidly every year and will do so in the coming years too. By 2023, Cybercrime Magazine predicts it will cause $8 trillion of damages globally. These attacks will target not only personal computers and mobile devices but also smart devices like smartwatches, smart TVs or even smart lightbulbs.

Moreover, also cybercriminals are constantly evolving and looking for new ways of delivering their attacks, such as using botnets or worm infections. These methods allow criminals to hide their identities and make it difficult for law enforcement agencies to track them.

Cybercriminals Adopting AI

Another trend for 2023 is cyber criminals increasinlgy adopting of artificial intelligence. Cybercriminals are already using AI to automate the process of finding vulnerabilities in software systems and exploiting them to steal data or money from their victims. In 2023, AI will become the a lot more important for hackers.

With this in mind, it is safe to say that any organisation not investing in cyber security measures in 2023 is putting themselves and their customers at risk of being breached.
But what exactly are these cyber security threats? And how can they be avoided?

Many types of cyber-attacks can occur, but they all have one thing in common – they want your money or data. This could be through ransomware or phishing emails that trick victims into handing over sensitive personal information such as passwords or bank details. The most serious type of attack is 'ransomware' which encrypts all the files on an individual computer until the victim pays a ransom to get them back.

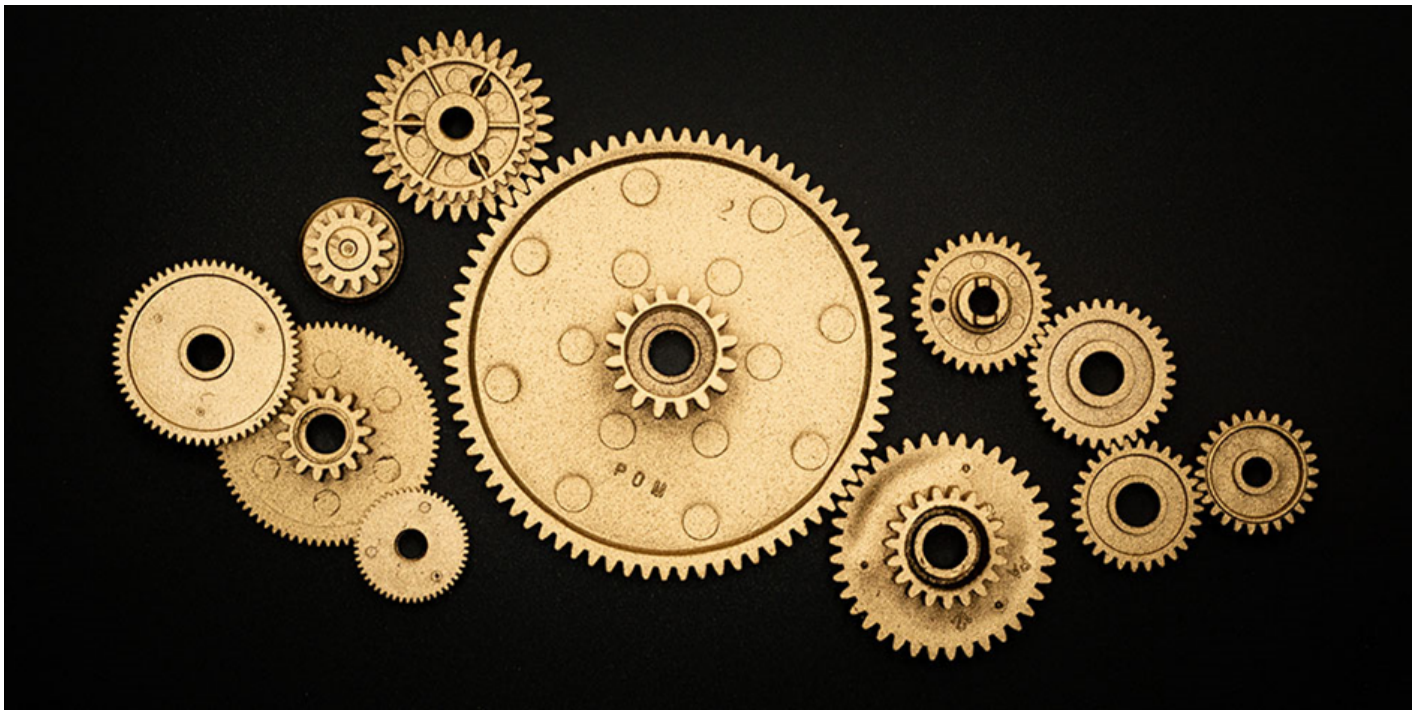
At present, no single solution can protect against all the threats emerging from the dark web and other underground sources. However, there are some measures that you can take to enhance your security and avoid getting hacked:

