CEIBS

中国深度 全球广度
CHINA DEPTH GLOBAL BREADTH

2023 ESG WHITE PAPER

Environmental, Social and Governance

中歐國際工商學院
CHINA EUROPE INTERNATIONAL BUSINESS SCHOOL

中国深度 全球广度

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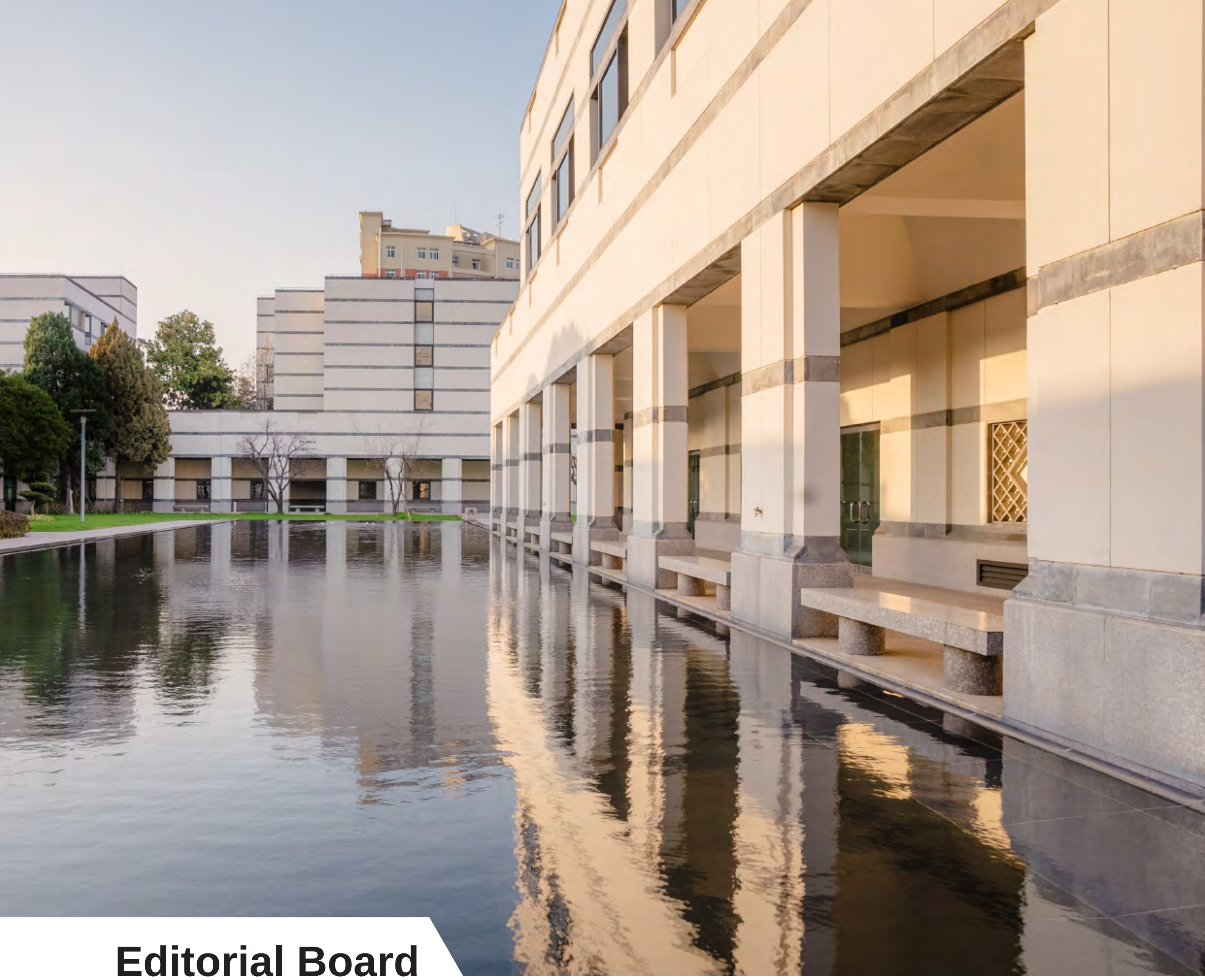

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Foreword

In today's rapidly changing social and economic environment, marked by events such as climate change and geo-conflict, uncertainty, volatility, and complexity have become the norm in business decision-making. During this chaotic period of time, sustainability has evolved from a concept to a global consensus that must be realised. As At the same time, the rollout of new policies and improvement of disclosure and evaluation criteria have contributed to an increasingly mature ESG ecosystem. The critical challenge that companies and entrepreneurs now face is balancing business value and social value.

CEIBS, a world-renowned international business school ranked among the best in Asia, is committed to the mission of educating responsible leaders versed in “China Depth, Global Breadth”. With a strategic agenda of leading responsible education, the CEIBS ESG curriculum has become more comprehensive. “A clearer understanding of unfamiliar concepts makes actions stronger and more targeted.” CEIBS integrates ESG components into the design of teaching objectives, case development and seminars, RSLM modules, thesis and capstone projects of different programmes, so that students can better understand and reflect on ESG principles and incorporate them into their business strategy.

The ESG Research Area, one of the School's four major interdisciplinary research areas, brings together the teaching and research strengths of over 30 professors from all five departments at CEIBS, with a shared goal of becoming the “go-to place” in China and Asia for the generation and dissemination of cutting-edge knowledge related to sustainability and corporate social responsibility. While steadfastly pursuing academic excellence, we have also integrated the concept of sustainable development into our long-term strategic planning and every facet of our operations. In early 2023, we began working on a green campus strategy that focuses on carbon reduction and neutrality, along with a concrete implementation plan.

In the era of uncertainty, the CEIBS community has acted on its motto of “Conscientiousness, Innovation, and Excellence”. CEIBS alumni and alumni companies continue to embed the concept of sustainable development into business practices, leading the transformation and upgrading of different industries through innovation in technology research and development, value co-creation among different stakeholders along the industry chain, and business model innovation.

We will forge ahead with enterprise and fortitude to break new ground in ESG and sustainability research and practice. Meanwhile, we hope that the CEIBS community can make even more contributions to sustainable development! At the same time, we hope that the CEIBS community will be able to contribute more and add more value to society in a sustainable way!

Prof. **Wang, Hong**

CEIBS President

Prof. **Turpin, Dominique V.**

CEIBS President (European)

Introduction

Companies are increasingly recognizing that Environmental, Social, and Governance (ESG) and sustainable development frameworks are not just tools for showcasing their socially responsible values, but are also critical for generating business value and building organizational resilience. As a result, business leaders are reevaluating how they can effectively address the needs of all stakeholders when making commercial decisions. This requires the effective implementation of sustainable development principles throughout their organizations.

As two of the key pillars of economic activity, consumption and production are critical for businesses to realize their sustainable development goals. This white paper focuses in particular on consumption, presenting a vision for "sustainable consumption" and providing guidance for future business development.

In their paper, *Scaling Up to Sustainable Mass Markets,* Professor Lydia J. Price and Laurie A. Underwood highlight how sustainable consumption has gone from a mere vision to reality. Meanwhile, shifts in consumer and community behavior and preferences are driving the transformation of business models and marketing strategies. The paper discusses the opportunities and challenges businesses face, while offering a global "best of class" roundup of advice, resources, and models for managers to adopt.

Sustainable Consumption in China: Promising from Afar, Challenging Thus Far is a paper written by Professor Yajin Wang and researcher Geng Liu. The paper explores the state of sustainable consumption in China from three perspectives: stakeholders, the external environment, and specific industries. It offers detailed descriptions of stakeholders and practical cases of sustainable consumption, and highlights the significance of stakeholder collaboration in promoting and advancing the latter.

This white paper also gives an account of the ESG practices of four CEIBS alumni companies, highlighting how they have integrated ESG principles into their business operations and pursued their own differentiated approaches toward sustainable development. Despite being disparate organizations at various stages of their development, and in different verticals, all four companies have made significant progress in implementing sustainable transformation across their value chains. The authors analyze the actions of these companies from various perspectives, such as technological innovation, consumer engagement, and business model innovation, to provide readers with valuable lessons and insights.

Additionally, this white paper presents three cutting-edge ESG studies on sustainable consumption, all authored by CEIBS professors. Professor Sheng Huang's research focuses on green technological practices, examining how digital technology can motivate individuals to protect the environment and adopt sustainable lifestyles; Professor Yajin Wang studies consumer attitudes toward lab-grown meat and explores the role of alternative foods in mitigating climate change; and Professor Hongyu Shan analyzes how corporate ESG performance affects consumer purchasing decisions, and highlights the role of ESG in enhancing businesses' financial performance.

This white paper also features a condensed version of the *Study on the ESG Reports of A-share Listed Companies* compiled by Professor Meng Rui and researchers at the CEIBS Center for Wealth Management. This year's report adopts an ESG framework and updated scoring system, giving it a broader scope than in the past. It analyzes the ESG disclosures of A-share listed companies and identifies trends across different sectors, regions, ownership structures, listing boards, and ESG topics. The report now also includes an analysis of ESG scores for consumer goods companies to match the sustainable consumption theme of this white paper.

Sustainable transformation is a long-term goal for companies. It involves optimizing existing businesses and exploring innovative models with clear strategies and an open attitude toward innovation. Only in this way can companies gain a competitive edge in a market where ESG is of growing importance. Moreover, in today's uncertain and complex world, businesses have all the more reason to collaborate with academia, seize opportunities, and build a better future together!

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INTERNATIONAL TRENDS FOR SUSTAINABLE CONSUMPTION

Scaling Up to Sustainable Mass Markets

By Lydia J. Price and Laurie A. Underwood[1]

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Sustainable development has become an essential trend that has gained widespread attention in modern society. This shift is transforming consumers, marketing, organizations, and communities dramatically. However, serious obstacles must be overcome to enable sustainable consumption to reach the mass-market scale, from economic drivers leaving consumers financially strapped, to greenwashing and purpose posturing leaving consumers skeptical and jaded. In this year's report, we report on sustainable consumption trends at both the micro and macro levels, sharing advice from several 'frontline' experts and inspiring business cases.

[1] Authors' note: Special thanks to the following CEIBS alumni and supporters for their advice and input to this chapter: Dmitry Andreev, Min Ko, Dominique Simard. We are also grateful to CEIBS students in the MBA elective "Purpose Driven Brands" for alerting us to inspirational company case studies.

Introduction

Signs are emerging that consumer demand for sustainable products can achieve “mass market” scale and scope – a vision bringing fresh hope to management teams keen to profit from responsible business (Taylor and Lichtblau 2022). The pandemic not only sharpened public interest and awareness of health and well-being, but also raised sensitivities to the environmental and social problems that impede overall prosperity (PwC 2021; Globescan 2022a). As a result, record high numbers of shoppers worldwide now report willingness to change their purchasing habits in order to improve the environmental and social status quo (Globescan 2022b; Kantar 2022; Savanta 2022). The challenge is that, for some, this includes a willingness to pay higher prices for sustainable goods (Gatzer and Magnin 2021) but for others, inflation and job insecurity are boosting price sensitivities (Globescan 2022b). To help managers to overcome price resistance, and more generally to improve sustainability marketing, researchers and consultants are studying sustainable consumption attitudes, motivators and barriers (e.g., Savanta 2022; Taylor and Lichtblau 2022; White et al., 2019). Their work suggests that customer insight and savvy marketing can eventually expand demand to reach mass market levels -- although the task remains challenging. In this year's chapter, we report on sustainable consumption trends at both the micro and macro levels, sharing current strategies managers can use to build demand for sustainable brands. Our report is organized around four central transformations needed to shift sustainable living from a distant vision into a clear reality: Changed Consumers, Changed Marketing, Changed Organizations and Changed Communities. After detailing these key trends, and sharing advice from several ‘frontline' experts, we close with our most inspiring sustainable consumption mini cases.

SUSTAINABLE CONSUMPTION REALITIES

The Problem

Sustainable consumption has emerged as a key component in the critical goals of holding global warming within 1.5 degrees Celsius, reducing pollution, and reversing the decline in biodiversity (UN 2022). Consumer goods companies have discovered through lifecycle studies that large proportions of their GHG, water and waste footprints lie in end-user consumption and disposal behavior rather than factors under direct control like manufacturing and transportation (Sala and Castellani 2019). The UN acknowledged the scope and importance of tackling these market-level challenges by naming *SDG12: Responsible Consumption and Production* as one of the 17 Sustainable Development Goals (SDGs). Among the specific targets of SDG12 are to manage and preserve the planet's resources, eliminate waste of all kinds, and promote understanding of sustainable lifestyles via public education. While governments and companies worldwide have agreed to support the SDGs since their release in 2015, progress has been slow. The UN (2022) recently reported, for example, that global reliance on natural resources increased 65% from 2000 to 2019, most of the world's e-waste is not safely managed (just 22% is collected and recycled) and 30% of food is wasted between harvest and end-use. Still, public education on these issues is improving: 90% of nations worldwide now claim that education on sustainable development and global citizenship is “at least partially mainstreamed” in national primary and secondary education systems, including teacher training and student assessments (UN 2022).

On a related front, it is becoming clear that the UN's planet-saving environmental goals will remain beyond reach if today's extreme social inequities persist. One visible example: the conversion of climate-stabilizing forests to farmland as low-income communities struggle to meet the basic necessities of survival. Hence, the full set of 17 SDGs cover a spectrum of inter-related environmental, social and institutional challenges. On the commercial side, consumers and industry groups have shown great interest in closing the many gaps on diversity, equity and inclusion; companies have already begun to address these issues in their employment, product sourcing, and marketing activities, though there are worries that many bold diversity pledges of the past few years are not being fulfilled (Klara 2023). This year, the public showed growing concern that companies treat their workers well and pay a living wage (Savanta 2022), a trend that is notably visible in the US where support for labor unions moved up to levels not seen since 1965 (McCarthy 2022). And at Davos, the WEF highlighted the importance of investing in healthcare, education, and upskilling to protect against tech-related job losses (Sebele, 2023). Going forward, we expect the business sector to focus more attention on the integration of social and environmental issues.

As public awareness and understanding of responsible business and sustainable consumption take root, buyers are showing more concern about future vulnerabilities. They have begun, slowly but consistently, to shun brands that ignore social and environmental concerns in favor of those that willingly try to improve (Savanta 2022). This is particularly true of Gen Z, Gen Alpha, and families with young children at home (Globescan 2022b). In a recent report on luxury buyers in China, for example, Inside Retail (Bailey 2023) claimed that Gen Z buyers are more willing than others to “change their allegiances” if a brand fails to align with their values, and moreover, they will also attempt to influence others to do the same. Meanwhile, platforms such as Progressive Shopper are making it easier than ever for consumers to identify and support brands with compatible environmental and social aims (www.progressiveshopper. com). Clearly, brands must respond to these new buyer sentiments and support services or risk losing the next wave of shoppers due to preference shifts, customer boycotts or government regulation.

The Opportunity

Every challenge comes with opportunity, and the silver lining for sustainable consumption is that public aspirations for a better life can be a driving force to propel improved brands to the top of their field. Already, ‘sustainable brands' have been shown to grow 5 to 6 times faster than their non-sustainable peers in many product categories (Frey et al. 2023; Gatzer and Magnin 2021; Unilever n.d.), and the latest global-scaled studies suggest that sustainability is poised to move beyond niche. For more than a decade, the segment of highly committed sustainable shoppers has been stable at 15-20% of market studies globally, depending on product category and geographic location (e.g., Bemporad et al. 2012; Globescan 2017; Sanghi et al. 2022). Predictably, ‘uninterested' or ‘resistant' buyers comprise an additional 10-15% of survey samples. For managers, this means that marketing attempts to sell sustainability for its own sake will be valued by fewer than one in five targeted end-users, and will be disregarded by another one in ten. Importantly, the remaining 65-75% of global consumers would consider changing their living habits and sustainable purchasing practices if product features and marketing messages were tailored to their needs and interests. The chance to use customer insights and improved marketing to capture that latent, and large, consumer pool is the opportunity that BCG researchers call the Mainstream Green Approach (Taylor and Lichtblau 2022).

To unlock this emerging opportunity, managers must cut through specific barriers that inhibit growth of individual product categories (Savanta 2022; Taylor and Lichtblau 2022) while simultaneously appealing to universal purchase motivations. Technical barriers such as EV battery charging speed, for example, still need R&D, but many “sustainable” products are held back by perceived quality concerns and higher prices. Interestingly, studies show that many actual owners of eco-friendly products perceive prices to be the same or even lower than traditional goods, whereas consumers who have not yet purchased sustainable products tend to believe prices for such goods are higher (Taylor and Lichtblau 2022). Thus, clever marketers can break the price resistance of many would-be shoppers. EV's are a prime example of demonstrating value-for-money for a product that initially was premium priced. Tesla demonstrated that green credentials are nice to have in a car that is stylish and fast because it eliminates the weight of a combustion engine. This general appeal led Tesla to wisely attract buyers from far beyond the narrow niche of sustainability enthusiasts. Now that EV production is expanding, renewable energy prices are falling and charging infrastructure is growing, EV car brands are starting to sell convenience and economy – still treating the “green” aspect as an extra benefit. In general, when customers stop viewing sustainability as a sacrifice for the greater good and begin to see it as a bonus in an already desirable brand, purchase barriers fall away. Ultimately, clear customer insights and improved marketing can deliver gains.

THE CHANGING CONSUMER

There is abundant recent evidence that latent consumer demand for sustainable products is rising. 78% of interviewees in a Kantar (2022) survey of 30,000 consumers in 32 countries said they want to buy environmentally sustainable products. Similarly, 78% of US consumers in a NielsenIQ study said sustainable living is important to them (Frey et al. 2023), and 55% of US consumers in a different study said they were “more likely” to buy green products following the pandemic (Kearney, 2020). Meanwhile, Asia-Pacific respondents to a Globescan (2022a) study asserted a desire to “change a great deal” to attain a lifestyle that is healthier physically and mentally (56%), or more environmentally friendly (44%).

Regarding the impact of price premiums on purchase intentions, some new data is encouraging. In a survey of 1000 US shoppers conducted by First Insight and the Wharton School in 2020 and again in 2022, there was a rising willingness in all age groups (Gen Z to Baby Boomer) to spend more for sustainable products. Among Gen X interviewees, preference for sustainable products increased by 25%, and willingness to pay a 10% price premium rose by 42%. For Gen Z, willingness to pay the same “green premium” rose from 34% to nearly 90%. In Asia Pacific, Globescan (2022a) similarly saw growth in consumer willingness to pay more for sustainable goods, from 32% of respondents in 2019 to 45% in 2021. Nevertheless, consultancies advise companies to cut their added green costs to a bare minimum, specifically naming beauty, health and fashion manufacturers as guilty of unnecessarily steep (some over 200%) – and off-putting – premiums (Kearney, 2020). The study found that from 2013 to 2020, consumer willingness to pay more for sustainable products increased from 50% to 80%, but most (85% of 1000 US shoppers polled) stipulate that price hikes should be under 30%. Also important: Kearney advises companies to clearly inform consumers what the green premiums pay for.

Despite the fact that Gen Z shows higher purchase intent for sustainable goods than other tested age groups (Gatzer and Magnin 2022; Hilton Segel and Hatami 2022; Savanta 2022), Gen Z also shows a sizable purchase intention-behavior gap, perhaps because they do not yet buy as much as their older counterparts, or -- more worryingly -- because they are more skeptical of brands' sustainability claims (Hilton and Hatami 2022). To capture future generations of buyers, therefore, brands will have to demonstrate authenticity, and offer tangible evidence of progress (Bailey 2023). Greenwashing and purpose-posturing will fall flat or backfire, as buyers are more knowledgeable than in past, demonstrating specific concerns about problems such as soil health, microplastics and biodiversity (Kantar 2022). To better inform their purchasing choices, shoppers increasingly seek labels and packaging that document a brand's sustainability features and practices (Frey et al. 2023; PwC 2021). Encouragingly, Globescan (2022b) found about half of consumers across eight categories recall seeing, reading or hearing brand communications about environmental friendliness, with heightened awareness among those aged under 30. Moreover, despite Gen Z skepticism about sustainability claims, a large majority of Globescan's overall sample said they tend to trust brands' environmental communications. Bottom line: higher media reach and compelling messaging which leverage the hopes and concerns of specific customer groups can help close the purchase intention-behavior gap.

> Q: What advice do you have for marketing teams promoting sustainability?
>
> Make sure you understand the gap between what consumers say versus what they do … Consumers will always place economics over sustainability, especially in times of economic hardship… And **let's be honest: no one will buy a t-shirt if it is sustainable but 5 times the price, or if the quality is bad.** Most consumers still want to buy a product they like and with a certain quality at a certain price.
>
> Q: What advice do you have for smaller companies focused on sustainability?
>
> In the past, smaller companies tended to put a high emphasis on the sustainability of the product, and to de-emphasize other features. But if you are targeting consumers, this is not usually an effective method … For small businesses, a better business strategy is to focus on the efficiency gains and improved business processes you gain with sustainable practices. In terms of profitability, this is a stronger business model.
>
> Dmitri Andreev
>
> Sr Sustainability Consultant for Supply Chains, Elevate

How Science Helps

Psychology, sociology and behavioral research point the way to improving marketing messages in order to change consumer behavior. Professor Katherine White and colleagues have summarized decades of consumer research into the clever acronym *"SHIFT" -- Social influence, Habit formation, Individual self, Feelings and cognition, and Tangibility* (White et al. 2019a; 2019b). The SHIFT model is broad and complex, and well worth the effort to understand. Here, we draw out a few simple insights and applications to illustrate its potential.

- *Social influence* refers to the well-tested proposition that people conform to societal norms, especially when they share a strong affinity with group members. Individuals will readily adopt behaviors which their in-group has deemed socially desirable while shunning actions deemed unacceptable. Brands that use social media to build "customer tribes" are tapping the social influence phenomenon. Nike, for example, wields the art of social influence to further scale its already large market by battling discrimination of all kinds. Beautifully blending messages of individual strength and determination with words and images demonstrating the power of community in combatting discrimination, each ad reiterates -- directly or indirectly -- Nike's mantra to "Just Do It". The award winning 2020 TV ad "You Can't Stop Us" (https://www.youtube.com/watch?v=VHYaGZ-xcC8) was technologically innovative and beautifully scripted to pull diverse groups of consumers into the Nike inner circle that uses sport to overcome adversity (https://www.youtube.com/watch?v=x-eqCiaShUs). The company's persistent work to create a social norm of inclusivity often courts controversy – which at times repels a small segment of objectors but more often attracts greater loyalty and purchasing from the brand's core target group, in addition to attracting previously marginalized segments of buyers (CNBC n.d.). Other brands bravely promoting inclusivity include Gucci, for its use of a model with Down Syndrome as the face of its "Unconventional Beauty" campaign 2020 (Dazed Digital, 2020) and Moschino, for featuring a black trans model with cerebral palsy during 2022 New York Fashion Week (Kenny, 2020). As well, since 2021, Fenty (launched by Rihanna) has used models with disabilities for both runway and print campaigns (Douglas, 2021).
- The power of *habit formation* (the "H" in SHIFT) for building and maintaining market share is so strong that Harvard Business Review made it a cover story in 2017. Successful executives offered tips, including keeping a brand recognizable with unique and memorable package shapes and colors (think Tide's bulky orange bottles) and preserving hard won familiarity by introducing innovations as "improved" popular brands rather than totally new releases. Their stories illustrate how consumption habits are nurtured: by cutting the time and mental effort required to locate and choose a brand at the

time of purchase. The wisdom of this advice is validated by large-scale empirical studies of the factors driving market-share growth in mature markets (Sharp 2010).

One relevant takeaway: while it is tempting to introduce a brand's improved sustainability credentials as new and exciting, it often is better to seamlessly blend the new with the already-proven old. When Unilever informed buyers that Lipton and PG Tips tea brands were leaders in sustainable sourcing, for example, they found that ads which tweaked existing taglines or positioning themes boosted sales more effectively than campaigns which strived to educate shoppers on sustainability. One successful Australian campaign advised buyers to “Make a better choice with Lipton, the world's first Rainforest Alliance certified tea” , a message that aligned with the existing brand vision of “Drink Better, Live Better” (Henderson and Nellemann 2012). Similarly, a successful British campaign expanded the tagline “Put the kettle on” to “Do your bit, put the kettle on.” These small shifts did not require huge budgets, and the positioning of sustainable sourcing as a nice-to-have added benefit successfully delivered a sales bump.

But what about new companies and brands seeking to break old loyalties and shift purchasing in their direction? Habit research suggests that prompts and incentives can often get the ball rolling. Subscription sales, for example, make buying easy and rewarding via automatic home delivery on a pre-determined schedule. In addition, first-time subscribers are typically rewarded with special products and discounts. The public is prompted to try these services when sustainability “best of” lists are released by popular media and advocacy groups. Our casual internet search for “sustainability subscription services” instantly offered 9 lists, each touting up to 20 brands. List curators advise buyers on brand credentials and certifications such as natural ingredients; recycled, refillable and recyclable packaging; inclusive supply chains; and personalized delivery schedules ensuring continuous supply while minimizing transportation emissions and product waste. The recommended services cover the gamut from single-product DTC brands such as Who Gives a Crap toilet tissue to multi-product providers of gift-worthy sustainable brands including Earthlove, plus collaboratives such as Grove, which work toward a plastic and chemical free future.

- A productive way to leverage the ***individual self*** when marketing sustainable goods is to promote a buyer's sense of self-efficacy. Research shows that sustainable behavior is more easily prompted and continued when consumers believe their actions actually make a difference. Digital apps accomplish this handily. Ant Group's Ant Forest, for example, “empowers” users to achieve meaningful impact by planting trees after accumulating “green energy points” for taking public transportation, reducing paper waste, or buying sustainable products. Individual impact is demonstrated visually, via aerial images of the planted forests as they expand. While parent Ant Financial has been undergoing regulator-driven restructuring since 2020 (Espiner, 2023) consumer response to Ant Forest has been massive: 500 million users and 100 million trees planted in Northern China (UN Climate Change, n.d.). Another app using a similar model: US-based JouleBug (https://enterprise.joulebug.com), which offers “gamification of environmental awareness” for companies and employees via friendly competitions and company sponsored prizes, has attracted 100,000 users (PR Newswide, 2021).

One warning for managers is to leverage “self-concept” carefully because shoppers can recoil if sustainability messaging triggers a defensive response. Scolding consumers for not doing enough to help society and the planet can unintentionally prompt them to dig in their heels and resist change. A better strategy: encourage small first steps, then nurture self-consistency – another aspect of Individual self – by requesting actions that demand greater commitment. Ant Forest users often find themselves adopting additional behaviors once they've begun, crafting a consistent self-image as they evolve.

- ***Feelings and cognition*** -- the fourth elements of the SHIFT model -- are often portrayed as alternative paths to decision-making. Fast, emotional processes (feelings) often dominate everyday tasks, but deliberative cognition is needed when decisions are more complex.

