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Disruption Bytes

Rebranding metaverse, rural LEOs, and AI tax

Disruptive Technologies
Global

- **Metaverse:** Competition rising for industrial focused metaverse headsets, and will the metaverse be rebranded?
- **LEOs:** Can space tech connect isolated rural areas at competitive prices and enable smart farms in US and Brazil?
- **AI:** Will AI threaten or augment global jobs, do we need an AI tax, and why is a US tech giant buying thousands of GPUs?

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In this update, we look at some recent developments within HSBC's Disruptive Technology theme and any potential implications investors should note.

Metaverse headset and a rebrand… An industrials and a tech giant form a partnership to create an industrial metaverse headset with the product designed to accelerate innovation and product development, enabling digital twins. The headset is designed for engineers and designers. Could it become the headset of choice for the builders of the industrial metaverse?

Meanwhile one big metaverse player is asking its employees to stop referring to "the metaverse". It is confusing the average person and a rebrand to "spatial computing" could be coming in 2024…

LEOs latest… A leading American space company is launching a new LEO service and is ready to deliver broadband but with an upfront cost of USD1.25 million and USD75,000 per month per Gbps. The service, which is now widely advertised, was first trialled in Unalaska (an island off Alaska) last year. Could it provide rural broadband at competitive rates relative to local internet providers?

A major agricultural company has partnered with a LEO constellation to bring smart farming to life in isolated areas in the United States and Brazil. Currently 30% of the farmed acres in US and 70% in Brazil are without sufficient internet services.

AI opportunities and risks… Is it time for an AI tax to help pay for the welfare and retraining costs that AI may inflict on societies? One tech billionaire has previously floated a similar idea for job-taking robots.

But would an AI tax be premature before we know the labour market impact and stifle innovation? We look at a new IMF study and whether it thinks AI might augment or replace jobs, and which countries might be most prepared for this automated future.

A US big tech company is buying up large numbers of GPUs to reach AGI first, with a view to using generative AI to build the metaverse…

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Welcome to the Industrial "Metaverse"

Industrials and tech giants team up with a mixed reality enterprise headset

Tech giants partner to develop an industrial MR headset

Siemens and Sony unveiled a mixed reality headset for the industrial metaverse at the annual technology trade show called CES in January 2024. The product is set to be released later this year. The headset will come with a pair of controllers, one of which will resemble a traditional metaverse headset controller, but the other is worn on just one finger (ie. a ring controller)[1]. The two companies have designed the headset to be used by engineers and designers to accelerate innovation and product development using digital twins[2]. The idea is that this type of technology can help companies prototype their products in the metaverse and keep costs down.

Adjustable twin displays make device compatible with glasses wearers – comfort is key…

The headset's twin displays are adjustable horizontally and the depth of the displays can also be adjusted. This is particularly helpful for wearers of glasses and may compare favourably to the Apple Vision Pro (set for release on 2 February 2024) where glasses wearers may require vision-correcting lenses at an additional cost. Like other metaverse headsets on the market, there are pass-through cameras that allow the user to see the real world[3].

Display can be lifted up via a flap for easy access back into the real world – again comfort is key…

The displays are 4K OLED screens and the headset is powered using Qualcomm's Snapdragon XR2+ Gen 2 platform[4]. Another user-friendly feature is a flappable visor that allows users to flip-up the display and exit the virtual world without having to take off the headset[5], similar to the Dell Visor (VR headset) from the late-2010s. This flip-up visor could prove particularly useful in an enterprise setting where users are going back and forth between their headset, laptop, and speaking to colleagues.

Device is designed strictly with professionals in mind

Unlike the Apple Vision Pro, which is marketed at both enterprise customers and consumers, the Siemen/Sony device appears to be focused on enterprise design and engineering professionals. For instance, there will not be 3D movies or immersive gaming[6]. In fact, this new headset is designed to help metaverse content creators produce content for the metaverse and devices such as the Vision Pro and Quest headsets. The device aims to be the headset for metaverse builders and will use Siemens' Xcelerator digital transformation software and Sony's NX Immersive Designer to create immersive workspaces for content creation.

