



THE NEW ARCHITECTURE *of* CONSUMPTION HOW TECHNOLOGY IS RESHAPING CONSUMER BEHAVIOUR

Pranjal Sharma

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CONSUMER BEHAVIOUR**

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Introduction

THE MUCH-CELEBRATED TECHNOLOGIES of the Fourth Industrial Revolution (4IR)^a have transformed industries and accelerated innovation. At the same time, however, they have brought remarkable challenges as not every transformation triggered by new technologies has benefited people or the planet. The Fifth Industrial Revolution (5IR)^b of more recent years has thus seen concerted efforts to place guardrails around emerging technologies, with a focus on society and sustainability.

There is another dimension of change unfolding across the world: Consumers across generations are embracing digital platforms, giving rise to newer categories of consumers. Driven by the expanding scale and quality of connectivity, digital markets are reaching even the smallest habitations. Through satellite, mobile, and broadband networks, remote communities are becoming increasingly connected to the rest of the world, though digital and gender divides remain.

This revolution has allowed like-minded consumers and citizens to form global communities that transcend regions and nations. Consumers across generations are now triggering, following, and enhancing trends on a global scale. A product can become popular—or else be condemned—within seconds. These communities exhibit behaviours that cut across markets connected through digital platforms. The needs of these new universal consumers are being fuelled by emerging technologies. In response, product makers and service providers are reworking their systems to cater to evolving patterns of consumption and expectations.

To better understand these shifts, each subsequent chapter in this report begins with a profile of a new consumer category. These profiles, developed by the team at Fireside Ventures,^c aim to capture the rapid evolution of consumer segments. From Design to Delivery; Concept to Creation; and planning to packaging, companies are transforming their operations to meet the demands of new consumers.

a The Fourth Industrial Revolution is the trend towards automation and data exchange in manufacturing technologies and processes, which include cyber-physical systems (CPS), the Internet of Things (IoT), cloud computing, cognitive computing, and artificial intelligence.

b The Fifth Industrial Revolution seeks a balance between technological advancements and human well-being, emphasising collaboration between humans and machines, environmental responsibility, and inclusive economic growth.

c Fireside Ventures is a venture capital firm based in Bengaluru which invests in retail startups. The consumer profiles in this report were created for and shared exclusively with this author.

Teenagers and young adults are no longer mere influencers of household consumption through their parents. Armed with digital payment tools and subscription services, they have become a powerful consumer segment in their own right. Though they continue to influence their parents and guardians in real-world purchases, teenagers inhabit a virtual world of gaming, social interaction, and consumption.

In a rapidly evolving digital landscape, understanding customers and gaining deeper insights into their buying behaviour is increasingly critical for business success. As consumer preferences continue to shift, traditional market segmentation based on demographics, geography, psychographics, and behaviour is no longer enough. Businesses must consider and incorporate newer customer categories and obtain deeper insights into their everyday choices that influence their consumption patterns.

Among the most prominent emerging consumer segments today are sustainability-conscious “green” consumers, fitness-focused consumers, and leisure- and health-focused customers. Another influential segment is Gen Alpha. Although young, tweens and teens in this cohort are shaping trends and influencing market dynamics.

The Attention Economy

Digitisation has not only created new categories of consumers who exhibit universal behaviour within their age groups but has also overwhelmed the world with an avalanche of information. As a consequence, the world now lives in the so-called age of the ‘Attention Economy’—an economy in which brands compete for the increasingly limited resource of consumers’ attention.^d

Attention is one of the most valuable resources because it is scarce in today’s digital age. The attention economy is often considered part of the market economy. Over the past few years, attention economics has gained prominence due to the exponential growth of social media and “influencer marketing”. According to a study by Oxford Academic, spending attention on social media translates into buying preferences, while receiving attention translates into individual capital, specifically through reputation and personal branding.¹

The dynamics of the attention economy incentivise companies to keep users engaged for longer periods on apps and websites. Designers understand that their products compete for users’ limited attention in a highly competitive market. The value of attention has become increasingly

^d The term “Attention Economy” was introduced by psychologist, economist, and Nobel laureate Herbert A. Simon in 1971, who described attention as a “bottleneck in human thought” and noted that “a wealth of information creates a poverty of attention.” With the rise of the internet in the mid- to late nineties, research on the ‘attention economy’ began to develop further with writers like Michael Goldhaber. <https://academic.oup.com/iwc/article/37/1/18/7733851>

vital, especially in the global advertising industry, which generated US\$853 billion in net advertising revenue in 2023 alone. As noted in an article published in *Forbes*, “The equation is simple—if brands have your attention, they have your pocket.”² A PwC study estimates that consumer spending in the United Kingdom’s (UK) digital attention economy reached £21 billion in 2023.³

As brands increasingly recognise the scarcity of attention, they are adapting their business models to capitalise on it. Music streaming services such as Spotify, for example, operate on two revenue models: consumers either pay to remove advertisements or pay with their attention by listening to them.⁴

Computer scientists and psychologists have been studying attention spans for 20 years. During this period, the average time a person can focus on one thing has dropped from around two and a half minutes to around 45 seconds.⁵ A study by Bulbshare reveals that 99 percent of Gen Z skip advertisements as quickly as possible, while 63 percent use ad blockers.⁶ This decline in attention spans, coupled with the active avoidance of traditional advertising, is forcing brands to rethink not just what they say but also how and where they engage consumers.

A study by marketing company Livewire on how the next generation of consumers expects brands to market to them found that Gen Z and Gen Alpha expect to be “advertised in-game.” It revealed that 73 percent of Gen Alpha gamers prefer playable experiences to video advertisements, and 58 percent consider immersion part of the enjoyment of both gaming and in-game advertising. Therefore, it is the only way to gain attention from this generation of customers.⁷

Several trends are reshaping consumer lifestyles. Going to the cinema is no longer the weekend activity it once was. Streaming services have transformed every evening into a potential “movie night”, making the weekend less relevant as a consumption category. Gaming has also become a more compelling form of entertainment for many consumers than movies. The Entertainment Software Association’s (ESA) Essential Facts Report 2024⁸ found that Millennials (55 percent) and Gen Z (63 percent) are more likely to spend their free time playing video games than watching movies. Gaming is no longer a niche activity. Increasingly, movies and games are being bundled together, with OTT platforms integrating gaming options alongside traditional content. As noted in a report by UniqCast, “With younger audiences demanding more interactivity, rewards, and engagement, streaming platforms are beginning to adopt gaming mechanics to increase retention, enhance monetization, and revolutionize entertainment.”^{e,9}

e Gamification in OTT platforms refers to the integration of game-like mechanics into streaming services to make content more engaging and interactive. Users can switch seamlessly between viewing and gaming within the same platform. It enhances user engagement, retention, and loyalty while creating additional monetisation opportunities.

Technology enables millions of universal consumers to connect, watch, and play with peers across the world on the same platforms. Indeed, the video game industry is poised for renewed growth, driven by platform convergence. As boundaries between console, mobile, and PC gaming continue to break down, developers are gaining new opportunities for smarter monetisation.

This convergence reflects a broader shift in the digital ecosystem, where attention, content, and monetisation are increasingly interconnected across platforms. In this new paradigm, video content is increasingly being produced and consumed on social platforms. Creators operate independently, platforms have different ways of incentivising them, and audiences get the content for free from algorithms designed for attention and engagement. Social platforms are extending generative-AI tools to help creators run their businesses, create content, target audiences and advertisers, and connect with brand sponsors. For brands, creators offer credibility and authenticity when reaching both mass audiences and highly engaged niche communities.¹⁰

This shift towards a creator-led digital ecosystem is also adding more formats to its profile. Digital comics and webtoons, for instance, are increasingly being created for universal consumers who interpret the world through the glass screen of a personal device. The digital comic book market is forecast to grow by US\$1.64 billion between 2024 and 2029.¹¹ As a subset of the broader digital publishing industry, digital comics focus on the distribution of comic books in electronic formats, catering to an audience seeking portable, accessible, and often interactive versions of traditional print comics. These formats offer features such as zoom functions, panel-by-panel reading, and hyperlinks to supplementary content. Digital consumption allows instant sharing and collective experiences, which are integral to the lives of contemporary consumers.¹²

The following chapters examine the many dimensions of these emerging consumption patterns and the ways in which they are shaping investment and sales cycles across industries.

Consumers increasingly demand personalisation, sustainable services, meaningful experiences, values alignment, and “everything as a service”. They expect more choices, greater customisation, and faster delivery. Industries are restructuring operations to meet these expectations. As complexity rises, companies are relying more heavily on emerging technologies to predict and understand consumer behaviour. The growing digital footprint of consumer activity has made this easier.

However, data alone does not generate insights. Excessive amounts of data can create confusion and lead to flawed conclusions. Consequently, new technologies are being deployed to understand consumer impulses. Advertising and marketing are using AI-based technologies to understand the mind of the consumer even before the buyer is aware of their own impulses.

The entire value chain of manufacturers is shifting and aligning to the growing cohort of universal consumers. Robotics is enabling more flexible assembly lines and warehouse management systems. Companies are ready to sell or rent their products and services. Sales are being conducted through an omni-channel strategy. Consumers demand constantly renewed and personalised products but are also adamant about sustainability. They want a promise that the product they use has a minimal impact on the environment.

For consumers, people and planet priorities are more important than profits. The global industry is in churn because of new consumption habits triggered by technology. These chapters will help business leaders understand the shifts and reorient their strategies to meet the needs of demanding consumers.



The Sharing and Renting Economy

Experiencing, Not Acquiring: New Business Models

Gen Z, Early Adopter: Mia is an individual.

At 21, Mia^f finds herself experiencing ‘firsts’—first job, first glimpse of the corporate world, first brush with office politics, first experience of living independently of her family, and first flatmate. She navigates these ‘firsts’ with the help of her family and friends but relies on her own judgement the most.

The people she admires and hopes to emulate are genuine, with real vulnerabilities and failings. She believes in and practises inclusivity and is often surprised by how this takes a back seat in modern life.

Mia is highly individualistic and expects people and brands to see her as such. For her, personalisation is table stakes. She is open-minded and is always open to reasoning. She spends her time with friends, going out, dating, or just hanging out, and is into fashion and beauty. She loves to travel and seeks out curated travel experiences.

Digital platforms shape her consumption patterns. Dating apps keep her engaged; she enjoys fast fashion as much as she likes to work out and stay fit. With supplements and self-care, she ensures that she does not just look good but also feels good.

Consumption areas: Dating, socialising, fashion, beauty, and travel.

Why buy when you can use? Why acquire and lose value? It is better to experience now and upgrade soon.

For consumers like Mia, the traditional notion of ownership is steadily losing relevance. Using is more important than owning. Renting is more important than buying. Experience is more important than acquisition. Mia personifies the new consumer trend where individuals are users and not always buyers.

This focus on use rather than purchase is triggering the rise of new forms of commercial transactions between seekers and givers. Accelerated by technology, this shift is transforming business models across industries as producers, marketers, and service providers are compelled to rethink their strategies.

^f Mia is a persona—a composite of characteristics—created by Fireside Ventures based on their research for the author.

The following examples illustrate how different consumer segments approach purchasing decisions and consumption.

Case Studies

To understand changing consumer dynamics, Moweb, a research institute in Germany, worked on two case studies; they shared the findings with this author. The studies highlighted the need for businesses to adapt to a new category of consumers and their evolving purchasing behaviour.

Case Study 1: A Global Fashion Retailer Struggling to Understand Customer Segments

A global fashion retailer was struggling to understand its customer base, particularly across Millennials, Gen Z, and Gen Alpha. To gain insights into these categories and tailor its product offerings, marketing strategies, and customer experiences, the brand relied on tried-and-true methods such as surveys, focus groups, and expert analysis of purchasing behaviours, preferences, and values.

Key Findings: Distinct Consumer Segments

The study reveals distinct consumption patterns across the three age groups.

Millennials (ages 30-45) show a strong inclination towards sustainable and ethically sourced products. Their brand loyalty is highly influenced by social responsibility and environmental impact. They have equal preference for online and in-store shopping, and favour brands that offer detailed product information and transparency. Marketing efforts like email campaigns, loyalty programmes, and personalised offers resonate strongly with this category. They are also active on social media platforms, particularly Instagram and Facebook, where they engage with stories and sponsored posts.

