

E-COMMERCE TREND RADAR

Envisioning the next
decade in e-commerce

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01 INTRODUCTION & PROJECT BACKGROUND

Introduction

To anticipate the future is not to predict the future.

By understanding current developments and how they may evolve into industry-changing paradigms, we can better understand and assess the opportunities and vulnerabilities future trends may bring.

As such, the findings of this study intend to provide stakeholders with insights into the e-commerce space, so that they are better equipped to plan, react and adapt to game-changing shifts in the landscape.





Project Background



E-Commerce Trend Radar Paper

The development of this E-commerce Trend Radar Paper has been initiated by MDEC to enhance Malaysia's readiness in adapting and embracing new and emerging trends in e-commerce.

The key objectives are to provide:

- Forward-looking insights, emerging trends, what's new and news in e-commerce globally; and
- An understanding of how these trends can be seized upon to drive impact to Malaysia's e-commerce sector.

02 APPROACH & METHODOLOGY





Our foresight framework uses 5 macro forces to look beyond and understand how broader trends could shape the e-commerce ecosystem

Wide scope, diverse resources

Using the macro forces with the STEEP (Social, Technology, Economic, Environment, Policy & Regulation) heuristics to reflect broadly and capture a wider range of drivers.



Refocus & clarification

Prioritize and eliminate irrelevant drivers after deriving further insights with relevant stakeholders.

MACRO FORCES

- Social
- Technology
- Economic
- Environment
- Policy & Regulation

LITERATURE
REVIEW

+

IN-DEPTH
INTERVIEWS

+

QUANTITATIVE
SURVEYS

Synthesize

- Current e-commerce landscape
- Mapping e-commerce ecosystem

Augment

- Stakeholder engagement to uncover drivers of change.

Refine

- Analysis and distillation

FUTURE
TRENDS

We identified Experts, Leaders and Advocates, and stakeholders from the E-Commerce Community to give us fresh views of the entire e-commerce ecosystem

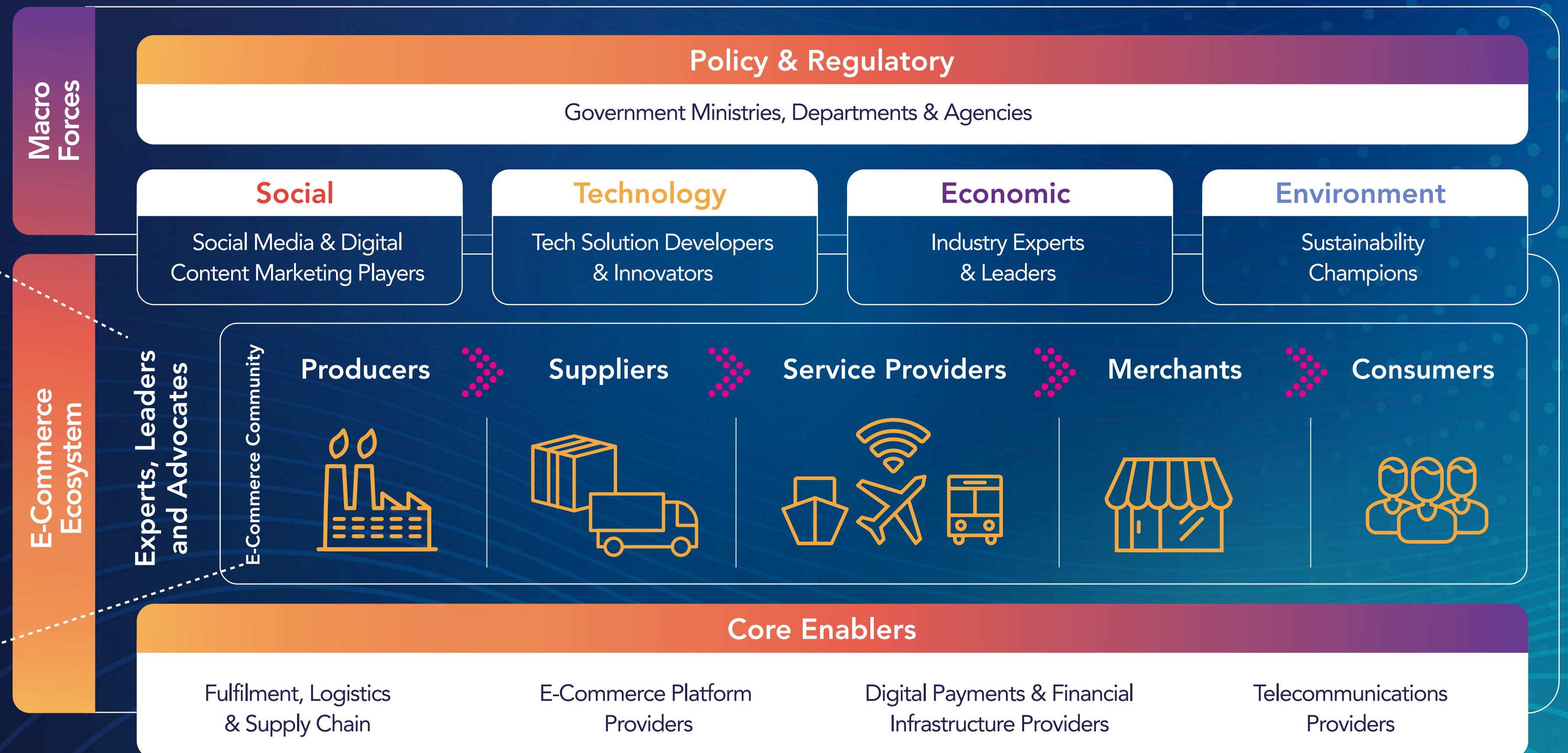
Overview of Relevant Stakeholders in the E-Commerce Ecosystem