Cognition

Although it seems sensible to explain to buyers how sustainable consumption benefits the world, that job is perhaps better left to journalists and government officials than to brand managers. Brands that take a cognitive approach to promoting sustainable features are advised to demonstrate their "fit" with issues the public already understands and cares about deeply. When concern about plastic bottles surged in America in the early 2000s, for example, Brita announced the number of plastic bottles that were kept out of landfill by using the brand's durable water filters and pitchers. Years later, when concerns about childhood obesity flared, the brand launched colorful filter bottles for parents seeking a convenient portable drink alternative to sugary beverages for kids. Behind these timely campaigns, however, the brand maintains a firm positioning as a provider of safe, affordable, and good tasting water. The rational campaigns about solving social and environmental problems are timely supplements to, rather than substitutes for, communications promoting the brand's core value proposition.

One type of cognitive approach that seems to be gaining momentum is eco-labeling. Until recently, researchers documented limited effect of labels on consumer decisions -- certifications including Rain Forest Alliance, Fair Trade, and FSC, remain largely unknown or unclear to most consumers (Savannah 2022). However, better-informed buyers are now looking for information to guide them. One problem slowing the use of labels is their huge variety and limited standardization: today, more than 450 eco-labels are in use (Ecolabel Index) in 199 countries and across 25 industry sectors. Consumers are left confused and wary of greenwashing. Recent media scandals regarding overblown eco-claims of famous brands have exacerbated the problem. Industry-level attempts to develop accurate and informative eco-labels and certifications, and to ensure consumer awareness and understanding, would bolster consumer confidence and reward those companies with real progress to announce.

The European Union has worked hard to close the label standardization gap with its 30-year-old "eco-label" – a regional voluntary initiative that by now has certified more than 87,400 products as meeting "high environmental standards" across the life cycle, from extraction of raw materials to production, distribution and final disposal. The label also recognizes companies for products that can easily be recycled or repaired. France has taken an even bolder step, passing a decree last year that requires an environmental label for all "waste-generating products" (European Commission 2023). The new labels report on use of recycled/reused materials, presence of plastic microfibers, hazardous materials, precious metals or rare earths, as well as whether the product can be recycled, repaired, reused, traced and/or composted. The new law applies not only to manufacturers but also to importers, dealers, and marketers (including online platforms). EU companies with annual revenues over Euro 50 million began using the label in January 2023; smaller companies will be phased in by January 2025. Today, the United Nations Environment Programme (UNEP) promotes labeling as a "crucial" tool enabling governments to encourage behavioral change, businesses to measure their progress, and consumers to choose wisely (UNEP n.d.).[②] Fortunately, consumers now show interest in standardized eco-labels, meaning that companies who comply with these stricter requirements stand to benefit from greater consumer approval.

EDUCATING CONSUMERS WITH FINTECH

Swedish climate fintech Doconomy -- included in Wired's list of Hottest Startups in Stockholm 2022 (Christian 2022) – enables shoppers to calculate the carbon and water impact of each digital financial transaction they make. Leveraging its cutting-edge Transaction Impact Calculator, and a suite of other environmental-impact measurement tools for individuals and corporations, Doconomy is working to drive climate impact at scale. Mastercard integrates Doconomy's technology in its global network, reaching over 750 million customers, and boosting the financial company's role as an agent of sustainable lifestyle change. Doconomy recently acquired Dreams Technology (https://dreamstech.com/company/) – a platform that leverages behavioral science to improve consumers' relationship with their banks and enhance their financial well-being through increased savings, reduced debt, and investments that support sustainable living.

② Managers seeking guidance on establishing effective eco-labels can start with the International Organization for Standardization (ISO) and its labeling categories -- Type 1 (eco labels), Type 1-like (certification schemes for specific sectors), Type II (environmental labels), and Type III (quantitative information) (UNEP).

Feelings

As opposed to rational appeals, emotional ones readily attract consumer attention but they also easily block message comprehension if too strong. Negative messages that provoke fear or guilt about unsustainable behavior do not generally drive changes in behavior. Experts advise using negative emotions cautiously in marketing campaigns, preferring to elicit positive emotions including community and pride (which often evokes a sense of self-efficacy). Thus, children can be ideal spokespersons in sustainability communications since they generally evoke positive feelings and they also influence parental ingroups. Professional testing of sustainability ads confirms the efficacy of children as spokespersons, especially when kids directly “teach” adults about the importance of healthy and sustainable habits -- responsible food choices, recycling packaging, using durables instead of disposables -- all made possible by the sponsoring brand (Sustainable Brands 2021). Another lesson: avoid overly complex messaging. IKEA's recent attention-grabbing TV ad shows a trash-comet hurtling toward earth until a child shrinks the comet by using IKEA's sustainable goods in place of other wasteful products. Though the ad scored well in captivating audience attention and strengthening IKEA's brand perceptions as innovative and fun, it was too fast-paced and abstract for viewers to connect the child's use of IKEA products to saving the planet (Cubery 2021). The combination of negative (scary comet) and positive (happy child) emotions and the complex rational message was considered by experts to be less effective at promoting sustainability than other simpler, but less dramatic campaigns by the brand.

- Brands can benefit by showing ***tangibility*** – the SHIFT model's final element – in their efforts to solve sustainability challenges. Buyers often view sustainability as too large, too abstract, and too distant in time to be consequential for today's purchase decisions. They naturally hesitate to spend limited financial resources on problems they don't directly experience, or on solutions requiring decades to implement. Unfortunately, economic hardship and extreme weather disasters are making sustainability more real and current to consumers everywhere. Rather than emphasizing the scientific and economic connections among these events, companies can often benefit from focusing marketing campaigns on recent and local issues. Communities vary widely in exposure to the world's greatest challenges and in their perceived ability to help tackle them. The key takeaway: By showing consumers how they can take action now to help their own families, neighborhoods and nations, managers can greatly increase buyers' motivation to contribute.

  Car maker KIA deliberately challenged the I'm-too-small-to-help mindset with a humorous ad showing disastrous outcomes as a comedian tried to save whales, trees, polar ice caps and rhinos (Kellom 2022). Driving the brand's fuel-efficient crossover vehicles was presented as a more effective and immediate way for consumers to make an impact. Lest buyers forget the car's other desirable features, follow-on clips showed the heroine (actress Melissa McCarthy) pressing a button to turn off the seat heating for a penguin passenger, and accelerating rapidly to escape from a rampaging rhino. By showing great features in a car that is also doing some good, KIA is boosting perceptions that sustainable lifestyles do matter.

As companies adapt to consumers' new understandings and desires for sustainable living, the experiences of pioneering brands offer valuable guideposts to those just starting on a sustainability journey. Additional insight can be found by observing how marketing, as a function, is transforming.

THE CHANGING ROLE OF MARKETING

From Push to Pull to Authentic Conversations

In the same way media have evolved from reaching mass markets to targeting micro-segments to attracting networks of consumers who interact socially across multiple platforms, marketing communications also have evolved from the generic sales “pushes” of old to the now common personalized sales “pull” to the even more recent “authentic conversations” about themes of shared interest with consumers. In an era in which individuals and social groups can appropriate brand images and symbols for their own intent, it is critical for managers to co-create meaning with their target audiences. Brand purpose, brand values, and sustainability/social activities provide rich content for finding common ground and fueling interactive conversations. Experts offer advice on scaling authentic conversations for maximum effect; some suggest leaping from the current micro-marketing trend to the mass marketing of years past (Binet and Field 2013; Sharp 2010), others suggest a more modest shift to the community level (Ahuja et al. 2022). Underpinning all advice, however, is the call for distinctiveness and authenticity.

> **Q: Which key sustainable consumption trends do you predict for 2023?**
>
> This year will filter out brands which have been greenwashing or purpose-washing … As the economic slowdown continues, uncommitted consumers will shift away from paying more for sustainability -- but more "extremist" consumers will emerge. There will be fewer 'on the fence' consumers. Consumers will make a choice: some in tight situations financially will focus on price but others will decide the climate crisis is urgent -- and they will purchase sustainable brands no matter what. I also expect the younger generation to stick to their values and talk about their values more strongly than any earlier generations. But, again, those values won't be reflected in consumer behavior if financial constraints exist.
>
> **Q: How are sustainability-focused consumers changing? How should managers adapt?**
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> Consumers will also demand more transparency, more disclosure about company's pledges toward climate crisis. And because consumers are more educated about who is and isn't greenwashing, consumers will demand more evidence-based reporting. Consumers will expect to know how companies are progressing on their sustainability promises. My advice: This is the time to disclose your data. Be genuine and authentic about disclosing. If you are not making your goals, don't hide it. Consumers are now a lot smarter than even 3 years ago. Instead of lying or hiding the fact, be authentic.
>
> Min KO
>
> B Corp Expert, Sustainability Strategy & Planning Consultant

McKinsey points to "community" as the "big idea" of 2020s marketing (Ahuja et al. 2022), noting that technology can simultaneously immerse brands within multiple groups of varying interests. Among the tips offered by McKinsey consultants for activating communities are to: 1) target groups of buyers who share interests with your brand, 2) create buzz around "hero" products that can garner attention with their activities, 3) speak up about brand values with credible and sharable stories, and 4) fuel community conversations. **The most credible and authentic campaigns avoid vacuous claims about improving the world, and instead deliberately spark discussions that showcase a brand's personality, value proposition, or other distinguishing features.**

Chewy, an e-commerce provider of pet supplies, offers a relevant example. During the period of pandemic isolation, the brand reinforced its distinctive brand purpose of "Helping People Connect Through Pets" by launching a virtual venue for pet+owner play dates. Entitled "#Pets Bring Us Together" (https://www.youtube.com/watch?v=BHXcy 7suBnw), the campaign digitally linked participants to share their day-to-day experiences at home. The brand's message that pets help people is quite distinct from the common industry refrain that people help pets. By literally connecting pet owners to share the joys and the struggles of living 24/7 indoors, Chewy delivered its differentiating message while addressing real concerns about mental and physical well-being during the pandemic. The brand's role was that of digital community facilitator, and its actions offered an unexpected solution to shared community pain.

Budweiser recently sparked conversations on a massive scale by announcing a commitment – and taking the corresponding actions -- to brew and sell its beer worldwide using 100% renewable energy (RE) (Campaign 2022). This is a significant effort to address climate change, one of the world's greatest challenges and the top issue on the minds of the brand's buyers according to internal research. The company's internal transformation, plus a newly created partnership to similarly help distributors adopt renewable energy, was accompanied by a creative marketing and public relations campaign designed to keep the brand visible while linking it to a “Renewable Energy 100” symbol that appears on all products produced with the new energy requirements. The symbol and a social media tag “#CHOOSERENEWABLES” were initially created by purpose agency Revolt London together with Budweiser, then open-sourced to boost visibility and impact. High profile publicity and community events – e.g., base jumping from energy windmills with parachutes bearing the new logo, and sponsoring RE100-powered concerts in local venues around the world -- maintained a strong connection to the Budweiser brand. According to Revolt London, the campaign launch earned 278 million impressions within 48 hours, with 98% positive sentiment. In addition to keeping the brand mentally available to buyers, the highly creative integrated campaign provoked extensive discussion among consumers, journalists and industry experts, ultimately earning the brand a Cannes Lions award for creative business transformation.

PUBLIC TRUST IS KEY

The latest annual Edelman Trust Barometer confirms the potential -- as well as the urgent need -- for businesses to cultivate and maintain trust with their communities. This largescale annual study, launched in 2000 and surveying 32,000 worldwide, has found that public trust is at an all-time low across the board, but that more consumers today trust info shared by companies (62%) than from NGOs (59%), governments (51%), or media (50%) (Edelman, 2023). Thus, savvy brand managers stand to win big by securing public trust through accurate and engaging communications on sustainability progress.

From Branding to Selling to Balance

The focal objective of marketing efforts also is starting to change. After more than a decade of highly targeted short-term sales activation campaigns enabled by digital technologies, market analysts are reasserting the need to invest in long-term mass market brand equity (Binet and Field 2013; Roach 2020), a key management priority in the 1990s. The concern is that, during the years in which managers shifted their media budgets from analogue to digital outlets, not only were pricing power and margins eroded but companies switched their preferred marketing performance metric from equity to short-term ROI. Today, many hope to see the pendulum swing back, to keep long-term brand building and short-term sales activation in balance. Brand building grows the top of the sales funnel whereas sales activation converts that potential to revenue at the bottom. Too little sales activation leaves potential demand non-monetized at the top – too often the case in the 1990s; too little effort to open the top of the funnel with brand building leads to cut-throat price competition at the bottom – a growing concern in the 2020s (Roach 2022).

Storytelling is one potent way to build a brand, as it generates unique neural connections that underpin memory recall and emotional bonding. Effective brand narratives present the target customer as a hero on a transformative journey of conflict and resolution, supported by the sponsoring brand (Avery 2020). In the new age of social and environmental sensitivities, the traditional fictional brand narratives are easily supplemented with real-life transformative journeys of consumers. A compelling example is seen in SK-II's “Change Destiny” initiative which encourages women to break through a myriad of barriers separating them from success. The brand's 2016 “Marriage Market Takeover” campaign addressed the Chinese traditional belief that women are “left over” if they do not marry by age 30. The brand partnered with successful women to “take over” a Shanghai park where parents meet to attempt match-making, filling the space with posters about each woman's accomplishments and aspirations to marry on her own terms. A series of documentary-style interviews of these women and their parents was released to boost the campaign's awareness and visibility. UK advertising association

IPA, which tracks advertising effectiveness, reported the campaign boosted SK-II's awareness, price and market share in the fast-growing Asian market for beauty products. Monthly average new users reportedly increased by nearly 100%, and sales doubled in a year, propelling the brand to Asia's #1 spot in its category (IPA 2018). SK-II continually refreshes the personal stories depicted in this campaign while maintaining a clear focus on the key brand value of female empowerment. During the 2021 Tokyo Olympics, for example, the brand profiled female athletes – including gymnast Simone Biles – as they battled public criticisms, performance pressures and obsessions about their image. By building resonance with large sectors of female consumers about universally shared social concerns, SK-II cultivates emotional bonding and customer loyalty.

Q: How can China-based brand managers leverage consumer demand for sustainable products?

Brands often say, 'I need to sell to younger consumers.' But if you want to reach younger consumers, talk about sustainability. With local brands, the marketing department has traditionally focused on sales without much storytelling. Now, there is a new opportunity to focus on sharing the sustainability efforts and building a community around this concept.

Q: How can fashion companies best 'get started' in sustainable consumption?

Look into the different ways you can create new revenue streams: the repair business, rental, or second hand. A few years ago, people were saying 'second hand will not work in China'. But now, people realize it's going to be a good business. Already, I see consumers of all generations renting clothes or buying second hand. This is just the beginning in China. There's a huge potential. Second hand could, by 2030, be bigger than fast fashion. Why not? A few years ago, who would have thought we would be consuming music without owning it? There's going to be a huge disruption. Definitely, it's time for brands to realize that sustainable consumption is not a headache but a good opportunity.

Dominique Simard

Founder of Rethink Fashion consultancy

Aligning Sustainability and Marketing

We have presented a broad range of sustainability issues linked successfully to brands but this does not suggest that managers should speak openly about every one of their company's sustainability initiatives. Only actions that demonstrate a fit with brand values, features and/or strategic priorities merit marketing attention and effort. Rodrigues-Vila and Baradwaj (2017) offer a useful tool – the Social Benefit Pyramid -- for prioritizing and deciding which campaigns to highlight. A list of potential social/environmental issues is first analyzed to determine whether each is a must-do effort best acted upon and discussed internally, versus a reputation-building issue that merits sharing publicly, or a brand-enhancing issue that should be promoted. The first category at the bottom of the pyramid typically includes ESG factors that are required or expected by regulators, community activists, and increasingly customers. The second category of public discussion includes issues that might harm brand reputation if ignored, but hold little commercial upside (e.g., controlling corruption). At the top of the pyramid are issues with potential to bolster brand equity and even grow sales or market share. This is the select set to highlight in mainstream marketing campaigns.

GREEN MARKETING IN THE MAINSTREAM

One indicator of growing interest in sustainability messaging from brands is the increase in ‘green' ads shown during the Superbowl – arguably the most watched (100 million viewers) and most expensive (US$7 million per 30 seconds) annual TV advertising opportunity in the US. Superbowl 2022 featured 10 climate-related ads (double the number of any previous year) mainly for e-vehicles or sustainable food (Mandel, 2022).

Another promising trend is the effort to operate largescale public events sustainably (Superbowl, Olympics, Eurovision). This year, the NFL sought to make 2023 Superbowl the most sustainable in the event's 57-year history. While the results were not objectively outstanding – only 59% of waste was “diverted” – this was a marked increase from 11% in 2010 (Yahoo 2023), and each year's event will likely show ongoing improvement. Looking forward, official promoters of the Paris 2024 Olympic Games are promising the upcoming games will be “both spectacular and sustainable.” In fact, organizers plan to offset more CO2 emissions than will be generated, making the event the “first major sporting event to positively impact the climate.” Other initiatives include using 95% existing or temporary facilities, 100% renewable energy, and sustainable food sourcing. Meanwhile, the annual Eurovision music contest, viewed by 160 million, also illustrates the need for a green focus; the 2021 event teamed up with World Wildlife Fund to launch a sustainability information push (Euronews 2021), while this year, organizers launched a pre-event “Sustainability Challenge” inviting students to contribute ideas to reduce the environmental impact of the contest (HWR 2023).

THE CHANGING ORGANIZATION

Biased Toward Action and Truth

We've heard it repeatedly from global leaders and institutions: this is the decade to take action on sustainability pledges and aspirations. The voice of the market is now added to that of thinktanks, regulators and activists. Citizens expect companies and brands to take a stance on important social and environmental issues (Global Strategy Group 2023; Edelman 2023) and shoppers want transparent and credible updates about how their favorite brands are walking the talk (Globescan 2022a), especially if they – consumers -- are paying higher prices to support the necessary transitions.

Action is possible on many fronts, but research shows that companies successfully monetizing social/sustainability efforts tend to focus their time and resources on a few issues that matter to the brand and to the world (Gatzer and Magnin 2021). While some act directly to tackle in-house problems, others work to boost the impact of external collaborations with non-profits or social purpose organizations. Antiseptic soap brand Lifebuoy, for example, was a co-founder (with other health-related institutions and corporates) of “Global Handwashing Day” – an annual outreach program to teach the importance, and the proper methods, of hand sanitation for preventing disease, including diarrhea – the leading cause of death in children below age 5 (https://globalhandwashing.org). To broaden the campaign's impact and link it more closely to the Lifebuoy brand, managers in 2014 launched the “Help a Child Reach 5” initiative, supported by a series of emotive TV/video ads depicting the traditions of various cultures and nations to mark a child's passage through the all-important 5-year milestone. The ads were emotional, memorable and importantly, digitally sharable. Brand managers placed the ads on YouTube and simultaneously launched a Facetime fund-raising campaign. Each time these ads were shared, Lifebuoy donated funds to teach handwashing habits to children. In one rural Indian village where childhood death was extremely high, “Help a Child Reach 5” garnered 16 million pledges of support that were matched by 20 million Rupees (USD270,000) from Lifebuoy. The most important indicator of impact: diarrhea incidence fell by 75% in the targeted Indian village (effie 2014).

Lifebuoy brand managers update the handwashing campaign regularly, launching in 2020, for example, the “H is for Handwashing” initiative at a time that sanitation rose to the fore as an effective means of containing the Covid pandemic (Lim 2020). Developed in partnership with Sesame Workshop and Save the Children, the initiative brings hygiene awareness to very young children as they learn the letter H and link it to Handwashing. It is another step in the brand's overarching aim of protecting 2 billion people from infection. Aiming to truly walk-the-talk on sustainability writ large, Lifebuoy also works diligently through research and partnerships to lower plastic waste, reduce water consumption during product use, and end deforestation (https://www.lifebuoy.in/sustainability.html) but these ESG must-do issues are less visible in the brand's public outreach and marketing than the more brand-relevant efforts to improve global sanitation.

Reflecting back on the Budweiser RE100 campaign, the widespread favorable media attention and the absence of skeptical commentary can be attributed at least in part to the company's commitment of USD1 billion in renewable wind power infrastructure, and the inclusion of value chain members in its plans for industry conversion. Unlike other companies proclaiming to be net-zero as a function of energy offsets, Budweiser transparently walks the talk of reducing its own carbon emissions footprint (Revoltlondon n.d.). The company grabbed attention as an authentic early mover on the carbon-cutting front lines, but wise marketers know that media attention wanes once the novelty of new accomplishments wears off. Now is the time, therefore, to grab the advantage of being an industry pioneer. Public concern about climate change, waste (especially plastics), biodiversity loss, and social inequity have never been higher, opening many avenues for brands to take targeted action that demonstrates impact and draws public -- and media -- attention.

Willing to Experiment and Learn

A recent trend among professional advisors and consultants is to focus on specific product categories and buyer segments to help close the sustainable intention-behavior gap (Frey et al. 2023; Savanta 2022; Taylor and Lichtblau 2022). One consistent finding: product categories differ widely in progress on the sustainable living journey, and consumer groups differ in sustainable purchasing motivations and desires. This opens up multiple pathways toward successful sustainability marketing. A joint study by McKinsey and NielsenIQ, for example, found that sales of sweet snacks and yogurts bearing ESG-related claims grew faster from 2017 to 2022 than other food products in the same category which lacked such claims. On the other hand, salty snacks with ESG claims grew more slowly than those without ESG claims (Frey et al. 2023). Clearly, buyer sentiment toward sustainability in the food snacking category is not uniform. The reasons for this difference are not clear, but the surprising finding clearly shows the need for careful study and experimentation when launching new sustainability themed initiatives.

When BCG and the CMO Sustainability Accelerator recently studied 12 distinct product categories, they observed differences in both the level of sustainability concern across categories and the success of converting concern to actual purchases (Taylor and Lichtblau 2022). Home care showed the greatest maturity in closing the “say-do” gap, with 80% of consumers showing concern and 18% actually buying sustainable brands -- a 38% conversion rate. Autos, by contrast, showed even higher levels of concern (80%) but only 27% conversion. In grocery retail -- the least evolved sector of the study -- concern was a low 10%, but conversion was consistent with that of high-concern categories at 29%. Barriers to change also varied widely across categories, with “convenience of use” and “high prices” as the most prevalent obstacles to EV auto sales, while “product availability” and “price” restricted grocery retail sales. It seems that EV makers must do more to close technical and infrastructure gaps in the market, but grocery retailers could benefit by simply stocking more sustainable products. Digging deeper, the report also documented differences in the messages most suited to overcome resistance in each category: for buyers of alternative energy vehicles, impact on climate change or nature was most important; for grocery shoppers, it was use of plastics.

In cases of strong consumer resistance to sustainable innovations, marketing campaigns might have to cover the full domain of messages, product features, and channels. Producers of meat alternatives, for example, are experimenting with ready-to-cook meals (Gatzer and Magnin 2021) that address the market's persistent concerns about product preparation and taste. Food service providers are also testing new menus and even developing creative product descriptors to make healthy eating seem fun and interesting to youth. In an effort to reduce food waste, cut GHG emissions and promote healthier eating on campus, Stanford University has boosted the selection of vegetarian and vegan foods on cafeteria menus, but also changed the way foods are described, trying out "indulgent" labels such as "naughty nuts" and "sweet sizzlin' green beans and crispy shallots" to make the offerings more appealing (Lieb 2023). There is an old marketing adage that sushi should not be marketed as "cold dead fish" . Today's managers are rediscovering this truth as they bring more sustainable products to market.

Organized and Resourced for Progress

Business leaders play a critical role in supporting the marketing function while sustainability starts to take root. As with all new innovations, success in this new field takes time, money, expertise and patience. Paul Polman, then-CEO of Unilever, and Keith Wood, who Polman appointed as CMO in charge of Unilever's marketing, sustainability and communications functions, are widely applauded for transforming the company in the 2010s into a cradle of profitable sustainable brands. The two leaders drove growth in sales, innovation, and employee passion and loyalty as they crafted and implemented a 10-year Unilever Sustainable Living Plan (USLP 2010-2020). Unilever today owns more than two dozen Sustainable Living Brands that work to attain the company's ambitious environmental and social goals while delivering disproportionate growth (75% of company growth in 2019; see Unilever 2019). That success did not come easily, however, and Polman and Wood spent the first half of the USLP identifying internal bottlenecks and appointing new leaders with the expertise, budgets and authority to get things moving. Numerous workshops, trainings and inspiring speeches were delivered before a few brand managers were able to craft "brand love" keys that changed buyer perceptions and motivations for category purchase. The well-publicized work of Dove personal care brand to redefine women's concept of beauty, that of laundry brand Omo to redefine dirt as a "good" and healthy by-product of children's play, and that of Lifebuoy to make handwashing synonymous with hygiene are early examples that others have followed in later years. Without the strong support of CEO Polman and CMO Wood, the commercial and social impact of Unilever's sustainability work would arguably be much diminished.

THE CHANGING COMMUNITY

Not only are brands now engaging with communities of buyers, they also are forging new industry alliances and support structures to share the pains and gains of mastering new market realities. Two important trends to note are the building of systems-level problem-solving ecosystems and the open-source sharing of tools, frameworks and playbooks for marketing success.

Building Ecosystems

No country, company or brand can solve today's complex and inter-related sustainability challenges alone. After years of cooperation and experimentation, multi-player collectives are starting to show progress. Menu innovations at Stanford dining, for example, are the result of a long-term partnership among "senior university administrators, dining directors, executive chefs, nutrition and sustainability managers and academic faculty" (MCURC n.d.), all dedicated to using evidence-based research, education and innovation to promote healthy eating while also tackling the problems of on-campus food waste and GHG emissions. The "Menus of Change University Research Collaborative" – MCURC -- now includes dozens of colleges and universities that collectively serve 800,000 meals each day and have jointly reduced the carbon emissions per pound of purchased food by 11% between 2019 and 2021 as a result of their work (Lieb 2023). Using dining halls as "living laboratories," and publicly sharing tried-and-true guidebooks such as the "Edgy Veggie Toolkit" (https://sparqtools.org), the group aims to change diets and food service operations today in ways that will have lasting effects on eating habits and food systems of the future. Another inspiring example of collaboration and community-building in the food industry – this time tackling unnecessary food waste – is the Denmark-based app Too Good To Go (https://toogoodtogo.ca). The platform links consumers to businesses producing food waste (restaurants, grocery stores) to "make sure good food gets eaten." Consumers pre-pay to receive "surprise bags" with heavily discounted meals that would otherwise have headed to a landfill. Today, more than 182,000 businesses in 17 countries have subscribed, providing 100,000 meals per day (Too Good To Go, n.d.).