Gen Z (ages 15-30) are mainly driven by personalisation and customisation in products. Their purchasing decision is heavily influenced by social media trends, influencers, and peer reviews, and they are quick decision-makers. Gen Z prefer online shopping, with mobile being the primary platform. Interactive content like polls, quizzes, and AR try-ons generate high engagement. They prefer brands that have a strong, relatable social media presence.

Finally, the youngest consumer group, the Alpha Generation (ages 5-15), values interactive and digital-first experiences. Their brand affinity and loyalty are shaped by digital engagement. They are remarkably familiar with virtual shopping and voice-assisted technology, with a high interest in gamified shopping experiences. To engage with this consumer group, interactive advertisements and content on platforms such as YouTube Kids and other child-friendly applications prove to be the most effective ways.

Impact, Outcome, and Future Expectations

These findings not only show shifts to sustainable products but also emphasise the increasing demand for personalisation and a digital-first experience. By aligning its strategies with these findings, the retailer reported a 15-percent increase in targeted marketing efficiency and a 20-percent improvement in customer retention. More precise customer segmentation and tailored promotions helped them resonate more effectively with each segment while also enhancing the product development cycle, leading to faster time-to-market for new, trend-responsive items.

Looking ahead, the study highlights that, over the next five years, Millennials will continue to drive demand for ethical brands, with an increased focus on carbon footprint reduction. Gen Z's preference would be for more immersive digital experiences, particularly with AR/VR shopping becoming mainstream, and the Alpha Generation will demand seamless integration of digital and physical worlds and fully interactive and personalised shopping experiences.

Case Study 2: A Global Software Company's Shift from One-Time Product to Subscription-Based Options

A global software company that had traditionally relied on one-time product sales began experiencing fluctuating revenues and limited ongoing customer engagement. A company identifies a growing consumer preference for subscription-based services over one-time purchases as a key factor behind this challenge.

The software company undertook a study to analyse the next steps and to formulate a strategy to regain its position in the industry. The goal was to understand the shift in customer preferences and the factors leading to it.

Key Finding: Consumers prefer subscription to one-time sale.

The study revealed that 67 percent of respondents preferred software subscription models because they provided continuous access to new features and updates. Both monthly and annual subscriptions were popular payment options. While 44 percent of respondents preferred monthly plans for better cost management, 30 percent preferred annual subscriptions for the associated cost savings.

As customers value the continuous service and ongoing improvements provided through subscriptions, Subscription models also recorded higher customer engagement and better retention rates (72 percent) compared to one-time purchasers (44 percent).

Technology: Key Enabler of the Shift to Subscription Models

The rapid advancements in Cloud technology, Customer Relationship Management (CRM) systems, digital billing, and payment are playing a crucial role in enabling this shift towards the subscription model. The cloud infrastructure facilitates seamless updates, remote access, and scalable storage, enhancing the overall value proposition. The CRM systems are allowing efficient monitoring of subscription renewals, tracking customer preferences, gathering feedback, and supporting more effective subscriber engagement with personalised offerings. Similarly, integrated billing and payment platforms are making it easier for customers to manage and renew their subscriptions effortlessly and enabling smooth transactions and recurring payments.

Impact and Results

The shift to a subscription model had a positive impact on the software company's financial performance and customer engagement, particularly in terms of revenue growth, customer retention, and upsell opportunities. Through a subscription-based model, the revenue grew by 42 percent within the first 18 months of implementation, stabilising the company's income with more predictable revenue streams. Customer retention improved by 22 percent with subscribers staying engaged with the brand due to continuous updates and value-added services. The company identified upsell opportunities through the subscription platform, with 13 percent of subscribers upgrading to higher tiers within the first year.

Consumption in an Uncertain World

In today's Volatile, Uncertain, Complex, and Ambiguous (VUCA) world, consumption patterns are rapidly evolving. The growing economic uncertainties and rapid digitisation have made consumers increasingly favour “access over ownership”, “agility over accumulation”, and “experiences over possessions”. Businesses are therefore compelled to move beyond traditional product engagement and embrace innovative business models such as renting, sharing, and lending, combined with innovative financing techniques to ensure ease of experiencing a product or a service without actually acquiring it.

According to Proficient Market Insights, the sharing economy market, valued at US\$113 billion in 2021, is projected to grow at a CAGR of 32.08 percent to reach US\$600 billion by 2027. Although the sharing economy—a peer-to-peer (P2P) model that enables people to acquire, provide, or share access to goods and services—has existed for decades, it is experiencing a resurgence driven by digitisation and improved accessibility.

Factors Fuelling the Rise of Renting and Sharing

From housing and transportation to clothing and entertainment, the renter economy is now dominant, enabling new levels of freedom, flexibility, and sustainability. At the heart of this shift is the ubiquitous digitisation, which has made subscription-based consumption more lucrative than one-time payments and ownership. Renting, leasing, or sharing is now seen as a more reasonable and practical choice, especially in times of economic uncertainty.

According to Credence Research, the Mobile Phone Rental Market, valued at US\$2,600.00 million in 2018 and US\$3,515.40 million in 2024, is projected to reach US\$7,471.74 million by 2032, growing at a CAGR of 9.99 percent.¹³ The growth in mobile phone rentals can be attributed to the high cost of purchasing the newest smartphone model, a significant barrier for many.

Another factor shaping the renting and sharing economy is the growing influence of sustainability-conscious consumer behaviours. Gen Z and Millennials are known to be environmentally conscious. The 2025 Gen Z and Millennial Survey by Deloitte reported that 65 percent of Gen Zs and 63 percent of Millennials were willing to pay more for environmentally sustainable products or services, and that around 25 percent conducted research on a company's environmental impact or policies before buying a product or service from them. In this context, renting often emerges as a relevant option promoting resource optimisation and waste reduction.¹⁴

Renting and Sharing as a New Business Model

Many companies that traditionally focused on product sales are increasingly introducing rental and subscription options for consumers who prioritise access over ownership. Some of the most profitable things to rent in 2026 and in the coming years include home improvement tools, camping gear and camping trailers, drones, photo booths and cameras, laptops, wedding dresses, fitness equipment, gaming equipment, phones, and more.¹⁵

With 'value creation' emerging as the overarching theme for success, especially for customers like Mia, high-tech companies are reinventing themselves by transitioning from traditional one-time product sales to 'as-a-service' (AaS) offerings, subscription-based business models in which customers pay for access to a product or service rather than purchasing it outright.

This transition forms part of the broader expansion of the Everything-as-a-Service (XaaS) economy, which reflects growing consumer demand for flexibility, convenience, and outcome-based consumption. The XaaS market was valued at US\$559.14 billion in 2022 and is projected to grow from US\$699.79 billion in 2023 to US\$3,221.96 billion by 2030, exhibiting a CAGR of 24.4 percent.^{g,16}

Fastest-Growing Rental Categories

One of the fast-growing rental markets is the appliance rental market,¹⁷ which is poised to reach US\$249.65 billion by the end of 2036, growing at a CAGR of 11.6 percent. The Asia-Pacific appliances rental market is predicted to be the largest, with a share of about 33 percent by 2036, driven by a highly refundable security amount along with a weekly rental amount deposit to the service provider.

The global furniture market is also projected to grow from US\$77.81 billion in 2023 to US\$142.91 billion by 2030, exhibiting a CAGR of 9.07 percent during the forecast period.¹⁸ Growth is being driven by younger consumers, particularly Gen Z and Millennials, who relocate frequently and value flexibility. Furthermore, the increasing demand for adaptable office spaces is another key driver for rental furniture solutions.

Bikes remain among the most rented items globally, especially in regions known for outdoor activities. A report from Allied Market Research revealed that the bike rental market was valued at US\$2.1 billion in 2021 and is projected to reach US\$11.3 billion by 2031, growing at a CAGR of 18.5 percent from 2022 to 2031.¹⁹

The online clothing rental market, valued at US\$1.5 billion in 2023, is expected to reach US\$3.6 billion by 2033, at a CAGR of 7.7 percent between 2024 and 2033.²⁰ The growth of “fast-fashion” trends is further accelerating the demand for clothing rental businesses.²¹ In the overall fashion rental market, some of the leading brands include Nuuly, Rent the Runway, Pickle, and Vivrelle. The budget-conscious younger generation is the driver behind the comeback of fashion rentals. According to a study by Washington State University, 55 percent of Gen Zs said they had previously rented clothes, partly for sustainability reasons. Furthermore, the rise in the popularity of fashion vlogs, the film industry, and the television industry is expected to fuel market growth. These industries require clothes for a short duration, and thus, they prefer renting them instead of buying them.

g High-in-demand segments in this category include Accessories as a Service, Buildings as a Service, Clothing and Accessories as a Service, Car as a Service, Device as a Service, Gadgets as a Service, Furniture as a Service, Farming as a Service, and Software as a Service.

The shoe rental service market, valued at US\$0.3 billion in 2023, is expected to reach US\$0.7 billion by 2032, growing at a compound annual growth rate (CAGR) of about 9.8 percent from 2023 to 2032.²² The rental model is also gaining traction beyond consumer goods. The global construction equipment rental market is expected to grow from US\$100.51 billion in 2023 to US\$130.51 billion by 2028 at a CAGR of 5.6 percent.^{h,23}

As technology reshapes lifestyles and economic and climatic-related uncertainties influence spending decisions, renting, and sharing have emerged as reliable forms of spending. Millennials and Gen Z are leading the way by embracing flexibility and sustainability over the traditional idea of ownership. The shift can be seen in several research reports indicating impressive growth the renting and sharing market has experienced, and it is only set to accelerate. From clothing to cars, companies are racing to develop innovative sharing models and flexible financing options to cater to this dynamic demand. The future of consumer choice is all about access, agility, and staying ahead of the curve.

h Some of the growing sectors of the equipment rental industry are power equipment, tool rental, material handling equipment, event and party supplies equipment, and medical equipment rental.



**‘Generation
AI’
Consumers**

Gen Alpha, Early Teens: Albert is online.

13-year-old Albertⁱ lives in a tree-lined suburban city, but that is only when he is offline. For most of the day, he is online. He spends his time playing games on Roblox, battling opponents, climbing leaderboards, building worlds in Minecraft, and comparing creations with other players. Throughout it all, he stays connected with friends on Discord, discussing strategies, trends, and new developments.

These platforms are his true habitat—and where he spends much of his, or rather his parents', money.

Albert plays soccer and watches movies, but expertise carries greater weight in his world. He is often more willing to skip a blockbuster movie or a football match to watch his favourite streamer on Twitch. After all, that is how he learns new tricks and hacks.

His parents are a bit unclear about how deeply Albert is anchored in the virtual world, but they, too, turn to him for ideas and suggestions, and, more often than not, go with his selection. Albert's opinions stem from well-researched choices, whether it is Korean burgers or ordering snacks on quick-comm. Right now, he is into all things Korean, whether music, fashion, or food.

Consumption areas: Gaming platforms

The Rise of the Universal Consumer

This era is witnessing the rise of the universal consumer—a generation that exhibits remarkably similar behaviours, aspirations, and consumption patterns across geographies. Whether in Dubai, Delhi, Detroit, or Delphi, millions of young consumers are connected through social media and e-commerce networks. While regional preferences remain, this is perhaps the largest cohort of common behaviour consumers that the world has seen so far.

Historically, the term “universal consumer” referred to a relatively small group of wealthy individuals who purchased yachts, jets, and expensive jewellery.^j They belonged more to a global elite than to any specific country. Today, this has extended to the middle-class, digitally connected young consumer. What was once the domain of high net-worth Individuals (HNIs) is now visible among this new generation of consumers. They share similar purchase preferences and follow similar trends across economies and geographies.

i Albert is a persona—a composite of characteristics—created by Fireside Ventures based on their research for the author.

j Author's own definition.

The new consumers are an interesting paradox: self-centred and hedonistic yet non-acquisitive, with no attachment to legacy brands or products.

Global media platforms have brought a uniformity of behaviour across the category. Millennials in Dubai, Delhi, or Detroit may approach apparel purchases in remarkably similar ways. Gen Z consumers in these cities may differ from Millennials, but they often share more similarities with their age cohort. While most of this would be true for Millennials and Gen Z living in urban areas, even those living in Tier-2 or Tier-3 towns are exposed to similar media platforms like TikTok and Instagram, exhibiting similar behaviour across markets.