Experts, Leaders, and Advocates

- Experts, leaders, and stakeholders playing advocacy roles to the e-commerce value chain.
- May not be directly linked to e-commerce but forms part of the wider e-commerce ecosystem and influences e-commerce policy matters.

E-Commerce Community

- Core e-commerce value chain players are required to operationalize the day-to-day running of e-commerce businesses.



Key Takeaways From In-Depth Interviews & Quantitative Surveys

Key Takeaways from In-Depth Interviews (IDIs) with Experts, Leaders & Advocates Group

5G devices can pinpoint accurate indoor positioning to support Machine Vision and Automated Drones. **6G devices** will be able to sense other devices around you, serving as a bridge between physical and digital worlds, providing an **enhanced overall Extended Reality (XR)** experience.

The pandemic has shifted consumers' behavior. Electronic environments that are sensitive or "always-on", such as voice-activated **smart assistants**, **will evolve** and respond appropriately to humans.

As the **line between social and commerce blurs**, brands will flock to where consumers spend their time, to engage customers in an increasingly distracted world. This has **shifted e-commerce from a functional-based service to entertainment using influencers and KOLs**.

Trust is the new currency. **Blockchain technology** can solve issues with fraud as it makes it easier to verify who owns an item, verify the authenticity of the item, and transfer the ownership securely and transparently.



Multinational Telecommunications Company



Leading Technology Companies



Popular Social Networking Service



Leading E-Commerce Business Partner



Digital Payment Platform Conglomerate



Independent International Organizations

A robust and **interconnected data ecosystem is required to ease "business anywhere"** and fulfill consumers' desire for an "all-in-one" platform with **consistent, seamless, and personalized experiences**.

Discovery, browsing, and payment methods are evolving and **integrated seamlessly into our everyday routines**. We integrate value by providing solutions through technology.

Even the "3-click rule" falls short of convenience. Continuous advances in **brain-control interface could revolutionize the way we shop**.

As e-commerce captures more goods and services, it will **extend beyond tangible goods to virtual assets**, such as software solutions to custom artwork. Non-fungible tokens (NFTs) will provide creators or owners with the option to make each item or product non-transferable, giving it a token of exclusivity. **Technology will transform**.

The rise of circular economy, re-commerce, and **shifts in consumer attitudes towards environmental responsibility** have shaped businesses to rethink their entire supply chain approach.



Key Takeaways from Quantitative Surveys

Business expansion into global and **cross-border markets** has **intensified competition** in an already highly saturated market.

Policy and regulation concerns for cross-border transactions, such as clarity over customs compliance, tariff and tax exemptions, as well as digital payments security.

Incorporation of **social commerce** as a primary business strategy.

The rapid advancement of 5G to enable automated logistics in warehouses & ports will enable quicker deliveries & accelerated shipping times.

More businesses are switching over to **omnichannel fulfillment** or finding ways to do so as more consumers are migrating to e-commerce channels.

Hologram technology that allows consumers to **view items in 3D & enable virtual try-ons**.

Costly or difficult (alternative term-challenging) to find sellers who can **customize or tailor goods and services**.



PRODUCERS,
SUPPLIERS,
MERCHANTS

Integrated, seamless, and convenient payment methods for faster checkouts. Alternative forms of payment methods in a **cashless society**.

Exploration of **direct-to-consumer (D2C)** models of business models to reduce cost and time.

Access to **broadband connectivity, IT, and logistics infrastructure is vital** to support new technology developments and cater to consumers' increasing demands.

The use of **social platforms for engagement and acquisition** of new customers and the providence of convenient payment methods.

Lack of technical competencies and **economies of scale** locally to fully operationalize or optimize new and available frontier technologies.



CONSUMERS

Manual price comparison of similar items on other websites.

Inability to **verify sellers as well as the quality, size, or authenticity of products**.



11 Game-Changing Key Drivers for E-Commerce

Rapid developments within these identified technological and socio-economic drivers will shape future innovations within the e-commerce ecosystem.



Artificial Intelligence (AI)

AI leverages on computers and machines to process big data and through machine learning and deep learning, mimic the problem-solving and decision-making capabilities of the human mind.



Next Generation Wireless

Increased speed, capacity, and reduced latency will enable 5G devices to pinpoint accurate indoor positioning to support Machine Vision, Automated Guided Vehicles, and drones. 6G devices will be able to figure out other devices around you, serving as a bridge between the physical and digital worlds and enhancing the overall XR experience.



Green Cloud Computing

Delivery of computing services such as servers, database, storage, networking, software and analytics, over the Internet to offer faster innovation, flexible resources, economies of scale, and reduced impact on the environment.