In the transportation sector, product makers, service providers and policy makers are coordinating to make urban micro-mobility a reality. Analysts at sustainability thinktank Greenbiz believe 2-, 3- and 4-wheeled electronic vehicles are poised to take off as cities promote alternatives to cars, and companies work to decarbonize their last-mile consumer deliveries (Badalian 2023). Public interest is growing rapidly, spurred by reports that cities can cut emissions drastically (as much as 40% of US urban transportation totals, for example) if they adopt micro-mobility at scale, and encouraged by new innovations – e.g., safety sensors that automatically slow E-bikes and scooters when pedestrian sidewalk traffic is heavy. As policy-makers allocate federal funds and local municipalities deploy them to redesign access routes, connection points, and parking/charging facilities, vehicle makers and their supporting industries are working to make electric devices fully recyclable. Service companies are also changing their business models to ensure that vehicles are available in sufficient numbers at suitable locations to encourage consumer adoption. By working collectively to overcome barriers that have slowed sector growth in the past, ecosystem partners are vastly hastening the sector's success.

Sharing Learnings

Whereas recent decades ushered in a wave of new competitive theories, tools and practices, the 2020s are witnessing a rise in "pre-competitive" cooperative sharing. Faced with the reality that social and environmental gaps pose a threat to all players in major industries, and moreover, that the time to close these gaps is running dangerously short, pioneers and first-movers are openly sharing playbooks, toolkits, and wisdom through conference talks, webinars and publications. The industry association Sustainable Brands is notable in this respect. Calling itself a "Home for Courageous Optimists," the association brings together an impressive list of global product makers and solution providers for peer-to-peer learning and networking. The firm belief among all members and participants is that brands hold the power to transform society for the better, and furthermore, that those embarking upon the transformation journey will prosper in this century. Acknowledging that systems change requires new skills, tools and collaborations, the group develops and disseminates a wide variety of resources, including research reports as well as a Brand Transformation Roadmap, the ASAP ad testing and improvement platform, and an Excellence in Execution Playbook that digs down to the specifics of storytelling, social media, packaging and retail activation (Sustainable Brands n.d.). Companies including Pepsico, Procter and Gamble, Visa and Nestle have found ASAP particularly useful for benchmarking newly developed sustainability ads against a large and growing test bank pre-calibrated for Influence, Action, Credibility, and Talkability on Nine Sustainable Behaviors.

SHARING THE BENEFITS OF CERTIFICATION

Widely recognized as providing the international "gold standard" in certification for sustainable business practices, B Corp, since its founding in 2007, has helped thousands of companies to improve their performance, transparency and accountability across a range of environmental and social factors. With 6400+ companies in 89 countries now certified, B Corp has won international respect for requiring qualified businesses to meet rigorous standards along the full business spectrum, from supply chains to employee welfare. One secret of B Corp's success: the myriad of tools, communities, and information shared on its platform to assist companies of all sizes and from all industries to achieve certification. Especially inspiring is their slogan: "We won't stop until every business is a force for good." (www.bcorporation.net).

Pioneering brands and solution providers are also sharing practical experience and tips. Unilever posted a helpful guide -- "Making Purpose Pay" – in which senior executives share the lessons they've learned from a decade of implementing the USLP. Along with research findings and inspirational stories, the document presents "Five Golden Rules" for connecting with consumers: Define Purpose, Take Action, Talk My World, Friends and Families Matter, and Build Touchpoints (Unilever n.d.).

The rationale behind each factor is explained alongside a pair of Sustainable Living Brand examples that illustrates the idea at work. Similarly, specialized purpose agency Revolt London – creator of Budweiser's award winning RE campaign – shares news and descriptions of client work to build movements that support both brands and sustainability efforts (see https://revoltlondon.com/and https://www.linkedin.com/company/ revoltlondon/posts/?feedView=all).

Readers can see the step-by-step process of helping a UK water utility to lower household consumption (https://www.affinitywater.co.uk/SaveOurStreams), track the agency's brand-building work for a mental health training and consultancy business, (https://www.linkedin.com/company/corinandco/) or learn how Pepsico is authentically building diversity and inclusion into its marketing (https://www.linkedin.com/company/revoltlondon/videos/native/urn:li:ugcPost:6818540239745769472/). These and many other examples show the power of working together to forge a new age of profitable business centered squarely on the concept of sustainable living.

CONCLUSION

In this year's report, we've documented the longstanding trend in which sustainable consumption has steadily gained momentum. The good news is that this shift is dramatically transforming consumers, marketing, organizations and communities. The bad news is that serious obstacles must be overcome, from economic drivers leaving consumers financially strapped, to greenwashing and purpose posturing leaving consumers skeptical and jaded, to eco-scolding leaving them fatigued. To help managers combat these challenges, we have collected a global “best of class” roundup of advice, resources, and models to tap into. Our goal is to arm CEIBS alumni and all pro-active business leaders with the knowledge, community access, and insights needed to help move sustainable consumption definitively and irrevocably to mass market scale.

Mini Case: Chloe

French fashion “maison” Chloe became in 2021 the first luxury fashion brand worldwide to achieve B Corp Certification. The move was heralded in Vogue and other voices of haute couture for showing rigor and commitment. Explaining the move, Chloe stated: “By becoming B Corp certified, we reinforce our commitment to taking accountability for our impact on people and the planet.” Since then, Chloe has also joined the World Fair Trade Organization, The Fashion Pact, Ellen MacArthur Foundation and Sustainable Markets Initiative. Chloe's environmental commitment is part of a larger decision by the brand, in 2019, to adopt a “purpose-driven business model, embracing social and environmental sustainability in everything we do.” Summarized by the tagline “Women Forward. For a fairer future,” Chloe says this central purpose is now “inspiring all our choices,” supporting a belief that “uplifting and empowering women contributes positively to our society and our planet.” Best of all, the brand is backing up its vision with annual goals tracked by a Sustainability Board via a new open-source Social Impact Measurement Tool. As of 2021, Chloe had reduced its carbon footprint by 19% over 2019 numbers. Looking ahead, the brand's Objectives 2025 promises that collections will be made with 90% “lower-impact materials” and that 30% of production will use fair trade sourcing. (Chloe, n.d.)

Mini Case: Oatly

In its 2021 Superbowl ad, Swedish brand Oatly subtly combined emotions and cognition to show its company CEO singing a self-composed jingle while playing keyboard in a field of oats. The primitive videography and lyrics (“Wow, wow, no cow”) evoked a firestorm of Tweets from viewers who either hated the song or appreciated the brand's unusual marketing approach. Whether their emotions were positive or negative, however, viewers remembered the annoying “no cow” refrain (some complained that it was stuck in their heads), and many debated the ad's suggestion that oat milk is better for humans than cow milk. The brand subsequently drove traffic to its website by sending free t-shirts proclaiming “I really hated that Oatly commercial” to anyone who registered. By triggering strong emotions and keeping the brand in the public's sight, the campaign fueled a rapid boost in American brand awareness combined with a clear understanding of the brand's market positioning and value proposition. As other annoying ads have demonstrated across time, ad-disliking does not always detract from brand liking or sales. As Oatly's sales continue to grow, some experts have called the Oatly campaign the best Superbowl ad of 2021.

Mini Case: L'Oréal

In June 2022, cosmetics giant L'Oréal France launched a “Product Impact Labeling System” to inform consumers on the environmental impact of their products. Using a matrix co-developed with 11 independent researchers, the system ranks products from A to E on GHG emissions, water scarcity, ocean acidification, biodiversity impact and 10 other “planetary impact factors.” The rating, which follows European Commission guidelines, measures impact across the product lifecycle, from ingredients extraction to manufacturing, packaging, transportation, use and disposal. Beginning with its Garnier haircare product lines, the labels first expanded to other French sub-brands (L'Oréal Paris, Redken, CeraVe and Kiehl's), then in 2022 were adopted by L'Oréal USA. Today, L'Oréal has also joined the EcoBeautyScore Consortium -- 60 cosmetics companies and associations establishing an “industry-wide environmental impact assessment and scoring system for cosmetics products” to provide consumers with “clear, transparent, and comparable environmental impact information, based on a common science-based methodology.” By late 2023, the coalition seeks to develop a “footprinting and scoring prototype” verified by independent third parties (L'Oréal 2022, EcoBeautyScore, n.d.).

Mini Case: Patagonia

Outdoor clothing retailer Patagonia solidified its image as a ground-breaking innovator and advocate of responsible business when, in 2022, founder Yves Chouinard irrevocably transferred company ownership to NGOs and trust funds (Giving Compass 2022). While the company remains private, the new arrangement ensures that Patagonia's annual profits (near US$100 million) will be used to address climate change and environmental protection. Chouinard has held the media's attention and bolstered the loyalty of community members and buyers with repeated innovations over the years. In 2011 Patagonia surprised readers of the New York Times on Black Friday – America's biggest shopping day -- with a full-page ad telling people “Don't Buy This Jacket.” The move elevated public discussions about the need for industry players to discourage excessive consumption and instead make clothing more durable, recyclable, repairable and resalable. Over the years, the company has evolved its retail business model to include “3R” services, while continuously supporting individuals and groups devoted to environmental protection. Today, Patagonia's website encourages viewers not to shop, but to “Start small, go big, give back” by visiting Patagonia Action Works. This “dating site” platform links users to grassroots environmental movements worldwide. Visitors who enter their location and areas of interest (biodiversity? water preservation?) receive links to relevant events, petitions, and organizations to support. Patagonia has boldly moved from community conversations to a new era of community action on critically important environmental matters.

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02

CHINESE EFFORTS TOWARD SUSTAINABLE CONSUMPTION

Sustainable Consumption in China: Opportunities and Challenges

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As we enter the post-pandemic era, we have chosen to prioritize sustainable consumption as the first topic in our whitepaper. Sustainable consumption can deliver both short and long-term benefits – in the short term, it promises to stimulate economic growth in the aftermath of the pandemic, while in the long term, it will enable us to draw on the lessons learned during the pandemic by incorporating sustainable practices into consumption patterns.

One of the defining features of the post-pandemic era was the shift toward more sustainable consumption patterns. At the time of writing, consumption relied primarily on the exploitation of the earth's resources, with the earth serving as the supplier and human beings the consumer. As such, sustainable consumer behavior was key to mitigating conflicts between humans and the earth. However, in the aftermath of the Covid-19 pandemic, many consumers were keen to spend, unleashing 3 years of pent-up demand.

Viewed through a Chinese lens, the topic of sustainable development had a particular significance. Even before the pandemic, sustainable development was an important part of China's development agenda embedded across a range of national policies, including urbanization, industrial policy and climate change. At the time of writing, as the only major economy to post positive growth during the Covid-19 pandemic, China was well positioned to drive a green and sustainable recovery in the global economy.

Before the pandemic, China's consumer market experienced remarkable growth over a period spanning four decades – in 2014, consumption became the key driver of economic growth, a trend which continued for seven consecutive years. In 2019, China became the world's second-largest consumer market, and at the time of writing, was projected to become the world's largest consumer market by 2030.[1] However, this surge in consumption also led to unprecedented demand for resources. Despite China's total retail sales reaching a staggering 44.3 trillion yuan in 2021, sustainable consumer products accounted for less than 10% of the market share.[2] In light of this trend, the country needed to strike a balance between economic growth and growing environmental concerns.

Stakeholder perspectives

Sustainable consumption required broad participation from various stakeholders including the government, corporations, academia, civil society organizations, communities, families, and individuals. At the time of writing, an increasing number of Chinese people were becoming involved in this cause, contributing to greater visibility, heightened awareness, increased interest, and concrete actions toward sustainable consumption. However, mobilizing stakeholders with diverse interests to work together remained a significant challenge.

Policy makers

Many countries (particularly in Europe) devised action plans to promote sustainable consumption, consisting of specific measures at both the macroeconomic and household levels. The motive behind these policies can be largely attributed to government commitments to reducing carbon emissions, enhancing industrial competitiveness by reducing reliance on resource-intensive products and services, and improving people's livelihoods by fostering a shift in public mindsets away from consumerism.

In China, sustainable consumption became a key policy tool in national efforts to achieve the so-called “dual carbon” goals (reach peak carbon emissions by 2030 and become carbon neutral by 2060). Discussions on sustainable development were therefore centered around these goals. However, China incorporated the concept of sustainable consumption into its policy framework as early as 1994, 26 years before the publication of its “dual carbon” goals in 2020. In June 1992, the concept of sustainable consumption was first proposed at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro. In April 1994, the Chinese government issued “China's Agenda 21”, which explicitly called for the establishment of a sustainable consumption model in China, making it the first country in the world to propose such a model. The Chinese government also implemented a series of policies to promote sustainable consumption. Nevertheless, at the time, there were no systematic measures in place to promote sustainable consumption on a large scale, such as an overall framework or national action plan.

Following the announcement of the “dual carbon” goals in September 2020, China introduced a series of specific policies in order to deliver on these targets. In this context, sustainable consumption – an important means of reducing waste and cutting carbon emissions – garnered increasing policy attention and support. For example, in January 2022, the National Development and Reform Commission and six other government departments issued the "Implementation Plan for Promoting Green Consumption" , proposing eco-friendly consumption models for sectors including food, clothing, housing, transportation, culture and tourism, power generation, and the public sector.

While often used interchangeably, the terms "green consumption" and "sustainable consumption" had slightly different meanings: the former emphasized a "green and low-carbon" mindset[3], while the latter referred to "meeting the needs of current and future generations for goods and services in a way that is sustainable from an economic, social, and environmental perspective"[4]. This case study uses these terms in different contexts, for the purpose of referencing relevant reports.

The aforementioned "Implementation Plan for Promoting Green Consumption" called for the concept of green consumption to become deeply ingrained in people's minds by 2025, and for it to be actively embraced by the public by 2030. It also set forth initiatives to expedite the adoption of environmentally friendly practices across a wide range of sectors, including food, clothing, housing, transportation, culture and tourism, power generation, and the public sector.

The Chinese government also issued a series of policy documents to establish institutional mechanisms for promoting green consumption practices (such as the recycling of waste electrical and electronic products, online bicycle rental, and green procurement practices). Further details on these policies will be provided in the upcoming sections.

However, at the time of writing, there were still significant gaps in policies to support sustainable consumption. This was mainly reflected in the absence of green product certification standards and measures to combat products incorrectly labeled as "sustainable", as well as limited government investment in the training of "green talent".

Consumers

As the final arbiter in a complex system of stakeholders, consumers had the ultimate say in what they purchased, and whether they were willing to pay a premium for environmentally friendly products. For this reason, consumers had a vital role to play in making sustainable consumption a reality – in order to achieve a successful transition to sustainable consumption practices, individuals themselves needed to adopt green and low-carbon lifestyles.

As part of our research, we decided to analyze the profile of consumers who embraced the concept of sustainable consumption. Based on our analysis of multiple research reports from the past decade, we found that sustainable consumers tended to exhibit consistent attitudes and behavior towards sustainable consumption. Over time, there was a gradual increase in their adoption of sustainable consumption practices; notably, the Covid-19 pandemic led to an unexpected acceleration in this trend. Sociological indicators such as gender, region, age, and social class did not have a significant impact on consumption patterns, as highlighted in multiple reports.

At the time of writing, more than 90% of Chinese consumers were concerned about sustainability, covering a wide range of product categories.[5] According to a survey conducted by the Boston Consulting Group's Consumer Insight Center (CCI) in eight markets, including the United States, France, Italy, Germany, China, Japan, India, and Brazil, Chinese consumers led the way in sustainable concepts and actions compared to the other markets surveyed. Among Chinese consumers, 93% considered climate change and sustainability when making a purchase – much higher than the overall average across all markets (approximately 80%). In terms of concrete action, the proportion of Chinese people who were adopting sustainable behaviors or buying sustainable products and services was approximately 10% higher than the overall average. Nevertheless, sustainable consumers were still in the minority, with only 35% of consumers taking actions towards sustainability.[6]

In addition, the proportion of sustainable consumers who reported making sustainable choices was slightly higher in new first-tier cities and second-tier cities.[7] Interestingly, people in lower-tier cities were more likely to identify as sustainable consumers, contrary to the perception that first-tier cities led the trend – possibly due to the long working hours of people living in first-tier cities, meaning they had less time to spend on making sustainable lifestyle choices. In addition, residents of first-tier cities may also have applied a stricter definition of "sustainable" when reporting their consumption habits.[8]

According to a joint study conducted by SynTao① and Jiemian News, there was no significant difference between men and women in terms of their tendency to make sustainable purchases (87% of women and 85% of men identified as sustainable consumers). From an age perspective, people under the age of 20 were less likely to identify as sustainable compared to those aged 21 and above.[9] At the time of writing, Generation Z, with a population of over 260 million, was becoming an important force in China's consumer market, whose influence was expected to grow further as more young people entered the workforce. According to forecasts, spending among China's Generation Z was expected to reach 1.6 trillion yuan by 2035.[10] Among the younger generation, people who purchased and used eco-friendly products were perceived as being trendy and of higher social status.[11]

In terms of educational background, people with a higher level of education were more likely to identify as sustainable consumers. For example, 88.07% of people with a graduate degree or above identified as sustainable – almost 10 percentage points higher than those with a secondary school education or below. In terms of income, higher incomes were associated with a greater likelihood of making sustainable purchases, while in terms of marital status, married people were more likely to identify as sustainable consumers, as were those who had one child (compared with respondents with no or two or more children).[12]

According to multiple research reports, sustainable consumers in China exhibited several distinct characteristics:

Firstly, their understanding of sustainable consumption encompassed a diverse range of actions, such as making low-carbon lifestyle choices, purchasing recycled goods, avoiding single-use plastics, and cutting out unnecessary purchases. In this context, effective communication was key to encouraging customers to make sustainable purchase decisions. However, according to numerous studies, the excessive use of authoritative language and technical jargon such as "low carbon" had the potential to backfire and hinder efforts to promote environmental awareness. For this reason, it was important for brands to use clear and concise communication methods.[13]

Among young consumers, the concept of sustainability was deeply embedded in life's four major necessities: clothing, food, housing, and transportation. The two most popular actions were the responsible use of resources and energy (62.2%), such as reducing water and electricity consumption, and the use of recycled and renewable materials (61.0%), such as eco-friendly shopping bags and clothing made from sustainable materials. In addition, compared to fast-moving consumer goods, consumers were more willing to pay a premium for eco-friendly durable consumer goods (such as home building materials and furnishings, electronic appliances, and automotive accessories).[14]

Secondly, there was a gap between awareness and action – in other words, while many Chinese consumers (93%) were concerned about sustainability, only a few (35%) had translated these concerns into concrete actions.[15] The process of converting intentions into actions was influenced by various external factors – according to research, there were numerous factors that could prevent consumers from making sustainable purchase decisions, such as price, performance, user experience, product descriptions, and marketing methods.[16] At the same time, there were many effective ways in which companies could encourage sustainable consumption, such as by providing clear, reliable, and quantifiable information about their low-carbon products, promoting simple and healthy lifestyles, giving consumers a sense of mission by quantifying the contribution they could make to reducing emissions, and building a comprehensive and transparent recycling system to encourage consumers to recycle used products.[17]

Thirdly, consumers were more inclined towards actions which were low-cost and easy to implement, such as ride sharing, conserving water and electricity, sorting waste, reducing food waste, using less plastic, recycling and donating used items, avoiding unnecessary purchases, buying second-hand items, using durable products, following a vegetarian or “flexitarian” diet, using local ingredients, buying handmade products, and decluttering. In this context, companies needed to provide simple, affordable, and feasible ways for consumers to make environmentally-friendly lifestyle choices, as well as raise awareness about the impact of such choices on the environment and personal well-being. A good example of this was

① SynTao Co., Ltd., was an independent consultancy established in 2005 that focused on corporate social responsibility (CSR), sustainable development, and responsible investment (ESG) consulting services in the field of corporate social responsibility.

the "Ant Forest" initiative, which encouraged individuals to take small yet meaningful steps to reduce their carbon footprint. Each individual's contribution was converted into points, which could be redeemed to plant a tree or protect biodiverse areas. According to data from the Ministry of Ecology and Environment, the Ant Forest project attracted over 613 million participants over a five-year period, reducing carbon emissions by over 20 million tons.

Brand owners/Sales process

Brand owners typically occupied a prominent position in the value chain, while suppliers and individual consumers often had less visibility. Brands acted as a critical link between upstream suppliers and downstream consumers, serving as the interface between the supply side and the demand side. As such, brands had a crucial role to play in driving the sustainability transformation across the entire value chain.

Empowering consumers to make sustainable choices

Brands played a crucial role in driving downstream consumers to make sustainable purchases. Brand advocacy and the availability of sustainable consumer products also played a pivotal role in influencing people's decisions. According to a survey, 26.63% of respondents considered a brand's social marketing and advocacy strategy as important drivers in their decision to purchase sustainable products.[18] In China, 83% of consumers believed that businesses should make it easier for consumers to purchase sustainable products[19]. In this context, daily necessities such as food and clothing had the greatest potential to drive growth in sustainable consumption, although an inadequate supply of sustainable products remained a significant barrier.

Fast fashion brands were at the forefront of the so-called “sustainability revolution” . The hallmarks of fast fashion, including low prices, a vast array of styles, and limited supply, had a significant impact on consumer behavior. For instance, the affordability of fast fashion allowed consumers to make frequent purchases, while low quality standards meant that many items had to be replaced on a regular basis. Moreover, a fast turnover rate, achieved through a strategy of frequent inventory turnover and constantly changing styles, allowed brands to meet changing market demands and thrive in a competitive market.[20] Over a period of two decades, declining clothing prices, fueled by the rise of fast fashion, led to an unprecedented increase in clothing purchases – at the time of writing, the average person owned five times as many clothes as their grandparents.[21]

In addition, the design, production, sales, and after-sales processes used in the fashion industry generated substantial waste, which ran counter to the principles of sustainable development.[22] As a result, an increasing number of consumers and fashion companies recognized the pressing issues of energy consumption and social justice in the fashion industry, giving rise to the concept of “sustainable fashion” . Sustainable fashion entailed developing fashion products that prioritized the environment and social justice.[23] To this end, the fashion industry explored a diverse range of business models, including the use of natural and recycled materials, promoting remanufactured clothing and durable garments, offering clothing rental services (on a short-term or monthly basis), encouraging reselling, and leveraging new technologies such as smart tailoring solutions and 3D printing. For example, brands such as Nike and Adidas started to incorporate recycled materials into their sports shoes, while fast fashion brands such as Uniqlo and Zara launched global recycling programs. The Italian fashion brand Prada also joined the movement by launching a new collection of handbags made from regenerated nylon. In China, the designer brand "Re-clothing Bank" focused on “upcycling” , creating emotional connections with old clothes. The rise of sustainable fashion was also accompanied by the launch of numerous second-hand clothing platforms such as Idle Fish and déjà vu, as well as clothing rental platforms such as YCLOSET and Magic Wardrobe. However, most of these platforms ended up closing down due to their high operational costs and limited revenue.

Supply chain sustainability

Brand owners also needed to encourage upstream suppliers to become more sustainable. According to research, approximately 80% to 90% of carbon emissions in the consumer goods industry occurred beyond a brand's own operations – known as Scope 3② emissions, these primarily originated from upstream suppliers and downstream consumers.[24] For this reason, brands needed to work with their supply chain partners in order to implement sustainability concepts in the upstream part of the value chain. This resulted in an increasing number of companies integrating sustainability into their ESG (Environmental, Social, and Governance) strategy. For example, Zara announced a comprehensive sustainability strategy covering areas such as product design, manufacturing, logistics, store operations, and raw materials, to be implemented by the year 2025.

In July 2022, 20 Chinese consumer brands③ published a guide summarizing best practices in sustainability, with a focus on the three key hurdles typically faced by companies: product development (challenges of scaling up production), logistics, and marketing (gap between awareness and action, as mentioned earlier)[25]. According to research, the reasons for this gap between awareness and action included the limited availability of sustainable products, the lack of appropriate purchasing channels, and insufficient support from sales personnel. Interestingly, price was found to be the least influential factor in influencing consumer behavior, indicating that some consumers were willing to pay a premium for sustainable products.[26] The topic of logistics is discussed in section 4 below.

The challenges of scaling up the development of low-carbon products arose from the need for brands to balance multiple goals. On one hand, they had to create innovative products and services to make low-carbon choices worthwhile for consumers. On the other hand, they could not compromise on quality, performance, and convenience.[27] According to the aforementioned guide issued by 20 Chinese consumer brands, the key to success was to provide consumers with "high-performance, easy-to-use" sustainable products that were also "relevant and stylish" . Developing sustainable products required a distinctive approach that took into account both consumer needs and sustainability standards throughout the conceptualization, development, and launching stage (unlike the development process for conventional products, which was market-oriented and driven purely by consumer demand). In addition, it was also crucial to adopt clear and concise communication methods to effectively convey the value of sustainable products to consumers, and to promote the concept of sustainable consumption.[28]

Meanwhile, research showed that Chinese consumers were more open to engaging and sharing their experiences with companies compared to consumers in other markets.[29] For this reason, brands needed to involve consumers, key opinion leaders (KOLs), and other stakeholders in order to optimize their sustainable products, such as by designing visually appealing products that consumers could photograph and share on social media, making consumers aware of the product's long-term value, demonstrating understanding of consumer values, and building a positive brand image.[30]

As mentioned above, another factor that hindered consumers from translating awareness into action was a lack of suitable purchase channels and inadequate support from sales personnel. In other words, there was an information gap – consumers did not know where to access sustainable products. To address this issue, companies needed to provide comprehensive training to sales personnel, equipping them with the knowledge to communicate relevant information to potential consumers, enhance awareness of sustainable consumption, and foster brand loyalty.

At the time of writing, many companies had started to incorporate the theme of sustainability into their physical stores. This enabled them to promote their own sustainable products more effectively, as well as provide a platform to engage with consumers and encourage sustainable lifestyles. For example, several brands experimented with opening sustainability-themed stores. According to research, nearly 50% of respondents cited physical stores and salespersons as instrumental in shaping their perception of sustainable consumption, with brands such as Starbucks, IKEA, Muji, and Uniqlo frequently mentioned by respondents.[31] For example, IKEA's downtown store in Jing'an, Shanghai, was a prime example of a new store built upon sustainable principles – in addition to installing solar panels to meet on-site electricity needs, the store also used recycled and biodegradable materials for promotional displays, and provided customers with information on

② The greenhouse gas accounting framework provides a detailed definition of the types of activities undertaken by enterprises that fall within the scope of carbon emissions accounting, categorized as Scope 1, Scope 2, and Scope 3. Scope 3 emissions encompass a wide range of indirect emissions that occur throughout the company's value chain, including emissions from purchased goods and services, business travel, employee commuting, waste disposal, product usage, transportation and distribution (upstream and downstream), investments, and leased assets and franchising, among others.