At the core of this convergence is technology. For today's consumer, digital platforms are as fundamental as electricity was to previous generation—a basic layer of infrastructure. As technology normalises, different generations are not only engaging with but also becoming increasingly adept at new tools like Artificial Intelligence. A McKinsey survey found that Millennials are the most active users of Gen AI. The study revealed that 62 percent of employees ages 35 to 44 described themselves as highly proficient in using generative AI, compared with 50 percent of 18- to 24-year-old Gen Z and 22 percent of Baby Boomers aged over 65. Many Millennials in this age group are managers and can help their teams become more skilled AI users.²⁴

Gen Alpha: A New Force in Consumer Markets

Mark McCrindle, founder of the McCrindle research firm in Australia, coined the term “Gen Alpha”. The firm reported that by 2029, the spending power of Generation Alpha, the cohort of youngsters born between 2010 and 2024, is expected to reach US\$5.46 trillion.²⁵ Estimates say Gen Alpha's and Gen Z's spending could grow three times faster than all generations by 2030, making up one-third of the market.²⁶

Gen Alpha is not just another generational shift. While Gen Z has been highly adept at navigating the internet, Gen Alpha represents the first generation to grow up entirely in the digital age, relying on technology, connectivity, apps, and gadgets for both entertainment and education. Unlike the previous generations, Gen Alpha's familiarity with technology is far more advanced. They are way more digitally competent than even their immediate predecessors, Gen Z.²⁷ This generation is also responsible for quickly widening the generational gap through their short and special ways of communication, often blending text, images, emojis, and even memes. They have a language that older generations struggle to comprehend. Shaped by social media, memes, and rapid technological change, they often use slang that is unfamiliar to older generations.^k The

k Terms like: “vibe” - good vibes, vibe check; “slay” – a compliment for performing well; “No cap” - “no lie”/“I am being serious”; “ghosting” - suddenly cutting off communication; “flex” - to show off; “main character energy” –confidence and charisma; “simp” - someone who tries too hard to impress someone they like; “lowkey” or “highkey” - subtle or strong feelings.

new lexicon is directly influencing consumer behaviour, defining how trends spread, products are discovered, and brands are perceived by the new generation. Today, recommendations travel through memes, short-form content, and peer conversations rather than traditional advertising.

Companies across the world are trying to understand these young customers, who are not only buyers in their own right but also influential voices within their families. Brands that fail to adapt risk appearing irrelevant, while others build stronger, more authentic connections. Brands and behaviour are defined by a new confidence that is unaffected by legacy.

The End of Traditional Loyalty

For decades, companies have spent time, effort, and money to convert loyalty into habit. Once consumers became “locked in”, the sales take care of themselves. This occurred across daily use categories like toothpastes and soaps and moved to segments like vehicles and consumer durables. The replacement was usually an updated product from the same brand. The new group of consumers refuses to be locked in anymore. They prefer convenience and an asset-light life rather than owning a car or house that ties them down. They prioritise flexibility, convenience, and value over loyalty.

Legacy brands do not mean much to the new consumers. Consumer loyalty is eroding for various reasons.²⁸ The success of a brand hinges not on brand history but on its ability to meet the dynamic expectations of the modern consumer. Consumers—particularly Millennials and Gen Z—are moving away from long-established brand allegiances, driven by changing expectations around value, personalisation, and convenience. The explosion of direct-to-consumer brands that speak the same language as the consumer is preferred.

The perfume industry is an example in this context. Scents and aromas cannot be protected by intellectual property rights in many countries; only a brand or trademark can be. The young consumers are buying perfumes that smell the same as an established brand for a fraction of the cost. For these consumers, the experience matters, not the brand. Perfume makers replicate the aromas of established brands using AI and other sophisticated technologies.²⁹ TikTok and Instagram posts on #PerfumeDupe have made it acceptable for younger consumers to buy replica perfumes.

Rediscovering the Consumer-Producer Relationship

To meet unprecedented consumer demands, companies are rethinking how products are discovered, designed, produced, and delivered, with technology playing a central role.

Case Study 1

George Young, a scientist at Rockwell Automation in the US, was engaged by a global leader in athletic shoes, apparel, and accessories to address a critical challenge: reducing the development cycle of simple items, which took them about six to eight months. The consumer feedback suggested that buyers wanted new models of shoes every few weeks.

Young began by establishing a large, accessible database of all colours, shapes, and fabric textures that are used in making footwear and apparel. He then created a product lifecycle management system to centralise all historical data on design and product information. By leveraging this comprehensive data and training a generative AI model on recent consumer choices, he developed an algorithm that dynamically presented a constantly evolving set of designs. This algorithm considered past purchases, current consumer trends, and individual user history on the company's web portal.

The project was implemented for the online sales of the company's products where it displayed an assortment of items—ranging from T-shirts to leggings with diverse patterns, designs, and textures—that could be personalised for customers even as they were browsing the product. Items that are often selected by users gained prominence in the suggestion algorithm. Once the consumer selects the configuration of colour, style, and fabric of a shoe or shirt, the product can be ordered on the site. The most significant move was that the company kept the various parts of the product ready and put them together in the specified configuration only after the consumer had finalised the order. In effect, the company made the final product only after the sales had been made.

Key Takeaways

A company would typically make the product and then wait for it to be bought by the consumer. In the new world, a product is manufactured and assembled to tailored specifications only after the sale is done. And this can be done for millions of customers nearly simultaneously.

From Design to Delivery, not only has the time cycle shortened, but the limit of product variants has been lifted. Each of a million consumers of a T-shirt or shoe can create their own unique variant.

The market is shifting from “making before buying” to “making after buying”, driven by the growing demand for personalisation.

The Role of AI and Insights

Insights have become more important than ever. Understanding modern consumers requires more than traditional market research; it demands continuous, real-time intelligence. New technologies, including AI and GenAI, are enabling companies to maintain closer relationships with consumers and rapidly translate feedback into action.

Companies such as Stravito, a Swedish tech-marketing and research company, have been working to track consumer behaviour and offer rapid-cycle insights to consumer companies across sectors. Stravito's GenAI assistant is designed to accelerate time-to-insight and level up market research workflows. Their research is scattered across reports and languages. It can integrate findings from multiple sources, regardless of the original language. "We are committed to providing purpose-built AI-powered tools that help global enterprises leverage their market research to make data-driven, cost-effective decisions that fuel innovation and long-term growth," says Thor Olof Philogène, Founder & CEO, Stravito.³⁰

One example is Delta Airlines. The company invested heavily in customer research, including post-flight surveys and targeted consumer feedback in all aspects of travel—from trip planning to arrival. Delta's goal was to find an effective way to get more value out of its massive amount of research. It used the Stravito AI platform to create The Delta Insights Hub, a common platform where critical sources of information could be pooled. The researchers populated the platform with five years' worth of insights. The Delta Insights Hub was deployed to the Customer Experience Design department, where the entire customer experience is designed, i.e., from onboard food to free Wi-Fi, in-flight entertainment, and how customers check in bags and navigate security. The AI platform analysed the data from all sources and suggested solutions and efficient options for various services. The platform enabled iterative application of the research findings throughout all facets of the company's operations, including how Delta approaches checked baggage, boarding processes, pre-flight communications, customer service, and service recovery, resulting in several changes and improvements, achieving shorter time cycles.³¹

Another example is beverage company Heineken, which built an in-house AI platform for interpreting data from its various operations along with Stravito. At the core of this insights ecosystem is KIM, Heineken's knowledge and insights management system powered by Stravito. As a centralised platform for Consumer, Category, and Market Insights, KIM boasts an average of 400+ monthly users. The platform enables the organisation to get relevant data and insights globally to feed consumer demands.³²

New Technologies for Understanding Consumers

Impressive new technologies and methodologies are being used to interpret and predict consumer behaviour. The young marketing technology startup Emonomy, launched in 2020 by Andrew Kislov in the US, measures emotions to understand consumer reaction to marketing and advertising campaigns.

The platform combines facial coding, eye tracking, and attention analysis to decode consumer emotions with remarkable accuracy. How the platform works:

Baseline Calibration: Before ad exposure, each participant's emotional baseline is established, ensuring any change in facial expressions gets directly linked to the ad content, not external factors.

Natural Media Interaction: Participants browse their usual social media platforms (e.g., YouTube, Facebook) for 15–30 minutes during which select ads are seamlessly replaced with test creatives. Participants are simply asked to engage as they normally would and are compensated for data sharing, with no surveys or interruptions. This approach captures genuine, in-the-moment consumer behaviour, unlike artificial lab environments.

Real-Time AI Analysis: Ensures continuous monitoring of micro-expressions, gaze direction, and head movements while users browse the internet generating a second-by-second emotional timeline, revealing exactly when and why engagement rises or falls.

Inter-Subject Correlation (ISC): Borrowed from neuroscience, ISC measures how synchronised emotional responses are across viewers. Originally used in fMRI and EEG studies, this method—now adapted for webcam-based facial coding—identifies ad segments that consistently capture attention or leave a lasting impression. High ISC scores are strongly linked to better recall and collective engagement.

Forgetting Curve Modelling: Post-exposure, the platform tracks how quickly ad content fades from memory over time. This analysis highlights which creative elements or placements drive longer retention, helping brands optimise for sustained awareness.

Emonomy believes that recent advancements in AI language models, facial coding, and behavioural neuroscience are revolutionising how consumer behaviour is understood. By integrating data from both controlled lab environments and large-scale real-world interactions, we can now train AI systems on rich, multidimensional datasets to get unmatched predictive accuracy, helping brands to anticipate how consumers will feel and behave before an ad even launches.

These innovations are unlocking a new era of marketing possibilities, including hyper-personalised advertising and predictive consumer modelling.

Digital Listening is another critical tool for businesses to stay ahead in today's fast-paced and data-driven world. With the power of AI and real-time insights, companies can track conversations, monitor sentiment, and discover emerging trends at a scale and speed that traditional research just cannot match. Whether it is understanding customer emotions, tracking brand health, or catching a crisis before it spirals, digital listening is changing the game.

Brands are leveraging tech and AI to interpret conversations, predict trends, and even offer actionable insights, facilitating real-time decision-making. Digital Insights Consultancy Firm Curve Analytics³³ states that digital listening is crucial for brands to measure Brand health in a more nuanced way than surveys. As Ashish Verma, Managing Partner at Curve Analytics told this author, "Digital listening isn't limited to one platform. It aggregates conversations across social media, blogs, forums, reviews, and news outlets, allowing brands to see broader patterns. This cross-platform analysis helps prioritise which trends are likely to become significant innovations."

The technologies that bind the new consumers are also being deployed to go deep into the minds of buyers. The purchase decision-making of the new consumer will be as tech-infused as the attempts to understand them. New categories of consumers with radically new mindsets are able to indulge themselves thanks to the rapid development of tech platforms. The rise of these consumers and their preferences will determine the corporate strategies in a deeper way than many realise.



IV

Technologies for Insights

Gen Z, Late: Antonio is exploring.

At 27, Antonio¹ has been working for a few years and has a clearer picture of what he wants from life. While he may still be finding his feet career-wise, he is open to trying out new things—whether new food at restaurants or new experiences in different destinations.

Antonio lives in a rented apartment in an upmarket neighbourhood in Seattle. He is smart about spending and sees a smaller place as a reasonable trade-off for living close to the metro, supermarket, and gym. Fitness is an essential part of his life, and he can often be found running early in the morning before the city wakes. Even when travelling, often solo, his favourite way to explore a new place is through an early morning run.

Although he eats out frequently, he is careful about nutrition and is constantly working towards being his best self. He is more than a little protein-obsessed and loves trying new nutraceutical products.

Consumption areas: Travel, fitness, gym, fashion, beauty

Walking along the Promenade de la Croisette during Cannes Lions 2025, one could be forgiven for thinking that a global technology conference was underway. The billboards along the Croisette boasted an impressive presence of technology companies, while the cluster of white tents on the beach buzzed with conversations on technology and creativity.

Today, marketers are increasingly leveraging technology and social media platforms to track and understand fragmented consumer categories, relying specifically on Artificial Intelligence (AI) to scale and personalise creative output.