1. Keep your software updated: Software updates are critical for keeping up with the latest security patches and patches of security vulnerabilities. If you are not updating your software regularly, it is like leaving your doors open for hackers to walk through them!
2. Secure your network infrastructure: A strong security solution will include a firewall and intrusion prevention system (IPS) to prevent attacks on your network from the internet. It'll also include antivirus software that scans incoming and outgoing traffic for malicious code.
3. Make sure all workstations have strong password policies: if possible, use two-factor authentication (2FA) for sensitive accounts such as payroll accounts or HR systems where confidential information is stored.
4. Educate your employees on phishing scams and social engineering techniques used by hackers to gain access to your data.

While these insights are a bit disconcerting and lean towards pessimism, the trend itself is very interesting. The key to preventing this from happening begins with proper education about cyber security for everyone. If people are more aware of how to protect themselves, there will be fewer breaches and less damage done in general from cybercrime attacks.

Digital transformation is a new challenge for every company. Most companies today are focused on becoming digital, and that is not a mistake, but the most important thing is to make sure that you prepare your company to be ready for the risks involved with digital transformation.

Trend #9: Robotic Processing Automation (RPA) will move to the fore and make organisations more humane.



According to Intelligent Automation Network, looking ahead to 2023, 35% of companies plan to adopt intelligent automation, and 54% intend to invest in Robotic Processing Automation (RPA). The technology is already widely used by large companies such as Amazon and Walmart but has yet to make its way into smaller businesses.

RPA is a subset of Artificial Intelligence (AI) that uses software robots to process electronic forms and data entry tasks at high speed and accuracy. These software robots work much as human employees do – they go through checklists and perform repetitive tasks.

RPA robots are designed to mimic human actions by following a series of steps with accuracy, consistency, and speed. Unlike traditional automation technologies that replace humans altogether, RPA helps organisations become more efficient by handling mundane tasks so humans can focus on higher-value activities.

The rise of RPA is good news for workers – they will be able to focus on what they do best: helping customers and clients solve problems. It is also good news for businesses as it means less time spent on mundane tasks that do not add value, such as data entry and routine processes – allowing employees to spend more time on other tasks that improve customer experience.

RPA has been around for some time now. Companies like UiPath have been offering solutions for over a decade, but adoption has been slow due to the high entry cost and complexity of implementation.

However, those barriers are being removed with advancements in artificial intelligence, which powers RPA software. We are now seeing a new wave of companies launching easy-to-use and affordable products for smaller organisations that may not have previously had access to such technology.

This will have a huge impact on how we work. The human-robot relationship is changing, and people are increasingly comfortable working alongside automation systems.

Automation has been around for decades, but it is only now becoming more accessible and cost-effective for companies to invest in it.

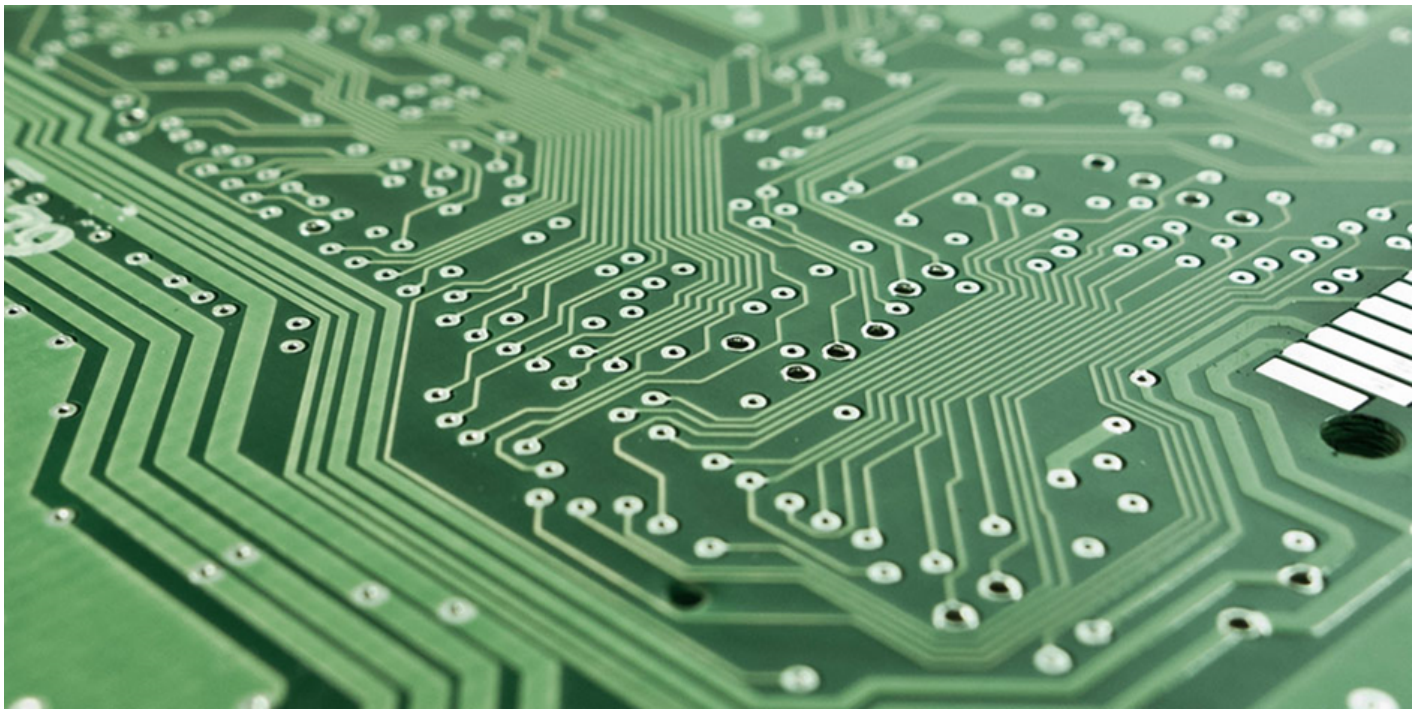
RPA to Become a Major Force in Any Industry

