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Wavemaker

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The world is evolving faster than we ever expected and it is imperative for businesses to be on the forefront of these changes. At Wavemaker, we support constructive provocation. We have repeatedly demonstrated how as an agency, we are setting standards with our work on both a local and worldwide level. Wavemaker is a growing and progressive agency and staying on top of new trends has helped us get closer to being a future-ready firm. To better serve our clients, we are constantly trying to recognize new marketing and consumer trends. We're glad to deliver on our clients' expectations of us as innovators and trendsetters.

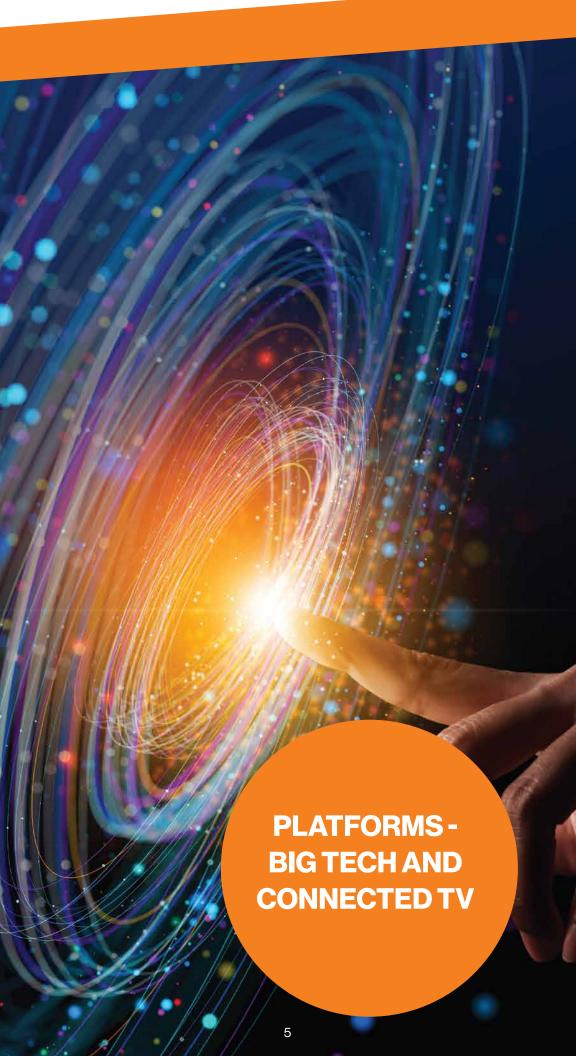
'Spotlight23', a first in-house report conceptualised and composed by team Wavemaker, talks about the top 23 trends in technology which change our outlook and challenge the way we think. We've always had a strong focus on innovation and creativity and this report is a step forward in leading change to help our clients recognise and adapt to new trends.

I hope you enjoy reading the report and find it useful as you navigate this new era of digital transformation!

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Meta diversifying
with focus on
Reels, WhatsApp
business, Marketplace
and Metaverse

Meta's ad business experienced its first-ever year-over-year revenue decline in Q2 2022. While Meta remains a profitable media business, with Facebook app in decline it will turn to Reels for growth. Reels has 140 Bn+ Reel plays, in Q3 2022, 50% higher compared to 6 months ago as per Manish Chopra of Meta.

Meta has opened its WhatsApp Business API to all businesses and launched a partnership with Salesforce, providing more companies with access to business messaging tools.

Meta already offers an NFT programme and an Avatars Store where users may purchase virtual apparel for their customised avatar. The company is now promoting its Creator Marketplace as its primary creator monetization tool.

In the Q3 of 2022, Reality Labs, the division in charge of the company's virtual and augmented reality initiatives, lost \$3.7 billion, up from \$2.6 billion a year earlier and \$2.8 billion in the previous quarter. Since the beginning of 2022, Reality Labs has lost more than \$9 billion. Meta however, is still devoted to Metaverse and is laying the groundwork for an altogether new way for audiences to interact with one another and integrate technology into their daily lives.



- Ensure that all comms are Reelified, Reels format for meta is a must do!
- WhatsApp could become critical for brands, which want to engage consumers through lead gen, content contest
- It will be easier for brands to create partnerships with creators or launch NFTs.
- 4. While Meta is invested into metaverse as we know it, 2023 might be the year, where Meta would add extra layers in shaping their version of metaverse.