Internet of Things (IoT)

Internet of Things (IoT) is a concept of connecting devices to the internet and other connected devices such as wearables or other smart appliances. Devices can interact and exchange data to automate processes, support real-time monitoring and apply analytics for insights.



Anticipatory Analytics

Builds on the foundation of predictive analytics, where consumers data can be used to identify and personalize predictions based on preferences.



Blockchain & Distributed Ledger Technologies (DLTs)

Digital ledger system that is democratic, incorruptible, efficient, verifiable, and holds a permanent record of every transaction of value among multiple economic agents.



eXtended Reality (XR)

eXtended Reality (XR) – an umbrella term for Augmented Reality (AR), Mixed Reality (MR), and Virtual Reality (VR) will enhance or replace our view of the world, often through overlaying or immersing computer text and graphics into real-world and virtual environments, or even a combination of both.



Virtual Worlds

Immersive, interactive virtual worlds to engage with consumers and create brand moments that resonate with the digital audience in exciting and fresh, new ways. A coherent cross-world ecosystem will eventually be developed to connect virtual spaces with the augmented-reality enhanced physical world.



Conscious Consumerism

Consumers are concerned with the authenticity and provenance of products and look for products produced in an eco-friendly and ethical way to preserve the environment and reward the labor involved fairly.



Sustainability Agendas

Governments worldwide are using sustainability tax measures to reduce emissions and meet their commitments on carbon neutrality. Governments and consumers are also working together with businesses to decarbonize their business ecosystem.



Social Commerce

Social media and online media that support social interaction, with interactions between KOLs, influencers, and fellow user contributions to assist online buying and selling of products and services.



...has led to the anticipation and vision of 5 future trends

#1 Ubiquitous Marketspaces



#2 Hyper-personalized Commerce



#3 Ultra-Precise Delivery Networks



#4 Metaverse Commerce



#5 Eco-Commerce



03 FUTURE VISIONS OF E-COMMERCE



#1



Ubiquitous Marketspaces

Consumer touchpoints break out of conventional marketplaces into more aspects of their daily lives.

There is still a tendency to associate marketplaces with a specific destination, be it physical or in a particular online platform for trade activities.

As brands & businesses strive to stand out amongst the countless mushrooming competitors to attract the consumers' ever-shrinking attention span, the push towards adopting an omnipresent marketplace will challenge shopping touchpoints to expand beyond the current confined definitions of a marketplace. Commerce would be accessible in new and unimaginable pockets of spaces such as in-app chat spaces, in-car consoles, and daily leisure pursuits via wearables or even human microchip implants.

Integrated sensors, ultra-portable powerful microchips, and ambient intelligence within the consumers' everyday environment will enable ubiquitous marketspaces to be at the consumer's disposal anytime, anywhere.



Signals for Ubiquitous Marketspaces

Signal 1

Ultra-portable microchips such as human microchip implants, holographic chips, and implantable brain chips could set the foundations for ubiquity.

Companies like [WIMI](#) and [Ostendo Technologies](#) are developing video holographic projectors the size of Tic Tacs, while Neuralink is exploring human trials for brain-computer interfaces (BCI) in the form of implantable brain chips. This would allow for users to project holograms to view products and services anytime, anywhere. BCI would also allow users to control or select objects based on their thoughts, enabling effortless purchases whenever and wherever they are.

The use of microchip implants to make payments with the flick of the wrist, which has been pioneered by the likes of [Three Square Market](#) to purchase snacks, and the [National Swedish railway](#) to collect train fares, would also facilitate seamless payments for ubiquitous marketspaces.

Signal 2

New avenues to deliver content and opportunities to purchase goods for consumers.

[General Motors \(GM\)](#) and [Hyundai](#) are amongst automakers offering interactive in-car marketplace services to purchase things on-the-go. It is also capable of connecting to third-party suppliers for collaboration to sell their services on the car's marketplace. Amazon is also partnering with [Ford Motors](#) to offer in-car e-commerce capabilities through Amazon Alexa's personal assistant system.

Home electronic appliances are also a popular avenue for convenient and contextual shopping. [JD.com's smart refrigerator](#) comes equipped with computer vision, sensor fusion, and deep learning technologies to enable users to know what is exactly inside and when the food will expire, and can learn consumer habits to recommend a range of fruits and vegetables to be purchased from JD.com. [Xiaomi's Yunmi Internet Smart Refrigerator](#) also allows one-click online shopping for fresh produce and express delivery.