Cutting-edge technologies are bringing ideas to life in smart, more efficient, and vivid ways. Billboards with lifelike 3D visuals are now common across markets. Design software has enabled creators to amplify human creativity, while software tools allow customised campaigns tailored to local models, languages, and contexts. Visuals for print media and videos for social media can now be created in seconds and deployed at scale using GenAI. The rise of GenAI is also prompting some agencies to replace creators with AI bots.

¹ Antonio is a persona—a composite of characteristics—created by Fireside Ventures based on their research for the author.

A report by Statista³⁴ states that the market for AI in marketing is expected to exceed US\$100 billion by 2028. At present, AI is deeply embedded in the digital marketing landscape, and more than 80 percent of industry experts are integrating some form of AI technology into their online marketing activities.

Beyond creativity, AI is supporting the advertising and marketing industry to generate insights into the efficacy of ad spend for each campaign and reallocate budgets if needed, with higher efficiency and speed. It is also helping brands to track their performance by monitoring the ads of competing brands and analysing their impact on various consumer groups.

The Shift in Consumer Journey with AI

While brands and marketers are leveraging technology to influence buyer behaviour, consumers are also capitalising on new tools that help them make informed purchase decisions. According to a report by the Capgemini Research Institute, generative-AI tools have enhanced the shopping experience, with 71 percent of consumers wanting them integrated into their buying journey.³⁵ Indeed, GenAI is reshaping online purchasing behaviours, with 52 percent of users replacing traditional search engines with generative AI tools for product recommendations. Among these users, 54 percent are men and 46 percent are women.

Traditional browsers are becoming less important. Consumers are showing a strong preference for generative AI over traditional search engines for product and service recommendations. About 68 percent of consumers want GenAI tools to aggregate results from search engines, social media platforms, and retailers' websites, creating a one-stop destination for purchase recommendations.³⁶

German online retailer Zalando offers a compelling example of how AI is reinventing the consumer-seller relationship. Powered by ChatGPT, Zalando's fashion assistant enhances the consumer experience and improves engagement with the platform. For instance, when a consumer asks for suitable attire for a spring wedding in Spain, the assistant assesses the formality of the event, anticipates weather conditions, and recommends appropriate clothing. The feature is trained on consumer preferences, including favoured brands and available sizes, enabling more relevant product recommendations.³⁷

Carrefour's online shoppers in France can use a chatbot based on OpenAI's ChatGPT-4 technology to choose products based on their budget and dietary requirements or seek new menu ideas. The chatbot can also suggest ways to reduce food waste by reusing ingredients and can create shopping baskets based on specific recipes. According to retail analyst Roger Dunn, an estimated 26 million ChatGPT users can access a fully conversational shopping journey—from discovering recipes to completing purchases.

Similarly, Walmart's AI-powered search and shopping assistant enables online shoppers to compare products, receive personalised recommendations based on their preferences and needs, and virtually try products before buying them.

Harnessing Technology to Understand Consumer Behaviour

Technology has also become central to how brands understand and interpret consumer behaviour. For example, the global market research firm IPSOS uses emerging technologies to track consumer responses across various media.

One such technology is the Galvanic Skin Response (GSR). An IPSOS report has studied the integration of GSR to measure emotional responses to creative content. Although it is useful for capturing moments of emotional arousal, it does not indicate the valence (positive or negative) of the response. GSR helps identify stimuli that trigger emotional arousal, quantify levels of arousal, and compare different stimuli on a common scale. Real-time GSR data can also guide discussions by helping participants connect their impressions with the intensity of their emotional reactions. IPSOS highlights the importance of combining GSR with other methods, like surveys, to understand the full emotional impact of creative content, including the valence and tone of the response.

Facial coding is another technology used by IPSOS for its clients. This technique profiles viewers' emotional reactions to video advertising in real time. IPSOS has used facial coding for more than five years to analyse emotional responses to thousands of advertisements across markets worldwide. Facial coding breaks down every conceivable facial movement into distinct "Action Units" (AUs). By precisely identifying and measuring the intensity of these AUs, advanced algorithms and trained human coders can accurately infer core emotional responses.

Collaboration of Retail and Technology

Retail companies are also collaborating with technology specialists to gain consumer attention in the online market. For example, Unilever collaborated with data insights provider Behaviourally to optimise product imagery.^{m,38}

According to the case study by Behaviourally, humans are inherently visual, with vision accounting for approximately 80 percent of sensory information. While the brain processes visual information quickly and efficiently, many online images lack clarity or appeal, hindering

^m Unilever creates thousands of primary images at any given time and needed an efficient and effective option to test them.

the shopper's experience. The study highlights the importance of optimising primary, or "hero", images in e-commerce. Effective image optimisation can deliver numerous benefits, including faster page-loading times, improved search-engine rankings, and higher conversion rates.

AI-powered image scoring and optimisation helps retailers improve the quality of their digital content while enabling Consumer Packaged Goods companies to enhance product performance through deeper insights into image effectiveness. This creates benefits for retailers, shoppers, and CPG brands alike.

To develop its AI model, Behaviourally implemented a system leveraging mainly enhanced machine learning (ML) and computer vision (CV) techniques. It yielded around 630,000 unique data points, each representing consumer responses and interactions with the visual elements of CPG products. These data points enabled the model to identify and learn key visual factors that contribute to product success in digital marketplaces. It could further analyse the vast data sets and generate real-time insights and provide objective and unbiased recommendations.

Key Takeaways

The approach positioned the AI model as a transformative tool for the CPG industry, providing valuable insights into consumer behaviour and preferences in the digital marketplaces. Across multiple CPG categories, the best-performing product images shared three key characteristics:

- **Bold:** Using brand-led imagery and clearly highlighting the product's flavour and unit quantity.
- **Hero Images:** Featuring clear branding and a single, clear benefit or headline claim.
- **Zoomed-In and Uncluttered:** Ensuring the images are focused and not cluttered.

The findings highlighted the importance of visual elements in driving consumer engagement and preference in digital marketplaces.

GWJ, an audience data research firm, depends on technology-interpreted data analysis to generate insights. According to GWJ, clients often struggle to obtain accurate and comprehensive data insights that truly reflect consumer behaviours, motivations, and global diversity. Traditional data methodologies can lead to misinterpretations due to several reasons, such as overhyped trends driven by small vocal groups, a lack of understanding of the underlying human motivations, Western-centric data biases, fragmented insights across different aspects of consumer lives, and insufficient granularity in audience profiling. This makes it challenging for businesses to validate investments, spot genuine opportunities, and tailor strategies effectively.

To address this challenge, GWJ worked with TikTok to better understand the platform's B2B audience by examining users' motivations. The analysis revealed that C-suite professionals were

not just using TikTok for entertainment, but for business activities like networking, discovery, and consideration.

These insights highlighted untapped opportunities to target business professionals on the platform. As a result, TikTok was able to reposition itself as a gateway for B2B engagement. Arming its sales team with these powerful insights, TikTok was able to demonstrate the extent of active engagement among C-suite on the platform, backed by a highly credible third-party source, driving B2B conversations with key brands.

Designing for the Universal Consumer

Bharat Kapoor, who leads PERLaB at Kearney, advises companies on designing products for the new universal consumer. “Historically, product design has evolved through various phases, from Design for Manufacturing (DfM) to Human-Centric Design and Customer-Centric Design, among others. Each of these approaches has its merits,” said Kapoor in an interview with the author.

According to Kapoor, AI is deployed not to replace designers or engineers but to augment their capabilities. Organisations are using AI to create efficiencies and enhance product effectiveness. Initiatives like the Product Pioneer Circle aim to bring together great minds to harness the power of AI. With significant investments in R&D and design, the potential to achieve exponential growth by optimising these processes is immense.

By focusing on what customers care about, being purposeful in design, and leveraging AI to augment human capabilities, companies can create products that stand out and drive growth, according to Kapoor. “We use AI to capture comprehensive market insights, analyse user feedback, and generate actionable recommendations. For example, our AI agents can synthesise user reviews to identify desirable features and suggest improvements. This helps us create products that address real user problems and preferences. While companies are indeed changing their manufacturing and logistics processes to meet the demand for new product variants, the future lies in treating customers as segments of one. By leveraging advanced technologies and adopting innovative strategies, companies can enhance efficiency, reduce costs, and meet the evolving needs of consumers,” said Kapoor in an interview with the author.

Data-Driven Insights in a Technology-Led Consumer Landscape

With consumer behaviour constantly evolving, real-time, actionable consumer insights are especially crucial for brands. A *Forbes* report states that businesses using customer-behaviour insights outperform their peers by 85 percent in sales growth and more than 25 percent in gross margin.³⁹ The success of a business relies on in-depth consumer insights and how well they can be translated into effective action.

With progressive technologies, organisations are able to collect data and interpret customer insights much faster than traditional research methodologies. For example, businesses can delve into neuromarketing, a field that combines neuroscience, utilising neuroimaging tools, with marketing efforts to interpret the subconscious drivers of consumer behaviour.

Subconscious insights are highly critical for businesses as they help in understanding what truly resonates with customers as opposed to traditional market research methods, which rely on conscious thought and self-reported data. Market researchers can uncover the hidden motivations that influence purchasing decisions.⁴⁰ According to Harvard professor Gerald Zaltman, 95 percent of consumer decisions are made subconsciously,⁴¹ and hence, subconscious insights enable brands to create experiences that evoke positive emotions and lasting loyalty.

Common neuromarketing tools include functional magnetic resonance imaging (fMRI), Electroencephalography (EEG), biometrics, facial coding, and eye-tracking technology. Both fMRI and EEG measure emotional engagement. fMRI provides a detailed map of the brain regions involved, while EEG captures the intensity and timing of emotional responses.⁴²

Coca-Cola used fMRI research to interpret consumer preferences between Coca-Cola and Pepsi. The study revealed that the brain's reward centres were equally activated by both beverages but brand associations with Coca-Cola triggered additional emotional responses. This insight reinforced the power of brand loyalty and emotional branding in their marketing strategy.

Samsung Electronics is one of the leaders in integrating neuromarketing strategies into its consumer insights research. By using neurotechnology such as biometric sensors and facial recognition, South Korean brands are gaining a deeper understanding of customer responses to advertisements. Key companies such as Neuro-Insight and Mindlab International are pioneering advancements in neuroscience-based marketing tools. The US market's growth is also driven by the increasing use of neuromarketing in digital media, e-commerce, and advertising agencies.⁴³

Challenges in the Insights Sector

Leveraging data-driven insights is not without its challenges. Common obstacles include poor data quality, limited data literacy within organisations, and resistance to change. Data security remains a key concern in data-driven insights. Today, data privacy is a competitive business advantage and a point of differentiation for businesses that make data protection their top priority.

Neuromarketing, even though it offers significant advantages, also raises ethical considerations. The use of neuromarketing needs to be guided by principles of transparency, informed consent, and respect for consumer privacy. Companies should ensure their neuromarketing practices are ethical and do not manipulate or exploit consumers in ways that could cause harm.

Future of Insights

Some of the key trends that are set to define how businesses analyse and use data in the future include:

Synthetic data: AI is being used to create a simulation of data based on real-world information. Although these are the early stages of synthetic data, it is a significant tool, especially where it is hard to source original data.

AI, Machine Learning (ML), Natural Language Processing (NLP): NLP uses AI to analyse and provide insights from unstructured data such as video, images, and audio, which has traditionally been a time-consuming exercise until now.

Data visualisation: Effective visualisation helps communicate complex findings to a non-technical audience, driving informed decision-making across the organisation.⁴⁴

Self-service analytics: Self-service analytics is democratising access to data by allowing employees to engage directly with business intelligence tools without requiring specialised technical expertise. Combined with strong data-security practices, this approach fosters a culture of evidence-based decision-making and innovation.⁴⁵

Augmented intelligence: Augmented intelligence uses machine learning and deep learning to provide humans with actionable data. While AI handles scale and efficiency, human intervention will be indispensable for ethical oversight, bias mitigation, and sophisticated threat detection.