③ The initiating members, arranged in alphabetical order based on the initials of their Chinese names, include the following companies: Alibaba, Pepsi, Procter & Gamble, Bosch, Philips, Colgate, Jinguang, Master Kong, Coca-Cola, Liby, Unilever, Liangpinpuzi, Mars Arrow, Mengniu, L'Oreal, Nestle, Yili, Mondelez, China Feihe, and Shiseido.

sustainable products in order to create a greener shopping experience. At the same time, the new store enabled the company to inform customers of its commitment to sustainability, such as responsible material sourcing and its free mattress recycling service. Electronic screens were also installed to display information on sustainable lifestyles. In addition, IKEA designed an in-store activity space called the “Community Lab” , which gave customers the opportunity to participate in sustainability-themed activities and connect with the IKEA brand.[32]

At the time of writing, an increasing number of brands were using online shopping platforms to market their sustainable products. For example, Coca-Cola participated in a sustainable packaging initiative launched by Tmall, leveraging Tmall's user traffic and media exposure to reach its target audience and boost sales of products with recycled bottle labels. Similarly, the yogurt brand An Mu Xi used Tmall Innovation Center (TMIC), the retail innovation arm of Tmall, to target environmentally conscious consumers and participate in eco-friendly initiatives aimed at encouraging sustainable lifestyles, such as a bottle recycling campaign.

Some domestic and overseas e-commerce platforms also introduced their own measures to promote sustainable products on their platforms. For example, Amazon, through its Climate Pledge Friendly program, highlighted products certified as sustainable (such as the "Compact by Design" label for products with a sustainable design). The Chinese e-commerce platform Alibaba established certification standards for sustainable products, sustainable materials, sustainable packaging, energy efficiency, and recycling: brands could apply for their products to be certified by Alibaba and labeled as sustainable in order to increase their exposure.

Manufacturing/logistics

Consumers were willing to pay a premium for brands with like-minded values and products which offered exceptional performance. In addition, as online shopping became more popular, consumers were able to share their needs and experiences and thus have a much greater say in the product development process. When making purchase decisions, consumers also considered a brand's values as well as its supply chain and organizational capabilities – brands which were able to effectively communicate and align their values with those of their consumers were more likely to have successful long-term relationships.

Green manufacturing

In terms of China's national growth strategy, promoting sustainable consumption also required a transformation in production methods. Manufacturing, the key driver of China's economic growth, was also the largest consumer of energy and leading source of carbon emissions, with the industrial sector accounting for about 70% of total energy consumption. In this context, transitioning to “green manufacturing” was a critical step in China's drive to become carbon neutral. To achieve this goal, the central government introduced a series of policies and directives, including the “Guidelines for the Implementation of Green Manufacturing Projects (2016–2020)” , the “Notice on the Construction of Green Manufacturing Systems” , the “14th Five-Year Plan for Industrial Green Development” , and the “Implementation Plan for Carbon Peaking in the Industrial Sector”.

Driven by brand owners, the quest for sustainable manufacturing processes rippled across the supply chain. For example, consumer goods manufacturing companies incorporated social responsibility into their corporate strategy, and made extensive efforts in areas such as sustainable product design, sustainable material sourcing, alternative energy, zero-carbon manufacturing, waste recycling, and zero-carbon operations. In May 2022, Lenovo Group unveiled the world's first TÜV Rheinland-certified “carbon-neutral” laptop – the Yoga Slim 9i notebook. In order to make the laptop carbon neutral, Lenovo Group replaced conventional non-biodegradable polyethylene packaging materials with 100% biodegradable plant-based fibers such as bamboo. BMW Group manufactured almost 30% of its vehicles from recycled and reused materials; at the time of writing, the company was planning to increase this figure to 50%. L'Oréal's production facilities, such as the Yichang Tianmei factory and Suzhou Shangmei factory in China, utilized abundant local hydro and wind power resources to meet 100% of their daily energy needs, becoming carbon neutral in 2015 and 2019, respectively. China, a significant strategic market for L'Oréal Group, became the first country in which the company achieved carbon neutrality across all its operational sites, a goal achieved in 2019.[33] The yogurt manufacturer An Mu Xi also attempted to make its products more sustainable by introducing recyclable packaging that used significantly less ink and had no plastic handles. Master Kong, a leading brand in China's food and beverage industry, pioneered the launch of label-free beverages on Tmall (including a sugar-free iced tea and lemon-flavored iced tea), delivering a 7% reduction in carbon emissions.

Sustainable logistics

According to statistics, carbon emissions from the processing and manufacturing sectors (such as food processing, clothing manufacturing, the textile industry, and tobacco processing) declined considerably after 2015 thanks to a range of effective measures adopted by companies to lower their emissions. Conversely, service-oriented sectors such as transportation, warehousing, postal and telecommunications services, wholesale and retail trade, and catering services saw significant growth in turnover and carbon emissions, driven by rising consumer spending (although advances in information technology led to a reversal of this trend after 2017).[34] Logistics – in particular packaging, warehousing, and transportation – was therefore a crucial factor in determining the sustainability of products and services.

At the time of writing, China was home to over 800 million online shoppers.[35] Thanks to the popularity of online shopping, an average of 300 million parcels were handled daily in 2021, representing a 100-fold increase over a period of 15 years. The exponential growth in parcel deliveries led to a continuous rise in packaging waste, including plastic bags, plastic tape, and plastic cushioning materials. In China's mega-cities, packaging waste from parcel deliveries accounted for 93% of the increase in household waste, and 85% to 90% in other large cities.[36] To address this pressing issue, the State Post Bureau launched the “9917” initiative in 2022, which aimed to increase adoption of standardized packaging materials and processes, encourage the use of recyclable boxes, and promote the recycling of corrugated cardboard. The initiative also planned to ban the use of non-degradable plastic bags, plastic tape, and other similar materials in courier stores by the end of 2025.

Most brands shipped their products with third-party logistics companies; the carbon emissions generated in this process were therefore classed as Scope 3 emissions. Accordingly, if a brand partnered with a logistics company that implemented emissions reduction measures, the corresponding emissions reductions would be reflected in the brand's Scope 3 emissions. For this reason, many brands collaborated with logistics companies in order to reduce plastic waste – brands such as Philips and L'Oreal partnered with Alibaba to increase the use of plastic-free and tapeless packaging, while Nescafe implemented door-to-door collection of plastic packaging materials through Cainiao, Alibaba's logistics arm. In addition, Alibaba and Unilever launched a joint initiative to create China's first large-scale closed-loop plastic recycling system powered by AI, which automatically identified plastic bottles suitable for recycling.[37]

In terms of warehousing, the main source of carbon emissions was energy usage in warehouses. For this reason, logistics companies primarily focused on optimizing energy usage, improving operational efficiency and warehouse layouts, and digitizing warehousing processes. To this end, numerous leading logistics companies installed distributed photovoltaic systems on the roofs of warehouses, and fed surplus electricity back to the national grid. For example, Cainiao installed photovoltaic systems at 6 logistics centers across China; 35% of the electricity generated was used for on-site consumption, while the remaining 65% was fed back to the national grid.[38]

The transportation-related emissions generated by logistics companies were primarily dependent on the amount of energy consumed by the company's vehicle fleet, the modes of transport used, and the distances involved.[39] Optimizing these three factors could therefore deliver significant improvements in efficiency, shorten transportation routes, and reduce emissions. For example, Cainiao shortened transportation routes by approximately 7% by optimizing its network, and increased load capacity by 5% by utilizing intelligent fulfillment algorithms to plan routes, schedule resources, and consolidate orders. These efforts delivered a 5% reduction in the cost of transportation along trunk routes, and a 5% to 7% reduction in carbon emissions. In addition, Cainiao also utilized 1,000 electric vehicles equipped with an onboard AI system designed to reduce vehicle mileage, as well as 500 electric scooters deployed across Cainiao's service points and university campuses to provide last-mile delivery services.[40]

The concept of “buying local” – driven by concerns over economic growth, sustainability, supply chain disruption, and regional conflicts – also contributed to reducing transportation-related emissions. In light of these concerns, consumers increasingly chose to support local products, which were typically seen as sustainable and beneficial to the local community. In response, major brands sought to associate the concept of “local” with sustainability and transparency, such as by highlighting the low carbon footprint of local products. In addition, they also embraced transparency by providing information about the origin and production methods of their products through livestreaming, social media, and QR codes.[41] For example, Great Leap Brewing, a local craft beer brand, established an eco-friendly brewery in Tianjin, China, which used locally sourced Chinese hops, malt, and other agricultural products such as spices, tea, honey, and coffee to brew its beer, showcasing its commitment to using locally sourced ingredients and sustainable practices.

Drivers of sustainable consumption in China

China's sustainable consumption sector involved various actors who operated in a complex and dynamic environment – factors such as location, local customs, and economic fundamentals had a significant impact on people's tendency to make sustainable purchases. The Covid-19 pandemic also played a unique role in encouraging people to consume more sustainably. Against this backdrop, public opinion, technology, and finance became indispensable tools in driving the trend towards sustainable consumption.

Public opinion

Public opinion played a vital role in promoting the concept of sustainable consumption and fostering behavioral change. Most people learned about sustainable consumption in a community, family or school setting, such as by participating in sustainability-themed initiatives. According to a study by EqualOcean Intelligence on the sustainable consumption habits of young people, individuals experienced a shift from awareness to action, with quantitative change gradually accumulating to drive qualitative change. In addition, awareness and action were mutually reinforcing, and drove individuals to have an impact on others.[42]

A number of studies were conducted to examine how opinion makers affected consumers' views on sustainable consumption. According to these studies, most consumers relied on traditional media channels for information about sustainability. A survey by EqualOcean Intelligence showed that traditional mass media (such as television, radio, and books) was the most popular way for young people to learn about sustainable consumption, with 77.5% of respondents expressing a preference for these channels. Social media platforms (such as WeChat, Weibo, and TikTok) ranked in second place (60.9%), followed by government (51.6%) and community publicity activities (50.6%). Other important channels included publicity activities of non-profit organizations, school awareness initiatives, e-commerce platforms, brand sustainability campaigns, relatives and friends, entertainment shows, and awareness campaigns in shops, supermarkets, and retail stores.[43]

Based on our research, online platforms had the greatest impact on shaping public opinion. This was primarily due to widespread Internet access – at the time of writing, more than 70% of China's population had access to the Internet, and by the end of 2021, there were 1.168 billion mobile Internet users per month, with an average of 65 apps installed on each smartphone device, and the average user spending over 5 hours a day using mobile apps.[44] In addition, the Internet also played a role in other channels through which people acquired information on sustainability, such as traditional mass media, government publicity campaigns, and personal interactions among friends and family. For example, in the case of traditional media, content could be accessed online, and users could participate in promotional campaigns or initiatives by scanning a QR code.

Secondly, online platforms integrated a range of different functions such as shopping and social media, which made them more influential than traditional media that simply "reported" information to readers or viewers. According to a study at the time of writing, most people bought sustainable products online, with over 67% of respondents typically buying from official websites (e.g. e-commerce platforms and supermarket delivery services) and over 54% from livestreaming channels.[45] In addition, most respondents (77.85%) expressed a willingness to leave reviews of their purchases, primarily in order to encourage their friends to make sustainable choices.[46] Advances in digital technology enabled brands to capitalize on this trend and create a virtuous cycle, leveraging existing customers to expand their customer base and improve their reputation.

Thirdly, the Internet enabled the public to engage with social issues in more creative and diverse ways. Thanks to the wide range of online platforms catering to different needs and interests, users were able to access sustainability-themed content and participate in environmental initiatives simply by browsing on their phone – such as joining points-based schemes which rewarded users for making low-carbon lifestyle choices, or using second-hand shopping sites. In this context, online platforms helped to bridge the information gap and increase the public's involvement in environmental campaigns.

In addition, online platforms also played a key role in connecting the various stakeholders involved in sustainable consumption. The digital capabilities of these platforms allowed brands to conduct in-depth analysis of people, products, and content, thus enabling them to develop sustainable products and deliver them to the right consumers. For example, Tmall published a series of images depicting the typical traits of green consumers, which were developed using professional insights and data analytics, as well as with reference to national sustainability policies and industry standards. In addition to helping merchants manage green consumers with precision by analyzing their typical consumption habits, Tmall also helped them to research, develop, and market products that addressed the needs of green customers.[47] To this end, Tmall Innovation Center (TMIC) built a database of sustainability-related product attributes (e.g. organic ingredients, sustainable processes, and sustainable packaging), which brands could use to gain insights into how to make their products more sustainable, such as by reducing the carbon footprint of packaging.[48]

Technology

At the time of writing, consumers were only willing to pay a limited premium for sustainable products. In other words, while they may have been willing to compromise on price and convenience, they would only do so up to a point. However, this kind of behavior was not sustainable in the long run – ultimately, sustainable products needed to be affordable and meet the needs of consumers if they were to be successful. Advances in technology were therefore crucial in this regard.

There were two main ways in which technology enabled people to consume sustainably. Firstly, digital technology delivered significant improvements in quality and efficiency at the same time as cutting costs – as digital technology became more affordable, many firms start to incorporate it into the production, transportation, and sale of their sustainable products.Secondly, technological breakthroughs in specific sectors also made sustainable products more accessible. Plant-based meat, for instance, offered a more sustainable way to eat, with a lower carbon footprint and environmental impact, as well as a flavor and texture that increasingly resembled real meat thanks to continued advances in technology – a key factor in the success of the plant-based meat industry.

Digital technologies

This section will discuss how five key digital technologies – the Internet of things (IoT), artificial intelligence (AI), blockchain, digital twin technologies, and big data – played a leading role in driving the trend towards sustainable consumption, as well as their typical applications, such as buildings, energy, industry, and the consumer goods sector.

At the time of writing, IoT technology was primarily used during the production, processing, and retail of consumer goods. For example, in addition to tracking energy use and carbon emissions during the manufacturing process, IoT technology could also be used to monitor the status of products in real time after their sale to end customers, enabling manufacturers to cater to customers' evolving needs and provide a comprehensive service.

Artificial intelligence – another key digital technology – enhanced productivity at every stage of the manufacturing process. For example, it enabled manufacturers to identify areas for improvement and optimize production, operations, maintenance, and storage processes. In addition, AI helped to reduce the number of canceled orders and product returns by matching goods more accurately to consumers' preferences. It also delivered a reduction in direct and indirect emissions throughout the product life cycle, from design and manufacture to use and disposal. At the time of writing, AI was transforming the retail industry by overhauling and streamlining how retailers handle payments, design their premises, and run their operations.

Blockchain, a technology that enables the secure sharing of information, also played a key role by driving the digitalization of supply chains. For example, blockchain technology helped to boost the efficiency of cross-border supply chains by enabling companies to track the production, storage, transportation, customs clearance, and third-party inspections of goods digitally, reducing the uncertainty caused by information silos. In the context of the retail sector, the immutability of blockchain enhanced the reliability of product tracking, enabling retailers to deliver tailor-made goods to their customers in a cost-effective and eco-friendly way.

Digital twin technologies also revolutionized the retail sector from the perspectives of consumers, stores, and supply chains. For example, digital twin technologies enabled consumers to experience 3D visualizations of products in augmented reality (AR), virtual reality (VR), and mixed reality (MR), while store operators were able to collect and analyze consumer data in order to improve demand forecasting, assortment planning, and supply chain management, delivering significant cost savings. Digital twin technologies also allowed companies to visualize their carbon footprint across the entirety of their operations.

Meanwhile, big data played a crucial role in bridging the gap between consumers and product manufacturers, as it provided companies with the means to gauge consumer demand and tailor their capacity accordingly in order to improve the efficiency of their supply chains. For example, by enabling goods to be produced and supplied on demand, big data helped to reduce waste and increase the flexibility of manufacturing processes.[49]

In conclusion, the advent of digital technologies was pivotal in lowering barriers to sustainable consumption. In addition, according to a white paper published by the China Academy of Information and Communications Technology (CAICT), digital technology had the potential to cut emissions by 10–40% by 2030, depending on the sector.[50] Against this backdrop, an increasing number of firms started to leverage digital technologies to promote sustainable practices. For example, Suning, one of China's leading retailers, developed a system that allowed users to try on clothes virtually by moving and gesturing in front of a screen. Known as “Magic Runway” , the system was created by the company's Silicon Valley Research Institute using artificial intelligence, and could display up to 50 outfits in one minute with high-definition 3D images. Consumers who wished to make a purchase could scan a QR code and place their order via the Suning.com app,[51] thus reducing their carbon footprint by cutting out journeys to brick-and-mortar stores. Digital fashion platforms such as these were particularly popular among the younger generation due to growing concerns about sustainability – unlike physical fashion that consumed natural resources and generated large amounts of waste, digital fashion did not have an adverse environmental impact, as it did not require manufacturing, packaging, or transportation.[52]

Technological breakthroughs in specific sectors

Thanks to its adoption of cutting-edge technologies, the fashion industry was a pioneer in encouraging green and sustainable practices. At the time of writing, the fashion industry was the world's second most polluting industry after the oil and gas sector, predominantly due to the environmental damage caused by processes such as the production of synthetic fibers, dyeing, and tanning leather. In order to become more sustainable, fashion companies primarily used two key technologies – biotechnology and molecular recycling. Biotechnology helped to create new sources of raw materials and new ways of processing them, while molecular recycling enabled unwanted materials to be reused and recycled.

At the time of writing, an increasing number of innovative and sustainable materials – including regenerated textiles, alternatives to animal skins such as mushroom, pineapple, and apple leathers, and innovative bio-based materials – were being developed for commercial use and embraced by clothing brands. Negative emissions technologies were another promising solution for the fashion sector.

On the other hand, molecular recycling technology was initially adopted only by a small number of pioneers.[53] One such company was Xtep, a Chinese firm that made clothes from polylactic acid extracted by fermenting corn stalks. These clothes decomposed naturally within one year when buried in specific soil conditions. Another example was Bananain, an underwear brand that launched a range of carbon-neutral briefs made from a zero-carbon, bio-based fiber called TENCEL™.

The fashion industry used large amounts of energy and water to dye fabrics; the dyeing process also involved the use of toxic and corrosive chemicals. Synthetic biology offered a greener alternative for dyeing clothes. Based in Hangzhou, LeXiang Sustainable Technology was a start-up that embraced sustainability in its operations. The company used a special new technology to create durable and eco-friendly dyes from bio-based pigments, without polluting the air or emitting carbon. This provided a solution to the drawbacks of traditional plant-based dyes, such as dull and limited colors and insufficient depth, and matched the performance of chemical dyes while retaining the environmental benefits of plant dyes. With its natural and bio-based dyes, LeXiang offered a comprehensive solution that could be scaled up and used in different industries – in addition to fabric dyes, the company also produced a diverse range of other dyes for applications such as cosmetics, hair dyeing, ink printing, and paint pigments. The only by-product of its dye production was solid waste, which could be digested by earthworms and therefore contribute to carbon sequestration and soil restoration.

Technological breakthroughs were also made in energy-efficient buildings and renewable energy, increasing the visibility of these sectors in terms of their commitment to sustainability.

Finance

According to a study by CITIC Bank, financial constraints were one of the main obstacles to people adopting green lifestyles.[54] The consumer finance sector had a crucial role to play in this regard – the “Implementation Plan for Promoting Green Consumption” highlighted the significance of consumer finance in facilitating a transition towards more sustainable consumption patterns. The plan also urged regulatory authorities to steer consumer finance firms towards providing green business solutions, while enhancing their service coverage and convenience. This entailed extending finance services to enterprises that manufactured and distributed sustainable products, as well as to consumers who purchased such products. In this context, fintech enabled financial institutions to offer green consumer finance and help people to reduce their carbon footprint.

The concept of “green finance” was instrumental in supporting the transition to sustainable consumption. The G20 Green Finance Synthesis Report issued in September 2016 defined green finance as the financing of investments that provided environmental benefits in the broader context of environmentally sustainable development. In the first half of 2022, China's market for green finance was worth around RMB 20 trillion.[55] As the demand for green finance grew, consumer finance firms began to incorporate ESG principles into their financial services.

Green finance encouraged sustainable practices among consumer finance firms and individual consumers – providers of green finance solutions promoted the concept of sustainability by operating sustainably and reducing their carbon footprint in line with ESG principles, while consumers were able to obtain loans for making sustainable purchases. Consumer finance played a central role in driving consumer demand as well as the structural transformation of China's consumer sector towards a more sustainable model of growth. For example, consumer finance firms encouraged consumers to make green choices by providing loans for sustainable purchases, and helped small and medium-sized enterprises to access finance.[56]

Green loans were a key driver in the growth of green consumer finance in China. However, at the time of writing, the sector was still in its infancy – no statistics were available on the scale of green consumer credit in China, nor were there any specific standards from financial regulators.

Chinese commercial banks offered various types of green consumer loans, such as mortgages for green homes, loans for green cars and products, green credit cards, loans for solar panels, loans for sustainable agriculture and forestry, and loans for energy-saving projects. The following section examines how Industrial Bank and Ma'anshan Rural Commercial Bank pioneered the practice of providing mortgages for green homes.

Industrial Bank lent to individual and family buyers of eco-friendly properties, such as green, passive, or prefabricated buildings. Its customers enjoyed access to tailored loan plans, such as the option to choose from various repayment options and grace periods. At the time of writing, it was also planning to offer preferential interest rates, subject to regulatory policies.

Ma'anshan Rural Commercial Bank offered preferential mortgage rates to individuals and families buying homes in green buildings certified by LEED, IFC Edge, or China's own star-rating system. In addition to lower interest rates on their mortgages, borrowers could also obtain loans for buying eco-friendly furnishings and appliances, and did not have to pay a penalty for early repayment, unlike standard mortgages for conventional buildings.[57]

Xinwang Bank also contributed to the growth of green finance by financing purchases of electric and hybrid cars, as well as by providing supply chain financing solutions for green technologies such as lithium batteries. Industrial Bank offered unsecured loans to creditworthy households and encouraged them to buy products and services that were green and energy-efficient through a series of marketing campaigns and incentives.[58] At the time of writing, several regional banks, including Jinshang Bank, Bank of Jilin, Bank of Zhengzhou, Bank of Dongguan, Yellow River Rural Commercial Bank, Henan Rural Credit Union, and Zhejiang Tailong Commercial Bank, were developing innovative green finance products.[59]

Some banks also offered “green” credit cards that rewarded consumers for making eco-friendly purchases. They also donated some of their profits to projects or organizations that promoted energy efficiency and environmental protection. For example, Shanghai Pudong Development Bank and UnionPay teamed up to launch a credit card that rewarded cardholders for using eco-friendly transportation methods such as public transport or shared bicycle schemes.

These green credit card schemes were the primary means through which financial institutions in China supported eco-friendly initiatives. At the time of writing, dozens of Chinese banks, including Ping An Bank, CITIC Bank, and SPDB, were trialing new ways to encourage customers to make eco-friendly choices such as taking public transport and sorting waste.[60] For example, the Bank of Jiangsu and UnionPay devised a points scheme to reward cardholders for reducing their carbon footprint. The scheme tracked how much carbon dioxide cardholders saved by using public transport, making mobile payments, using shared bike schemes, taking high-speed trains, and driving electric vehicles, and credited their account with a corresponding number of points that could be redeemed for a range of benefits. In addition, consumer finance platforms and institutions used interactive games and social media features to attract new customers. For example, Green Inclusive, a financial institution, launched an app that enabled Beijing residents to track their carbon footprint, drawing interest from firms such as Meituan, JD, Baidu, Didi Bike, and Eleme.[61] However, at the time of writing, these green consumer finance services were still in their infancy, with a lack of available data still a major obstacle to profiling customers and tracking their carbon footprints.[62]

Small and micro businesses also benefited from green finance services. For example, Alibaba-backed MYbank offered low-interest green procurement loans to distributors who sourced from certified eco-friendly companies. In November 2021, the bank also offered an instant payment option to merchants who sold green products, allowing them to receive payment upfront immediately after making a sale.

However, ESG was not a concept that firms could adopt overnight. At the time of writing, consumer finance firms were under pressure to enhance both their growth prospects and their profits. As a result, their main priority was to improve their core business. In this context, interest rates needed to reflect the concept of differentiated pricing, balancing social and commercial value without compromising risk management.[63]

Development of sustainable consumption in different sectors

According to a study conducted by the World Economic Forum at the time of writing, approximately 40% of worldwide carbon emissions could be attributed to six consumer-facing industries, namely food, fashion, automotive, fast-moving consumer goods (FMCG), electronics, and freight.[64] In other words, everyday necessities, such as clothing, food, housing, transportation, and consumer goods, had a crucial role to play in driving the trend towards sustainable consumption.

Clothing

At the time of writing, China was the world's largest manufacturer and exporter of textile and garment products, and also boasted the largest consumer market for clothing and footwear. As a major contributor to China's carbon emissions, the textile and garment industry implemented significant reforms in response to domestic and international regulations. According to research by the Chinese media platform IYIOU, while 43.5% of young consumers opted for sustainable products when purchasing footwear, clothing, and bags, the remaining 56.5% had yet to do so. As such, there was still ample room for growth in the market for sustainable consumer products.[65]

As mentioned above, fashion brands took the lead in promoting the concept of sustainable consumption and driving the development of new materials. A number of Chinese fashion brands also explored novel business models that prioritized sustainability.

Some fast fashion companies started to incorporate eco-friendly materials into their clothing lines, while others encouraged consumers to dispose of unwanted clothing at in-store recycling points. Nevertheless, these actions did not address the underlying issue of the industry's unsustainable model, which relied on excessive consumption and production to fuel endless growth, generating large amounts of waste in the process.

To tackle this problem, brands needed to develop innovative business models. This led to the rise of the term "sustainable fashion", which sought to redefine the traditional concept of fashion in a way that protected both people and the planet. In the wake of this trend, many brands started to incorporate environmental protection into their business models and promote their sustainability credentials.[66]

Green manufacturing

Green manufacturing referred to the use of eco-friendly materials (such as natural organic fibers, regenerated nylon, and bio-based fibers) and digital technology to promote sustainability.

At the time of writing, the use of organic cotton was widespread among global fast fashion brands such as Walmart, C&A, Nike, People Tree, H&M, and ZARA; Chinese clothing companies such as Li-Ning and ANTA relied heavily on organic cotton sourced from Xinjiang for a significant portion of their product lines.

Regenerated nylon also gained popularity among big-name fashion brands. For example, Prada unveiled ECONYL, a regenerated nylon yarn made from plastic waste from landfill and abandoned ghost fishing nets. Adidas incorporated recycled polyesters obtained from spinning waste, PTE plastic bottles, and bottle flakes in its manufacturing processes, while ANTA recycled discarded plastic bottles and transformed them into polyester and other materials.

Applications of bio-based fibers become increasingly diverse, offering sustainable alternatives to traditional materials. For example, Piñatex, derived from pineapple leaves, became a viable substitute for leather. S.Café, produced from recycled polyesters and discarded coffee grounds, provided another eco-friendly option. Other sustainable fabric choices included Seawool (a yarn made from crushed oyster shells and recycled PET pellets), Orange Fiber (a fiber made from the by-products of citrus juice), SeaCell (a mixture of cellulose sourced from trees and edible brown seaweed), Tômtex (a leather substitute created from waste seafood shells and coffee grounds), MycoWorks Reishi (a fungal-based leather alternative), Banana Sylk (a fabric made from the stems of banana plants), and Kombucha Leather. In addition, the Chinese sportswear brand Xtep introduced a bio-degradable t-shirt made from polylactic acid fiber – a thermoplastic monomer derived from organic, renewable sources including corn starch and sugar cane.