Apple an Ad company, now with plans to increase revenue from digital advertising



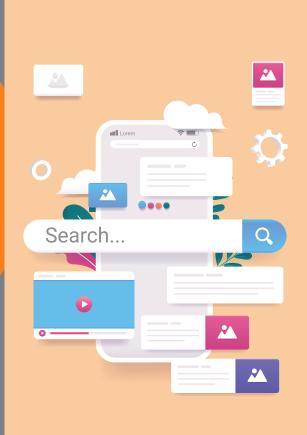
Apple launched privacy rules last year that disrupted the \$400bn digital ads market, making it difficult to tailor ads to Apple's 1bn-plus iPhone users as per FT.com. The Privacy rules by Apple would force its competitors to rebuild their advertising infrastructure; and at the same time provide an opportunity for the company to fill the void. Apple has plans to double its work force on ads platform teams. All this leads us to believe that there seems to be a a U Turn from what Tim Cook said in 2018 that Apple wont monetise its consumers. Apple owns all of this user data and doesn't have to rely on third-party cookies or permission to obtain it via hardware (phones, tablets, computers) or software (Safari, The App Store, Apple Maps, Apple TV, Apple Arcade).

When it comes to monetisation, Apple currently relies on display and search ads with its own app. According to a Bloomberg story, they are examining alternative avenues, including Maps, which will offer search result advertisements in 2023. In addition, Apple is likely considering a demand-side platform (DSP) that would sell placements across Apple media, including News and Apple TV. eMarketer predicts that Apple advertisements will generate \$8.92 billion worldwide in 2023.

Apple aspires to launch its own AR/VR headset in addition to Apple Glass and give Facebook's Oculus and Microsoft's HoloLens a run for their money.

- Brands which use Apple ads for app downloads could potentially have scale with the increase in advertising opportunities.
- 2. To create impactful communication on Apple Ad platforms, a better understanding of Apple consumers will be important.
- 3. While Google, Facebook have established credentials in delivering ROI, Apple Ads needs to demonstrate similar capabilities in driving ROI for increasing revenue from ads.

Google Search is facing some regulatory challenges that are likely to intensify



If enacted, the American Innovation and Choice Online Act would restrict Big Tech firms from using their platforms to promote their own services. The measure would prohibit platforms from favouring their own products over those of rivals in rankings, search, review systems, and overall design. Companies may not restrict competitors' access to the platform unless doing so posed a major cybersecurity risk. A Google search could no longer prioritise its own verticals, such as Google Flights. If these apps have competition, Google may no longer be able to even pre-install them on smartphones and other devices.

- In the short run Monthly Active User and Daily Active User for key Google products –Google Search, YouTube, etc could get impacted.
- Local business discoverability could get hampered as they are dependent on Google Business Profiles, which might not get preference under the new law.

Netflix focus on ads, no password sharing policy and games to increase revenue and consumer engagement

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NETFLIX
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and Mexico.
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The Netflix ads already rolled out in USA and 12 others countries, including Canada and Mexico. Netflix has 4 to 5 minutes of advertising per hour, like HBO Max and Peacock. Advertisers can buy Netflix ads through Xandr's demand-side platform, which sells programmatic ads. They can create programmatic ad campaign with guaranteed pricing and placements. Advertisers who heard Netflix's presentation say CPMs are \$60 to \$65.

Netflix wants to implement a mechanism to monetize account sharing around the beginning of 2023. This features is being tested in Latin America. The objective is to encourage users who share passwords to open sub-accounts and pay for others outside their families.

Netflix is adding a 3rd, potentially highly profitable media type to their arsenal in addition to Films and Web series: Gaming. While Smartphone- and Tablet-only games were released by Netflix in Mid 2022, 2023 will see the brand venture into blockbuster AAA PC games as well, thanks to their ongoing investment in an in-house Games development studio. Differentiating from current gaming models aimed at offering "free" versions, and monetization through in-game purchases, Netflix is offering a true subscription-based model, with the aim to offer a cleaner and truly engaging consumer experience without interruptions.