LOOKING AHEAD

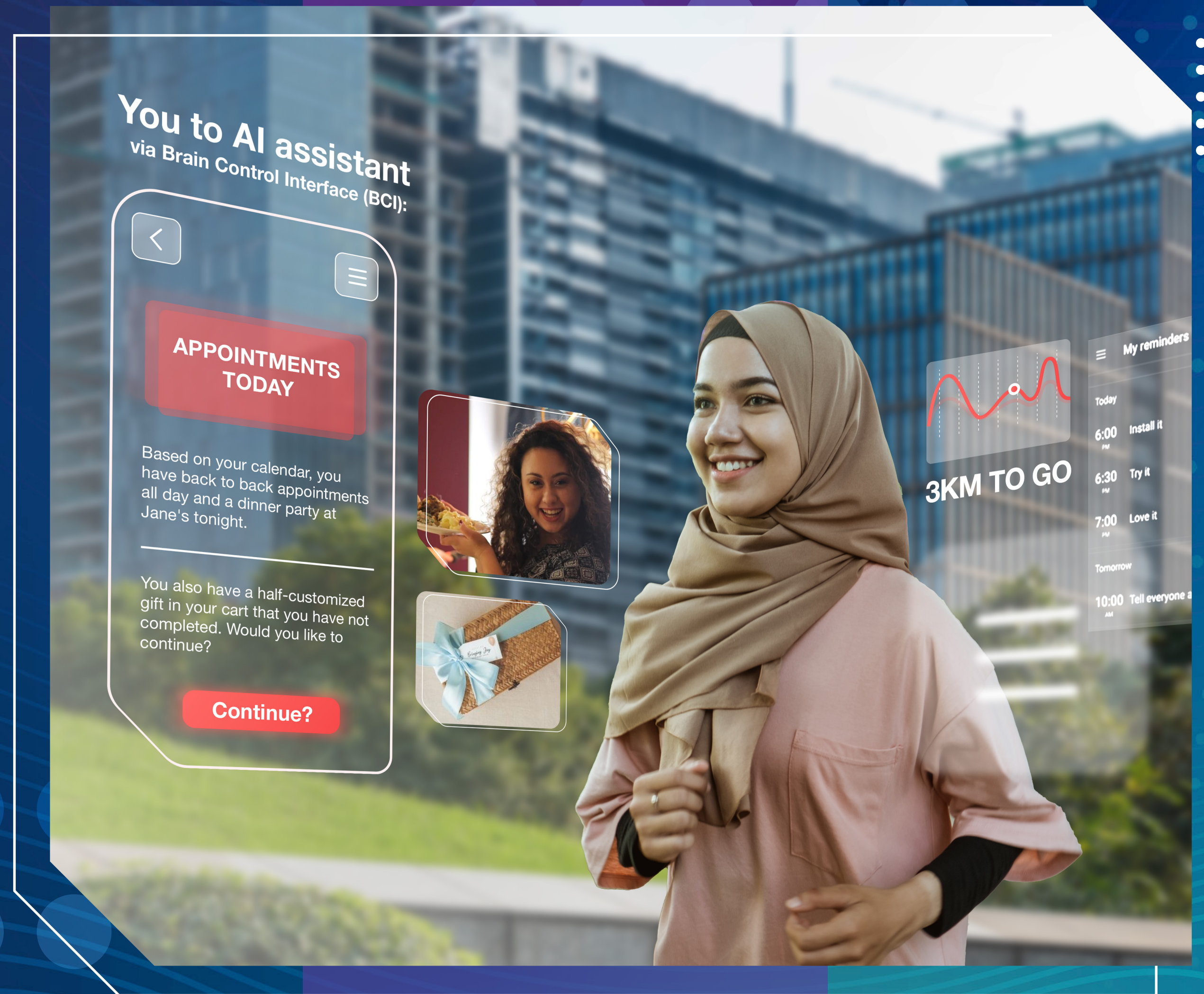
Plausible Futures

The existence of market environments where commerce is readily available and accessible, everywhere and anywhere, through wearables or even human microchip implants.

Virtual marketspaces on wearable gadgets or brain-control interface (BCI) connected through an intelligent environment, eye-tracking technologies, and artificial intelligence, allows human intentions to be deciphered and translated into actions mentally. This enables a seamless commerce experience while interacting with one's surroundings and going about the day unperturbed.

Imagine taking your usual morning run in the park. As you think "appointments today," your BCI accesses your calendar as the audio feed streams directly into your ears to remind you of your entire day of meetings and your best friend's birthday party tonight. You then slow down your pace as you realize you forgot to order the gift you were customizing mid-way. Conveniently, with one swift gesture, your interactive Pinterest-like visual board pops up in your peripheral vision. You quickly perform some finishing touches on the customized gift as you admire your work visually on the 3D-holographic projection.

As your BCI also picks up your concern on the turnaround time and logistics of the gift item, it identifies and suggests the recommended vendors within your vicinity and your location throughout the day with price comparisons. You select the seller offering a turnaround time of 30 minutes and free delivery to ensure the item reaches you before your work-day without any worries. With another gesture, the payment is made, and you resume your stress-free morning run.



Ubiquitous Marketspaces: Impact & Opportunities



PRODUCERS

Producers are expected to invest greatly in R&D to produce more sophisticated chip technologies and ambient products to cater to the changing needs of the demand side.

SUPPLIERS

Suppliers are expected to adapt and be agile to cater for the wide range of new buying and selling channels.

SERVICE PROVIDERS

Logistics and payment service providers could consider unified architectures with intuitive UI design to facilitate integration with merchant storefronts across diverse channels and digital spaces.

MERCHANTS

Innovations in marketing and merchandising are anticipated as more purchasing channels become available. Heavy emphasis on customer experience and consumer analytics would be key in engaging consumers across diverse digital spaces.