At the time of writing, many brands were planning to incorporate more eco-friendly materials into their manufacturing processes. For example, Calvin Klein set itself the target of using 100% sustainable materials by 2025, while Walmart proposed increasing its use of recycled polyesters, and planned to use 50% recycled materials and 100% organic cotton in its products by 2025.

Digital technology also played a crucial role in improving efficiency and synergies within the fashion industry, such as by reducing textile waste, saving energy, and creating a more transparent and traceable production process. By incorporating digital technologies, companies were able to promote sustainability throughout the entire product life cycle, from design and manufacturing to use and disposal. Increased adoption of digital technologies also led to the emergence of specialized technology companies catering to the needs of the fashion industry, such as Zhejiang Style3D Digital Technology Company, which provided a comprehensive 3D platform to enhance the efficiency of the sample production process. The platform leveraged photorealistic rendering and dynamic simulation technologies to generate virtual 3D sample garments, eliminating the need for physical samples. This approach improved sample pass rates to 60–70%, compared to 20–30% with traditional sample development methods. In addition, as this virtual method did not require shipping, companies could complete the sample development process in just 3–7 days, compared to 15–30 days with traditional methods. The new platform also used fewer textile materials, lowered labor costs, and reduced energy waste and environmental pollution associated with sample development.

Circular fashion

The concept of circular fashion referred to the application of the circular economy in the fashion industry. While the linear economy followed a “take-make-dispose” approach, the circular economy prioritized recycling waste and incorporating it back into the economy whenever possible. For example, old or even broken products could be repaired to extend their lifespan, unwanted items could be sold on the second-hand market to create additional value, and useful components from discarded products could be repurposed to manufacture new products.

Many brands embedded the concept of circular fashion into their business operations. One such brand was Patagonia, an American outdoor clothing company committed to repairing, reusing, and recycling its products. Customers could choose to use the brand's repair service, or to repair their garments themselves with the help of video tutorials. Repaired garments were either returned to the original owner or sold as second-hand goods, while garments which were beyond repair or reuse were recycled to produce new products. Another example of such a brand was Reclothing Bank, which was founded by the Chinese designer Na Zhang and had a vision to transform the fashion industry by giving new life to used garments. Meanwhile, used garments were also sold on popular second-hand trading platforms such as Idle Fish, Zhuanzhuan, and Paipai; some platforms were dedicated exclusively to recycling and donating used garments, such as Baijingyu, Wutan Planet, and Feimayi.

Fashion rental

Fashion rental platforms, which enabled consumers to rent clothes instead of buying them, also belonged to the concept of the sharing economy. A large number of fashion rental platforms emerged in China between 2015 and 2018, backed by significant capital investments. In 2015 alone, a total of 12 such platforms were established. These platforms generated their revenue primarily through the sale of membership plans and subscriptions. However, many of these businesses – including the market leaders – eventually went bankrupt for various reasons. Firstly, the concept of sharing clothes was not widely accepted in China. Moreover, many of these platforms suffered from poor management and inefficient supply chain operations, leading to negative customer experiences. For example, customers often received dirty clothes or failed to receive their orders at all. Additionally, some platforms used automatic payment systems that charged customers without informing them in advance.

Slow fashion

The concept of fast fashion relied on replicating trends and using low-quality materials, meaning that products had a very short life cycle. The average fast fashion item had a lifespan of just 2.2 years, and in some cases, clothes were thrown away after being worn just a few times. According to the China Association of Circular Economy, approximately 26 million tons of used garments were discarded in China in 2013. This number increased to 50 million tons in 2020, and at the time of writing, was expected to reach 100 million tons by 2025.[67]

The concept of slow fashion emerged as a response to the negative impacts of fast fashion. Slow fashion prioritized emotional and sustainable design principles, focusing on creating high-quality products with a longer lifespan. The slow design principle emphasized that garments should be easy to clean, stain-resistant, and comfortable to wear. These products were designed to be easily repaired, thus increasing customer satisfaction and prolonging the lifespan of the product. Klee Klee, a local Shanghai brand, was an example of a company committed to the concept of slow fashion, as evidenced by its brand name (meaning “slow down” in Tibetan) and logo of a hand pointing downwards (meaning “slow” in sign language). The brand valued simplicity and minimalism, and aimed to create versatile clothing that was easy to match with other garments for different occasions.

The concept of “emotional design” involved creating products that customers could cherish and utilize for a long time. This design philosophy required designers to understand customers' needs and the values they stood for. For example, Freedom Denim, a brand devoted to promoting the use of sustainable denim materials, drew inspiration by establishing an emotional bond between customers and their jeans. Other design strategies, such as open-source fashion design and developing products that could be easily repurposed, were also effective approaches to creating an emotional bond between customers and their garments – by allowing buyers to become designers, these methods empowered customers to experience a sense of accomplishment by creating their own clothes, fostering a deep emotional connection with their creations. This, in turn, encouraged customers to use their garments for longer.[68]

The trend towards customized garments also played a role in the growth of slow fashion. Under this model, the production process did not commence until the manufacturer received the customer's order. This strategy helped to eliminate overproduction – the extended delivery time encouraged customers to make more informed and rational purchase decisions, while the resulting products had a personalized design, were of superior quality, and had a longer lifespan. This approach stood in sharp contrast to the concept of fast fashion, which encouraged overconsumption by stimulating instant gratification. One example of a company which embraced the concept of customized fashion was the Chinese fashion brand Morin Khuur, which collaborated with an independent designer to develop a clothing line that offered extensive customization options – customers could liaise with designers and select textile materials based on their preferences.

Social enterprise

A social enterprise is an organization that applies business strategies to achieve positive social impacts. In the fashion industry, social enterprises were often led by skilled artisans or craftsmen who prioritized using traditional production techniques. Norlha, a social enterprise based in the Gannan Tibetan Autonomous Prefecture in southern Gansu Province, China, was a prime example of this approach. Norlha was committed to sustainable development and utilized hand-spun yak khullu fibers, which could only be obtained during shedding season in late spring.

Worker cooperatives were another form of social enterprise that emerged around the globe. Examples included Manos del Uruguay in Uruguay, Andel in Denmark, and Blue Tin in Chicago. Migrant Worker's Home, an NGO in Beijing, launched a cooperative in Pi Village (home to Beijing's largest used clothing exchange), under which members of the local community ran a used garment recycling business to raise funds for charitable donations and support a school for migrant children. Items deemed suitable for donation were distributed to those in need, while those unsuitable for donation were sold to migrant workers in the community store. The revenue generated from the sales was used to cover operating costs and fund education for migrant workers and their children. Members of the cooperative also collaborated with the second-hand clothing brand Reclothing Bank in order to sort, disassemble, and repurpose used garments based on their color and material.

Virtual fashion

At the time of writing, “virtual fashion” referred to computer-generated clothing worn in virtual worlds, such as social media and games. The Covid-19 pandemic led to a surge in the popularity of virtual platforms, which stimulated the fashion industry to develop the concept of virtual fashion. In addition, fashion companies also started to use virtual technology to drive business growth in the real world. For example, big names such as Nike, Adidas, Gucci, Balenciaga, and Ralph Lauren entered the virtual fashion market, offering clothing collections exclusively available in games or other virtual settings. In September 2022, TSI Holdings, Ali Cloud, and JP GAMES collaborated on a "fashion metaverse" project, offering users a new digital fashion experience. At the time of writing, an increasing number of consumers – especially the younger generation – were seeking to carve out a digital identity, as evidenced by their willingness to spend money on metaverse and NFT products. In the wake of this trend, virtual fashion products were expected to replace some of the future demand for physical fashion products.[69]

Food

At the time of writing, the global food system was facing major challenges in terms of sustainability and its impact on people's health.[70] According to a report by the United Nations Environment Programme, 930 million tons of food landed in waste bins in 2019. In China alone, the amount of food wasted annually could provide sustenance for at least 300 million people. On April 29, 2021, China introduced the *Law of the People's Republic of China on Food Waste,* becoming one of the first countries to enact legislation to combat food waste, following France, Italy, and Japan.

In addition, conventional food production methods also contributed to climate change, loss of biodiversity, and depletion of natural resources. A report from *The Lancet* in 2019 emphasized the need for an urgent shift towards sustainable food systems that operated within the planet's safe boundaries in order to ensure a healthy and safe diet for humans.[71] This transformation was also crucial in the context of China's goal to peak its carbon emissions and achieve carbon neutrality. For example, China issued several policies to promote sustainable production in the food industry, including the *Outline of the 14th Five-Year Plan for Economic and Social Development (2021–2025) and Long-Range Objectives through the Year 2035 of the People's Republic of China, the 14th Five-Year Plan for Advancing Agricultural and Rural Modernization, the 14th Five-Year Plan for National Agriculture Green Development, the Outline of the 14th Five-Year Plan for the Green Food Development,* and *the Implementation Plan on Promoting Green Consumption.*

The planet was not the only victim of unsustainable diets – people's health was also at risk. At the time of writing, half of all adults and one-third of the total population (including children) were forecast to be overweight or obese by 2030.[72] In addition, China had the world's largest number of people with obesity and diabetes.[73] To promote healthy eating habits, the Chinese Nutrition Society published *the Scientific Research Report on Dietary Guidelines for Chinese Residents (2021),* which advocated a healthy diet high in vegetables, fruits, and fish and seafood. It also encouraged regular consumption of dairy and soy products, moderate intake of grains, meat, and poultry, and reduced salt intake. In addition to the significant health benefits, this type of diet was also consistent with the principles of sustainable food production.[74]

In summary, China's goal was to encourage a sustainable food system that benefited people's health as well as protecting the environment.[75] At the time of writing, an increasing number of consumers were opting for diets that were sustainable as well as healthy. The UN Food and Agriculture Organization defined the concept of sustainable diets as follows:[76]

"Sustainable diets are those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources."

The following section explores the development of sustainable diets in China from the perspectives of food production and sales.

Production of sustainable food

The transition to sustainable diets involved increased fruit and vegetable production and reduced reliance on animal husbandry. Sustainable fruit and vegetable production was also beneficial in the context of reducing greenhouse gas emissions, preserving water and land resources, and decreasing the carbon footprint of food production. According to estimates at the time of writing, if everyone in the world shifted to a plant-based diet, global land use for agriculture would be reduced by 75% from four billion to one billion hectares.[77] The UN General Assembly designated 2021 the International Year of Fruits and Vegetables (IYFV), which presented a unique opportunity to raise awareness of the important role of fruits and vegetables in human nutrition, food security, and health. Fruit and vegetables were also important in the context of achieving the UN Sustainable Development Goals, in particular the goal of "Zero Hunger" , which aimed to eliminate hunger and all forms of malnutrition by 2030. In addition, fruit and vegetables were high-value crops that could be grown on small areas of land, creating economic opportunities for small-scale farmers in rural, peri-urban, and urban settings as well as in conflict zones and in fragile contexts.[78]

Promoting the sustainable production of fruit and vegetables was a key priority for many countries and regions around the world. In China, the State Council published the *National Program for Food and Nutrition Development (2014–2020),* which emphasized the need for people to adhere to a predominantly plant-based diet, with animal-based foods playing a supplementary role. In addition, the National Development and Reform Commission released *the 14th Five-Year Plan for Bioeconomy Development,* which aimed to promote the growth of synthetic biology and the development of new foods made from artificial proteins in order to reduce the environmental impact associated with traditional animal husbandry.

Meat alternatives – which comprised plant-based meats and cultured meat – became increasingly popular in the context of sustainable diets, as they had a lower carbon footprint and were able to meet the growing consumer demand for high-protein foods. Plant-based meats were made by fermenting plant proteins such as soybeans and peas, and became available on a large scale. Cultured meat, on the other hand, was produced with stem cells and muscle cells isolated from animals; at the time of writing, this technology was expensive and still in its infancy.[79]

As plant-based meat became more popular, a significant number of foreign companies made forays into the Chinese market, including Beyond Meat, Impossible Foods, Cargill, and Nestle. Some Chinese food brands also started developing plant-based meat, such as Jinluo Group, Henan Shuanghui, Starfield, and Zhenmeat. In addition, a number of upstream suppliers in China's food industry jumped on the bandwagon, including Shandong Head Group and Xuerong Bio-Technology. As plant-based meat was a relatively new concept, companies were more inclined to cooperate with well-established food brands in order to promote their products. For example, Starfield, a new food startup, developed cutting-edge technology that mimicked the texture of real meat, offering 300 solutions that covered almost all different types of meat products. At the time of writing, the brand was cooperating with leading chain stores, including KFC, HeyTea, Dicos, Luckin Coffee, and Helens. Its partners also included convenience stores and supermarkets, such as FamilyMart, 711, Lawson, OLE, Freshippo, and 7fresh. Well-known food companies and fine dining restaurants also cooperated with Starfield. According to reports by Markets and Markets and Euromonitor, the global plant-based meat market was projected to be worth USD 27.9 billion by 2025, with China accounting for over 50% of the market (USD 14.2 billion).[80]

In 2013, the world's first cultured meat was created overseas, costing hundreds of thousands of RMB per kilogram. At the time of writing, the cost had decreased to a few thousand RMB – just a fraction of the original cost. However, compared with farmed beef, which cost approximately RMB 100 per kilogram, the price of domestically produced cultured meat remained high at RMB 8,000–10,000 per kilogram. For this reason, the market for cultured meat was only expected to expand when production costs decreased to around RMB 100 per kilogram.[81] Nevertheless, some countries were already taking steps to accelerate the commercial development of cultured meat. Singapore, for example, approved the commercialization of lab-grown meat in December 2020 to reduce dependence on imported agricultural products.

Sale of sustainable food

The China Chain-Store & Franchise Association (CCFA) proposed 21 measures across four key areas (products, environment, people, and platforms) to promote the sale of sustainable food in the Chinese market.

In terms of products, businesses were encouraged to improve the quality and quantity of sustainable foods, as well as the ingredients required to produce them. In addition, food companies were also advised to leverage pricing strategies, marketing promotions, operational strategies, and advertising activities in order to encourage consumers to purchase sustainable products. Some retailers, such as Sam's Club, Olé, IKEA, and AEON, made commitments to sourcing sustainable seafood and labeling their own-brand seafood products with the MSC label.

In terms of the environment, companies were encouraged to raise awareness of sustainability and offer sustainable and healthy products to encourage the purchase of sustainable foods. In 2013, the Green Sustainable Consumption Week – a joint initiative between the CCFA, WWF China, and the China Sustainable Retailer Roundtable – was launched, which advocated sustainable lifestyle concepts via online and offline channels of partnership retailers. In addition to promoting the sale of traceable, sustainable, and certified products, the initiative also aimed to raise awareness about sustainable consumption.

In terms of people, food companies were encouraged to raise awareness of sustainable development concepts among senior executives and equip operational staff with professional knowledge related to healthy and sustainable diets, with the aim of persuading consumers to follow a healthier and more sustainable lifestyle. To this end, PepsiCo Quaker partnered with the China CDC to publish the Healthy Grain White Paper, while the snack brand Bestore collaborated with the Chinese Food Association to formulate a set of standards for children's food products. Bestore also produced children's snacks with reduced food additives and sugar.

Finally, e-commerce platforms were encouraged to use their extensive influence to persuade merchants to adopt sustainable practices. For example, e-commerce platforms could help merchants to optimize their operational cost structures, improve their operational efficiency, and gain greater recognition from consumers. In December 2020, Meituan partnered with industry associations, charitable organizations, restaurants, and merchants to release a *Sustainable Merchants Guide,* which aimed to promote awareness of sustainability and help food retailers to make their operations more sustainable.[82]

The aforementioned measures gave rise to a variety of sustainable business practices. For example, Haoshiqi (an e-commerce platform that sold discounted food products) indicated the remaining shelf life of each product and used a dynamic pricing strategy, which priced products according to their expiration date (products with a longer shelf life were more expensive than those with a shorter shelf life). In addition to helping customers save money, this model also facilitated the sale of foods which were close to their expiration date and which would otherwise be wasted or disposed of at a significant cost both to food companies and the environment. In other words, this business model created both economic and social value in line with responsible ESG practices.

Donations of unsold food were another example of ESG practices within the food industry. Unsold food included food that could not be sold due to failure to meet aesthetic or packaging standards, or food that was past its sell-by date. Food companies launched a number of initiatives to donate unsold food items – for example, in response to China's "dual carbon" targets and the implementation of the *Law of the People's Republic of China on Food Waste,* Walmart launched a "Community Food Bank" project in China in 2021, through which it donated over 150,000 surplus food items worth almost RMB 3.78 million between July 2021 and September 2022 (equivalent to offsetting approximately 570 tons of carbon emissions).[84] KFC also helped people in need by giving away free food that would otherwise have been wasted. KFC opened its first pilot food banks in September 2020 in Shenzhen and Guangzhou; as of October 2022, the company had set up 290 food banks in 60 cities across 24 provinces.

Housing

The concept of green housing was one of the eight priorities identified in *The Implementation Plan on Promoting Green Consumption* issued by the National Development and Reform Commission. In addition to green building, green housing also encompassed a range of other measures, including eco-friendly interior design and furniture, and expanding the use of renewable energy in rural households, such as biomass and solar energy.

By the time of writing, demand for new buildings in China had plateaued, but the number of buildings under construction still remained high. In 2021, the construction industry contributed 26% of China's GDP, and was responsible for

40% of the country's total carbon emissions. Evidently, the sector's resource-intensive growth model was incompatible with China's sustainable development goals. To address this issue, China introduced a series of policies to promote green building, beginning in 2012. In March 2022, the Ministry of Housing and Urban-Rural Development published *the 14th Five-Year Plan for Energy-Saving and Green Building Development,* which mandated that all new urban buildings in China must be constructed in line with green building standards by 2025 (the compliance rate in 2020 was 77%).

Conserving resources was crucial to promoting green building. At the time of writing, four strategies were being applied to achieve this goal:

1. Prioritizing the construction of prefabricated and steel buildings (with a focus on the latter, as they received significant policy support), and minimizing the use of resources for traditional construction methods while ensuring safety and quality.
2. Seeking sustainable alternatives to traditional building materials, such as aluminum formwork as a substitute for wood, eco-friendly cement, recycled aggregate concrete, and insulated blocks.
3. Implementing building-integrated photovoltaics (BIPV) and building-applied photovoltaics (BAPV), and constructing passive buildings[④] such as super-low-energy and near-zero-energy buildings.
4. Using intelligent technology to operate and maintain buildings, reduce energy consumption and emissions, and encourage the use of business microgrids and energy-saving heating systems.[84]

To make the housing sector more sustainable, it was also important to promote the development of eco-friendly interior design and furniture. At the time of writing, price was no longer the most important factor influencing people's purchase decisions. Factors such as comfort, sustainability, and smart home solutions were playing an increasingly decisive role, a trend which drove the demand for prefabricated interiors and customized furniture.

The concept of prefabricated interiors was inspired by prefabricated buildings, and offered modular design solutions and factory-made components that homeowners could install by themselves. Prefabricated products provided numerous benefits over traditional approaches to home renovation – no on-site workers were required (meaning significant cost savings), the parts could be installed in a short space of time without generating large amounts of dust and debris, and the results were much more predictable. By the end of 2020, prefabricated interiors had been used in nearly 100,000 residential homes and 100,000 square meters of non-residential buildings, such as affordable housing, commercial housing, office buildings, hotels, apartments, and medical and elderly care facilities.[85]

Customized furniture also played a role in the trend towards sustainability, especially in the wake of the Covid-19 pandemic as working from home became the new normal. In 2022, the market for customized furniture grew significantly in response to people's demand for sustainable and comfortable home furnishings. As a result, furniture manufacturers started to use more sustainable materials in their products – companies such as OPPEIN and Suofeiya introduced eco-friendly products free of formaldehyde, setting a benchmark for other industry players. Within just one year, almost all companies followed suit and launched similar eco-friendly products. Wanhua Ecological was another example of a furniture manufacturer that made a positive change, abandoning the unsustainable practice of using trees to make wooden boards in favor of readily available and rapidly renewable materials such as agricultural leftovers, including straw, reeds, and fruit tree branches, which could be turned into furniture boards using a green formaldehyde-free adhesive.

Expanding the use of renewable energy was also crucial in improving the sustainability of the housing sector. China's electricity grid was dominated by a handful of state-owned companies, meaning there were very few opportunities for consumers to play a role in driving change. At the time of writing, however, distributed renewable energy was becoming increasingly popular, allowing homeowners and businesses to generate their own power, such as by installing roof-mounted solar panels. Nevertheless, the cost of these projects was still relatively high, and most people lacked the knowledge required to choose the right products and suppliers.

Transportation

④ A Passive House is a type of building that is constructed using energy-saving technologies such as thermal insulation of the building envelope, and other passive strategies like natural ventilation, natural daylighting, solar shading, and passive heating designs.

At the time of writing, the transportation sector was responsible for a quarter of global carbon emissions, making it a crucial concern for countries worldwide – both China and the United States enacted a range of measures to prioritize emissions reductions in the transportation sector. In China, the transportation sector was responsible for about 10% of total carbon emissions, with urban road traffic being the primary source.[86]

In China, the National Reform and Development Commission issued *the Implementation Plan on Promoting Green Consumption,* which sought to foster the growth of environmentally-friendly transportation by promoting the use of electric vehicles and progressively lifting purchase restrictions. In some cities, electric vehicles were also exempted from traffic control measures. In addition, there was a concerted effort to build more infrastructure, such as charging and battery swapping stations, energy storage stations, and hydrogen refueling stations. The plan also promoted the development of LNG (liquefied natural gas) used on vehicles and ships. Meanwhile, the plan proposed expanding the adoption of electric vehicles in rural regions by incentivizing automobile manufacturers to produce affordable and higher-quality vehicles that met the demands of rural residents. Auto companies were also encouraged to improve their repair and maintenance services in these regions, while consumers were encouraged to buy compact, lightweight, and eco-friendly cars. In addition, the plan sought to expand the use of electric vehicles in public services, encompassing urban public transportation, taxis, sanitation services, logistics, postal delivery, airport shuttle buses, and government vehicles. The objective was to foster the development of cities that were supported by interlinked and effective public transportation networks. The plan also proposed establishing pedestrian-friendly cities and urban slow traffic systems featuring more walkways for pedestrians, bike lanes, and bicycle sharing schemes. Finally, the plan advocated improving sustainability in the public sector, by encouraging government offices, public institutions, and other relevant organizations to purchase electric vehicles and provide EV charging facilities in new and existing parking lots.

At the time of writing, the automobile industry was becoming more electrified, more intelligent, and better connected. As the main driver of the industry's green transition, EVs were expected to make a significant contribution to reducing emissions from transportation. In China, the popularity of electric vehicles grew rapidly: in 2012, less than 8,000 electric passenger cars were sold, but by 2020, this number had increased to over 1.25 million units, with pure-electric cars accounting for more than 80%; between 2018 and 2020, sales of electric vehicles surpassed one million units for three consecutive years. The main buyers of electric vehicles also shifted from the public sector to individual customers – at the time of writing, more than 70% of electric vehicles were bought by individuals for personal use.[87]

In 2009, the Chinese government started to offer subsidies for the purchase of electric vehicles. Despite the decline of these subsidies after 2019 and a sluggish automotive sector, there was still considerable consumer interest in electric vehicles. In addition, an increasing number of consumers living in cities with no restrictions on gasoline vehicle purchases started to opt for EVs, a trend which indicated that the market was no longer reliant on policy support and government subsidies.

At the time of writing, EV sales were expected to continue to grow thanks to the implementation of supportive policies, including the lifting of EV purchase restrictions and exemptions from traffic control measures.

As the EV market continued to grow, an increasing number of automakers began to enter the field, accelerating the trend towards low-carbon transportation by launching ride hailing platforms and EV car sharing services. For example, in March 2022, Changan Automobile, FAW Group, and Dongfeng Motor partnered with Tencent, Alibaba, Suning.com, and Shijiali Capital to establish T3GO, an online ride-hailing platform for electric vehicles.

At the time of writing, China's EV industry was a world leader in terms of sales and the number of EVs on the road, but the lack of charging facilities remained a key challenge. In response to the 14th Five-Year Plan, Guangzhou, Shanghai, and Chongqing introduced local policies to increase the number of charging and battery swapping stations. With battery swapping services, electric cars could be recharged in the same time it took to refuel a gasoline vehicle; in 2021, a number of leading companies in the EV industry, such as SAIC, Geely, CATL, and GCL-Poly, joined the battery-swapping trend, accelerating the growth of this new model.

The Implementation Plan on Promoting Green Consumption also encouraged the development of affordable compact passenger cars. The Wuling Hongguang Mini EV was one such model that attracted a cult following in China, leading to a surge in the country's EV sales in 2020. The success of the Mini EV also drove a number of competitors to develop similar models, including the Changan Benben, SAIC CLEVER, and Hozon NETA V, in an attempt to vie for a slice of the burgeoning EV market.

In China, bicycle sharing services also formed an integral part of the public transportation system. However, at the time of writing, the industry was experiencing stagnation, driving companies to look for new growth opportunities. In response, the government issued a series of policies to encourage industry associations and businesses to collaborate and create innovative new business models. Electric bicycles emerged as a new opportunity in the bicycle sharing market: in 2022, the Ministry of Transport explicitly highlighted the potential of shared electric bicycles to complement public transportation systems in some cities.[88] At the time of writing, over 70 Chinese cities had issued regulations on shared electric bicycles, with approximately 10 million e-bikes available in more than 1,000 towns, cities, and counties across the country. Moreover, China's urban rail services also expanded rapidly – by the end of 2021, 9,207 kilometers of urban rail transit lines were in operation across 50 cities (an increase of 1,237 kilometers compared to the previous year), with a further 6,096 kilometers under construction.[89] Combining rail transit services with shared electric bicycle schemes had the potential to expand the reach of rail transit systems, increase passenger numbers, and improve transportation services in cities.