- Netflix ads has premium pricing due to its audience affluence.
   With very limited targeting, high pricing and ad policies may reduce the potential number of advertisers.
- 2. Netflix has the potential to completely shake up the Gaming industry's monetization model. That said, current AAA PC games see tough monetization challenges, and Netflix will need to use its successes from Film and Web Series IPs to see what works for their original Gaming titles.

Jio – Tech Giant or yet another Walled Garden a.8, live ver and

Reliance Jio claims to have 450mn+ users across connectivity (Jio, Jio Fiber, hatchway), Entertainment (Jio Saavn, Jio Cinema, Network18, Viacom), & omni channel Commerce (Reliance Digital, Jiomart, Zivame). Jio also has the digital live streaming rights for IPL and other Live sports (over 32 mn+ audience tuned to watch the FIFA final and 110 mn+ users for entire FIFA world cup in JioCinema).

As a new year gift to its users, in 11 cities, Jio has launched True 5G services. Consumers may now access the best of Telecom and growth prospects in areas such as e-governance, education, automation, AI, gaming, healthcare, agriculture, IT, and SMEs. This is largest multi-state rollout of 5G services in India till date.

Jio with its Meta partnership has created an end-to-end shopping experience on WhatsApp. Within WhatsApp, Consumers can browse the JioMart catalogue, add products to their cart and pay.

Jio known for its creation of digital freedom in India through its \$81 phones and free voice plans, it is set to now repeat a similar blueprint in laptop market with a 4G enabled \$184 (Rs. 15,000) laptop launch. JioBook is powered by the JioOS operating system and Qualcomm CPUs based on Arm Ltd. technology.

- 1. Jio Ads has the potential to emerge as one of the top advertising platforms in the country.
- 2. Jio could accelerate social commerce and brands could look at potential partnerships Jio could create interesting consumer engagements for IPL Live streaming, which brands could leverage as sponsors.



## Connected TV: Bringing the best of both worlds – TV and Digital

Connected TV is one of the fastest growing segments in India currently. We have about 20-22 mn Connected TV homes, which is approx. 10%+ of TV homes. This is estimated to grow by 2X by 2025 in the next 2 years. Growth of CTV is due to the changing consumer behaviour (growth of Cord Cutters, CTV first homes), Smart TV sales increasing (India's Smart TV shipments grew by 38%+ in Q3 2022) and growth of players who are offering faster and cheaper broadband (ex – JioFiber)

Currently the audience who consume CTV are affluent audience, metro skewed, with more premium lifestyle preferences. The programming consumed is remarkably comparable to Linear TV consumers, with a high skew toward Romance, Comedy, Action, and Live Sports. CTV becomes a very important touch-point to reach to the difficult to reach, media cluttered affluent audience.



- CTV to become important element in the integrated video planning and needs to be considered for all TV plans for brands which target the NCCS AB audiences.
- Brands would need to make creatives for the CTV ecosystem with far more personalisation and interactivity, unlike linear TV.





Retail Media will expand leading to more ad inventory and better attribution

In the global digital media environment, established retail media networks continue to rise in prominence, capturing a larger and larger proportion of advertising expenditures. We can anticipate even more ad expenditures being sent here in 2023, when worldwide yearly revenue is projected to reach \$101 billion, up 15% from this year as per GroupM TYNY.

In the current economic context, where every dollar spent on media is scrutinised, 'closed-loop' attribution is important for connecting ad exposure to a purchase.

Amazon attribution, while currently in beta, could assist advertisers in determining the impact and return on investment of their non-Amazon media spending, such as social, search, email, display, and video, on their Amazon sales. The quantifiability of ROI is advantageous for both the e-retailer in terms of increasing traffic and the other paid channels in terms of higher ad expenditures. Meta and Google's engagement with e-retailers on collab ads and co-op ads respectively, will benefit the duopoly, advertisers as well as e-retailers.

Retail Media will continue to pursue strategies that will assist it in ascending the sales funnel, particularly in CTV. Amazon acquired exclusive digital streaming rights such as NFL Thursday Night Football & India tour of New Zealand Cricket, introduced the new Fire TV Omni, and Kroger entered into a partnership with Roku CTV. Moreover, as more and more e-retailers provide advertisers access to their rich data by forming their own RMN (Retail Media Network) like Big Basket's relationship with Trade Desk, non-endemic advertisers will be attracted to Retail Media as well.