[1] Sony launches an Apple Vision Pro competitor designed for the "industrial metaverse", techradar, 9 January 2024
[2] I got a rare demo of Sony's new XR headset at CES 2024 and here's what I learned, ZDNet, 13 January 2024
[3] Move Over, Vision Pro: I've Tried The Sony Headset, With Features Apple Can't Match, Forbes, 12 January 2024
[4] Sony's 'spatial' XR headset will take the fight to Apple later this year, Wareable, 10 January 2024
[5] Sony Reveals a New VR Headset With Flip-Up Visor Display, Gizmodo, 11 January 2024
[6] Sony's new XR headset is more 'pro' than Vision Pro and has 2 features Apple needs, ZDNet, 11 January 2024

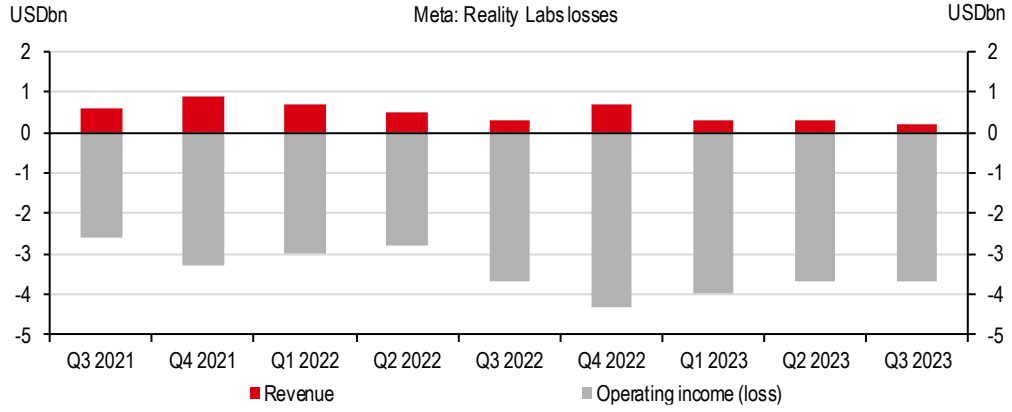
Battle of technology branding – "Metaverse", "Virtual reality", "spatial computing" or?

Apple refuses to refer to the "metaverse" and wants to shift to "spatial computing"

Remember when the internet was initially called the Information Superhighway, the World Wide Web or even cyberspace in the 1990s? A similar battle of terminology mindshare maybe taking place for the metaverse.

In January 2024, it was reported that Apple had instructed its app developers not to refer to "virtual reality" or "augmented reality". Apple wants its Vision Pro to be referred to as the "world's first spatial computing system"[7]. It seems Apple is trying to distance itself from Meta and "the metaverse". In October 2022, Apple's VP of Worldwide Marketing said he refused to use the world "metaverse"[8].

Lots of money spent on "the metaverse", but is the terminology tainted?



Source: Bloomberg

Tim Cook says people don't understand the metaverse and it needs rebranding

Apple CEO Tim Cook has previously said that "the average person doesn't know what the metaverse is"[9], implying that Apple's attempted re-branding of the metaverse is not just a marketing ploy, but that the company believes the public is not sufficiently enthused by "the metaverse". Whilst it is important to remember this is classic Apple and since the days of Steve Jobs, the company has prided itself on differentiation and non-conformity. Could it catch on and could the metaverse soon be rebranded into "spatial computing"? Only time will tell.

LEOs latest

LEOs expanding remote connectivity at competitive prices?