MaaS (Mobility as a Service) – a model that combined different forms of transportation (such as trains, metro systems, buses, taxis, car-sharing, and bike-sharing schemes) on a single platform – also emerged as a key driver in the trend towards sustainable transport. MaaS enabled people to plan, book, and pay for their trips with just one app, and played an increasingly important role in the construction of smart transportation systems and smart cities. In response to China's 14th Five-Year Plan, places such as Beijing, Shanghai, Jiangsu, and Guangdong proposed using MaaS in planning their transportation systems. In 2019, Amap (a subsidiary of Alibaba, also known as Gaode Map) cooperated with the Beijing Municipal Commission of Transport to launch China's first MaaS platform in Beijing. The new platform used cutting-edge digital map technologies to obtain real-time traffic data (such as bus or subway occupancy rates, and real-time arrival information), enabling users to plan their trips more accurately. At the time of writing, Amap was planning to leverage Alibaba's cutting-edge digital technologies (including electronic payments, financial services, and cloud computing) to provide users with more convenient MaaS services.[90]

Other consumer goods

Consumer preferences for sustainable products varied significantly, with gender also playing a role in people's purchase decisions. For example, women were more likely to choose sustainable products in categories such as beauty and skincare, jewelry and accessories, clothing and bags, and pet supplies; men were more inclined towards sustainable products related to consumer electronics, cars, and home appliances.[91] The following section focuses on the market for beauty, skincare, and consumer electronics in order to demonstrate how sustainable consumer products became an integral part of daily life for Chinese consumers.

At the time of writing, the concept of “clean beauty” was gaining popularity among consumers of beauty and skincare products. “Clean beauty” was used to refer to skincare products that were safe, eco-friendly, pure, and made with natural and harmless ingredients that were cruelty-free and had no detrimental impact on the environment. While this concept originated in Europe and the United States, an increasing number of Chinese clean-beauty brands also began to emerge. For example, Dewy Lab utilized natural and safe ingredients in its makeup, while Red Chamber offered sustainable makeup options for sensitive skin. In addition, skincare brands also began to adhere to the concept of clean beauty, such as Zero to Zero, which used only harmless ingredients certified as safe for breastfeeding mothers, and My ClorisLand, which produced floral-based products designed specifically for Asian skin.

Although clean beauty was a niche concept, it appealed to health-conscious and eco-friendly consumers, who wanted products that were good for both their skin and the planet. As the market grew, an increasing number of retailers and manufacturers began to explore opportunities in the clean beauty segment. For example, Nox Bellcow Cosmetics, a leading cosmetics ODM company, created special formulas and production lines for clean beauty products, while the

Shanghai-based company Linnaishi opened a cosmetics store in Shanghai specializing in clean beauty products. The online platform Ecobuyer offered various sustainable products from global brands, including beauty, personal care, fashion, home, and food items; customers could shop for these products through Ecobuyer's WeChat and Taobao stores.

As the concept of sustainable consumption continued to gain popularity, “clean beauty” products began to place greater emphasis on sustainability, meeting consumers' skincare needs while also being eco-friendly and cruelty-free. Specifically, sustainable skincare products had the following characteristics:

1. Sustainable beauty products were made using ingredients sourced from renewable resources. For example, some brands used bio-based materials to replace traditional petroleum derivatives. Sustainable beauty brands ensured that their ingredients were safe and of a high standard, and that they were grown, harvested, extracted, and manufactured sustainably. In addition, sustainable beauty products were also cruelty-free.
2. Sustainable beauty products aimed to cater to customers' specific skincare requirements. As a result, they only included ingredients which were absolutely necessary, and did not contain prohibited or controversial chemicals. The aim was to produce multifunctional, highly effective products with minimal additives.
3. Manufacturers of sustainable beauty products prioritized environmentally friendly manufacturing processes, utilizing green chemical processes and materials to reduce pollution and conserve energy. They also followed proper waste disposal and emissions regulations to comply with local environmental standards, and ensured that their production residues were biodegradable and non-hazardous to marine life.
4. Manufacturers of sustainable beauty products also used lightweight, environmentally friendly packaging made from eco-friendly materials. In addition, they aimed to reuse and recycle their packaging in order to reduce waste and minimize their overall environmental impact.[92]

The Chinese government also introduced policies to promote purchases of eco-friendly consumer electronics and appliances. For example, the *Implementation Plan on Promoting Green Consumption* encouraged consumers to replace old, energy-consuming home appliances with new, energy-efficient ones. A number of local governments – including in Beijing, Chongqing, Zhengzhou, Wuhan, Guangxi, Shaanxi, and Yunnan provinces – issued discount coupons for eco-friendly products. The electronics industry also made an active contribution to reducing energy consumption in a wide range of business processes, from manufacturing to customer service. In addition, consumers showed a strong interest in purchasing energy-efficient appliances, as these products cost less to run and helped them to lead a greener lifestyle. JD.com reported an increase in sales of home appliances with a Level 1 and Level 2 energy efficiency rating, such as air conditioners, refrigerators, washing machines, and televisions – in 2021, more than 65% of the appliances sold on JD.com had either a Level 1 or Level 2 energy efficiency rating, including 85% of refrigerators and washing machines, and more than 70% of air conditioners. By purchasing air conditioners, refrigerators, and televisions with a Level 1 energy efficiency rating, JD.com consumers helped to reduce carbon emissions by nearly 2 million tons in 2021.[93]

At the time of writing, China had a high level of household appliance ownership, although many of these appliances had reached the end of their service life and needed to be replaced. Therefore, in addition to promoting purchases of green and smart appliances, China also needed to establish an effective recycling system for old appliances. In May 2020, the National Development and Reform Commission and six other ministries jointly issued the *Implementation Plan regarding Improving the Waste Home Appliance Recovery and Disposal System to Promote the Renewed Consumption of Home Appliances.* In response to the plan, JD.com launched a new trade-in service for electronic products, which enabled customers to swap their used devices for new ones, and covered a wide range of product categories, including mobile phones, computers, tablet computers, and e-readers. Customers could select any new product, regardless of the used device they traded in. In addition, customers could hand in up to five old items with each trade-in, and choose to use JD.com's door-to-door pickup and delivery service. Suning.com offered a similar service by providing a replacement battery for AirPods to prolong their lifespan. Moreover, at the time of writing, an increasing number of Chinese consumers were purchasing second-hand home appliances. For example, Zhuanzhuan, a second-hand goods trading platform, reported growing sales of high-quality second-hand smart appliances – evidence of the growing trend towards a circular economy.

At the time of writing, China was the world's leading producer, consumer, and exporter of electronic products. Over a period of several years, China's appliance and electronics manufacturing companies delivered significant improvements in their environmental performance. For example, to promote sustainability, companies took steps to reduce the generation and discharge of toxic substances, control emissions, and use less harmful or non-toxic raw materials. One such company that exemplified this trend was Huawei, which introduced a ban on the use of hazardous substances in its production processes. This measure helped to prevent pollution caused by toxic substances and waste incineration during recycling. In addition, Huawei introduced trade-in programs to reduce electronic waste from its mobile phone products. Through these initiatives, collected phones were disassembled and recycled, reducing CO2 emissions and ensuring that waste did not end up in landfill.[94]

Future outlook

At the time of writing, sustainable production and lifestyles were becoming a global trend, affecting all industries, organizations, and individuals. Demonstrating leadership in sustainability was poised to become a crucial factor in determining a company's future success and survival. In other words, the sooner businesses could learn to drive the trend towards sustainable consumption, embrace the new reality and seize opportunities, the greater their competitive advantage.

Adapting to this new reality required a change in mindset – instead of viewing sustainability as simply a responsibility towards society, companies needed to embrace it as a crucial component of their own growth and long-term competitiveness. A sustainable business model could “create a competitive advantage by providing superior customer value, and contribute to the sustainable development of both the company and society as a whole” .[95] Sustainable business models were those which balanced ecological, economic, and social considerations, improved stakeholder relationships, and ensured fair returns.[96]

Sustainable business models were founded on three key values: economic, environmental, and social. Although social and ecological values were at the core of such a model, economic value was a prerequisite for both. In other words, to create a sustainable business model, companies had to improve their financial performance in order to fund their environmental and social goals. At the time of writing, the correlation between social performance, environmental performance, and financial performance was becoming an increasingly popular research topic. While the academic community had yet to draw a definitive conclusion, an increasing number of empirical studies indicated that practicing corporate social responsibility was associated with better financial performance.

Consumption was a crucial driver in the trend towards sustainable development. At the time of writing, growth in consumption was expected to continue, especially in the wake of the post-pandemic economic recovery. In this context, encouraging more sustainable consumption patterns was essential to ensuring the long-term and sustainable growth of the economy. However, as history has shown, major shifts in behavior do not happen overnight, and at the time of writing, the transition to sustainable consumption was still in its infancy.

The concept of sustainable development can be traced back to Rachel Carson's *Silent Spring*. Published in 1962, the book helped raise awareness of environmental protection by exposing the harmful effects of chemical pesticides and fertilizers on nature, leading to a spring season devoid of life and joy. Yu Han, a Chinese poet from the Tang Dynasty, also wrote about spring in one of his famous verses, describing how the grass looked green and lush from afar, but thin and sparse up close. In contrast to Carson's warning about a lifeless spring, Yu Han saw this as the optimal state, where life was growing and ready to burst forth. His observations are also relevant to the development of sustainable consumption. Despite the many initiatives and efforts to promote sustainable consumption, the concept of sustainability had yet to become mainstream, and there was a lack of a comprehensive and coherent framework to translate awareness into action. Just like the sparse spring grass, sustainability was still a new and emerging concept, although the trend was becoming increasingly unstoppable.

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03

HANDS-ON EXPERIENCE OF CEIBS ALUMNI COMPANIES

Allbirds China: Sustainable Footprints into a New Consumer Market

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China's potential success is interdependent with Allbirds' global success. In the new age of globalization, there is opportunity for China market act as center of excellence and drive best practice in a lot of arenas like digitalization and retail operation, and transfer that knowledge back to headquarter and help influence and shape our go-to-market strategy, in a way also help our U.S. business which is currently 75% of our global business. On the other hand, China is global biggest textile industry and has a lot of upstream material innovation capabilities, if we can deepen collaboration with industry value chain partners, that will allow us to tap into innovation resources and translate resources to capabilities that are from local and for local - expanding future product innovation pipeline.

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Carbon neutrality is a global concern and has been heavily emphasized by Chinese policy-makers. As a sustainable shoe brand, Allbirds is an innovative company seeking to play its part to help address the climate change crisis. The engagement of Allbirds with the Chinese market is an interesting example of how international businesses can harness the massive opportunity in the Chinese market while at the same time having useful social impact. Allbirds has the potential to do well and do good.

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Introduction

Allbirds, the San Francisco-based startup whose eco-friendly shoes became staples in Hollywood and Silicon Valley wardrobes following its birth in 2015, had marked 3 years since opening its first store in April 2019 at Shanghai, China, also the first in Asia.

By establishing a end-to-end value chain that served the customer through a DTC (Direct To Customer) model, Allbirds has tasted the sweets and pains, especially in the new market front like China, where the customer profile was different from that in Allbirds' origin country. By October 2022, Allbirds had opened 49 stores globally, and China was viewed by Allbirds management team as an important niche to take the Asian market. As a new venture stepping into a big new market, Allbirds China had put a huge amount of effort into the “Carbon Footprint” initiative.

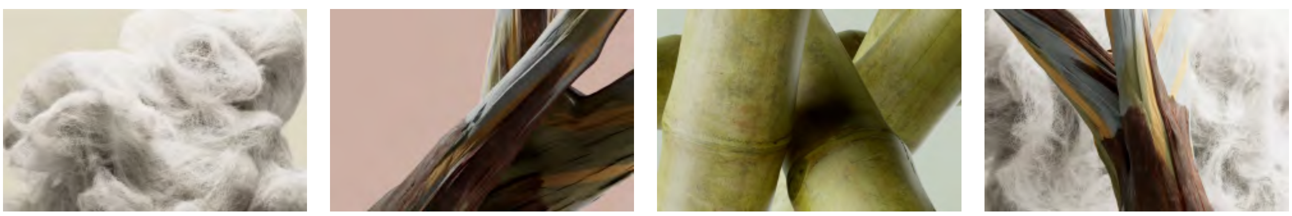
With the innovation philosophy of “only innovating where consumer benefits and sustainability meet” , this brand actively engages with consumers and collaborates with industry partners to create sustainable value.

ALLBIRDS: DISRUPTOR IN THE FOOTWEAR INDUSTRY

Co-founding Allbirds: Innovating Sustainable Natural Footwear

In April 2015, Allbirds was co-founded by Tim Brown, a retired professional soccer player, and Joey Zwillinger, a biotech engineer and renewables expert. Brown's intuitive desire for designing simpler, natural running shoes and Zwillinger's expertise in bio-based materials linked immediately—to create an entirely new category of fashion venture that would embed sustainability into natural footwear brand.

Facing the footwear market with many established brands, the two co-founders decided to differentiate Allbirds on three pillars: **comfort, simple design, and natural sustainable material.** Born and grown in New Zealand, home to merino wool, Brown focused on product design and brand building, while Zwillinger was in charge of daily operations, technological innovation, and corporate finance. In March 2016, Allbirds launched its first model, the Wool Runner, in the U.S. and New Zealand. Brown and Zwillinger's strategy was to develop a select few models that could see for several years. For example, besides its wool upper being natural and renewable, the insoles of Wool Runners were made from castor bean oil sourced from small family farms in India; the sneaker had a clean design, few cut parts, muted colors, and no visible logos.



Wool
Superfine ZQ certifiedme-rino wool from NewZea-land
- Breathable
- Temperature regulating
- Moisture-wicking

Tree
South African Eucalyptus-pulp uses 95%less waterthan cotton
- Durable & breathable
- Flexible & lightweight
- Silky smooth

Sweetform®
Brazilian sugarcane, a fullyrenewable resource thatremoves carbon from theatmosphere
- Bouncy comfort
- Cushioned stability
- World's first carbon negative green EVA

Trino®
Combined properties ofharvested eucalyptus treefibers and ZQ Merino wool
- Soft material for apparel
- Natural odor-reducing-properties
- Breathable and Wicks moisture

Allbirds' Innovation in Natural Sustainable Material

Source: Allbirds company documents.

Challenging the Industry Norms

In contrast with the footwear industry norms which mainly developed short-lived styles each season, often using fossil-fuel-based synthetic materials, Allbirds launched the world's first wool-based shoes and claimed to be natural and sustainable since day one. *"We could grow fast if we go fast, but we turned down that growth to make sure that we could achieve a profitable model in the long run",* observed by Zwillinger.

Although remaining a small player in the global footwear market, Allbirds' promising start had made a quick and consequential difference. After its debut, the Wool Runner attracted consumer and media attention, and quickly became popular with the Silicon Valley tech crowd, followed by entrepreneurs, celebrities and politicians. Time magazine called it *"the most comfortable shoe in the world"* [1]; a *New York Times* article wrote *"to fit into Silicon Valley, wear these wool shoes"* [2]; and celebrities like Barack Obama, Sarah Jessica Parker, Leonardo DiCarprio and Oprah Winfrew were seen wearing Allbirds shoes[3]. Within only 2 years after launching the Wool Runner, Allbirds sold over 1 million pairs in the U.S., Canada, Australia and New Zealand, receiving 2.7 million USD in A-round funding.

Allbirds' quick business success and popularity among social opinion leaders was not accidental. Born with the mission—*"The environment is our stakeholder and sustainability has been in our DNA since day one"*, Allbirds was a certified B Corp② and Public Benefit Corporation. The company was built on a business model that balanced purpose and profit, and championed a community of leaders driving a global movement of using business as a force for good. For example, on Earth Day③ 2019, Allbirds announced its Carbon Fund to go 100% carbon neutral, and on Earth Day 2020, became the world's 1st footwear brand to label all products with carbon footprints.

REDEFINING THE FOOTWEAR LANDSCAPE: A FASHION BRAND THAT "WELCOMES" COPYCATS

"We welcome it. We never wanted to be the only ones doing this, in fact, if we do not have other companies copy us, then our whole effort will not have the impact we are shooting for. We are running a business first and foremost, but our mission from the beginning has always been to use our business to move the industry to do things in a better way."

—Joey Zwillinger, Allbirds co-CEO and co-founder

Sharing Carbon Reduction Roadmap and Sustainability Innovations

Allbirds' quick success as a San Francisco-based unicorn attracted competitors' attention as well. Within a year after Wool Runner's initial debut, knockoffs had already been seen everywhere on the market, including Amazon. However, Allbirds believed "the quality difference between our products and knockoffs was pretty perceptible and our consumers know that we were the real deal". Even so, in November 2019, Zwillinger wrote an open letter to Amazon CEO Jeff Bezos, saying Allbirds was *"flattered at the similarities but hoped the commonalities would include these environmentally friendly materials as well. Alas, we are here to help"*, asking Amazon to *"Please steal our approach to sustainability"* [4] In Allbirds' active "sustainability giveaway", over 100 other shoe brands who were interested in implementing Allbirds' renewable materials, including Allbirds' direct market competitors, were given directly the innovative components that would make their shoes not just look like Allbirds, but also match its roadmap to sustainability [5].

Co-branding with Competitors

Adidas and Nike were two among the long-standing legacy brands in global shoe market. Compared with this big shoe duopoly, Allbirds was still a small eco startup. Although this startup with sky-high valuations were changing the landscape how shoes were made and sold, Allbirds remained a small player. So would it become possible for the market competition to

② A Certified B Corporation, commonly known as a B Corp: According to the U.S. Small Business Administration, a B Corp is a for-profit corporation recognized by the majority of U.S. states that are driven by both mission and profit. B Corps are companies that voluntarily meet the highest standards for social and environmental performance.

③ Earth Day is celebrated on April 22 in the United States and on either April 22 or the day the spring equinox occurs throughout the rest of the world.

be win-win? *"In the footwear space, you typically do not work with competitors. It is very secretive,"* according to Brown. Allbirds had already broken this "unspoken law" once with sharing sustainability approach with copycat brands. So, *"Why not take that a step further and collaborate on a shoe? "*

That was how the unprecedented collaboration with Adidas began. In May 2020, Allbirds began to expand its running shoe collection through co-branding with Adidas. With Allbirds' goal being redesigning the sneaker from the ground up, and Adidas' goal being sustainably produce at scale, the two's collaboration aligned into making a new performance running shoe with the lowest carbon footprint on the running shoe market. In May 2021, the co-branded Adidas×Allbirds shoe was launched with a carbon footprint of 2.94kg CO2 per pair, less than that of a Big Mac [6]. Allbirds' bold move of co-branding turned out to be win-win, for not only the footwear community but also the environment.

CRACKING INTO THE FOOTWEAR MARKET IN CHINA

Different from its U.S. base market, after its launch in China, Allbirds needed to play the role of educator, to guide and cultivate consumers through good products, and the strategy was to highlight Allbirds' high quality and comfort features. As Yu experienced herself, *"Allbirds' faster acceleration in the U.S. is riding on a huge social phenomenon where IT gurus and Hollywood stars are wearing our products. They are rich people with established social status. They like low profile and appreciate premium validation without expressive design. That is the majority of the customer profile in the U.S."*

In developed areas like North America, Australia, and Europe, consumers had relatively more established awareness of sustainable consumption, and whether a fashion brand was genuinely eco-friendly could indeed influence purchase decision-making; While in the Chinese market, the eco-friendly awareness during consumption had been in its early and rising phase. Since September 2020, China had announced its national plan for "carbon neutrality" and implemented dozens of policies for all types of industries to reduce carbon footprints, however, the consumption side remained an uncharted territory. Would Allbirds, a new and "carbon-neutral" fashion brand built on ideas of "simple, comfortable, natural and sustainable" succeed in cracking into this big booming market? Would consumers in China be willing to spend nearly 1000 CNY on a pair of running shoes out of eco-friendly concerns?

As Allbirds first entered into China market, their early adopters who remained as Allbirds core customer today, were well educated up middle class in mega cities. They often had study/working experience overseas and already heard about Allbirds from abroad. And they bought-in sustainability, simple design and comfort products from Allbirds. However, Yu and the team realized that to succeed in China market they had to expand their audience group and catch younger people's attention. That was why Allbirds' customer profile was much younger in China, and to win here, "you have to create some kind of desirability of the brand in order to appeal to younger people", Yu observed.

Go-to-Market Strategy: Would DTC work in China too?

As a DTC (Direct-to-Consumer) brand from day one, it was written in Allbirds' DNA to build a direct connection with consumers. As a startup experimenting with different product styles, Allbirds believed one of the benefits of DTC was the access to first-hand feedback from consumer market—on both the product and the shopping experience. Initially, Brown and Zwillinger decided to sell Wool Runners exclusively via Allbirds online store, because they believed this DTC approach *"allowed Allbirds to control its brand presentation and storytelling, and there are not four middlemen taking a cut in margins"* [7]. Even after offline stores started to open, Allbirds insisted on direct sale only and remained very slow and patient in building more stores. By the end of 2021, there were only 27 offline Allbirds stores worldwide, including 4 located in China, 2 in Japan and 1 in South Korea.

One of Allbirds' most important divisions worldwide is its Customer Experience. In Allbirds' U.S. market, consumers primarily made product inquiries over the phone; In Allbirds China, a dedicated team was stationed in Shanghai for addressing consumer feedback and product inquiries. Meanwhile, Allbirds' sales teams in stores in the U.S., Europe and

Asia were also getting feedback through daily interactions with consumers. All these feeds collected from different consumer markets were fueled into the corporation's pipeline of product development, supply chain management, and marketing strategy.

Allbirds realized opportunities to use innovation to engage with consumers even more in China. Allbirds HQs had a lot of people contacting the customer-experience team in Shanghai, mainly via online chat, and thought it would be interesting to connect with consumers and the store staff in real time. Allbirds used various technologies, including technology from Alibaba, so when consumers asked questions of a certain nature—like "What do I wear Allbirds shoes with?"—that would prompt the customer service team to ask if they'd like to speak to someone in the store through video chat. During pre-COVID time, that might not be an option because there would have been too many consumers in the stores. Post-COVID, the Allbirds people were trying to figure out operationally how to preserve this feature when the stores could become busy again.

Notwithstanding the differences in market landscape, Allbirds kept the same innovation philosophy in China, to *"only innovate at the intersection of when consumer benefits and sustainability meet"* . Besides its offline POS, Allbirds chose to work with e-commerce platforms like Tmall and JD[④] as its online DTC portals in China market, where its products could directly access the younger consumers.

"China Charlie" vs. US Charlie: Localized Co-branding with Nio Auto

Yu joined Allbirds China in January 2021, before which the U.S. company was still operating in China with its "American style" in every way, for example in consumer profiling. In contrast with the target consumers being silicon valley middle-class, Yu and her team did their homework and found the "China Charlie" to be a lot different from the American counterpart.

After 3 years of operation in China, Allbirds were gaining more local insight into expanding and maintaining the consumer pool here. The target "China Charlies" were aged between 25 and 44, with male accounting to 55% and female 45%, located mainly in tier-one cities like Beijing, Shanghai, Guangzhou, and Shenzhen. Allbirds also found out other key demographic features: China Charlies mainly worked in 4 key industries—internet technology, design/sports/entertainment, real estate, and finance; 77% of them had driver's license, and 88% of them had college degrees and above. So why not give China Charlie an opportunity to "pay for a brand that matches my value and products that fit my style" ? Since Allbirds had been articulating a consistent brand narrative in China, and perceived as "innovative, premium and eco-friendly" , which was fitting right into China Charlie's value identity.

This was what inspired the partnership with China's leading EV brand Nio, which had 22% market share in China's premium EV segment (price ranged 50k-100k USD), only next to Tesla with about 43,000 car owners. Similar with Allbirds, Nio was also a disruptor in the auto industry not only in the products and technology but how people could use and experience it—leading to a more sustainable future. This partnership was announced in April 2021 during the Shanghai Auto Show, with the official launch of the Allbirds×Nio product in September 2021. The Nio partnership co-developed shoes used remaining materials from the car manufacturing process, which was one of the sustainable initiatives targeting the core groups in China: business elites, entrepreneurs, professionals, etc., who were conscious of a "healthy and low-carbon lifestyle".

The co-branded Wool Runner would be available on Nio Life Digital Community App (1.5 million users, with 50% DAU [⑤]). Other offline POS such as Nio House, exhibitions, or Allbirds stores were all open for discussions. This partnership aimed at driving awareness to China Charlie, building credibility in the innovation/sustainability space and introducing Allbirds products to a highly engaged and passionate community.

④ Tmall and JD are China's earliest and biggest e-commerce platforms.
⑤ DAU, Daily Active User.

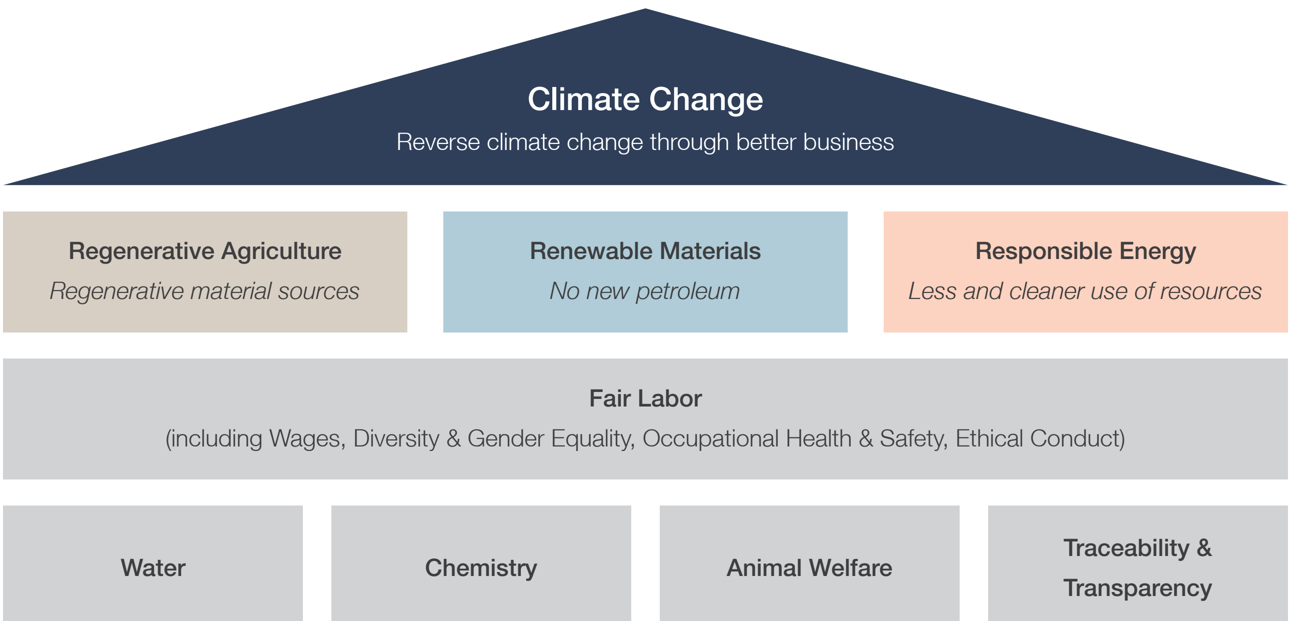
SUSTAINABILITY IN THE MAKING: GLOBAL PERSPECTIVE, CHINA FOCUS

"Flight Plan" of End-to-end Value Chain in China

"We do have a flight plan in terms of how we combat climate change. It's not something floating in the air that we claim we do. But we do it through the very end-to-end value chain from regenerative agriculture, how we are working with different materials source in geographies like New Zealand, South Africa, Brazil and maybe in the future in China to source those kinds of natural material."