An IBM report, “Augmented Intelligence Requires Human Direction”, references a clinical study that offers an excellent example in this context. It said that an AI system had a 7.5 percent error rate when detecting lymph node cancer cells, while human pathologists had a 3.5 percent error rate. When input from both the AI system and pathologists was combined, however, the error rate dropped to 0.5 percent.⁴⁶

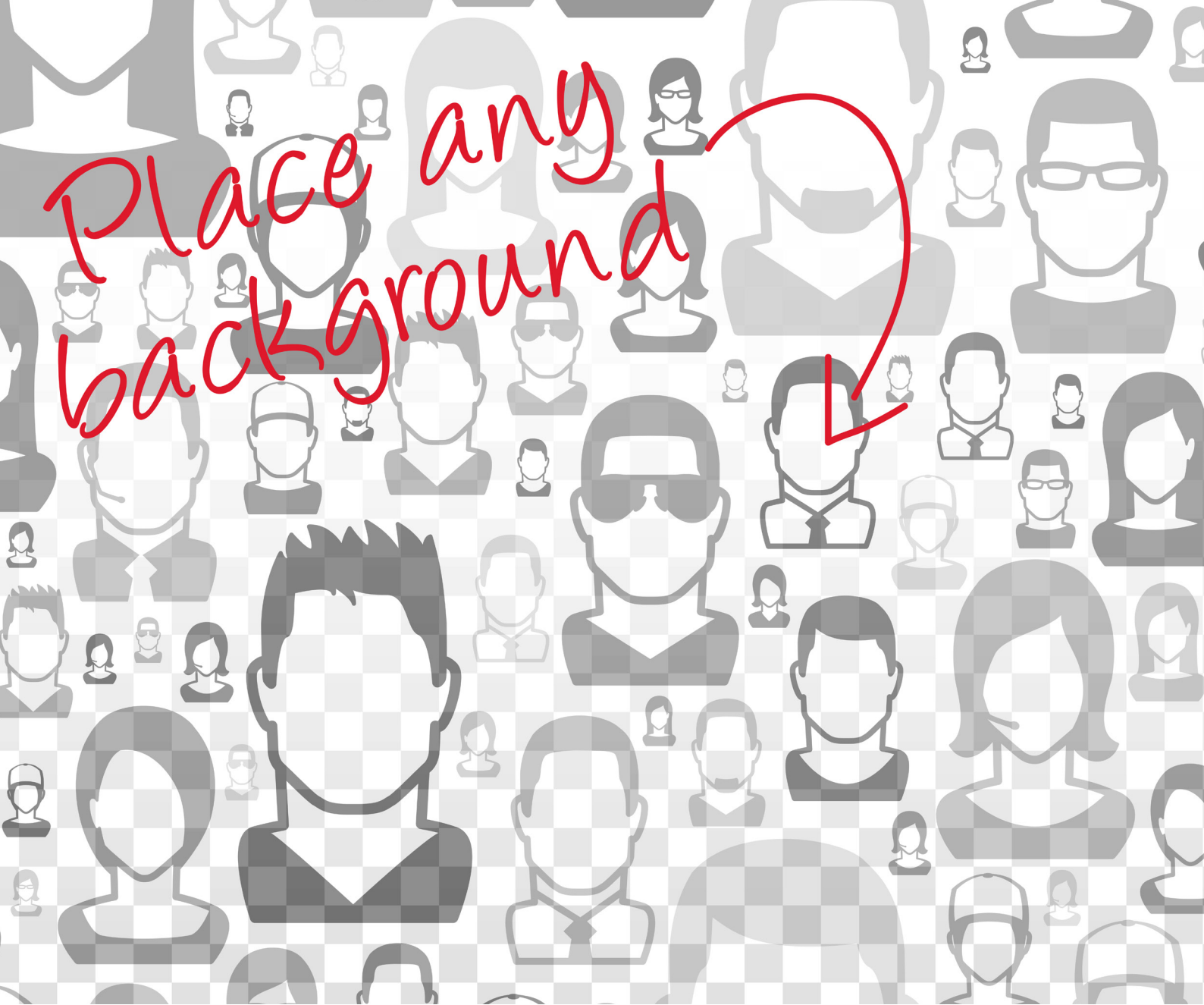
Insights Lighthouse

The insights industry plays a crucial role in empowering organisations to become more proactive, customer-centric, and innovative. It utilises existing studies to create foundational knowledge that drives future insights. Founded by Liubov Rushinskaya, Insights Lighthouse⁴⁷ is a forum for industry leaders that strives to harness the collective expertise of diverse sectors, foster innovation, and empower organisations to make insight-based decisions. In a data-rich world, it is working towards integrating diverse sources, leveraging behavioural insights, and analysing ways to offer predictive solutions as they remain pivotal in the success of any business.

Summary

When every consumer demands a tailored product and their tastes change faster than the seasons, predicting consumer behaviour becomes critical for producers. Insights that interpret purchase decisions can allow sharp and targeted messaging for consumers. Identifying even unarticulated consumer needs can provide companies with an advantage. The technologies being deployed today are only the beginning. Applications and tools based on evolving versions of AI and smart devices will bring high-value and high-volume insights.

For Antonio and other like-minded consumers, the end-use matters. Convenience and utility make them pragmatic users. For them, the service and experience are more important than ownership and brand arrogance. Companies have to factor in such behaviour. Companies will have to lean harder on technology to go deeper into the minds of Antonio and such consumers.



V

**Mass
Customisation,
the Market
of One**

Gen Alpha, Late Teen: Ayesha is global.

Ayeshaⁿ has just turned 18. While her friends and family made a big deal of the milestone, what mattered most to her were the wishes, reels, and memes that arrived from across the world.

Born into a generation that has always been plugged into the internet, Ayesha is part of the first cohort of truly global citizens. Growing up with a geographically dispersed peer group has made her highly self-reliant, and the internet is her first port of call. She trusts reviews, ratings, YouTubers, and influencers, but ultimately relies on her own carefully researched opinion. And yes, that includes the opinion of her parents.

Her heroes are not always champions or high achievers. She is drawn to people who are authentic, open about their struggles, and comfortable showing vulnerability. Authenticity is the quality she admires most about everything else.

She loves to shop, whether for school or her hobbies, for fashion or to keep up with a new Insta look.

Consumption areas: Sports, hobbies, fitness, beauty, personal care

Technology is raising consumer expectations even as companies work to meet them.

For younger consumers, the desire for unique products and services has become a baseline expectation. Customisation and personalisation were once the preserve of affluent consumers. Today, tailored products are increasingly expected by the mass market.

Consumers like Ayesha are connected across markets and geographies by common communities forged by social media platforms. While they want to be trendy, they also seek an element of exclusivity.

Fashion remains a powerful expression of identity. Younger consumers want to keep pace with contemporary styles, but they are equally driven by the desire to stand out. This has fuelled the rise of mass customisation and mass personalisation, where the same service or product is tweaked to the preference of each buyer. While customisation is about increasing the selection of choices for the customers, personalisation is about market-to-one solutions. A million buyers may want the same dress but with certain changes in colour or cut to reflect personal style.

ⁿ Ayesha is a persona—a composite of characteristics—created by Fireside Ventures based on their research for the author.

Mass customisation benefits both customers and manufacturers. It uses smart industry innovations to keep prices low and customise goods or services to each customer's preferences. In addition to providing unique value to its customers, mass customisation or the make-to-order strategy also ensures efficiency in operating costs. Brands achieve flexibility, integration, and personalisation while maintaining low unit costs with near-mass production efficiency. Customising products to individual preferences creates a tailored, satisfying experience for consumers and helps brands minimise excess inventory and unsold items, resulting in a more streamlined and efficient production process.

Today, companies are leveraging a wide range of marketing analysis tools alongside the latest technological innovations to swiftly adapt to changing trends, thereby enhancing the agility of product life cycles. Mass customisation also promotes a more sustainable and eco-friendly approach. For example, to address the problem of overproduction in the fashion and textiles industries, retailers are using new technology to shift from mass production to mass customisation and personalisation. The development is part of Industry 4.0 (I4.0), which enables made-to-measure (MTM) solutions at scale.⁴⁸

As businesses focused on mass customisation produce goods and services based on actual demand, they can reduce overproduction and minimise waste. With localisation as a key factor of personalisation, businesses are also able to minimise the carbon footprint with minimal movement of goods and often reduce.

Rapid technological innovations and omnichannel strategies have revolutionised the way consumers shop today. Convenience and personalisation now take precedence over many traditional factors in the purchasing journey. According to McKinsey Research,⁴⁹ 71 percent of consumers expressed a preference for individualised attention from businesses. A Deloitte study on customised goods and services found that 1 in 5 customers were willing to pay a 20 percent premium, and 48 percent of the respondents said they would be happy to wait longer for them.⁵⁰ To adapt to this significant shift, retailers and brands are consistently seeking innovative ways to deliver a seamless and personalised shopping experience for their customers.

From fashion and furniture to automobiles, software, and healthcare, mass customisation is being adopted across sectors. Both B2C and B2B enterprises are recording exponential growth by implementing strategic mass customisation business models. According to Allied Market Research, the custom manufacturing market is expected to grow at a CAGR of 4.6 percent from 2022 to 2031, with a projected size of US\$1,350.2 billion by 2031.⁵¹ Personalisation offers significant benefits to companies as it can cut customer acquisition costs by up to 50 percent, boost revenues by 5–15 percent and enhance marketing ROI by 10–30 percent.⁵² While on the customer side, a PwC report found that 75 percent of Gen Z consumers are more likely to purchase a customised product.⁵³

From customised emails to AI-driven product suggestions, personalisation helps retailers build stronger connections with Gen Z consumers. With the latest technology, businesses today are able to craft an array of rich and personalised experiences across all their channels by strategically collecting and analysing data on customers' preferences, habits, and past interactions.⁵⁴

Technology: The Key Driver for Mass Customisation

At the heart of personalisation and customisation lies the ability to harness vast amounts of consumer data to deliver tailored shopping experiences. AI and ML are essential in driving omnichannel customisation. Generative AI now serves as the foundation for delivering personalised recommendations at the ideal moment of purchase—a concept known as “Predictive E-commerce.”⁵⁵ 3D printing, digital twins, agile manufacturing, additive manufacturing, print on demand, robots, cobots, and cellular technology are enabling organisations to adapt to the demands of this new era in a cost-efficient way.⁵⁶

In the realm of manufacturing, make-to-order or made-to-order is a production strategy for consumers to purchase products customised to their specifications.⁵⁷ Companies manage the made-to-order model by manufacturing only the finished product once a consumer places an order. The made-to-order model allows buyers more flexible customisation of goods, unlike buying directly from the retailer's shelves.

Netflix, Amazon, and Spotify stand out as pioneers in mass-personalisation by leveraging AI. Netflix's recommendation engine suggests content based on viewing history and preferences, Amazon's analysis of past purchases and browsing behaviour provides highly personalised shopping experiences, driving sales and loyalty. At the same time, Spotify revolutionises music discovery with features like Discover Weekly, crafting playlists based on individual listening habits and preferences.⁵⁸

Examples of mass-customisation include brands like Nike and Adidas that have been offering services such as specialised web portals allowing customers to design sneakers tailored to their own aesthetic and functional needs. For an added premium, customers can even 3D print a sole custom-suited for their size. Mass customisation can be widely seen in the fashion industry, as it is increasingly adopting on-demand or made-to-order manufacturing, where clothes are produced only after an order is placed. A study by Penn State Smeal College of Business states that mass customisation of clothing can help combat overconsumption and lessen the fashion industry's environmental impact.⁵⁹

Personalising Products

Another example is ASICS, which collaborated with Dassault Systemes Solutions to address consumer personalisation. “We have been providing specific personalised value for top athletes

until now. We would like to expand this value to all consumers by combining Dassault Systèmes' virtual twin technology with our technologies, experience, and knowledge in product design. Our concept is to produce personalised insoles instantly based on individual foot measurements for each consumer. To offer this personalised value, we have designed the first personalisation studio", said Kenichi Harano, Executive Officer at ASICS, also Senior General Manager of ASICS Institute of Sport Science, in conversation with Philippe Godbout, Managing Director of Dassault Systèmes'.

Harano says that creating the ASICS Personalisation Studio is a new business model. "It's a manufacturing laboratory, with a low environmental impact that can be set up anywhere. We are manufacturing on demand, through the 3D printing process, and there is lower waste compared with the conventional process. Dassault Systèmes' Virtual Twin as a Service provided the necessary technologies, experience, and assets to build and operate the virtual twin of our manufacturing laboratory". Designing before physical construction can reduce overall cost, Godbout explained.⁶⁰

Dassault says that the rise of data, AI, and cloud computing means that companies are empowered to anticipate changes in consumer behaviour with impressive accuracy. "We firmly believe that AI and collective intelligence are key drivers of innovation and essential to the new paradigm of industry transformation," says Frédéric Vacher, Head of Innovation and Founder of the 3DEXPERIENCE Lab, a Dassault accelerator for innovation.