SpaceX is offering new Community Gateways to support rural broadband

In January 2024, SpaceX began to advertise a new Starlink service called Community Gateways. The service will cost customers USD1.25m as an initial fee, for which Starlink will build a dedicated facility to receive up to 10Gbps (gigabits per second) of broadband[10]. SpaceX's low earth orbit (LEO) constellation delivers fibre-like speeds to the community gateway, which in turn provides connectivity to local homes and businesses via last-mile fibre, fixed wireless, and mobile wireless solutions[11]. Once installed, there is a monthly cost of USD75,000 per Gbps.

The first such Community Gateway was installed in Unalaska in September 2023

The first Community Gateway was deployed in Unalaska (a town on an island near Alaska) where local ISP (internet service provider) OptimERA uses the Community Gateway to bolster broadband for its customers, especially those in the most isolated areas. Despite the initially

[7] Apple tells developers NOT to use "virtual reality" when talking about Vision Pro, techradar, 9 January 2024
[8] Apple VP Greg Joswiak says 'metaverse' is a word he will never use, 9to5Mac, 26 October 2022
[9] Tim Cook in new interview: 'I'm really not sure the average person can tell you what the metaverse is', 9to5Mac, 30 September 2022
[10] Starlink's Latest Offering: Gigabit Gateways Starting at $75,000 Per Month, PC Mag, 16 January 2024
[11] Starlink Debuts Community Gateway Internet from $75,000 Per Month, Tesla North, 17 January 2024

striking costs, the Community Gateway might compare favourably to alternative rural broadband providers. For instance, GCI (Alaskan telecommunications company) costs USD275 per month per megabit, which equates to USD2.75m per 10Gb of throughput compared to USD750,000 for Starlink. OptimERA has a cell-and-microwave tower located close to the Community Gateway which distributes the Starlink signal throughout Unalaska[12].

LEOs enabling smart farming in the US and Brazil

John Deere and SpaceX have partnered to bring smart farming to rural communities

John Deere and SpaceX announced their strategic partnership in January 2024[13]. Starlink will provide connectivity for tractors, seed planters, crop sprayers, and other equipment in isolated rural areas that lack consistent internet services. This will help to enable John Deere products such as software that helps herbicide sprayers identify crops versus weeds and autonomous tractors. Starlink proved the right fit after John Deere trialled different options for 8 months. Farmers will install Starlink antennas specially designed for rural terrain and challenging conditions, which will be fitted to the tops of vehicle cabs[14].

The US and Brazil will begin to receive the services in H2 2024

Approximately 30% of acres farmed in the US lack sufficient internet services. And this deficit is even higher in other parts of the world (eg.70% in Brazil). John Deere is aiming to release its SATCOM (satellite communication) solution in H2 2024 in the US and Brazil[15]. This will help foster smarter and more connected farms.

According to The Wall Street Journal, SpaceX beat LEO competitor Intelsat for the John Deere contract. Intelsat itself had recently announced an agreement to provide satellite internet for American Airlines, with SpaceX offering connectivity to United Airlines[16].

The AI tax debate returns, and is AI a threat to jobs?

Should AI be taxed?

Will society require an AI tax to help governments pay for future job losses?

In January 2024, an article in the Financial Times (FT) posed the question of whether an AI tax is needed to pay for the social costs of AI automation (ie. job losses). The article warns of privatising profits whilst placing the costs of AI onto the public, hence the AI tax.

Bill Gates previously proposed a similar idea for job-taking robots

In February 2017 Bill Gates called for an income tax on robots, claiming that robots had an unfair advantage in the labour market in that they do not pay income tax[17], which means not only are they cheaper to 'hire' than a human, but they do not pay into government revenues, which means fewer resources for social security and jobs retraining programmes.

Would such a tax be premature and harm innovation in the long term?

The AI tax is not without its critics, who claim it is premature and sets a precedent that will hinder innovation. Moreover, critics argue that we do not know what the impact on the labour market will be and the debate of whether AI augments or replaces human workers may need to play out before we design solutions[18].