—Brandy Yu, Managing Director of Allbirds China

Allbirds announced its "Flight Plan" in July 2021, outlining its 2025 and 2030 sustainability targets committed to regenerative agriculture, renewable materials, responsible energy, as well as fair labor. Groundwork had already been laid before that. In 2020, the year Allbirds unveiled its carbon footprint labeling, its average product carbon footprint was 9.97 kg CO_2e. In 2021, Allbirds brought that number down to 8.76 kg CO_2e, a 12% reduction. In 2025, Allbirds would get this down further to 5.50 kg CO_2e.



Allbirds "Flight Plan" expanding into China

Source: Source: Allbirds company documents.

When it came to engaging with different stakeholders in China towards sustainable consumption, Yu led Allbirds Flight Plan into China market, linking all stakeholders with one simple thing—Allbirds carbon footprint label. The sustainability approach has been changed to transporting know-how in product lifecycle carbon emission to local industry value chain. Specifically, in line with China fashion industry's carbon-neutral trends, Allbirds began to actively work with its industry chain partners in China to feed latest innovation to global and bridge global-local co-R&D. Yet in the end, these were all reflected and validated by a simple label readable to all, especially for the consumer side.

Another critical part for Allbirds in China was its corporation with local authorities on industry standard setup and methodology sharing. "*We hope to serve as a driving force for total industry to lower carbon emission leveraging our experience in this area*," Yu expressed. In the end, consumer choice made the call and had big impact on upstream industry chain. So together with medias and brands sharing similar vision, Allbirds launched online/offline campaigns and products to influence consumption mindset.

"*Sustainability is NOT a global competition, rather it's a cross-border collaboration. On one hand, the sustainability concept starts comparatively late with low awareness, and that's why we put more efforts in rooting through local communities compared to elsewhere. On the other, China's super execution ability and efficiency from scale are to soon catch up with Chinese characteristics*," after nearly 2 years with Allbirds in China, Yu now had deeper recognition of its sustainability value creation.

Local Practice in China Going Global

Although Allbirds was a young venture and Allbirds China even younger, its local wisdom had already inspired the corporation's global practice. In 2020 when the COVID situation in China was still at its peak, that was how the story began for Allbirds China to donate batches of comfortable, eco-friendly shoes to frontline medical workers in the hardest-hit areas of Wuhan. As the pandemic kept spreading around the world, Allbirds HQs was inspired by the China team to launch a large-scale charity donation program in the U.S. and Europe to support frontline healthcare workers.

In addition, Allbirds China expanded the charity move to a "Buy-one-give-one" program, where customers could help donate additional shoes to those on the frontlines. when the participating consumers bought a pair of shoes, Allbirds would automatically donate another pair to medical workers in the consumer's name; Or if consumers were willing to donate directly, Allbirds, which never discounted, would give certain discounts for consumers to better help frontline medical workers. By April 2020, Allbirds community had helped the company more than double the initial contribution, leading to a donation of over $1 million worth of shoes to healthcare workers globally.

Shanghai became another COVID-hit area and went through a 2-month city lockdown in 2022, during which Allbirds China made the headline again by practicing local corporate social responsibility. On April 1, 2022, the very beginning of the lockdown, Allbirds China had already dispatched 500 pairs of comfortable shoes to doctors and nurses in Pudong[⑥] cabin hospital. Through Allbirds' end-to-end supply chain, it became the only fashion brand during lockdown that could still dispatch shoes from its tier-1 supplier in Shenzhen and Guangzhou. Besides social responsibility, Allbirds also managed to still deliver 60% of business through online sales during Shanghai lockdown.

Navigating in a Big Market during Unprecedented Time

The spread of the global pandemic and emerging risks posed by climate change had led to increasing fluctuations in the global supply chains, the fashion retail industry included. Allbirds entered China market just when this VUCA age started. By April 2020, Allbirds, which started as an e-commerce company, had to temporarily close all its offline stores around the world, except for China market, where the impact was still under control.

In November 2021, the company went public on the Nasdaq, and was valued at US$4.1 billion. The stock had dipped but Brown wasn't concerned. "*That's the funny thing about success, you have a little bit of it and then things get harder*," [8] he says. Despite the challenges, Allbirds was in it for the long haul. The company continued to invest in materials that make the shoe production process more sustainable. Brown believed that with hard work, Allbirds has the ability to become a 100-year-old brand and build a legacy for generations to come. "I've never felt clearer about the path forward."[9]

⑥ Pudong is one of the main urban districts in Shanghai.

MOVING FORWARD IN CHINA AND BEYOND

In December 2022, Allbirds' China's flagship store in Beijing, while the timing couldn't be more awkward and challenging: the COVID was hitting the whole city and shortly after the breakoff, the country quickly loosened its lockdown policy nationwide. The fast policy changes had made many businesses unprepared and confused about the future, including Allbirds.

Since her joining in January of 2021, Yu's team had been quite prudent in the pace of store expansion: during 2021 and 2022, the store opening choices needed to be financially viable and proved route-to-profitability especially when in general global retail business had been suffering from COVID lockdowns and softer demand. With China being Allbirds' strategic international market in its global store expansion roadmap, Yu's team will "*move from heavily online skewed to a more balanced 50:50 online/offline business in 5 years*".

The new year of 2023 marked China rolling back its zero-COVID policy, and every city in China was looking forward to welcoming back a pre-COVID consumer market. Yu and her team were also in a position to move forward with their expansion plans in the China market.

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Kane Top: Building a Sustainable Fashion Supply Chain

by Geng Liu*

Macy Yau
CEIBS CEO 2021
Kane Top CEO

"Fashion should be long-lasting rather than transient. Long-lasting fashion is about being more stylish while also being sustainable."

Qi Wang
CEIBS Marketing Professor
Department Chair (Marketing)

"The key to ending carbon-intensive production and consumption habits is to bring about a change in business models, such as by shifting the focus to the circular economy. In the fashion industry, the circular economy can give rise to sustainable fashion models that rely on natural and renewable materials, reconstructed and long-lasting clothing, and reselling. Kane Top has experimented with a number of these models, while also recognizing that shifts in consumer mindsets don't happen overnight. On the supply side, manufacturers can embrace the circular economy in different ways depending on their positioning strategy, thus helping to reduce carbon emissions from textile waste. Governments and brand owners can also support manufacturers by devising favorable policies and incentive mechanisms."

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Introduction

At the time of writing, fashion was the second most polluting industry in the world, just behind oil. Typically, fashion brands coordinated their supply chains in developing countries in order to respond to fast-shifting consumer demands. Within the fashion industry, the so-called “sustainability revolution” was usually driven by brand owners, with suppliers generally playing a passive role.

As an established player in the clothing supply chain, Kane Top assisted world-famous apparel brands and retailers with manufacturing processes, from product design and development through to procurement and production. According to Kane Top CEO Macy Yau, every part of the textile supply chain could have an environmental impact. Under her guidance, Kane Top transitioned from playing a passive to an active role in the drive for sustainability, encouraging green practices across the supply chain – from raw materials supply, logistics and warehousing through to design and production, marketing and distribution, and green consumption. In doing so, it demonstrated that suppliers – and not just brand owners – could also play a leading role in introducing sustainable practices.

SUSTAINABILITY: A CORE ELEMENT OF KANE TOP'S BRAND DNA

The story of Kane Top – from its early days as a textiles trading company to a clothes manufacturer, and from fast fashion to sustainable fashion – epitomizes the development of China's textile industry. At the time of writing, China was the world's largest textile manufacturer: after the country opened its doors to the outside world in 1978, textile manufacturers began relocating to the southeast coast of China in search of cheap labor and lower costs. In 1984, Kane Top was established in Hong Kong as a textile trading company, focusing initially on the development and production of knitted fabrics.

In 1994, China became the world's largest textile exporter; however, most of these exports were produced on an assemble-to-order (50%) or made-to-order (30%) basis.[1] In 2003, China's new central government established the so-called “Scientific Outlook on Development” as one of its guiding principles, which laid out a clear strategy for Chinese industry to embrace sustainable development. In 2005, the China National Textile and Apparel Council (CNTAC) set up the Office for Social Responsibility – the first of its kind in China – to promote the sustainable development of the textile industry. However, before 2010, most companies and factories still lacked environmental awareness.[2]

In 2003, Macy and her husband Aiqin He started a new company called Shanghai E-Top Textile Co., Ltd. (“E-Top”) in Tinglin Industrial Park, Jinshan District, Shanghai as a subsidiary of Kane Top. Thanks to their different cultural backgrounds, the couple valued diversity and inclusiveness, and decided to hire skilled talent from across the country to work in E-top's design, R&D, technology, production, quality control, and logistics divisions.

E-Top's Chairman Aiqin He, a PhD graduate from the University of California, devised an eco-friendly concept for the company's new factory in Jinshan. As part of this strategy, he deployed three folding conveyors to transport materials between different floors of the factory, reducing both electricity consumption and the need for manual labor. He also installed over 100 ground source heat pumps, which could operate as “reversible air conditioners” to transfer heat out in summer or in during winter, thus making it possible to heat and cool the factory's buildings with geothermal energy.

For Macy, sustainability had a human as well as an environmental dimension. For this reason, E-Top was very selective when choosing its customers – unlike many other companies, it did not focus entirely on order volumes or lean manufacturing principles that treated workers as objects rather than humans. As Macy explained following a visit to a lean manufacturing facility, “There were so many machines working non-stop, and the staff didn't even get proper toilet breaks –

this kind of model isn't sustainable!" At lean manufacturing facilities, workers were generally required to make 100 garments a day. By contrast, Kane Top only required workers to produce around a dozen or sometimes as few as three garments a day. Thanks to this strategy, the company's staff had a strong sense of well-being, and the turnover rate was low – at the time of writing, one-fifth of employees had been with Kane Top for over a decade.

After 2011, growth in the Chinese textile industry slowed due to increasing production costs, growing pressure to reduce energy consumption and cut emissions, and resource and environmental challenges. Against this backdrop, sustainability became an important driving force for transforming the textile industry.[3] In 2016, the Ministry of Industry and Information Technology (MIIT) published the Development Plan for the Textile Industry (2016–2020), which included plans to promote and accelerate the development of green practices in textile manufacturing. At the 2017 Annual Conference on Social Responsibility in the Chinese Textile and Apparel Industry, CNTAC President Sun Ruizhe proposed that the textile industry reposition itself as a high-tech green industry.[4] At the Copenhagen Fashion Summit 2018, the Chinese textile manufacturers Esquel, Erdos, and JNBY participated in international forums on sustainable fashion for the first time, signaling their growing awareness of sustainability.[5] In the words of a commentator from Xinhua News Agency, "Sustainable fashion may present new opportunities for Chinese apparel brands when there is a proven business logic."[6]

In 2010, Kane Top embarked on its transformation journey, positioning itself as a partner and product center for international brands instead of a pure OEM. In the wake of this decision, the company started to offer a comprehensive range of services, from R&D through to design and production. In 2018, it set out a new vision of becoming a pioneer in sustainable development in a bid to create value for industry players worldwide.

Kane Top gradually relocated its R&D, technology, sales, design, production, materials control, quality control, and logistics divisions to Shanghai, and on this basis, made E-Top its headquarters for the Chinese mainland. At the time of writing, E-Top's premises covered an area of 50,000 square meters, including 22,000 square meters of floor space and 15,000 square meters of green space. It also employed around 500 staff, and produced up to 600,000 garments per month.

Under Macy's leadership, Kane Top successfully pitched itself as a supply chain partner to world-renowned brands, including Tommy Hilfiger, Calvin Klein, Jack & Jones, Aritzia, Roots, and other Western brands, as well as boutique and designer brands. In order to deliver cutting-edge green products to its customers, Kane Top, which boasted nearly four decades of experience in textile production, created a streamlined production management system that vertically integrated the full range of manufacturing processes, from raw-materials development through to fabrics manufacturing and finishing.

SHAPING SUSTAINABILITY VALUES THROUGHOUT THE TEXTILE INDUSTRY

Figure 1 Kane Top's Shanghai office

Kane Top operated primarily as an OEM and ODM, and therefore a key challenge was to create a cascade of sustainability practices that would flow smoothly throughout the clothing value chain. In its role as the supplier of final products, Kane Top would need to consider both the sourcing of materials from upstream suppliers as well as its own production and processing methods.

Over a period of three decades, Kane Top built a large database of raw materials, fabrics, and styles, including over 30,000 clothing styles for different body shapes and markets, as well as tens of thousands of raw materials and fabrics supplied by different vendors. Leveraging its digital capabilities, Kane Top was able to create algorithms to capture and sort data from both upstream suppliers and customers. Using this data, it then conducted Business intelligence (BI) analysis to gain insights into the latest trends and innovative raw materials suitable for use in product design. Not surprisingly, Kane Top was better positioned than brand owners to gauge fashion trends. "We are ahead of the trends, and now it's our job to enlighten brand owners" , said Macy. "Every year, we present several thousand styles to our business clients. They can just pick what they want, though in some cases slight adjustments are needed."

Creative design played a key role in delivering sustainable products. In other words, the sustainability journey began with design – designers came up with classic, durable designs, and supply chains then realized their design ideas. Suppliers were able to make sustainability part of their product DNA by using green raw materials and implementing green manufacturing practices. They thus created a virtuous, closed-loop system in which manufacturing and design reinforced each other. In the case of Kane Top, its business and product development teams replaced unsustainable raw materials used by its customers with eco-friendly alternatives such as organic or regenerated cotton, recycled polyester, and regenerated cellulose. In addition, they also implemented a centralized procurement strategy and introduced diversity and differentiation into key manufacturing processes such as spinning, weaving, dyeing, and finishing.

At the time of writing, the water needed to produce a cotton T-shirt was enough to meet an adult's daily drinking water needs for two-and-a-half years. Printing/dyeing accounted for the greatest amount of water used (approximately 50%), followed by cotton growing (35%). In addition, the chemicals used in these processes could cause water pollution. In 2018, Kane Top employed Israeli Kornit HD06 digital Direct-to-Garment (DTG) printers, which enabled the company to reduce the amount of water, energy, and chemicals used in its production processes by 95%, 50%, and 50% respectively. Between 2020 and 2021, cotton fibers accounted for 84% of the materials procured for Kane Top's cotton and cotton blend products, of which 54% were purchased from organic sources. By sourcing organic cotton, the company was able to reduce its water consumption in the cotton growing phase by 91%, and mitigate the environmental impact of chemical use.

Kane Top did not want to be alone in its efforts to save energy and cut carbon emissions. But how could it mobilize its upstream suppliers to use more green energy and raw materials, use chemicals safely, and implement appropriate risk control measures?

First, Kane Top decided to select suppliers with similar values. The company designated a due diligence officer to inspect supplier factories and assess their values – typically through face-to-face conversations, which were often recorded for Macy to review. "Some suppliers are willing to adopt sustainability standards in order to secure orders. However, others can be arrogant – they have enough existing orders, and aren't interested in meeting our sustainability requirements, so we don't work with them. That's why Kane Top is always short of suppliers" , said Macy. Thanks to this approach, Kane Top never needed to pursue legal action against its suppliers for breach of contract – it only partnered with suppliers that were able to meet its standards.

Second, Kane Top implemented supplier lifecycle management and green supply chain management. When screening suppliers, the company not only considered factors such as expertise, production capacity, and the results of product evaluations, but also looked at whether the supplier had obtained the OEKO-TEX Standard 100 label, one of the world's best-known labels for textiles tested for harmful substances. All suppliers had to engage an OEKO-TEX partner institute to conduct annual tests and audits so as to update their Standard 100 Class II certification (or Standard 100 Class I

Certification for suppliers providing raw materials for children's clothing). “We have a transparent supply chain, both upstream and downstream. We can even trace the origins of a button with our database,” said Macy.

Third, Kane Top provided training in green marketing and supply chain management, and incorporated green supply chain management into its vision and mission. It also organized training sessions on energy efficiency, seminars on new materials, and annual conferences on supply chain sustainability in order to build a sustainable manufacturing model supported by a green supplier community with shared values.

In Macy's opinion, merely having a common aspiration was not enough to guarantee the long-term success of the company's partnerships, and it was necessary to make all stakeholders see the benefits of sustainable development. Kane Top therefore decided to mirror the favorable terms it had from large brands with its lower-tier suppliers. For example, it provided supplier factories with Supply Chain Finance (SCF) solutions (reverse factoring) to ensure they were paid on a monthly basis. In addition, Kane Top was able to predict fashion trends based on the information it collected from lower-tier suppliers, as well as its own expertise in fabrics and patterns, thus helping brands to boost their sales.

Kane Top then proceeded to set out a new mission: to “activate and inspire creativity and sustainable practices in the fashion supply chain” . “As an intermediary between upstream and downstream industry players, Kane Top has an obligation to help fashion brands and designers achieve sustainability goals. Sustainable development is embedded in individual consciousness and, at the same time, requires a collective effort,” said Macy.

HARNESSING TECHNOLOGY TO RESOLVE THE CONFLICT BETWEEN SUSTAINABILITY AND EFFICIENCY

The drive for sustainability placed more constraints on the sourcing of raw materials and the management of production processes, and therefore had an inevitable knock-on effect on efficiency. Fashion brands, forever in pursuit of fresh ideas, demanded a quick response from manufacturers. If Kane Top was unable to redress this imbalance, it would be faced with higher costs and lower efficiency levels that could potentially jeopardize its green supply chain model.[7] Faced with the challenge of ensuring both the sustainability and flexibility of its supply chain, digital technology proved to be a powerful enabler – the company built a digital team to accelerate digital transformation, and incorporated “technology-driven manufacturing and craftsmanship” into its value proposition.

Kane Top's digital transformation was powered by an independently developed cloud-based codeless collaboration software called TreeLab, which combined the flexibility of Excel with structured Enterprise Resource Planning (ERP) and Manufacturing Execution Systems (MES). The software supported a wide range of business applications including recruitment, project management, sales, and supply chain management, and enabled Kane Top to create upstream and downstream synergies in the clothing supply chain.

Each year, Kane Top produced samples in approximately 7,000 styles for its downstream customers. Information about each sample was automatically recorded by TreeLab, including sample names, identification numbers, fashion sketches, and fabrics. The software was also able to produce data sheets tailored to the needs of customers. In this way, customers could provide feedback on each item in real time without writing emails or making phone calls. In addition, this strategy also helped to minimize the input of data into the ERP system and reduce the number of files that needed to be shared. If clients renewed their orders, TreeLab was able to access the relevant information (e.g. quotes, fabrics, and colors) to estimate material specifications, quantities, and turnaround times, thereby expediting the fulfillment of orders. This technological advantage also allowed Kane Top to keep much closer track of its orders, and run on zero inventory.

Kane Top also used TreeLab to collect information from its upstream suppliers. When developing its supplier plan for 2021, Kane Top asked supplier factories to complete an online form in order to collect basic information on each supplier, including contact and address details, vacation information, the number of factory workers, production processes, and monthly schedules. This strategy enabled the company to proceed directly to production scheduling without large amounts of back-and-forth correspondence and data sorting.[8]

Kane Top also installed the Israeli 3D design software Browzwear and the Chinese fashion design software Style3D to develop 3D samples based on 2D sketches, resulting in significant time and cost savings. The transition to 3D samples also had another benefit: during the Covid-19 pandemic, it was practically impossible to communicate with clients face-to-face or guarantee on-time delivery. In these circumstances, Kane Top doubled down on virtual 3D samples: 26% of its samples developed in 2021 were in a digital format. In terms of product development, the company moved the customer approval process to the cloud and deployed cutting-edge processes and technology. Thanks to this strategy, it was able to reduce sample development costs and shorten the development cycle from one month to just one day.

In addition, Kane Top's digital team developed virtual showrooms to allow customers to make factory visits and select samples remotely.

At the time of writing, Kane Top's digital transformation was still in its early stages, although the company had developed a comprehensive strategy, including the establishment of a Sustainable Development Research Institute.

CREATING A SUSTAINABLE SUPPLY NETWORK ON A MUTUALLY BENEFICIAL BASIS

In the textile industry, manual workers continued to play an indispensable role in the supply chain, despite improvements in digital technologies, which were primarily aimed at facilitating collaboration and raising efficiency. For this reason, the management and empowerment of supplier factories was central to Kane Top's sustainability strategy. With this in mind, Kane Top resolved to foster mutually beneficial relations with supplier factories: “For us, the importance of sustainability values cannot be overstated. We should make concerted efforts to replace a profit-driven value chain with a sustainable supply network.”

Kane Top did not aim to achieve this goal overnight – instead, it strove to bring supplier factories up to standard within a three-year time frame:

During the first year, Kane Top sought to align suppliers' values, management strategies, and corporate culture, focusing on issues of fundamental importance such as absenteeism. For example, the company had a stake in an Anhui-based factory, which had an attendance rate of just 60–70% and suffered from low levels of employee morale. Against this backdrop, Kane Top COO Zhou Bin was dispatched to Anhui to introduce Kane Top's management philosophy. Following his visit, absenteeism fell and the attendance rate rose to 95%.

During the second year, Kane Top focused on empowering its suppliers by sending technicians and QC personnel to supplier factories in order to improve production standards. During this period, Kane Top covered all losses incurred by suppliers due to failure to meet the required standards, and provided comprehensive support and assistance in the event of production-related issues.

During the third year, Kane Top switched its focus to output to ensure that its suppliers would be able to generate a profit for the company.

Macy defined this as the “credit card theory” : “To break even, I only need seven out of ten suppliers to generate a profit.” Accordingly, she decided to onboard two or three new suppliers every year.

At the time of writing, Kane Top had a network of dozens of supplier factories. The company allocated orders to its suppliers according to their field of expertise and production capacity. This was a challenging task, as the number of orders placed by brands could change at any time depending on demand, making forecasting difficult. To maximize efficiency, orders were divided up between Kane Top's own factory E-Top and supplier factories. In practice, E-Top would assign orders to suppliers operating at less than capacity, and assist suppliers running at full capacity. In addition, the company used collaboration tools such as TreeLab and established a community of shared interests to ensure that orders were allocated as efficiently as possible. For a company of its size, Kane Top's response times were second to none in the textile supply chain.

EDUCATING CONSUMERS ABOUT GREEN SUPPLY CHAINS

According to a 2018 survey on sustainable fashion conducted by KPMG in Hong Kong, London, New York, Shanghai, and Tokyo, 78% of respondents were concerned about the environment and 64% regarded themselves as supportive of sustainable fashion, while just 13% expressed a willingness to pay a premium for sustainable fashion. These findings were backed up by data from a 2019 survey, which showed that 65% of people would be happy to buy from sustainability-conscious or green brands, compared to just 26% who actually did so.[9] Previous research also came to similar conclusions: in Europe, half of participants said they would pay more for green products, despite sustainable fashion accounting for less than 1% of the market.[10] In this context, Macy felt a pressing need for Kane Top to set an example and educate consumers about green supply chains.

To achieve this goal, Kane Top set about demonstrating its commitment to sustainability through concepts such as upcycling. By 2020, Kane Top had produced a total of over 300,000 garments, including a significant amount of scrap fabrics.① As the second most polluting industry in the world, the fashion sector produced 92 million tons of textile waste every year – equivalent to a full truckload of clothes being sent to landfill every second.[11] "As an upstream supplier, we are well aware that we've produced large quantities of seconds and scrap fabrics over the years," said Macy.

As part of its commitment to upcycling, Kane Top teamed up with avant-garde fashion designers to launch the "Tangram" project, which aimed to reduce waste materials by regenerating unused samples and seconds into creative styles. The project also involved the launch of a new database of cut parts to facilitate the large-scale production of upcycled garments.

Kane Top's strategy of upcycling surplus fabrics was well received by its brand partners – at the time of writing, the company was seeking more opportunities to give unwanted textiles a second life.

Figure 2 Kane Top's "Tangram" project (a zero-emissions initiative for liquidating excess inventory) on exhibition at Mode Shanghai (part of Shanghai Fashion Week held in September 2021)

① Surplus inventory was not the result of an imbalance between supply and demand, but rather due to tolerance limits applied by brand owners (usually ±3% of the order quantity). Kane Top allowed for an additional 1% to ensure that all its products met the required quality standards. In general, surplus inventory was liquidated in one of two ways: 1. Supplier factories destroyed all surplus garments under close supervision of the brand owner; 2. Supplier factories donated surplus garments on behalf of the brand owner. Some unscrupulous factories also attempted to sell surplus garments for a profit.

AN UNWAVERING COMMITMENT TO SUSTAINABILITY

In conclusion, Kane Top focused on three key areas to promote sustainability practices across the fashion industry: raising awareness, improving technology, and developing an efficient management strategy. At the time of writing, the company had made considerable progress on its path toward sustainability.

In 2020, E-Top became the first company in Jinshan District (Shanghai) to appear on the Green Manufacturing List issued by the Ministry of Industry and Information Technology (MIIT).

In 2021, Kane Top procured 80% of its raw materials from sustainable sources such as organic cotton, recycled polyester, recycled nylon, and Lyocell (a form of regenerated cellulose). The company also increased the use of renewable and biodegradable materials in embroidery, printing, and packaging, winning recognition from many of its brand partners.

In 2021, E-Top's energy management system was certified according to ISO 50001 standards, which established key benchmarks for measuring improvements in energy management. At the time of writing, solar power supplied 50% of the electricity used by E-Top. In addition, the company also deployed a range of other measures to improve energy efficiency, including the installation of gas/water separators, which delivered a 40% reduction in steam use, and the use of condensing heat recovery equipment to supply employee dormitories with hot water.

In 2022, E-Top became one of the first companies to join the Zero Carbon Factories initiative in Shanghai, and developed an emissions reduction plan to achieve net-zero emissions by the end of 2022.

In Macy's opinion, sustainable fashion was a goal worth pursuing, despite the many challenges it involved. “Currently, the biggest challenge is to reach a consensus on the meaning of sustainability. This requires us to have a frank and honest conversation about how we can create a more sustainable society”

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Haoshiqi: An innovative business model that supports the sustainable development of the food industry

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A regular visit to an ordinary grocery store inspired the establishment of Haoshiqi, a Chinese e-commerce platform that sells discounted food products from various brands. The platform displays the remaining shelf life of products to consumers and employs a "dynamic countdown pricing" strategy that prices food according to how soon it will expire, i.e., products with a longer shelf life are more expensive than those soon to expire. In this way, customers who are less sensitive to expiration dates can save money. This pricing strategy also helps to reduce the amount of near-expired stock that is wasted or disposed of – which is both costly and bad for the environment. In other words, Haoshiqi's business model generates both economic and social value, making it a true embodiment of ESG practices.

Yan Gong
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Having an innovative business model is crucial for companies to gain a competitive edge. Haoshiqi extracts value from near-expired food, cuts down on food waste, and sets an example for other businesses in and beyond the food industry. This model creates significant value while supporting sustainable development.