- Closed-loop attribution will continue to drive ad spending in retail media, and solutions such as Amazon Attribution (beta) will also help non-retail media.
- 2. Meta and Google are likely to continue partnering with additional online retailers.
- 3. We anticipate more non-endemic brands to experiment with Retail Media Solutions.

Social commerce continues to grow as innovations reduce frictions along consumers' existing shopping journeys

Social commerce will become even more popular for online shopping in the future. Statista estimates social media sales reached \$992 billion in 2022. By 2026, social commerce sales might exceed \$2.9 trillion. Innovations on social storefronts to deployment of Conversational AIs have fuelled the expansion of social commerce by removing friction from the customer journey.

Spotliaht

Creative Storefronts: Social profiles of brands are becoming digital storefronts. Shopping with friends is a well-known friction point in the online shopping experience. Charlotte Tilbury introduced a co-shopping experience on its storefront by introducing the 'Shop with Friends' function. This allows customers to invite loved ones to join a video conversation and tour the virtual store with them.

Personalized Experiences: Social commerce allows for a personalised approach. KitKat, for instance, offered new items and provided exclusive discounts to its followers via a Facebook Live shopping event.

Influencer Collaborations: Influencer collaboration can boost a company's revenue. For instance, Petco worked with Gabby Douglas and used livestream shopping events to reach and engage customers.

Conversational AI: Chatbots could range from straightforward programs that react to a specific query to sophisticated virtual assistants that can learn from and develop to enable higher levels of personalization. Brands like Sephora, H&M, Levi's are leveraging chatbots as virtual stylists giving personalised recommendations, helping customers book appointments and deliver customer support.



- Influencer activations and collaborations will expand more rapidly due to social commerce. However, brands will seek to measure ROI of such activations.
- 2. Brands will need to become more creative on the Social Storefronts.
- Live shopping will continue to expand, and brands will strive to provide consumers with a more enriched and personalised experience.
- 4. With Al advancements, chatbots could help automate call centres, improve customer experience while reducing costs.



### The continued expansion of B2B E-commerce

B2C companies dominated online until recently, but the pandemic has expedited the change of B2B companies, which now outpace their B2C counterparts in E-commerce. By investing in big data and martech capabilities, B2B firms are enhancing the consumer experience through personalisation, learning from their B2C counterparts. This has proven crucial to the growth of B2B E-commerce.

According to AgileIntel Research, the worldwide B2B E-commerce industry was valued at \$17.9 trillion in 2021 and is anticipated to surpass \$36.2 trillion by 2026. Asia-Pacific is at the forefront of the B2B E-commerce sector. In 2021, the B2B E-commerce industry in India was valued at roughly \$858 billion, and it is anticipated to reach \$2 trillion by 2026.

According to RedSeer Report, Udaan and JioMart are the most well-known and favoured platforms among retailers for future eB2B transactions, where the majority of spending will occur. Numerous well-funded startups, such as Udaan, Ninjacart, ShopX, and Upscale, have emerged as a result of investors' heightened interest in online marketplace models. In March 2022, L&T launched SuFin, a B2B marketplace for industrial goods targeting MSMEs.

While traditional supply chain, lengthy purchasing experience, and the complicated nature of B2B company could inhibit the further growth of B2B E-commerce, the field is still fascinating as many B2B E-commerce businesses are only early stages their digital transformation journeys.



- We can expect more traditional B2B business launching E-commerce storefronts in 2023.
- B2B businesses will continue to adopt more B2C customer experience strategies, such as providing immersive mobile experiences and focusing on educational content.
- 3. We could see more B2B companies transitioning to B2C and vice versa. In 2020, B2B firms such as Udaan opened a B2C marketplace, while B2C brands such as Picky Bars and Amy Myers MD launched B2B storefront.

VR, AR and XR are creating more immersive shopping experiences



VR, AR, and XR enable consumers to enjoy a brick-and-mortar purchasing experience while sitting in the comfort of their own homes and interacting with their mobile devices. One can shop in the simulated environment as if they were at the actual store. This would save the users a lot of time while allowing them to make the best of the traditional shopping experiences. The experiences that could be created range from creating store like experiences to offering trials and product demonstrations.