As automation technologies like AI (for thinking, creativity, writing and drawing etc), robotics (doing physical human tasks), autonomous drones and vehicles continue to evolve, this is not likely to be the final time this and similar technology tax ideas are suggested…

[12] Starlink Unveils Pioneering Community Gateways for High-Speed Internet, Starlink Insider
[13] John Deere Announces Strategic Partnership with SpaceX to Expand Rural Connectivity to Farmers through Satellite Communications, 16 January 2024
[14] John Deere and SpaceX's Starlink team up to equip tractors with satellite internet, in a deal Elon Musk calls 'great for farmers', Business Insider, 16 January 2024
[15] John Deere Announces Strategic Partnership with SpaceX to Expand Rural Connectivity to Farmers through Satellite Communications, 16 January 2024
[16] John Deere, Meet Elon Musk: SpaceX Satellites to Link Farm Giant's Equipment, The Wall Street Journal, 15 January 2024
[17] Bill Gates calls for income tax on robots, Financial Times, 19 February 2017
[18] Beware The Coming Artificial Intelligence Tax, Forbes, 16 January 2024

Is AI coming for your job?

IMF claims 40% of global jobs will be impacted by AI and 60% in advanced economies

The IMF released a report in January 2024 analysing the macroeconomic impacts of AI. The report claims that AI will impact c.40% of global jobs and that advanced economies have a greater exposure to AI impacted jobs than emerging and low-income countries. The report says that whilst AI will replace some jobs, in most cases it will augment and complement existing jobs, including up to 60% of existing advanced economies[19]. This compares to just 26% of jobs in low-income countries where (according to the report) countries lack the infrastructure and workforce to harness AI benefits[20].

Top 5 prepared countries for AI: Singapore, US, Denmark, Japan, and UK

The IMF created an AI-preparedness index with Singapore, the US, Denmark, Japan, and the UK cited as the best-prepared countries. The index was scored using four criteria: digital infrastructure, human capital and labour market policies, innovation and integration, and regulation and ethics[21].

The quest for AGI continues…

Meta is increasing its focus on reaching artificial general intelligence

Generally speaking, one of the ultimate goals of computer science has been to build a machine that can think and do tasks like a human – otherwise known as AGI (artificial general intelligence). And then perhaps beyond that, to hit the moment of singularity – where the machine can bootstrap itself to become more capable than human beings – exponentially. Perhaps the singularity moment is the ultimate disruptive technology and the end goal of computer science and mathematics…

In January 2024, it was revealed that Meta had moved its AI research group, FAIR, into the generative AI products team with the goal of producing apps that billions will use. The company does not describe the focus on AGI as a pivot away from the metaverse and is still spending USD15bn a year on Reality Labs. In fact, the company believes generative AI will allow virtual worlds and characters to populate the metaverse and enhance the experience[22].

The capital expenditure to get to AGI will be in the tens of billions of dollars

To allow Meta to navigate the race for AGI, the company has said that by the end of 2024, Meta will have 350,000 Nvidia H100 chips (or 600,000 H100 equivalents including other GPUs). The only company ordering enough of these GPUs at the same levels as Meta is Microsoft[23]. According to a CNBC article, H100 chips cost USD25,000-30,000 – therefore the build out to 350,000 H100 chips would cost between USD8.75bn and USD10.5bn[24].

[19] Artificial Intelligence Will Affect Almost 40% of Jobs, IMF Says, Bloomberg, 14 January 2024
[20] AI to hit 40% of jobs and worsen inequality, IMF says, BBC News, 15 January 2024
[21] Gen-AI: Artificial Intelligence and the Future of Work, IMF, 14 January 2024
[22] Mark Zuckerberg's new goal is creating artificial general intelligence, The Verge, 18 January 2024
[23] Meta To Build Open-Source Artificial General Intelligence For All, Zuckerberg Says, Forbes, 18 January 2024
[24] Mark Zuckerberg indicates Meta is spending billions of dollars on Nvidia AI chips, CNBC, 18 January 2024

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