Dassault believes that harnessing its full potential requires more than just sophisticated analytics. It requires innovations that thrive on collaboration, shared intelligence, and open, interconnected ecosystems.

Dassault Systèmes' 3DEXPERIENCE Lab exemplifies this approach. It goes beyond traditional startup incubation by blending digital platforms, global expertise, and entrepreneurial energy to turn bold ideas into real-world solutions. The Lab operates as a dynamic innovation ecosystem, where startups, engineers, researchers, and industry leaders come together to co-create and accelerate disruptive technologies for new consumer demands.

Beauty for Individual Needs

Haut.AI is a pioneering company focused on the beauty and wellness industry. Its science-driven, AI-powered solutions enable large-scale personalisation, helping brands achieve tangible business results while enhancing the consumer experience with greater consistency, relevance, and impact. One of AI's flagship solutions is its AI Skin Analysis technology, which delivers personalised skincare recommendations from a single selfie. Accessible via smartphone without any special equipment, the analysis is quick, user-friendly, and adaptable to various environments—creating a scientifically grounded and consistent product discovery experience.

To deepen personalisation, Haut.AI offers SkinGPT, a generative AI platform that simulates the effects of skincare products or treatments before purchase. Using clinical data and advanced dermatological modelling, SkinGPT predicts how a formulation will affect an individual's skin over time—tailoring simulations to the user's actual skin condition and offering previews of tone, texture, and targeted results.

Haut.AI's latest innovation, Skin.Chat, unifies these capabilities into a single intelligent chat interface. It combines image-based analysis, personalised product recommendations, educational content, and dynamic engagement—all within one conversation. Skin.Chat is designed to reflect each brand's voice and values, staying on-message and avoiding off-brand claims. This ensures consistent communication across channels while offering science-backed support that builds trust and drives action.

Challenges of Mass Customisation

Mass customisation also has its challenges, and the most common is the challenge of balancing the costs. While mass production is cost-effective due to its uniformity and economies of scale, mass customisation requires a specific line of production, resulting in increased costs in design, manufacturing, and logistics. Additionally, diversity in production leads to challenges in maintaining efficient inventory levels, ensuring timely delivery of materials, and managing relationships with a larger pool of suppliers.

Customer privacy and data management are some of the other challenges. Customisation inherently demands the collection of detailed personal information from customers, including preferences, sizes, and, occasionally, biometric data. Managing this sensitive data presents multiple issues, including the risk of data breaches or unauthorised access to personal customer information, which can lead to reputational damage and legal consequences. Along with security, data accuracy and keeping it up to date are equally challenging. Strong data protection measures and transparency on how they use customer data are critical for companies.

Implementing mass customisation not only demands a reassessment of business operations across manufacturing, distribution, marketing, and customer service, but also necessitates a data governance model that empowers consumers to control how their data is used in this process. As AI and data analytics continue to grow, organisations will face increasing pressure to address these concerns and ensure the responsible use of customer data to maintain consumer trust.

Future of Mass Customisation

Generative AI and digital twins are on a constant rise. A study by Ericsson reveals that the usage of GenAI applications for text, image and video creation and processing is expected to rise from 47 percent to 78 percent in a seven-10 year timeframe, indicating a shift towards AI-driven content creation and digital product development.⁶¹ It also notes that the share of product and service development conducted digitally is predicted to rise from 63 percent today to 78 percent in seven-10 years. Additionally, 55 percent of decision-makers interviewed in the same study believe that the key to successful production and manufacturing by 2030 will be having the best algorithms for deep learning and decision-making in autonomous operations.

The mass customisation era, driven by AI, data analytics, and digital twins, will continue to transform industries by enabling highly relevant products and services. Through advanced simulation and testing tools, these technologies will reshape consumer experiences, offering new opportunities for innovation, while also presenting challenges that organisations and society must navigate effectively.

Location Intelligence

The location-intelligence market is expanding rapidly as digital mapping becomes increasingly integrated into the lives of consumers, citizens, governments, and businesses. Companies are using location intelligence to understand consumer behaviour and offer customised products and services.

By contextualising data within a geographic framework, businesses gain a multidimensional view of customer behaviour, market dynamics, and operational efficiency. Concepts like geofencing and proximity marketing capitalise on real-time intent, increasing conversion rates by aligning messaging with a customer's immediate context. By layering geographic data with behavioural insights, marketers craft campaigns that resonate with specific communities. Location data enables businesses to adapt interactions based on where customers are in their physical or digital journey.

Location intelligence is becoming a key input for business decisions, personal activity, and policy planning. A report by Future Market Insights says that the location intelligence market is set to grow from US\$21 billion to over US\$82 billion by 2033. "The advanced location analytics tools go beyond the basic mapping and add different filters to segregate the data well. These features help businesses in observing the consumer density in any region, along with the age, gender, and dimension filters. The location analytics system also helps enterprises in forming predictions, forecasts, and optimising sales channels," the report says.⁶² IBM describes location intelligence as a method of gaining insights from geospatial data. These insights help identify patterns, make predictions, and provide real-time understanding of location-specific questions.⁶³

Summary

The future belongs to brands that understand their customers deeply and deliver relevant experiences in real time. Global teens like Ayesha do not know boundaries. They see the world as one large community connected by social media. In this vast, uniform market, they seek individuality. This has a cascading effect across products and services.

GenAI, predictive analytics, and real-time personalisation have become the core of marketing, especially for younger consumers like Gen Z and Gen Alpha, who prioritise meaningful and identity-aligned experiences. These technologies power everything from customised offers and chatbot recommendations to moment-based content that aligns with a user's context and behaviour.

Companies that have embraced mass customisation are now taking this message to other consumer categories, too. As they invest in the manufacturing and supply chain of mass consumption, they find value in bringing all categories of consumers into their fold with the promise of uniqueness for each. Technology is also allowing each product and service to be tracked while mapping consuming communities. This tracking is happening for physical and digital activity. Each of these data points is being fed to constantly customise for increasingly smaller communities of consumers. Mass customisation will define brands and market growth for several decades.



VI

**Manufacturing
and Supply
Chain Agility**

Gen X, Middle Age: Anna is indulging.

53-year-old Anna° does online yoga every morning before heading to work at a Fortune 500 company. She has done well for herself and is planning to retire soon, so she can travel at her own pace and do many of the things she has been putting off.

She often enjoys weekend getaways with her husband and friends, where they unwind in the hills, by the sea, or even spend a long weekend abroad. They stay in the best places, often based on a friend's or a colleague's recommendation.

Anna has always been loyal to a particular set of brands, which give her comfort as much as they signal her status. She believes she has earned this. After many years in corporate life, she feels entitled to the next level—luxury. As a result, she spends on luxury fashion and beauty, including high-end treatments like fillers and other aesthetic enhancements.

She is also concerned about her health. In addition to yoga, she is rigorous about fitness and wellbeing. She is more than happy to try science-backed innovations in health, well-being, and beauty, as she intends to stay in peak shape for many years to come.

Consumption areas: Travel, luxury, comfort, preventive health, longevity

Keeping pace with shifting consumer behaviour, the supply chain is reinventing itself, evolving into a dynamic system capable of predicting, preparing for, and responding to rapid changes in demand. Today's supply chain emphasises resilience, agility, and sustainability, placing the consumer at its core in an increasingly volatile market where disruption is constant.

New-age consumers are reshaping the retail landscape through distinct behaviours and values, influencing manufacturers, retailers, and the broader supply ecosystem. According to a Zero100 survey, two-thirds of supply chain professionals note that digital technology has shifted the balance of power towards demand, leaving supply chains struggling to keep up.⁶⁴

o Anna is a persona—a composite of characteristics—created by Fireside Ventures based on their research for the author.

Leveraging Technology to Reinvent Supply Chain

Case Study 1

Consider Adverb, a North India-based robotics firm, and its collaboration with a Sweden-based dairy farming company seeking to automate the movement of materials from the kitting area to various sub-assembly work centres. This process previously relied on forklifts. With approximately 120 trolleys in use, the goal was to streamline operations using autonomous robots.

Addverb deployed Autonomous Mobile Robots (AMRs) to transport trolleys between the kitting area and the sub-assembly points. Each work centre had at least two uniquely identified trolleys tracked by a Fleet Management System (FMS). The system monitored trolley location and takt times, triggering AMR actions when trolleys became empty. Operators confirmed trolley status, signalling the FMS to deploy an AMR to retrieve the empty trolley, refill it, and return it to the designated work centre. This solution enhanced material-handling efficiency, reduced manual intervention, and optimised operational flow across the facility.

Flexible Automation

According to a report, *Supply Chains Prepping for a Greener, More Agile Future*, 34 percent of supply chain leaders identify inflexibility—the inability to adapt quickly to changes in demand or supply—as their biggest challenge.⁶⁵ Real-time planning and dynamic production have become critical requirements. Organisations are increasingly leveraging tracking, data ingestion, and demand analysis, often influenced by social media activity, to enable effective real-time replanning.⁶⁶

Nike's hyper-local stores replace 25 percent of their footwear every two weeks based on digital insights.⁶⁷ Zudio, an Indian fashion brand, refreshes its inventory every few weeks and ensures end-to-end control of the supply chain. Companies like Prose and John Deere demonstrate how dynamic production based on advanced algorithms, data analytics, and integration capabilities can meet changing consumer interests.

Rapid inventory turnover has become essential for competitive advantage, requiring close collaboration and quick coordination of merchandising, design, production, and channel needs.

AI in Supply Chain

The role of AI is expanding rapidly. A report by SNS Insider states that the AI in supply chain market is projected to reach US\$89.4 billion by 2032, driven by increased demand for efficiency and agility in supply chain operations.⁶⁸

Accenture reports that companies with the most mature supply chains are 23 percent more profitable. These leaders are significantly more likely to adopt AI and generative AI, reduce development time, improve sustainability, and optimise engineering efficiency.⁶⁹ Melissa Twining-Davis, Accenture's global operations lead for supply chains, notes that the next-generation supply chains will be able to autonomously adapt to change and be sustainable by design. They will be capable of monitoring suppliers in real time, anticipating risks, and simulating the entire product lifecycle. In 2024, AWS launched the Supply Planning module, which uses ML models to improve forecasting and inventory management.⁷⁰

Examples from the World Economic Forum's Global Lighthouse Network illustrate AI's impact.⁷¹ AstraZeneca reduced development lead times by 50 percent and also reduced the use of active pharmaceutical ingredients in experiments by 75 percent. Midea's washing machines achieved a 25 percent reduction in development cycles, a 53 percent reduction in poor-quality parts, and a 29 percent optimisation of logistics paths.

Logistics companies are using ML to optimise and manage the delivery routes. These models can prioritise shipments based on order volumes, delivery promises, contractual deadlines, customer importance, or product availability.

Agile Supply Chain and Manufacturing⁷²

Advanced demand sensing and dynamic forecasting, powered by ML, have become integral to daily supply chain operations. Collaborative tools such as robots and smart packaging machines are critical for faster changeovers and to handle a much wider range of products and shipment types. Companies are also reassessing make-versus-buy decisions with the growing need to invest in flexible core assets and skills that allow their manufacturing to respond quickly to rapidly changing demands.

Agile supply chains rely on cross-functional teams to implement new concepts and solve difficult problems through incremental sprints. Manufacturing must become hyper-agile, capable of ramping up or down based on digital demand signals. The four pillars of agility in manufacturing include flexible production systems, quick decision-making, modular supply chains, and parallel production processes. In agile manufacturing, value engineering and product development run parallel to avoid costly redesigns during production.⁷³

Warehouse and Port Automation

Globally, warehouse automation is transforming the logistics industry by integrating advanced technologies to enhance efficiency, accuracy, and sustainability. Some of these include Automated Guided Vehicles (AGVs), Autonomous Mobile Robots (AMRs), Goods-to-Person (GTP) systems. Drones are used for inventory checks and tasks requiring aerial movement. Warehouse

Management Systems (WMS) manage complete warehouse operations, including inventory and order fulfilment. Collaborative Robots (Cobots) are designed to work alongside human workers to enhance productivity and safety.