CONSUMERS

Consumers would enjoy access to more convenient and intuitive shopping experiences without the need to disrupt their everyday activities.

#2



Hyper-personalized Commerce

Tailoring the entire e-commerce consumer journey from shopping experience, to the creation of end products.

The advent of quantum computing, AI, and deep learning technologies has pampered consumers to receive unique and relevant content, products, services, and interactions tailored for the individual.

The ability to harness the abundance of real-time, granular consumer data will drive advanced analytics for brands and businesses to build highly-individualized, customer-centric and convenient shopping experiences. Furthermore, advancements in additive manufacturing or 3D-printing and 3D-visualization technologies would significantly bring down the costs and turnaround time to produce individually customized products and enable consumers' participation in the creation of the product.

Hyper-personalized commerce will go beyond anticipating each consumer's preferences to realizing each consumer's desired products to their exact specifications.



Signals for Hyper-personalized Commerce

Signal 1

Online configuration platforms facilitate seamless data collation of consumer's preferences and enable consumers to participate in the design stage of the products.

Interactive and user-friendly online product configurators or customizers such as [ThreeKit](#), [Configure One](#), and [KBMax](#) integrate seamlessly with e-commerce platforms, with highly specified data tracking and insights to help with personalization. Consumers can also experience visualizing their products in 3D with real-time customization tools before purchasing.

AI-powered unified data approach which allows vast amounts of data points to be sifted in real-time to generate insight-driven interactions are also fueling hyper-personalization as individualized data shifts the focus from product to the customer as more shoppers expect engagement based on their unique needs and interests.

Signal 2

AI-augmented production systems and developments in 3D-printing allow for cost-efficient customization.

Automotive industry players such as [Ford & General Motors](#) deploy dynamically programmable robots with agile tooling which are interchangeable for the manufacturing of different car models and variants to cater to the changing consumer needs and [mass customization](#) in a [cost-effective manner](#).

3D printing will also be a rapid enabler for cost-effective personalized products. The likes of [Bentley Motors](#) and [Volkswagen](#) have also partnered with Solid Print3D to use 3D printing in creating detailed parts for their concept car. 3D printing helps remove the need for molds whilst enabling consumers to participate in the design and printing of the products to cater specially to their needs. 3D printing also helps reduce the time required for the personalization of consumer needs with little loss in cost and efficiency.

LOOKING AHEAD

Plausible Futures

The collation of highly specific individual data can further augment each unique individual's shopping experience with tailored advice, preferences, customization, and recommendations throughout the entire consumer/customer journey.

Extremely personalized products can also be seamlessly designed and realistically visualized in real-time through 3D-visualization technologies. These products will be customized with their unique specifications that can be communicated directly to the sellers. Consumers can also participate in the entire product creation process by visualizing their desired product with its exact specifications through virtual illustrations presented to them.

Specially engineered diets would also be made possible through the Internet of Things (IoT) and a myriad of connected devices. Individual preferences, food, vitamins, nutritional needs, or even DNA-based personalized medication can be determined according to detailed health and lifestyle data.

Improved computer algorithms, design software, and highly agile robotics automation will facilitate cost and time efficiencies. 3D printers would become essentially affordable and could be present in every household to "print" any desired appliance. Instead of purchasing physical goods off-the-shelf, consumers will be able to browse for 3D blueprints of items and perceive these products in real-time as they customize them to their own unique specifications.





Hyper-personalized Commerce: Impact & Opportunities

PRODUCERS

Producers are expected to invest in AI-augmented production systems to cater for goods that are made-to-order by consumers individually.

SUPPLIERS

Suppliers maintaining strong relationships with specialized producers could benefit from supplying niche customized products and services.

SERVICE PROVIDERS

Fulfilment, Logistics & Supply Chain, E-Commerce Platforms and Digital Payments & Financial Infrastructure Providers could add value by delivering and analyzing unified data to further improve customization suggestions and algorithms.

MERCHANTS

Merchants would be expected to leverage on deep learning anticipatory analytics and unified data to discover opportunities to meaningfully engage customers and improve customer experience.

CONSUMERS

Consumers would be able to receive highly relevant and individualized marketing content and products which are tailored exactly to their needs and desires.

#3



Ultra-Precise Delivery Networks

Highly efficient speedy deliveries that find you at any location or altitude, even while you are on the move.

Fast logistics has set a standard for consumer expectations around fast, cheap and convenient deliveries.

However, the lack of flexibility to cater for real-time changes of delivery times and locations, as well as rigid delivery processes, often leads to consumers being inconvenienced by having to coordinate their schedule around the estimated time of delivery. More dynamism in the fulfillment process is required to cater to consumers' demands for instant deliveries and adapt to the consumers' dynamic behavior and lifestyles. Allowing consumers to alter delivery location or schedule as per convenience liberates consumers from being bound to a specific location at a fixed time.

Dynamic, efficient, and optimum coordination of deliveries would enable the delivery of goods straight into the hands of the consumers who are "always-on-the-go."



Signals for Ultra-Precise Delivery Networks

Signal 1

Geolocation-based autonomous deliveries are adapting to consumers' individual lifestyles.

Cambridge Consultants have developed a fully functional drone prototype that finds buyers on the go. Its DelivAir app enables delivery drones to use GPS to navigate to a recipient's smartphone location and authenticate the recipient before lowering the parcel straight into the recipients' hands.