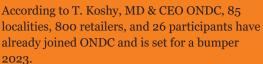
Virtual Stores: eBay Australia and the Myer store launched a VR department store. They used the Shoptical cardboard VR viewer to provide customers with a personalised in-store experience regardless of their location.

Virtual Trials: Wayfair's "View in Room" function, which enables customers to visualise how furniture would appear in their homes, encourages buyers to make impulsive purchases. The Colour with Asian Paints app enables users to take a photo of their wall and re-imagine it using the variety and combination of colours offered by Asian Paints.

In-store Demos: Lego installed augmented reality-powered kiosks and product boxes in certain retail locations. Customers could scan the box of any Lego kit they are considering purchasing and show their children in 3D what the finished result would look like.

- We could see increased adoption of VR,AR and XR from retail sectors such as auto, fashion, beauty, home decors where shoppers want to interact and try before they buy the product.
- Brands could leverage these technologies to improve conversion rates - according to Shopify, retail conversion rates for brands employing augmented reality increased by approximately 250%.
- 3. Designing the virtual experience and developing content would continue to be a hindrance to widespread adoption.

ONDC
(Open Network
for Digital Commerce)
is set up and could
make it big in 2023



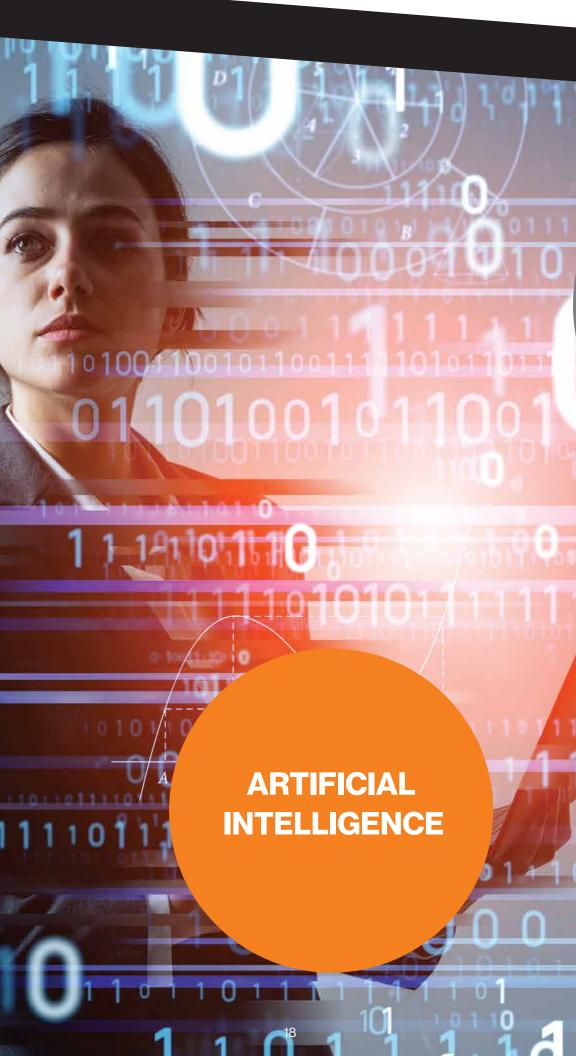
After UPI, ONDC is the most ambitious project of the Indian government. It is a private non-profit business formed by the Government of India's Department for Promotion of Industry and Internal Trade to develop open networks for E-commerce.

ONDC, as an open network, has the potential to revolutionise E-commerce and online purchase for everyone. The ONDC platform will enable buyers and sellers to connect and trade online, regardless of the application they use.

However, ONDC is not without its obstacles. Because ONDC is a complex ecosystem, unlike UPI, and most small business owners would lack the technological expertise required to participate in this programme. Second, an increase in suppliers does not always result in an increase in customers because network effects on such platforms take time to develop.



- Small retailers can create an identity and visibility on the e-platform and do their business.
- ONDC will empower the Consumers by giving variety of choices, Price discovery and comparison, no matter what platform/application they use.
- Building loyalty, better customer experience becomes critical to stop customers from switching.



Al for all – AlaaS (Al as a Service) and no-code environments continue to democratise Al



Infrastructure investments and the inability to find and train skilled workforce have impeded the widespread use of AI. The rise of AI as a service (AIaaS) and no-code/low-code AI tools and platforms are addressing these barriers and making it easier than ever to get started with AI.