Warehouse automation has increased efficiency and accuracy by speeding up processes and reducing task completion time, and by minimising human errors. Enhanced safety is an advantage, as they perform dangerous or repetitive tasks, lowering the risk of workplace injuries. Its scalability facilitates easy adaptation to changes in demand.

While warehouse automation is transforming operational efficiency within facilities, a parallel challenge lies in the availability and accessibility of warehouse infrastructure itself. Even the most advanced automated systems cannot deliver value if companies lack timely access to the right storage capacity in the right location. This is particularly evident in markets like India, where warehousing remains highly fragmented and under-digitised. As a result, the focus is now expanding from optimising warehouse operations to creating visibility, flexibility, and on-demand access to warehousing capacity through technology platforms.

Despite warehousing being an epicentre of the supply chain, digitisation efforts have been limited across both the public and private sectors. In India, there are about a million warehouses but less than 5 percent are available online. As a result, industry gets limited information that is often incomplete and unverified. “The reason for limited or incorrect information is the lack of an exclusivity clause in India. Because of this, most of the information shared by the broker is just indicative and doesn’t capture the exact latitude and longitude. The agents fear that their clients can bypass them and deal directly with the warehouse owners,” says Arun Pandit, Co-founder of Hyphen SCS.

In more than 90 percent of the cases, these warehouses are listed by a mediator i.e., a broker, and not the warehouse owner. This is primarily because it is difficult for an individual warehouse owner to identify clients who are looking for a warehouse that matches his warehouse specifications in his city at a time when the warehouse is unoccupied and open for leasing.

Hyphen has created a tech platform for organising the supply of warehouses with a standardised format by listing the facilities after physical verification to ensure transparency and accuracy. It has over 54,000 verified warehouses spread across 450+ cities and amassing a total area of over 1 billion square feet. Hyphen SCS is also trying to bring warehouse management systems to this fragmented market by creating an operating system for small players.

For instance, Tata Consumer’s warehousing needs are seasonal for its products, like tea and cereals. In some months, they need large warehouses and in others, small storage space. For Tata Consumer, renting a large warehouse throughout the year would be a waste of space, especially since their peak needs were for only three months. Pandit says that Hyphen SCS has

helped Tata Consumer in agile warehouse renting to ensure that it only rents what is required at a specific time. The Hyphen SCS platform allows companies like Tata Consumer to meet market needs with quick turnaround times. Hyphen is also helping the quick-commerce industry with small, neighbourhood warehouses for delivery companies. By helping small businesses to adopt smart warehousing systems and improving market transparency through technology, Hyphen is aiding the rapid delivery of products for demanding consumers.

Ports are also leveraging automation to enhance their operations, especially with blockchain, while Cloud computing is used for storing, processing, and analysing large amounts of data, allowing for better decision-making and optimisation of port operations. Environmental sustainability is achieved by reducing greenhouse gas emissions and the environmental impact of port operations. Terminal control towers integrate various systems to manage and optimise port operations. The Internet of Things (IoT) monitors and controls the movement of containers, vehicles, and equipment. The benefits of port automation include faster processing, reduced vessel waiting times, improved occupational safety, lower energy consumption, and enhanced logistics performance.

As India accelerates investment in port infrastructure, emerging technologies will play a critical role in determining operational efficiency and competitiveness. From digital twins and automation to data-sharing platforms, Indian ports are increasingly adopting advanced technologies. India's first transshipment port at Vizhinjam has automated some of its processes. Vizhinjam Port offers large-scale automation for quick turnaround of vessels with state-of-the-art infrastructure to handle MegaMax containerhips.

Globally, ports are deploying emerging technologies to increase efficiency. Huawei has partnered to build a digital twin of China's Tianjin port. Overall, the market for port automation is growing substantially. The global smart ports market was valued at US\$2.0 billion in 2022, and is projected to reach US\$15.5 billion by 2032, according to Allied Market Research.⁷⁴ "Smart ports, also known as intelligent or digital ports, represent a transformative paradigm in the maritime industry. These ports harness the power of advanced technologies, data analytics, and AI to enhance efficiency, safety, sustainability, and overall operational performance," the report says. "Smart ports create a seamless and intelligent ecosystem that optimizes cargo handling, logistics, and communication among stakeholders by integrating various interconnected systems and leveraging real-time data."⁷⁵ Industry experts quoted in the report say that sensors, IoT devices, and other smart technologies are being deployed to monitor various aspects such as vessel movements, container tracking, weather conditions, and equipment performance.

India has also launched its efforts to integrate port management using data generated by automated processes. As the country plans to build multi-billion-dollar mega port clusters by 2047, smart technologies will be at their core for efficient cargo management.

Consumer Demands Are Redefining the Food Supply Chain

The supply chain for the food industry is undergoing a sharp change as well, with demanding consumers and strict regulations. The new generation of consumers is expecting higher levels of transparency and disclosure by food companies. Concerns about food safety rise periodically as more information about the impact of chemicals is revealed. Contamination of food can happen from the time of growing plants to processing, shipping, storage, and delivery at retail. In recent years, AI has been helping food producers respond to rising concerns about what consumers eat.

The US government's Food and Drug Administration (FDA) has been supporting the use of technology for safer consumption, with the goal being "end-to-end traceability". According to the FDA, "Under the New Era of Smarter Food Safety, one of FDA's goals is to encourage stakeholders, including technology providers, public health advocates, entrepreneurs, and innovators from all disciplines to develop traceability hardware, software, or data analytics platforms that are low-cost or no-cost to the end user."⁷⁶ The US FDA's approach has an impact not just on its domestic producers but also on global companies that are exporting products to North America.

Another report, by Mordor Intelligence says, "AI has gained prominence over the last few years, with many companies actively investing in exploring the technology potential in the industry. This emerging AI technology is helping F&B companies with supply chain management through logistics, predictive analytics, and transparency."⁷⁷ The report says that the use of AI in the food and beverages market will grow from US\$9.68 billion in 2024, and is expected to reach US\$48.99 billion by 2029, growing at a CAGR of 38.30 percent during the forecast period (2024-2029).

AI feeds on the information generated by the sensor network of IoT, which is deployed across the supply chain in the food industry. "IoT in food processing enables food companies to gain improved levels of traceability, food safety, and accountability across the whole supply chain. Moreover, organisations may monitor food safety data points by using real-time temperature tracking sensors, ensuring active cold chain management," says an assessment by Emergen Research.⁷⁸

Managing food supply chains remains a precarious task. From the farm to processing to shipping and shopping, the companies need to be alert and informed all the time. The challenge is not just for their own products but also for the ingredients that go into the final products. This implies that large food companies have to be integrated with their suppliers for monitoring quality and safety.

Industry and regulators will also need common technology standards to assess and maintain food safety. As consumers become more demanding with rapidly changing preference, the entire chain of activity that leads up to a product sale will undergo deep shifts.

Summary

Mature consumers like Anna and newer generations are equally demanding. As the consumer seeks constant novelty, the product cycles are shortening. A rapid turnover of products in shopping carts is pushing manufacturers to innovate faster using technology. Manufacturers and suppliers will have to increasingly introduce flexible manufacturing lines to rapidly change their product lines. Consumers are impatient and not as loyal as they were earlier. Companies that do not adapt will suffer market loss.



VII

Conscious Consumption

Millennial: Sue is hooman.

Sue^p is 33 and loves living by the seaside, far from the big city grind. Most mornings, she and her dog head to the beach. She and her husband swapped the hustle of the city after deciding they deserved a sea view and a laid-back lifestyle, even as they kept up their high-pressure careers.

Mental health is critical for Sue. She is among a growing number of people who have left the metropolitan centres in pursuit of their ideal lifestyle earlier in their working lives. Living in a simpler neighbourhood, walking or cycling for errands, practising yoga in the morning sun, and taking long walks on the beach are central to her wellness routine.

She is also focused on building strength and works regularly with a trainer to maintain her fitness as she ages. She complements her exercise routine with clean-label protein products and other supplements.

Consumption areas: Travel, luxury, experiences, home, fashion, beauty, smart tech, nutrition, fitness, health, convenience

Millions of conscious consumers like Sue are driving change across industries. These consumers seek products and services that minimise waste and demonstrate environmental responsibility. As their numbers grow, the effects are cascading across sectors. With climate change becoming increasingly visible in everyday life, consumers are paying closer attention to the environmental impact of their purchasing decisions and seeking ways to reduce their carbon footprints. According to the Economist Intelligence Unit, online searches for sustainable goods have risen by 71 percent globally over the past five years.⁷⁹ There is a change in the buying and consumption patterns of Gen Z and millennials, with sustainability factors driving purchase decisions. Deloitte's 2024 Gen Z and Millennial Survey reveals that more than seven in ten of surveyed Gen Zs and millennials consider environmental credentials and policies important when evaluating a potential employer, and around two-thirds of both cohorts agree to pay more for sustainable products or services.⁸⁰

As consumers evolve, so do producers. Manufacturers and service providers are increasingly aligning their offerings with sustainability-conscious consumers. For instance, French Chef Alain Passard, who rose to prominence for his signature dishes such as *poulet au foin* (chicken cooked in hay), has become a leading figure in Paris's growing vegetable-based dining movement.

^p Sue is a persona—a composite of characteristics—created by Fireside Ventures based on their research for the author.

Reuters reports that Passard has removed almost all animal products from the menu at his three-Michelin-star restaurant, Arpege. It is now the first restaurant with three Michelin stars in France to move to plant-based food, joining the ranks of Eleven Madison Park in New York, which made a similar transition under chef Daniel Humm.⁸¹

For a predominantly carnivorous country, France has been leading the way for meat substitutes. During the Olympics in 2024, over 60 percent of all food and beverages served across all sites for the public were plant-based and 30 percent of the items at Athletes' Village were vegan. France had prepared to serve 13 million meals during the games.⁸²

The shifting consumer focus towards sustainability has led to the staggering rise of the plant-based meat industry. The global plant-based meat market size was valued at US\$7.17 billion in 2023 and is projected to reach US\$24.77 billion by 2030.⁸³ Millions of meat-eaters are now switching to plant-based versions. According to studies, plant-based meats consume less water and are gentler on the environment.⁸⁴

Rising Consumer Consciousness

Efforts to address climate change have increasingly relied on collaboration among governments, the UN Sustainable Development Goals (SDGs), and public-private partnerships such as the Global Alliance for Climate-Smart Agriculture have helped elevate awareness of environmental challenges. Alongside these efforts, consumers are demanding greater accountability from businesses.⁸⁵ According to Deloitte, many consumers believe governments should play a larger role in ensuring businesses address climate change and environmental sustainability.⁸⁶

Demand for sustainable products is expected to continue growing despite inflationary pressures and rising living costs. Research involving 20,000 consumers across 31 countries and territories found that more than four-fifths of respondents were willing to pay a premium for sustainable products. Consumers increasingly evaluate brands based on sustainability criteria such as production methods, recycling methods, eco-friendly packaging, the positive contribution towards conserving nature and water, and a green supply chain.

Businesses Moving Towards Green Supply Chain

As sustainability becomes central to consumer choices and stakeholder priorities, integrating it into supply chain management is crucial for safeguarding a brand's reputation. Supply chains account for over 90 percent of global greenhouse gas (GHG) emissions.⁸⁷ According to a Deloitte report, 70 percent of corporate emissions are Scope 3 emissions, which occur throughout the company's supply chain.⁸⁸ Regulatory bodies and investors have been demanding that companies

disclose their Carbon Footprint of Products (CFPs) and urging organisations to rethink how they source, produce, and distribute. Additionally, consumers are also demanding ethically and sustainably sourced products, accelerating the shift towards a green supply chain.