Dronistics has also launched the GearQuad delivery drone capable of delivering parcels directly to windows and balconies.

To resolve the inconvenience of missed parcels or being confined to a fixed address, Zalando has also partnered with Belgian start-up Parcify, where recipients can schedule deliveries to a preferred geolocation, be it in the park or at a specific location.

Signal 2

The push for economic efficiencies and optimization of last-mile delivery through open collaboration frameworks.

The European Commission is funding an initiative that will enable fulfillment, logistics & supply chain players to leverage optimally on each other's interconnected logistics networks, share common assets and capabilities to optimize delivery cost, and significantly reduce carbon emissions through a reduction in the number of delivery trips made.

Amazon Flex has also embarked on crowd-sourcing deliveries and invested in route optimization software to guarantee swift and efficient delivery services to its consumers.

LOOKING AHEAD

Plausible Futures

Instantaneous, ultra-precise deliveries would be made possible with location intelligence that leverages unique identifiers such as address data, geocoordinates, and grid references.

With the increased delivery frequency, predictive modeling based on consumers' historical delivery data would significantly improve. Consumers will also have the added option to sync their work and personal calendars with cloud-based scheduling tools to pinpoint their locality at any given time, further enabling real-time location intelligence.

Fully autonomous delivery networks will be necessary to facilitate the high volume of e-commerce transactions while leveraging the physical internet to optimize maximum capacity and productivity.

Fulfilment, logistics & supply chain players will be able to balance the cost-to-serve and move towards zero-emission logistics by deploying eco-friendly autonomous delivery robots and drones with highly optimized route strategies and alternative delivery (and returns) networks.



Ultra-Precise Delivery Networks: Impact & Opportunities



PRODUCERS

Producers would need to consider highly-durable packaging needs to cater to the changing logistical needs of the manufactured products.

SUPPLIERS

Suppliers may want to review distribution strategies such as exploring the idea of bringing supply chain closer to end users, especially in highly populated areas.

SERVICE PROVIDERS

Fulfilment and logistic players may have to invest in developing the necessary delivery capabilities, with a focus on route optimizations to minimize the higher per-unit-distance costs of last mile delivery.

MERCHANTS

Merchants would be able to offer a variety of flexible delivery options to consumers and enjoy considerable savings from a highly-optimized network.

CONSUMERS

Consumers can enjoy a cost-effective, convenient and instantaneous service experience.

#4



Metaverse Commerce

The reality of virtual goods and services delivering “out-of-this-world” experiences

As social interactions, work and relationships migrate into metaverse worlds, new marketplaces have emerged to shift material goods along with them.

The use of social media, virtual online gaming platforms, and influencers has reinvented the e-commerce landscape. Empowered through the rise of computing processing power, digital currencies, widespread use of XR technologies, and 5G-enabled digital experiences, a fully interactable world where metaverse commerce would open up relentless new possibilities in which society participates and transacts will materialize.

6G capabilities to support such colossal data traffic networks will enable a fully-functioning economy capable of delivering immersive and spectacular hyper-realistic experiences.



Signals for Metaverse Commerce

Signal 1

The boom of metaverse platforms and the in-game economy show a strong spending appetite in the virtual universe.

Online virtual gaming platforms such as Roblox, Fortnite, and Animal Crossing, where players can build their worlds, have risen in popularity with a booming in-game economy to match. Roblox virtual concerts fetched seven figures for the sales of in-game items like hats, backpacks, and sunglasses alone.

One virtual collaboration experience with Gucci enabled players to buy a variety of Gucci branded in-game apparel and accessories.

A virtual Gucci handbag was even sold for USD \$1,000 more than the actual market price.

Signal 2

Retailers are filing for trademark applications, buying up the virtual real estate market, and launching non-fungible tokens (NFTs).

Retailers such as Nike, Ralph Lauren, and Walmart have filed trademark applications indicating intent to make and sell virtual goods, including apparel, electronics, home decorations, etc. Walmart has also included the provision of a Walmart virtual currency and NFT plans in its filings.

Meanwhile, Samsung has also opened its first metaverse store within Decentraland, started a venture unit where it invests in several NFT startups, and announced that its new smart TVs would allow users to purchase NFTs.

Luxury fashion brands such as Dolce & Gabbana have also launched NFTs to “tokenize” products to help reduce online transaction costs and serve as a form of authentication.

Signal 3

Virtual influencers are becoming prominent digital instruments for brands to resonate with younger consumer demographics.

Virtual social idols are fast becoming powerful branding instruments as they can be engineered to whoever or whatever brands need them to be. They also establish unique relationships with fans via user-generated content (UGC). Lil Miquela is believed to be the biggest virtual earner today, modeling for Prada, Samsung, Balenciaga, and Calvin Klein.

Virtual KOL, Ayayi has also “joined” Alibaba as a digital manager for Tmall Super Brand, where she juggles various responsibilities as an NFT artist, digital curator, and fashion brand manager. Ayayi was able to garner some 40,000 new followers overnight on Xiaohongshu.