AIaaS (Artificial Intelligence as a service) refers to off-the-shelf AI solutions that enable businesses to implement and expand AI strategies for a fraction of the cost of an in-house AI. Cloud-based AI tools such as Amazon Machine Learning, Microsoft Cognitive Services, and Google Cloud Machine Learning can help businesses discover the full potential of their data.

Second, no-code/low-code environments allow users to construct AI applications without having to write technical code. Sway AI can to develop enterprise application with no code, Akkio can do predictive analysis with no code, and other applications such as Amazon SageMaker, Microsoft Lobe, and Google AutoML are examples of tools that aim to make the AI revolution accessible for all.

- 1. We could see increased usage of Al in product development, market research, campaign optimisation, churn prediction and smart consumer engagement.
- 2 Businesses could quickly use plug-and-play mechanisms at nominal costs to see what works and allows for scaling before committing.
- This will increase the need for businesses to eliminate data silos, as lack of data is another significant barrier to Al.

The Generative
Al landscape
- the creator's
best friend



In 2022 DALL·E stunned the world with its ability to create images with a simple text prompt. Soon Google and Meta followed suite with Imagen, Parti etc.

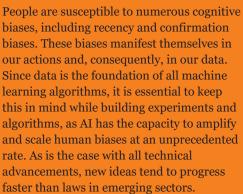
ChatGPT was launched on November 30, 2022, by San Francisco-based OpenAI, the creator of DALL-E 2 and Whisper. According to Open AI CEO Sam Altman, ChatGPT generated 1 MN+ users within 24 hours

Generative AI is a subset of AI that focuses on making new content, such as text, images, and sounds, based on input it receives. It can be used in many ways, from producing images and writing blog posts to writing codes or composing music.

As forecasted by Gartner, Generative AI will account 10% of the data that is produced, up from less than 1% now in the next 3 years.

- This unprecedented Scale could give personalized communications, more fire-power. This could solve challenges in customer service, content creation, entertainment, ecommerce etc.
- 2. Increased productivity in creative and content production.
- 3. Like any other immersive technology, Generative AI comes with its attendant risks like Security issues, concern over data privacy, limitations in creativity & copy right issues. New data laws, organizational protocols and governance would change basis this.

There will be a continued push towards ethical, transparent, and fair Al



As the government becomes more adept at figuring out how to employ AI, we may anticipate regulations for businesses to adhere to that will prevent them from abusing human rights and civil freedoms. While GDPR and its versions across the world do aid in protecting individual privacy, efforts such as the Belmont Report, are a means to guide AI ethics.

As of today, there is no real enforcement of AI ethics. However, ethical frameworks have emerged amongst technologists and practitioners of AI. Gartner introduced AiTRISM, the US dept. of defence has DARPA, and non-profits such as AlgorithmWatch and AI Now Institute do valuable work to define and protect the ethical design and use of AI.



- There is likely to be more push for 3P Audits on AI blackboxes.
- 2 Partner's AI ethics & biases could be become an important evaluation criteria when embarking on a partnership.
- Organisations are likely to implement checks and balances to continuously monitor Al bias against ethics guidelines.





Servers on Lease:
Pay as you go
for any Function
as a Service with
the Serverless
Technology



In today's industrial competition, companies are more pressurized to adopt new technology and consequently, deal with the ever-high demands and maintenance needs to scale up. In these times, transition from on-premise solutions to cloud computing has worked wonders for several industry leaders. Hence, serverless computing is gaining quite a stride from businesses worldwide.

Serverless computing does not exclude the use of servers, but eliminates the requirement for organisations to operate, own, or lease their own servers.

Cloud providers like Amazon Web Services, Google Cloud Platform and Azure have introduced the concept of X as a Service (XaaS) – where X can be any function necessary for the business which can be deployed on the cloud. Some examples are Backend as a Service (BaaS), Analytics as a Services (AaaS), Platform as a service (PaaS), Desktop as a service (DaaS).

The serverless cloud computing model also executes computer resources automatically, scales resources up or down, and reduces them to zero when an application is not running. With the advancements in Serverless technologies, business need to pay only for the amount of resource they use, contrary to leasing machines or service on a pre-decided amount.