A green supply chain includes green logistics such as efficiency in transportation, warehousing, and distribution, as well as better waste management, preservation of natural resources,⁸⁹ and implementation of circular economy principles⁹⁰ to control carbon footprints. Some recent initiatives where corporates have shown shifts include Philips and IKEA. Philips has implemented a sustainable product design strategy, aiming to generate 25 percent of its revenue from refurbished products by 2025, while Ikea, in Shanghai, is ensuring all deliveries use electric vehicles, saving over 300,000kg of CO₂ emissions annually. It is working towards optimising delivery routes to reduce the fuel consumption of the ICE vehicles that remain in its fleet.⁹¹

Sustainability in the Supply Chain

Gen Z is playing a particularly influential role in driving demand for ethical supply chains. The generation places a strong emphasis on fair labour practices, environmental conservation, and responsible sourcing, encouraging companies to move beyond symbolic sustainability initiatives and make substantive operational changes.⁹² They evaluate products not only on functionality but also on the values they represent, including clean labels, responsible sourcing, and supply chain transparency. Digital influence, social and environmental consciousness, and transparency and authenticity are among the most important factors shaping purchasing behaviour. According to the PDI Business of Sustainability Index, 91 percent of Gen Z say they want to buy from sustainable companies, and 77 percent of Gen Z are willing to pay more for sustainable products and services.⁹³

A report by DP World,⁹⁴ in collaboration with studioID, highlights the financial benefits of this shift. According to the report, 82 percent of respondents indicate that embracing sustainability has enhanced their organisation's financial performance.

The Role of Investors and Government in Promoting Responsible Consumption

ESG investing has gained momentum as more investors seek not only financial returns but are also committed to contributing to positive societal outcomes. A report called "Sustainable Signals" by Morgan Stanley states that more than half of individual investors plan to increase their allocations to sustainable investments in the coming years. When making a new investment, nearly 80 percent of global investors consider a company's reporting on its carbon footprint and commitment to reducing greenhouse gas emissions.⁹⁵ Venture capital climate companies are stepping up, directing billions into technologies that promise a sustainable future.

Institutional investors are also playing a role in the financing of infrastructure. By 2050, there is an estimated investment opportunity of €10 trillion in the infrastructure sector for the transformation of the European energy system to net zero.⁹⁶ To encourage investment in sustainable and green infrastructure, various financial instruments have been introduced, including Green Bonds, Green Loans, Sustainability-Linked Bonds, and Sustainability-Linked Loans.

These tools provide funding specifically for projects that support environmental goals, such as renewable energy, energy efficiency, and pollution reduction, while also encouraging companies to achieve measurable sustainability targets. By linking financing to environmental performance, these instruments drive the shift toward a more sustainable and resilient economy.

There is reduced enthusiasm among some investors as promised returns have been lower than expected. However, the broad trend of industries and investors encouraging green and planet-responsible business practices is here to stay.

Case Study 1: Aviation's Sustainability Investments on the Rise

The new consumers are also demanding a sustainable aviation industry. A report on sustainable investment in aviation by the strategic intelligence team at Lufthansa Innovation Hub, led by Ivan Terekhov, shows interesting developments. Indeed, regulatory bodies worldwide, particularly in Europe, are enforcing stricter sustainability guidelines. For example, the RefuelEU aviation initiative compels fuel suppliers to enhance their sustainable aviation fuel (SAF) offerings and mandates new data collection and reporting requirements for both fuel suppliers and aircraft operators. Many airlines are making firm commitments to reduce emissions. The International Air Transport Association (IATA) member airlines' 2021 resolution aims to achieve net-zero carbon emissions by 2050.⁹⁷

The majority of sustainability investments in the aviation sector over the past few years have targeted three main areas: electric aviation, sustainable aviation fuels (SAF), and emissions monitoring and offsetting, together accounting for nearly 70 percent of all sustainability-related deals.

Investment in emissions monitoring and offsetting technologies has also increased. These digital tools help organisations track and manage carbon emissions throughout product lifecycles and facilitate offsetting efforts through initiatives like reforestation and carbon credit trading. Such technologies are often initial steps toward broader sustainability practices and have gained traction across multiple industries.

Case Study 2: Global Shift to More Conscious Consumption

There is a clear global shift toward more conscious consumption, with growing awareness of how purchasing decisions impact sustainability, pricing, food waste, and social equity. Around 58–60 percent of consumers consider factors like eco-friendly packaging and ethical sourcing important in everyday purchases, and many are open to small, transparent premiums—44 percent are willing to pay about 2 percent extra for sustainable packaging, while 43 percent would pay a similar premium for carbon offsetting. In response, brands are introducing premium sustainable tiers, making impact visible through QR codes and digital badges, and nudging behaviour through conscious bundles and loyalty rewards tied to low-waste actions. Large companies are also innovating—for example, IKEA supports the circular economy through its Buyback and Resell programme, extending product lifecycles and reducing waste while aligning with evolving consumer expectations.⁹⁸

Greening of AI

Consumer pressure on sustainable practices is reaching the engines of enterprise. Even as companies embrace digital transformation for all business processes, its impact on the climate is being questioned. Decarbonisation of various business processes is being demanded of most companies. This involves tracking and reducing energy usage with the help of emerging technologies. However, the increasing use of energy-hungry digital technologies is creating its own set of challenges. Although AI-based solutions are being increasingly used for climate action, they are posing a new problem for the world. Consequently, a new effort of greening AI is being pursued.

AI is being recognised as an energy guzzler and a contributor to the climate crisis. At COP29, the International Telecommunication Union (ITU) emphasised the greening of AI and computing.⁹⁹ The energy consumption associated with AI technologies, particularly deep learning models, is substantial. Training large-scale AI models like GPT-3 and AlphaGo requires immense computational power, resulting in massive amounts of energy use. For instance, training GPT-3 required 1,287 MWh of electricity, equivalent to the annual energy consumption of over 120 US homes, according to research published by Springer.¹⁰⁰ Another study quoted by Springer highlighted that training a single AI model can emit as much carbon as five cars over their lifetimes. Moreover, data centres housing AI infrastructure are major consumers of electricity.¹⁰¹

According to Gartner, the electricity required to operate incremental AI-optimised servers will reach 500 terawatt-hours (TWh) per year in 2027, which is 2.6 times the level in 2023. “The explosive growth of new hyperscale data centres to implement GenAI is creating an insatiable demand for power that will exceed the ability of utility providers to expand their capacity fast

enough,” said Bob Johnson, VP Analyst at Gartner. “In turn, this threatens to disrupt energy availability and lead to shortages, which will limit the growth of new data centres for GenAI and other uses from 2026.”¹⁰²

Experts believe that AI and GenAI will be under pressure to become greener. Tech companies will have to design algorithms in a way that they consume less energy. “One of the most productive strategies in green algorithm development is the design of optimisation techniques that reduce the computational resource requirement, thus minimising energy consumption. Areas of research that are active in decreasing both the memory footprint and the computational complexity of training models include sparse training methods, quantisation techniques, and energy-aware pruning and low-precision arithmetic operations,” observes a research paper published in *ScienceDirect*.¹⁰³ The paper adds that selecting more computationally efficient hardware can also contribute to energy savings. Some graphics processing units (GPUs), compared to other GPUs, have substantially higher efficiency in terms of floating-point operations per second (FLOPS) per watt of power usage.

AI is helping reduce energy wastage and improve business process efficiencies. However, its energy use may be neutralising the overall benefits from digitisation. Technology companies and policymakers have to come together for the greening of AI. The new consumers may be addicted to GenAI bots, but they will increasingly demand sustainable options.

Case Study 3: The Phygital Model

In large economies like India, leading companies are investing in green and sustainable farming to meet the demand for responsible food by consumers. Companies like ITC are deploying technology to ensure that the agriculture value chain is smart and green.

Farming in India involves integrating a wide range of solutions—crop advisory, seeds, nutrition, protection, mechanisation, credit, and market access. However, due to small landholdings, transaction sizes are limited, necessitating multiple aggregation points. This fragmentation reduces value capture for farmers. Moreover, the diversity of Indian agriculture—spanning agroclimatic zones, soil types, crops, and farmer profiles—makes generic solutions ineffective.

Digital platforms offer a powerful way to streamline these value chains. Yet, effective adoption and delivery still require a strong physical presence. ITCMAARS (ITC Metamarket for Advanced Agriculture and Rural Services) addresses this through a unique ‘phygital’ model—blending digital innovation with on-ground support to transform Indian agriculture.

At present, ITCMAARS supports 2 million farmers across several states, building a robust ecosystem of nearly 2,000 Farmer-Producer Organisations (FPOs) and over 100 partners, including agri-input firms, banks, agri-tech startups, and research institutions. The platform is

multilingual and features a GenAI-powered voice assistant, making digital tools accessible in a natural, intuitive way. AI-driven advisory services are personalised based on farm location, soil health, crop type, and real-time conditions. Through its phygital model, ITCMAARS delivers customised Agri-Input solutions (Krishi Samadhan Kits) tailored to local needs, boosting farmer incomes by 30–40 percent.

The platform is also building demand-responsive value chains, enabling farmers to move up the value ladder through differentiated farming. As consumer preferences shift from basic sustenance to nutrition, sustainability, and food safety, ITCMAARS empowers farmers to adopt climate-smart, organic practices. This not only meets evolving consumer demands but also secures premium prices for farmers.

Summary

As environmental sustainability becomes a top priority for consumers like Sue, businesses will have to double-down on reducing their carbon footprint. Driven by growing consumer consciousness for eco-friendly products and services, the rise of green supply chain initiatives, improved e-waste management, and the adoption of technological advancements for operational efficiency reflect businesses' commitment to making their end-to-end operations more sustainable. These efforts underscore a broader shift toward sustainability as companies strive to meet both environmental goals and consumer demand for greener solutions. Sue and others like her will continue to influence their peers, seniors, and the younger generations to demand green behaviour from producers.



VIII Conclusion

The global marketplace is undergoing a profound transformation, driven by technological advancements and rapidly evolving consumer behaviour. Today, digital platforms have become as fundamental to modern life as electricity was to previous generations. They are not only essential infrastructure upon which commerce, communication, and consumption now operate, but also powerful influencers of how consumers discover, evaluate, and purchase products and services.

Creating unprecedented connectivity and behavioural convergence, digital platforms have brought greater uniformity in purchasing behaviour among different consumer categories worldwide. Key trends such as rising demand for subscription and rental models, growing environmental consciousness, and increasing expectations of personalisation are driving changes throughout the business cycle—from gaining consumer insights to redesigning production processes, enabling mass customisation, optimising supply chain management, and enhancing consumer reach.

The success of a brand today depends more on its ability to anticipate and respond to the expectations of modern consumers. The universal consumer is no longer the elite rich but an expanding cohort of young, smart, digitally connected consumers who have similar purchase priorities across various economies. Millennials and Generation Z, in particular, are redefining consumption patterns by placing greater emphasis on value, convenience, personalisation, and sustainability. Generation Alpha is emerging as a significant force in consumer markets. These digitally native consumers are not only becoming buyers in their own right but are also exerting considerable influence on household purchasing decisions. Understanding the preferences, values, and behaviours of these younger generations has become a strategic priority for companies worldwide.

With evolving customer expectations, consumer insights have become more crucial than ever. Traditional market research methods are no longer sufficient on their own. Businesses increasingly require continuous, real-time intelligence to understand shifting consumer attitudes and behaviours. AI and Generative AI are transforming how organisations collect, analyse, and act upon consumer data. These technologies are enhancing the customer experience, enabling personalised recommendations, improving engagement, and helping companies respond rapidly to changing market conditions. Advanced AI models, facial coding technologies, behavioural analytics, and neuroscience-based approaches are providing deeper insights into the subconscious drivers of consumer decision-making. Neuromarketing is emerging as a powerful tool for understanding consumer motivations and preferences with unprecedented depth.

However, the future of AI itself will be shaped by growing concerns about sustainability. While AI is helping organisations improve efficiency, reduce waste, and optimise operations, its substantial energy requirements are attracting increasing scrutiny. As environmental awareness becomes a central consideration for consumers, technology companies will face pressure to develop more energy-efficient algorithms and computing systems. Future consumers may embrace AI-driven

services, but they are also likely to demand that these technologies operate responsibly and sustainably. The long-term success of AI will depend not only on its capabilities but also on its environmental footprint.

Looking ahead, consumer choice will continue to be defined by access, flexibility, personalisation, and technological integration. The process of understanding consumers will become as technology driven as the purchasing decisions themselves. Location intelligence will remain a critical component of business strategy, public policy, and personal decision-making by providing geographic context to consumer behaviour, market opportunities, and operational performance. The future belongs to organisations that can combine data, technology, and human understanding to deliver relevant, personalised, and sustainable experiences in real time. Brands that achieve this balance will be best positioned to thrive in an increasingly dynamic and consumer-centric marketplace.

Endnotes

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