In my opinion, RPA will become a major force in any industry over the next five years because it solves many problems faced by organisations today:

1. It helps with the growing demand for automation in large enterprises.
2. It frees human resources for higher-value tasks and allows them to focus on strategic projects instead of mundane administrative work.
3. It helps reduce costs by eliminating human error and increasing efficiency.
4. It can handle repetitive tasks that are difficult or impossible for humans to do accurately.
5. It is easy to set up and use as it does not require programming skills or knowledge of coding languages like Python or Java (although they are helpful).

In 2023, RPA should proliferate extensively, becoming more efficient, powerful, and widespread. We can hope that it is more inventive than just automating existing processes, allowing enterprises to rethink ways to utilise their human capital as well. Generative AI could play an important role here. With the increasing awareness of how technology can enhance productivity without necessarily replacing a human workforce, RPA could enable organisations to create a more humane work environment in the years ahead.

Trend #10: Sustainable technology will be a priority for brands and consumers



In 2023, we will see more companies using technology to improve the sustainability of their products and services.

Technology has always been considered a positive force in our lives, but it has also been accused of having a negative impact on the environment. From plastic pollution to carbon emissions, we need to be mindful of how our use of technology impacts the planet.

The good news is that many organisations are already taking steps towards sustainability by using technology. As we move towards 2023, there will be an increasing focus on employing tech from a sustainability perspective as organisations realise that this is not just about saving money but about improving their brand image and creating happier customers who feel less concerned about their impact on the environment when making purchasing decisions.

Microsoft is already promoting a diversity of energy sources, including solar, hydroelectric, wind and nuclear power. The plan focuses on transmission planning, siting policies, and streamlining the permitting process. It also emphasises using digital technologies for management, optimisation, security and stabilisation of power grids.

In a different industry, L'Oréal announced in January 2022 that it is partnering with climate tech company BreezoMeter to develop a personalised beauty-driven platform designed to create individualised beauty routines accounting for users' exposure to external environmental hazards.

The global population recently reached 8 billion people worldwide, which has set a new challenge entering 2023. The demand for energy and resources has never been higher, and we cannot afford to waste any more time.

Sustainable Tech Products

It has led to a rise in sustainable tech products and services being developed by companies who want to show that they care about the environment. In fact, according to Forbes, "sustainability" is one of the top five trends identified by CIOs as key areas of focus in 2023 and beyond.

Some startups offering innovative solutions in the field of climate tech for important companies and organisations are:

1. Patch is an organisation that tries to help businesses reduce their carbon footprint by creating a market for verified carbon removal schemes. Patch can help automate sustainability goals regardless of the size of your enterprise.
2. Pachama is a climate-focused technology company using AI, satellite imagery, and computer vision to identify reforestation projects that store carbon, protect biodiversity and enrich local communities.
3. ClimateAi is a global climate resilience platform that uses artificial intelligence to help address the impact of climate change on people, livelihoods and nature.