- Developers are now able to develop and construct applications with improved agility and rapidly deploy new solutions.
- Reduced time spent on maintenance and the requirement to manage servers could result in a boost in business efficiency.
- Pay-as-you-go reduces costs significantly, making it easier for enterprises to have access to previously unaffordable resources.



Privacy-focused technologies and platforms will gain traction



Data Legislations beginning with the General Data Protection Regulation (GDPR), followed by many countries and states stepping up their data legislation game, coupled with Self-regulation from Big Tech companies such as Apple and Google, are beginning to shift consumer expectations regarding control of their data.

Marketers are investing in privacy-centric technologies such as Data Clean Rooms (DCR) and Consent Management Platforms (CMP) in response to the demand for consumer privacy. 80% of advertisers with media spending exceeding \$1 billion will implement data clean rooms by 2023, according to Gartner.

With the promise of decentralisation, encryption, anonymity, and data ownership, Web3 applications such as Brave Browser, Gener8, and Filecoin are competing for privacy-focused users.



- Brand may need to place Data Privacy and Ethics at the core of their data strategy.
- 2. We anticipate that businesses will invest in privacy-centric technologies such as DCR and CMP.
- 3. Web3 products, despite their small scale, may present novel ways for brands to reach and engage consumers.

Free speech narrative influencing how social networks are being run



One of the criticisms of social networks has been the manner in which major social media platforms address the issues of free-speech, censorship, privacy, political neutrality. This has sparked a new trend, and it is influencing the way social media is being run.

In 2022, Elon Musk calling him a 'free speech absolutist' took over Twitter and has spoken about his aversion to content regulation and limits. In 2023, Musk would try to establish twitter as a gold standard for free speech and content moderation.

Decentralized social networks, also known as federated networks are emerging as alternatives to the popular centralised social platforms. Mastodon – a decentralised social network grew over 800% since October 2022, and currently has over 2.5 MN Users as per its founder and lead developed Eugen Rochko.

- Free Speech vs Brand Safety:
   Advertisers may continue to abandon platforms such as Twitter until a compromise between Free Speech and Brand Safety can be found.
- Social Media may become more fragmented, with customers willing to experiment with new and emerging social media platforms.
- 3. We could see platforms move beyond Ad-monetisation models, with Twitter dabbling with Subscription revenue, and decentralised networks using a form of digital currency, to keep operations running.

Sophisticated
Avatars & Digital
Twin Technology will
augment experience
in Metaverse



Metaverse avatars are important for socialization in the metaverse. When you interact with people via an avatar, the person on the other side would feel the interaction to be more life-like. With expanded customization choices, 3D avatars could resemble the individuals they represent more closely. Meta is also incorporating more inclusive customisation options, like as Cochlear implants, hearing aids, and wheelchairs, so that users can create their avatars as realistic as they desire. Applications like Zepeto, Osuvux make it easy to create avatars while also allowing interoperability, using a metaverse avatar NFT system

A digital twin is a digital representation of an object, process, or service that exists in the actual world. A digital twin can be a digital version of a physical world object. In addition to replicating real assets, digital twin technology can be used to simulate processes in order to collect data on their future performance. The Shanghai Urban Operations and Management Center has created a digital twin of the city's 26 million residents, which models one hundred thousand aspects, from garbage disposal and collection facilities to road traffic, and apartment building size and location. Tesla generates a digital twin for each automobile it makes. The combination of digital twins and the metaverse can allow us to digitally replicate the real world.

- The sophistication of avatars and their interoperability could drive growth across platforms in the ecosystem.
- 2. Marketers are likely to build more virtual products, create more immersive experiences to engage the avatars of their consumer.
- 3. Integrating digital twins with metaverse could drive more corporate adoption of metaverse, as it could help enable improved prediction, monitoring, tracking, allocation, resource management, and quality control.



Beyond the hype, Web3 is growing and creating value



We saw Web3 going into a boom-bust cycle in 2022. There were a lot of exciting narratives around NFTs, decentralised metaverses, play-to-earn games, cryptocurrencies which fuelled hype and scepticism.

Beyond the hype, there were a lot of positives that will help the technology grow further. Web3 developers were more active than ever, despite the crypto winter. As per Alchemy, Ether.js and Web.js, two prominent Web3 developer libraries, saw 3x growth between Q3 2002 and 2021. Ethereum, the second largest blockchain by value, moved from Proof-of-Work to Proof-of-stake, reducing its network energy consumption by 99.9%.