LOOKING AHEAD

Plausible Futures

Virtual worlds will become an intrinsic part of our everyday lives where brands and businesses bid for prime virtual real estate on the blockchain, to operate virtual stores where people can socialize, shop, and interact with virtual spaces and AI inhabitants.

Brands and businesses will “employ” AI virtual influencers that take on their own digital personalities through deep learning and data analytics to anticipate the personas which resonate best with a particular brand’s audience. These virtual influencers can potentially be empowered to generate their own content.

Imagine avatars of your friends appearing around the table for afternoon tea as you discuss the latest couture purchase with a linked NFT in the metaverse. You summon your personal virtual AI assistant in the avatar skin of your favorite virtual influencer to join in the conversation and offer some insights based on your preferences and existing collection.

Future shopping activities would be a leisure stroll through the virtual mall with family and friends. Imagine shoppers being able to enjoy the walk while proudly parading their unique virtual pets and newly-minted NFT creations. Large volumes of transactions will actively take place through the virtual shopping spaces as keen on-lookers initiate a trade with each other and consult with AI virtual influencers.





Metaverse Commerce: Impact & Opportunities

PRODUCERS	New types of products can bring about new streams of revenues and encourage innovations in ways to potentially monetize this new environment.
SUPPLIERS	Suppliers could consider supplement operations with a virtual equivalent with less considerations for physical inventory space and logistics, as the only determinant in supplying virtual goods is capital.
SERVICE PROVIDERS	Service Providers are anticipated to streamline the entire fragmented experience into one single destination, with common currencies and controls. Their roles and integration of services into the metaverse would also warrant greater bandwidth using next generation spectrum for the metaverse.
MERCHANTS	Merchants are expected to re-imagine the end-to-end customer journey from using virtual influencers for marketing activities and to serve as personal assistants to consumers for purchasing needs in order to blend in seamlessly with the metaverse.
CONSUMERS	The virtual world can deliver exciting features and immersive experiences without physical limitations to consumers. Highly engaging and informative interactions can be expected with their favourite influencer from the comfort of their own homes.

#5



Eco-Commerce

Societal and regulatory pressures drive businesses to explore technologies to enable sustainable practices.

Eco-friendly and sustainable e-commerce practices have become inevitable for e-commerce businesses with shifts in social attitudes and heightened scrutiny by eco-conscious consumers.

Businesses must respond to these increasingly strong consumer values to demonstrate authenticity and leadership at the intersection of environment, social well-being, and governance (ESG). Furthermore, governments are starting to impose sustainability tax measures and working closely with industries to live up to their pledges of international treaties on climate change.

Such strong ecosystem culture and continuous innovations in technologies across the entire e-commerce ecosystem, from production, packaging, and messaging, to end-of-life management beyond consumer use, will move the e-commerce industry towards a cleaner and greener future.



Signals for Eco-Commerce

Signal 1

The new generation of conscious consumers considers the impacts of their purchasing decisions.

A [global study](#) reveals that consumers are four to six times more likely to purchase, protect, and champion purpose-driven companies. This is especially true among the millennials and Gen Z. The research also shows that younger shoppers want to buy from brands and companies that are transparent and committed to positively impacting the environment.

Another recent [study](#) reveals that more than a third of global consumers are willing to pay more for sustainability as demand grows for environmentally-friendly alternatives.

Signal 2

Technology innovations pave the way towards energy-efficient and sustainable commerce.

Virtualization technology and green cloud architecture enable the hosting of multiple applications through one server and this allows for more efficient energy consumption. Green cloud architecture is one of the latest developments of green computing which is crucial in reducing CO2 emissions from data centers.

On the other hand, companies like [Dell Technologies](#) use biotechnology-derived mushroom packaging in its divider cushions to replace harmful fillers such as Styrofoam, to ensure goods stay snugly fit during transits. Through this initiative, the amount of wasteful unrecyclable products would be reduced significantly, especially through the surge in demand from e-commerce activities.

Signal 3

Government policies are incentivizing industries to reduce packaging waste and carbon emissions.

National Extended Producer Responsibility (EPR) guidelines such as the [German Packaging Act](#) or Canadian EPR models create an economic incentive as they hold producers and suppliers accountable for the cost and impact of their products all through the product lifecycle, including beyond consumer use.

According to [World Bank](#) data, 65 carbon pricing initiatives were implemented in 2021 under 45 national jurisdictions. Carbon pricing initiatives help shift the burden for environmental damage back to those responsible for it and those who are in the position to reduce emissions. Such initiatives incentivize significant industry players and companies like [Facebook](#) to cut emissions by 94% over the last three years and aim for net-zero emissions across their supply chain by 2030.

LOOKING AHEAD

Plausible Futures

There is a growing trend of consumers that are increasingly sensitive about their shopping experience, especially among Millennials, and this includes online shopping. Consumers are becoming more aware and educated about the importance of sustainability. Hence, it is likely that conscious consumers will continue driving the eco-commerce movement to reshape the entire practice of the e-commerce value chain players from the sourcing of raw materials to clean energy sources for the production and operationalization of e-commerce activities.

New innovations and technologies such as advanced AI to optimize energy and fulfillment efficiencies will decarbonize the entire operating business ecosystem and create new areas of sustainable solutions. New and innovative practices will emerge to ensure a strong “triple-bottom-line” culture that sees people, profit, and the planet working in tandem with one another.