The biggest challenge facing organisations when adopting sustainable tech is not knowing where to begin; there are so many options out there, and each one offers different benefits depending on what you are looking for. The main types of sustainable technology include:

1. Renewable energy – solar power, wind power, hydro-electricity and geothermal energy are all examples of renewable energy sources that can be used to power our homes or businesses.
2. Pollution control – pollution control devices help reduce emissions from cars, factories and other sources of air pollution by capturing harmful chemicals before they enter the environment.
3. Efficient transportation – electric cars are becoming more common as they do not release harmful gases into the atmosphere when used. Electric bikes are also becoming increasingly popular as they offer an alternative mode of transport for people who live in cities where public transport is not always accessible or reliable enough.
4. Waste management – recycling bins are commonly found in public places like parks and shopping centres so that people become more conscious about waste and re-utilisation.

In 2023, the technology industry will be at the forefront of a global movement towards sustainability.

Sustainability as a Differentiator

The rapid growth of the digital economy has led to an increase in the amount of waste generated by technology companies and the amount of energy consumed. Many of the world's most advanced AIs require vast amounts of energy to train the models. However, as consumers become more aware of the environmental impact of their products and services, businesses are responding by incorporating circular principles into their operations. Eventually, this will result in more efficient machine-learning models requiring less energy to train or companies using renewable energy to train AI.

There are various examples of businesses that have utilised sustainable tech in their products and services. Consider Amazon's move to eliminate plastic from its packaging, or Ikea's commitment to reduce its carbon footprint by 2030.

For these reasons, the trend of using sustainability as a differentiator will become even more prevalent in the next years. The challenge for organisations is how to use these new technologies while still creating value for shareholders and customers.
Here are some of the ways We are seeing technology playing a role in making our planet more sustainable:

1. Data-driven sustainability reporting systems: Data analytics and AI can help organisations improve their sustainability performance. By using data-driven reporting systems that monitor environmental impact across their supply chain, they can identify opportunities for improvement and set targets for reducing their environmental impact.
2. Greenfield developments: As well as using data to monitor existing operations, businesses can also use it to inform new developments, such as building new factories or offices or developing new products or services. This can help them make better decisions about where they locate their facilities or what materials they use during development (e.g., bio-based plastics).
3. Sustainable tech in manufacturing: The recent growth in demand for renewable energy sources has increased demand for renewable energy technologies.

With more people working on these types of projects, it became clear that there was a need for better training opportunities to ensure that all workers were properly trained and able to carry out their jobs safely and efficiently. As a result, many organisations have developed training programmes specifically to teach workers basic sustainable practices or how to safely install and maintain renewable energy systems such as solar panels or wind turbines. An example of this is the well-renowned HR firm Deloitte, which implemented a climate learning program as part of its onboarding process and educated its workforce to become aware of the most important climate challenges we face today.

As we know, sustainability is becoming a big part of the consumer mindset, which means businesses must take it seriously. Consumers demand more sustainable products and services, and if businesses do not meet those demands, they risk losing customers.

The importance of sustainability will continue to grow in 2023 as the world focuses on reducing its carbon footprint. The challenge will be finding ways of making sustainability less costly so it can be incorporated into everyday business operations without affecting profits.

Summary: The Year of Digital Disruption

I believe that, by 2023, we will again see increasing digitisation of the economy, which is to say, increased integration between machines and humans. While many think of AI as an aspect of robotics—and it is—the major breakthrough with artificial intelligence has been in software, which can be implemented almost anywhere in the digital world. The increasing digitisation of all aspects of our lives over the next decade will thus be a key driving force behind the growth of AI.

Technological advancements like machine learning and artificial intelligence will become more prevalent as computing advances. The Internet of Things will help streamline everyday life while also helping to manage data in new and innovative ways. Autonomous vehicles, too, will enable easier navigation of town and country alike. Perhaps the most significant trend of all is that our lives will gradually be integrated with technology in more seamless and broadly accepted ways.

In these ten trends, the general direction is clear: more opportunities for consumers, more chances to connect with other users, and more opportunities for marketers to develop better products and more interesting campaigns.

In 2023, we can expect an acceleration in the use of technologies within our business and our private lives. VR will become more advanced and might see its iPhone moment with Apple joining the game. NFTs and Web3 will continue to evolve, and more advanced language models will disrupt the content industry. With that, generative AI will drive the metaverse, which will hopefully be an open metaverse driven by more sustainable blockchain technology. All these new technologies will require consumers and employees to become digitally literate, if anything, to prevent even more cybercrime. Finally, RPA will make our jobs much easier, and ClimateTech will hopefully make it greener.

With the developments of technology accelerating and touching more of our lives, it will disrupt more jobs, businesses, and economies. Therefore, 2023 will be the Year of Digital Disruption. Those consumers, organisations and governments that embrace this disruption will do well; those that oppose it will face harsh times. In a world that is changing so fast, it is best to be flexible and adaptive.

Written by
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