Businesses are also creating value with blockchain. Starbucks' NFT-based Odyssey programme debuted the loyalty challenge. Meta will let Instagram users mint Polygon-powered NFTs. Google will soon let some users pay for cloud services using digital currency. Flipkart and Polygon will build up a blockchain E-commerce centre to research and develop Web3 and metaverse commerce use-cases in India. JPMorgan was given a trademark for a digital asset wallet that will allow electronic transfer and exchange of virtual currencies, crypto payment processing, virtual checking accounts, e-check processing, and bill payments.

- More brands and businesses will embrace this technology in 2023.
- 2 More businesses will accept Cryptocurrency payments, and more countries will recognise it as legal tender.
- NFTs could continue to play a role in loyalty management, community management and reward programmes.
- Decentralized social networks, gaming, and finance could have fascinating use cases.
- Government involvement and restrictions could define Web3's future.



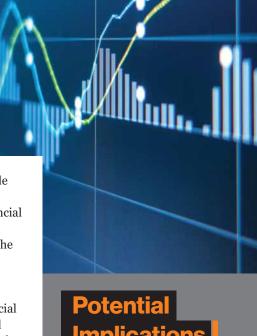


#### **Account Aggregator (AA) Network could** become the next **UPI** moment

In India's current financial system, people must run around and complete a large amount of paperwork to share their financial history with a third party. This tedious procedure is intended to be replaced by the Account Aggregator network. Account Aggregator (AA) is an RBI-regulated organisation that enables individuals to securely access and exchange their financial information from one regulated financial institution to any other regulated financial institution within the AA network. Data cannot be shared without the consent of the individual. In most ways, it resembles as 'UPI for data'.

India announced the Account Aggregator (AA) network in September 2021, becoming the first nation in the world to establish a techno-legal framework that permits the regulated flow of financial data. This data-sharing mechanism, could transform investing and credit.

According to a Livemint article, India's Account Aggregator network has more than 1.1 billion AA-enabled accounts and 2.05 million consumers barely one year after its official release, yet the current usage penetration is a mere 0.2% of the overall AA enable accounts.



#### **Implications**

- AA services could enable institutions to provide credit facilities and reach underserved rural areas, hence promoting greater credit inclusion.
- 2. AA might also generate potential for the introduction of new products in sectors such as microcredits, customised loans, financial planning, tax planning, etc.
- 3. There is a general belief that AA will construct the future for data sharing outside the banking sector to enable access to healthcare and telecommunications data for individuals.



Some of the futuristic technologies may be introduced as early as 2023



Quantum Computing: In 2023, there may be an influx of commercially available quantum computers that can solve issues beyond the capabilities of classical computers. China-based tech titan Baidu announced its 10-qubit quantum computer Qianshi in August of 2022. Fujitsu, a Japanese business, is aiming to overcome Google and IBM as market leaders. Beginning in April 2023, the company and the Riken Research Institute will jointly market 64-qubit quantum computers.

Brain-Computer Interface (BCI): BCI is a computer-based system that facilitates communication between the electrical activity of the brain and an external device through the placement of an implant or the wearing of an external device. In July 2022, Synchron implanted their first BCI solution in an American patient. Elon Musk's Neuralink anticipates conducting human clinical trials of their technology by mid-2023. In Australia, BCI clinical trials on humans are also now underway. Successful clinical trials will encourage additional investment in this sector. Bill Gates and Jeff Bezos have invested \$75 million in Synchron. Current applications of BCI technology focus on enabling paralysed individuals to interact and control external equipment using their brains. However, the technology has its share of issues, ranging from privacy, safety, and ethics-driven arguments to investigations into corporations allegedly mistreating animals.

- Quantum computers can contribute in the advancement of a variety of fields, including artificial intelligence and simulations, medicine discovery, global economic forecasting, materials research, and renewable energy.
- 2. As the capacity of quantum computers to decrypt data encrypted by conventional computers is a big security risk, businesses will need to begin focusing on ways to mitigate security risks.
- Further use cases for BCI could evolve not only in healthcare, but also in gaming and other VR, AR, and XR experiences.

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