Continuous demand from consumers for sustainable e-commerce efforts, supported by new policies and legislation by Governments, will render sustainability-related efforts across the e-commerce value chain a status quo rather than an option.

With more countries developing new policies & legislation around carbon emissions and embracing SDG goals, sustainability would be the only way forward for all players within the e-commerce value chain.



Eco-Commerce: Impact & Opportunities

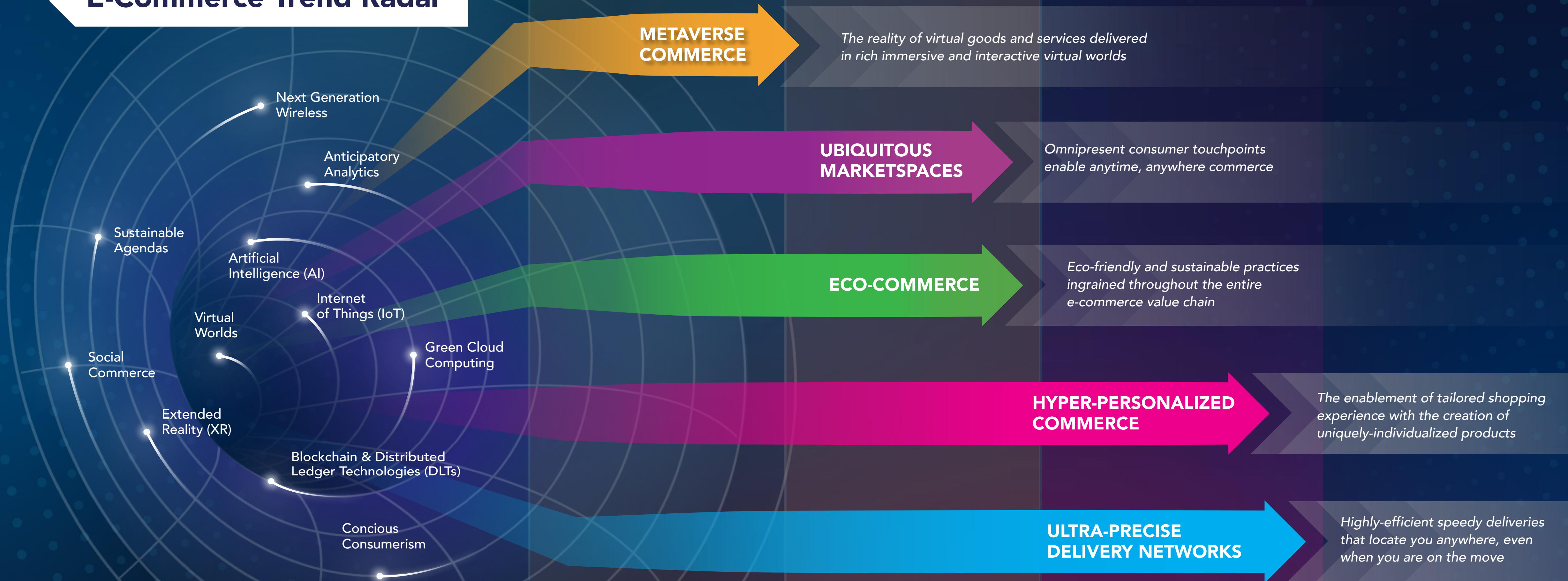


PRODUCERS	Producers are expected to meet green standards or certifications in operational compliance, whilst also ensuring raw materials used in production are sustainably sourced.
SUPPLIERS	Apart from integrating sustainable practices in operations, due diligence would become imperative in ensuring sustainable sourcing to protect the supplier's reputation.
SERVICE PROVIDERS	Service providers can anticipate a transparent data ecosystem to demonstrate sustainable practices in delivering their services across the e-commerce value chain.
MERCHANTS	Implementing sustainable innovations can help merchants stay competitive by assuring values-led, conscious shoppers and building long-term brand trust.
CONSUMERS	Consumers will be able to fulfil present needs and desires without compromising the needs of future generations. This gives consumers assurance to purchase without guilt.

E-Commerce Trend Radar



E-Commerce Trend Radar



AWARE

- ▶ Key drivers and technologies are still at a nascent discovery and experimental stage

ANALYZE

- ▶ Key drivers and technologies are still being actively developed and not very prevalent

ACT

- ▶ Key drivers and technologies are accessible, prevalent, and ready to be integrated into the ecosystem



04 RECOMMENDATIONS AND THE WAY FORWARD



Recommendations



1

Identify key players within the Malaysian e-commerce value chain and keep them abreast of the new trends through strategic workshops and engagements.



2

Understand some of the challenges faced by the players within the value chain and identify specific solutions to embrace these new technologies.



3

Revise and strengthen regulations around e-commerce to be prepare for the new types of security challenges and breaches as the industry embraces metaverses.



4

Work together with the relevant Ministries and Agencies in advocating policies on the adoption of sustainability initiatives within the local e-commerce industry .

Thanks & Acknowledgement

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E-COMMERCE TREND RADAR

Envisioning the next
decade in e-commerce