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Introduction

In late December 2022, Yong Lei (CEO of Doweidu, founder of Haoshiqi and iQianggou) held a team meeting to plan the company's 2023 business strategy. Covid-19 restrictions had been lifted in China, and he was optimistic about the company's growth prospects. Mr. Lei had long sought to reduce waste in the food industry. He founded Doweidu in 2012 and later launched iQianggou, a platform that helped restaurants sell surplus food. A few years later, he started Haoshiqi, an online platform that sold packaged food and drinks. As Haoshiqi grew, it expanded its product range to include skincare and makeup products. Haoshiqi also sought to establish an offline presence by drawing on its supply chain partners to open brick-and-mortar discount stores.

ON A MISSION TO REDUCE FOOD WASTE

"Like any entrepreneur, I started my company to make money. But my business and the way I run it also create social value. My entrepreneurial journey differs from most of my peers in the Internet industry. I didn't launch my business because I saw a huge market opportunity. I launched it because I was inspired by something, and wanted to make a difference."

Yong Lei, CEO of Shanghai Doweidu Internet Technology Co., Ltd.

iQianggou: an online platform that helps restaurants sell surplus food

As a former executive at the Shanghai Branch of Dah Chong Hong, a famous food distributor, Mr. Lei had gained years of experience in the food industry. However, the dream of owning his own business prompted him to leave Dah Chong Hong and seek new opportunities in the industry. On one evening in 2012, he was at a coffee shop near Jing'an Temple in Shanghai when he noticed a member of staff throwing away sandwiches and cakes from the display fridge. "They told me that any fresh food not sold on the day had to go in the dustbin", said Mr. Lei. He considered this practice wasteful and offered to buy the food at a discounted price. However, he was told that the shop had no discount policy: food either had to be sold at full price, or discarded.

Mr. Lei was haunted by this wastefulness. *"A café throwing away a few sandwiches may seem like a small thing, but there are many cafe chains, each with thousands of stores. If each one wastes a few sandwiches a day, that adds up to a huge amount of waste,"* he said. In 2012, China's mobile Internet sector was booming, with new technologies and business models transforming traditional industries. Against this backdrop, he saw a chance to create an innovative business that would reduce food waste while lowering costs for restaurants. *"I believe it's possible to sell all products, so long as the price is right"* , said Mr. Lei. And so it was that he established the iQianggou platform, which allowed restaurants to list their surplus food for the day and attract nearby customers to purchase it. iQianggou used a "dynamic countdown pricing" strategy, where the price of food dropped as restaurants neared closing time. *"In addition to our automated countdown pricing, which was controlled by an algorithm, we also used a 'group haggling' model. Under this model, customers could bring prices down by inviting others to haggle"* , said Mr. Lei. He claimed that from day one, iQianggou didn't spend a penny on customer acquisition: the "group haggling" function motivated customers to share products on social media, which quickly attracted lots of new customers.

iQianggou was a win-win for both buyers and sellers: consumers could obtain quality products at cheaper prices, while vendors could use the platform to curtail wastage and losses, launch promotions, attract new customers, and even generate cross-selling opportunities.

Moreover, with increasing public awareness about the green, low-carbon, and circular economy, many food industry players were doing more to fulfill their corporate social responsibility. As a result, many companies were stepping up efforts to reduce food waste, save energy, and cut emissions.

The birth of Haoshiqi

In 2016, Mr. Lei was struck by another everyday observation. He bought a packet of pasta from the imported food aisle in Carrefour. When he got home and opened it, he saw that it would expire in just one month. Mr. Lei said, *"Supermarkets are legally allowed to sell food that has not yet expired, but customers don't like paying full price for food that will soon go off."* Curious, he checked various e-commerce platforms, but was disappointed to find that none displayed the expiration dates of products. A few days later, he discussed this problem with a friend in the food industry, who told him that many large supermarkets implemented an "accept-by date" policy. In other words, they would only accept stock from suppliers if it still had a minimum period of shelf life remaining. For example, if a packet of pasta had a shelf life of 12 months, suppliers would need to ensure that the pasta had at least eight months of shelf life before delivering it to the supermarket. Generally, supermarkets would only purchase domestically produced food if it had at least two-thirds of its shelf life remaining, while imported food had to have at least half of its shelf life remaining to qualify.

This accept-by date policy benefitted retailers by allowing them a longer timeframe to sell products and reducing their risk of overstocking. However, it was burdensome to distributors and manufacturers, who had to find alternative channels to sell products that exceeded supermarkets' accept-by dates. Typically, such items were sold to smaller shops and lower-tier markets, which were located in small towns and rural areas, where residents were more price-sensitive than those in larger cities. Food manufacturers or distributors sometimes even paid third-parties to help destroy or safely dispose of such products. Mr. Lei's conversation with his friend made him even more concerned about food waste. He said:

"Unlike garments, food products have strict expiration dates. Once a product has passed its expiration date, it not only generates no revenue, but actually becomes a financial burden for the company, as extra costs are incurred to dispose of the expired product. Even the industry's leading companies have to throw away at least 1% of their products. Again, 1% may seem small for one company, but industry-wide, it adds up to a vast amount of waste. I wanted to remedy this situation. I originally founded iQianggou to reduce restaurant waste, but later decided to tackle a bigger market: packaged food and beverages. Having already encountered some success on my entrepreneurial journey, I wanted to build a business that was not only profitable, but that also fulfilled my aspirations. That's why I thought to myself, why not create another iQianggou, but for the packaged food and beverage market?"

In June 2016, Haoshiqi was established and began trial operations.

DE-STOCKING AND RISK MITIGATION IN THE FOOD INDUSTRY

Statistics from the United Nations Food and Agriculture Organization (FAO) indicate that global food loss at every stage, from production to retail, accounts for over 10% of food production. In 2019, the world generated a total of 931 million metric tons of food waste, with 61% from household consumption, 13% from retail, and 26% from food service.[1] Therefore, a mere 1% reduction in waste across the entire food supply chain would save enough food to feed 70 million people for a year. The FAO also found that producing 1 kilogram of food emits 5.22 kilograms of carbon dioxide, 220 grams of nitrogen, and 40.56 grams of phosphorus. Therefore, reducing food waste was seen as crucial to environmental protection. According to iMedia Consulting, China's snack market was worth over 3 trillion RMB in 2020. However, the discarding of near-expired snacks was a common practice. For one thing, supermarkets would typically reject snacks that had already exceeded their accept-by date. Poor inventory management, slow sales, and long distribution channels also contributed to the pile of snacks that were nearing expiry. Assuming that 1% of China's snack inventory was unsold in 2020, this would amount to a 30 billion RMB market for near-expired snacks.[2] Moreover, this was just one category of packaged food and beverages. Other products faced similar challenges. Therefore, the market potential for near-expired packaged food was enormous.

According to Haoshiqi's estimates, China's packaged food and beverage market (excluding fresh and agricultural products) was worth RMB 6 trillion, with two-thirds of the market consisting of branded products. Of these, approximately RMB 400 billion worth were near-expired and required de-stocking at discounted prices, while approximately RMB 100 billion worth of products eventually expired and needed to be disposed of.

Mr. Lei explained that contrary to the beliefs of some industry peers, Haoshiqi's business model was not solely focused on selling near-expired foods. Rather, the company's objective was to enhance the distribution and sales efficiency of food products that had exceeded supermarkets' accept-by dates, thereby reducing the quantity of near-expired products and minimizing food waste. In short, Haoshiqi's goal was to cut losses by optimizing inventories. Discarding unsold, expired food items incurred additional costs, and if they were not disposed of properly, consumers could even file complaints and seek compensation. In the past, many consumers had associated the term "near-expired food" with defective products, although this was not the case. Such confusion was related to two factors: (1) misunderstandings about the meaning of the term "near-expired"; (2) disparities between industry players, and a lack of unified industry standards. For instance, some consumers had reported buying near-expired foods that went off shortly after purchase, but where the seller had refused to refund or exchange the product. Given these negative connotations, Haoshiqi avoided using the term "near-expired" in its marketing and promotional material, and instead positioned itself as a seller of "discounted products".

Despite this initial stigma, over the years, new government policies and increased media coverage about sustainable development and food conservation helped to increase acceptance of near-expired food and build awareness about the importance of reducing food waste. These trends created a favorable environment for the growth of Haoshiqi's business. In 2019, the Chinese government implemented the Guideline on Deepening Reform to Boost Food Safety, which effectively regulated the near-expired food industry by prohibiting the re-manufacturing and re-sale of expired food items.[3] In 2020, the All-China Federation of Trade Unions launched an initiative to reduce food waste and promote the traditional Chinese values of diligence and thrift.[4] In 2021, the Law of the People's Republic of China on Food Waste was enacted, mandating that *"Supermarkets, shopping malls, and other food operators shall strengthen daily inspection of their food business, manage near-expired foods by type, put special marks on them, or display and sell them in designated areas."* [5]

INNOVATE TO GAIN AN EDGE

Unlike iQianggou, which facilitated offline businesses and local life services, Haoshiqi was an online e-commerce platform that enabled consumers to shop for packaged foods without physically visiting offline stores or restaurants. It was available as a standalone app, through which customers could place online orders. Mr. Lei highlighted two of the platform's key innovations: First, consumers could check each product's manufacturing and expiration dates through the app; second, the platform used a "dynamic countdown pricing" strategy, which lowered the prices of products as they approached their expiration dates. *"These innovations offer positive shopping experiences to consumers. They get assurance from knowing the foods' expiration dates, while saving money by purchasing discounted, not yet expired products"*, commented Mr. Lei.

When Haoshiqi was first established, the team focused on building out the key features of the platform, including systems development, the user interface, and product procurement and management. One critical aspect was ensuring accurate inventory management, since products with the same stock keeping unit (SKU) often came from different batches. In 2021, Haoshiqi had a total of 95,561 SKUs from various vendors, of which 7.5% only had 1/4 to 1/3 of their shelf life remaining, 17.4% 1/3 to 1/2 of their shelf life, 49% 1/2 to 2/3, and 15.4% 2/3 of their original shelf life. The platform's internet product team comprised approximately 50 people who focused on optimizing the platform's design and enhancing the user experience. Commenting on the platform's rigorous design, Mr. Lei said: *"For example, on the product page, we clearly mark the product's expiration date as August 18th. In this way, when the customer receives the product, the expiration date printed on the package will be an exact match, not a day earlier or later. This is the principle we apply."* said Mr. Lei.[6]

Supply chain management

E-commerce platforms that sold near-expired food products had in the past struggled to find reliable sources of products. The issue of product wastage had plagued the packaged food industry for decades, or even more than a century. As a result, when Haoshiqi first launched its platform, it initially had trouble acquiring a reliable supply of products.

Most products sold on Haoshiqi were produced by fast-moving consumer goods (FMCG) food brands. These brands typically sold their products through distributors rather than direct to consumers. As a result, most of Haoshiqi's products were sourced from distributors, though the platform also had links to brand manufacturers. According to Mr. Lei, at first, many brands were worried that partnering with a clearance platform could hurt their reputation. Therefore, Haoshiqi had to persuade them one by one, and build up trust over time. He said, *"The brands were unsure about how we ran Haoshiqi, and they feared that we would damage their brand image. But we reached out to their top executives and convinced them to trust us. They realized they needed us because they didn't have a good way to clear excess stock. We offered them a solution that was well-organized, regulated, and transparent."*

In addition to convincing brands to use their platform, Haoshiqi also had to persuade other partners, such as suppliers, warehouse operators, and logistics service providers. As Haoshiqi offered a relatively independent distribution channel for brands, they could effectively reduce inventory without affecting distribution through other channels, or interfering with normal market prices.

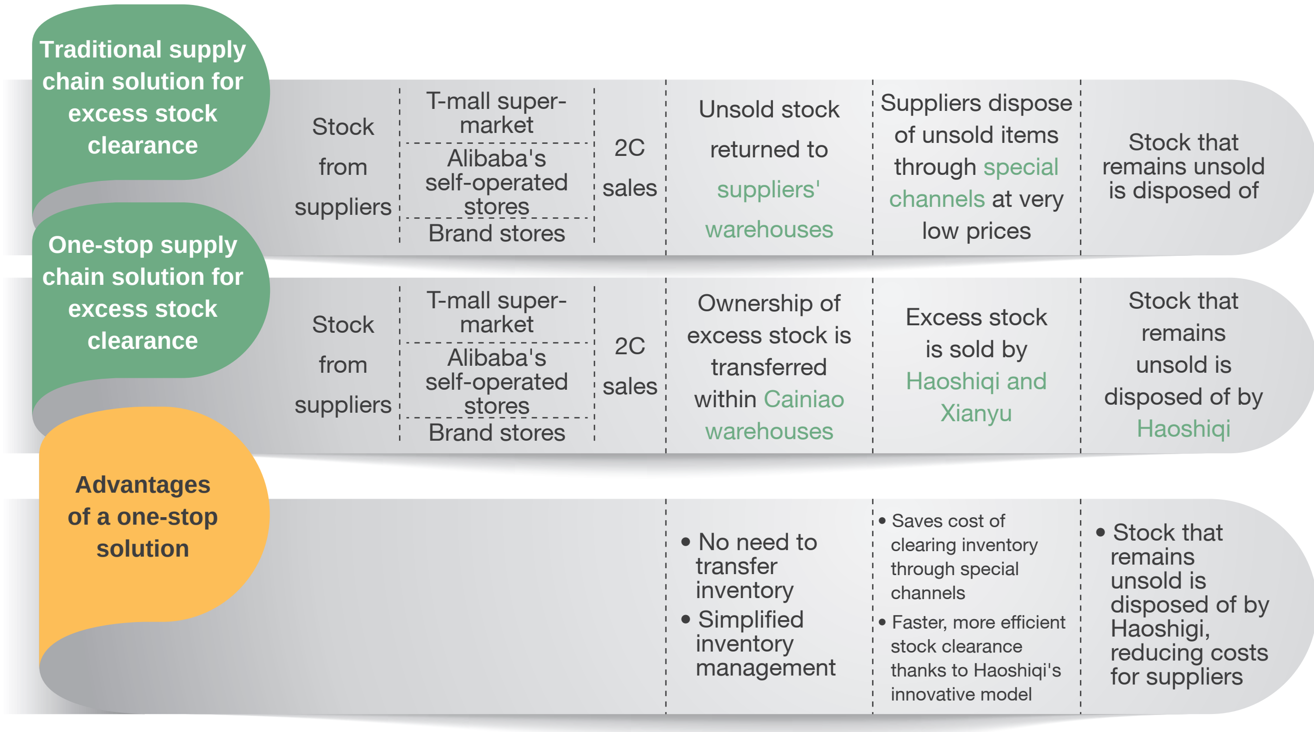
Haoshiqi grew rapidly and partnered with many interested brands and distributors. By 2021, it had 6,924 merchants and 8,050 brands on its platform. It had 17 strategic partners that handled over a million orders each year, of which 12 were established brands and five emerging ones. It also had 60 key partners, each of which sold over 300 thousand orders annually, of which 43 were established brands and 17 emerging ones.

E-commerce platforms typically relied on two approaches to manage their supply chains. Platforms focusing on pure C2C businesses, like T-mall, relied on merchants to ship products to end consumers using third-party logistics services. On the other hand, B2C platforms like JD.com operated their own warehouses. However, with the rapid growth and evolution of e-commerce business models, many players were seeking a middle ground by utilizing both third-party logistics and operating their own warehouses.

After receiving C-round financing from Alibaba, Haoshiqi invested more in its supply chain management. By the end of 2022, Haoshiqi was using three shipping methods: its own warehouses, "collaborative warehouses," and third-party logistics. For the first, Haoshiqi purchased stock from suppliers and stored it in its own warehouses, which comprised five warehouses for different product categories, with an average daily shipping capacity of 200,000 orders. For the second method, Haoshiqi used its partners' warehouses, including over 30 "collaborative warehouses" built near brands, manufacturers, and even places of origin. This enabled Haoshiqi to ship directly from the manufacturer to the end customer, reducing both damage rates and costs. Haoshiqi's third shipping method allowed more competent, established suppliers to ship products directly to customers. Haoshiqi prioritized efficiency when choosing between these shipping methods, which enabled the same products to be supplied by different merchants across various warehouses. This optionality helped to improve supply chain efficiency and ensure timely delivery to customers. In September 2020, Haoshiqi shipped 1.5 million orders of Coca-Cola in 48 hours, demonstrating its exceptional supply chain management capabilities.

Haoshiqi also helped Alibaba's self-operated businesses and brand stores to clear out their excess inventory. By transferring ownership of unsold products to Haoshiqi, merchants could avoid the expenses associated with transferring, warehousing, and clearing out these items. Haoshiqi also partnered with Xianyu, a second-hand auction platform, to jointly sell excess inventory and streamline the inventory management process, thus reducing costs for merchants.

Haoshiqi offered discounts ranging from 40% to 80% off depending on the product's remaining shelf life. The longer the shelf life, the lower the discount, and vice versa. For instance, foods that had a remaining shelf life of at least six months were sold at 40% off, while those with a shorter shelf life might be sold at 80% off. To ensure that food was safe for consumption, Haoshiqi removed items from the platform when they had only one month left until their expiration date. This allowed enough time for food to be delivered and used. Mr. Lei said that near-expired food products did not necessarily have quality issues as long as they were within their shelf life. "We rarely receive complaints about quality, as we manage customer expectations by informing them of the shelf life and discount", he said. According to the platform's customer complaints



Picture：One-stop supply chain solution for excess stock clearance Source: company data

statistics, it had a high customer satisfaction rate of 99.7% and a low refund rate of 0.3% for product quality issues, which was lower than many large e-commerce platforms.

Positive word of mouth and ecosystem cooperation

Due to its discounted prices, Haoshiqi's operated on low margins, which meant that it couldn't afford to use traditional advertising methods to acquire customers. “We cannot afford to advertise, but we have found alternative solutions” , Mr. Lei said. Haoshiqi relied on its countdown pricing strategy to generate positive word of mouth among consumers. The platform's customers were mainly from Shanghai, Jiangsu Province, Zhejiang Province, Guangdong Province, and northern China. He explained, *“We initially focused on establishing our customer base in these areas, as they had more mature e-commerce infrastructure.”*

By the end of 2022, Haoshiqi had attracted customers from various channels. It had its own mobile app and mini-programs on WeChat and Alipay, where customers could share Haoshiqi's products on their social media accounts and entice more buyers. It also partnered with Alibaba to open online stores on Taobao and Tmall, two of the largest e-commerce platforms in China. In addition, it partnered with Alipay to offer membership benefits, such as allowing Alipay members to exchange their points for Haoshiqi's products. Haoshiqi also joined forces with Ant Forest, a green initiative that rewarded users for reducing their carbon footprint. For instance, Ant Forest users could earn Ant Forest energy points when they bought Haoshiqi's products through Alipay. *“Our partnership with Alipay was very successful, and we gained a lot of customers. Since then, many other internet companies have approached us to offer membership benefits, including Ctrip.com, iQiyi, and Ximalaya.com. Haoshiqi provides products with better value for money than other e-commerce platforms and caters to different customer segments”* , said Mr. Lei. In addition to working with larger players, Haoshiqi also developed its own API that enabled platform integrations with WeChat subscription accounts and other smaller apps.

Haoshiqi also tried promoting its products through short videos on platforms such as Douyin and Kuaishou. It even formed its own live-streaming team, albeit with unsatisfactory results: the platform couldn't afford the elevated endorsement fees and commissions charged by popular livestreamers. Therefore, the company pared back its promotions on short video platforms for a period. However, gradually, a number of companies began to reach out to Mr. Lei, including short video platforms and multi-channel networks. These companies wanted to work with Haoshiqi to launch flash sales that would draw more customers to the platform. Haoshiqi perceived value in these partnerships, as they brought traffic to the Haoshiqi platform and provided benefits to customers free of commission.

In 2021, Haoshiqi embarked on an offline expansion strategy by opening its first clearance product shopping center, called “Jushizhen” , in Jiading district, Shanghai. The platform subsequently opened offline stores in Guangzhou and Chengdu. Spanning an area of 1.33 hectares, the Shanghai store featured a B2B demo center, trade center, livestreaming station, warehouses, and logistics services. Haoshiqi's offline stores mainly provided one-stop supply chain services to emerging offline discount shops and logistics services to consumers who purchased products via group buying services on Kuaishou and Douyin. As of the end of 2022, the platform had acquired approximately 8,000 corporate clients of various sizes.

Customer profile

Haoshiqi initially targeted low- and middle-income customers from lower-tier markets. However, after launching the app, Mr. Lei discovered that many customers came from tier-1 and tier-2 cities, which indicated that they wanted to enjoy a refined lifestyle without spending too much money. He said, “One customer from the Lujiazui area left a comment on the app: thanks to Haoshiqi, he could drink Perrier water both at home and at work, for the price of Nongfu Spring water”.

Haoshiqi also noticed a trend among young people toward greater environmental awareness and resource conservation. “Right now, as a start-up, we are profit-driven rather than ESG-focused. But ESG will be our main goal in the future,” Mr. Lei said.

By 2021, Haoshiqi had amassed approximately 110 million registered users on its own platform, and when combined with its nearly 50 million users from Taobao and other channels, the total user count reached 160 million. Of these, 40% had bought Haoshiqi's products, while monthly active users exceed 20 million. With respect to order volumes, Haoshiqi's figures for 2021 were estimated to be around RMB 2–3 billion, with daily volumes surpassing one million orders. According to Mr. Lei, Haoshiqi didn't group users by traditional demographics such as age or region, but instead looked to identify more discerning users that valued cost-effectiveness. This demographic primarily comprised white-collar workers, young homemakers, college students, and to a more limited extent, senior citizens.

TARGETING DAILY WASTE REDUCTIONS OF RMB 100 MILLION FOR CHINA'S FOOD INDUSTRY

Yong Lei stated that Haoshiqi's mission was “to save the Chinese food industry RMB 100 million in waste every day” , which translated to a target of at least RMB 36.5 billion in annual revenue. However, as of 2022, the platform's revenue was still far from this target. He said, “It's possible that we've achieved less than 20% of our target. However, we've been steadily growing and generating profits each year, and expanding our business while maintaining break-even margins.”

Haoshiqi started out as a platform for distributing packaged food and beverages. It grew rapidly and diversified into other categories, such as personal care and home goods. These products have longer shelf lives, but still need to be sold at clearance after passing the accept-by date. Mr. Lei emphasized, “Haoshiqi is now a clearance platform for food and FMCG products”. As of 2019, the platform began focusing on increasing the sales of beauty and personal care products, and home and lifestyle products. Both of these categories enjoyed rapid growth in 2023.

However, Haoshiqi faced some strategic choices concerning its future direction: What other product categories should it add to the platform? Should it only sell near-expired products, or also offer regular products, or even create its own brands? How should it balance customer demand for well-known brands against the supply of new consumer brands that wanted to market their products on its platform? How should Haoshiqi manage its product and brand portfolio to maintain a competitive edge?

Mr. Lei admitted that starting a new business could be nerve-wracking, but was upbeat about the future growth of his business. He said, *“There is an old Chinese saying: ‘Only when you know what to pursue, can you find the determination'. I really enjoy this feeling of being determined. I'm not in this business to make a lot of money. I just want to work hard for it. I feel like I'm doing something worthwhile.”* Although he and his team didn't have radical growth plans for the platform, they still wanted to scale it up. In addition to the existing online platform and other distribution channels, Haoshiqi hoped to tap into short video platforms like Kuaishou and Douyin. It also aimed to grow traffic through its own proprietary channels and social media. *“Right now, many companies are looking for low-cost or even zero-cost partnerships with us. This speaks to the value of our platform.”*

Endnotes

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Ant Group: Promoting Sustainable Development

By Yajin Wang , Qiong Zhu*

Sabrina Peng
CEIBS EMBA 2008 Alumna
Chief Sustainability Officer, Ant Group

"Our ESG strategy is the cornerstone of how we create social value. We believe that social and economic value are mutually reinforcing: Creating social value will make our growth more sustainable, and ultimately safeguard our stability and long-term success. In this context, we will leverage our platform capabilities and resources to create an open, sustainable ecosystem that delivers win-win outcomes for all stakeholders."

Lingling Zhang
Assistant Professor of Marketing, CEIBS

"For today's companies, balancing multiple goals is an essential component of a successful sustainability strategy. Ant Group is no exception. There are three key takeaways from Ant Group's ESG strategy: First, corporate decision-makers should adopt a top-down approach to designing their overall strategy, and ensure that social value creation lies at the heart of their company's core business activities. Second, companies should translate their awareness into action by introducing effective incentive mechanisms. Third, the effectiveness of an ESG strategy hinges on continued value co-creation by various stakeholders, including customers, employees, and business partners, therefore companies should build a community of shared interests committed to creating value through open collaboration."

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In June 2022, Ant Group began implementing an ESG strategy built on four pillars, namely digital inclusion, sustainable development, technological innovation, and open ecosystems. In the words of Eric Jing, Chairman and CEO of Ant Group, "These four pillars are the most important and pressing issues for Ant Group to address if we are to achieve sustainable growth in a future-facing, responsible, and responsive manner."

Ant Group grew out of Alipay, which was established in 2004. In 2013, Ant Small and Micro Financial Services Group, of which Alipay was the main constituent, was founded to unlock access to inclusive financial services for small businesses and consumers, using digital technology. In doing so, the group diversified its offering beyond traditional financial services such as payment processing to include a range of wealth management, small loan, insurance, and credit services. In 2015, Ant Group shifted its focus to FinTech, and began making its business platform available to other industry players. It subsequently developed five lines of business: a digital payment platform, a digital finance platform, a digital operations platform for the service sector, digital technology services, and cross-border payment services.

Sabrina Peng, Ant Group CSO, explained the reasoning behind Ant Group's decision to devise a four-pillar ESG strategy: "Our ESG strategy provides us with a framework for social value creation (see Figure 1), independent of our core businesses. At the same time, the four pillars of our ESG strategy are built on our five lines of business, creating a synergistic, virtuous system in which social value creation and economic value creation reinforce each other. This also ensures the sustainability of our business".

Figure 1: Ant Group's ESG strategy

Source: Ant Group

Ms. Peng also identified the three key goals of Ant Group's ESG strategy:

Firstly, the company wished to develop a systematic approach to social value creation. Following its inception, Ant Group primarily served consumers and small and micro-sized enterprises (SMEs) in line with its mission – “to make it easy to do business anywhere” . Over time, it became a large company with over 20,000 employees, presenting the company with new challenges: How could it ensure that all employees would stay true to its original vision of creating both social and economic value? How would it be able to sustain the growth of existing lines of business that had both social and economic value? How would it be able to generate social value from new lines of business? Moreover, as the definition of social value continued to evolve, how would Ant Group be able to coordinate between an increasingly large group of stakeholders, which included not just users, clients, and employees, but also partners, investors, governments, and the public? In light of these challenges, Ant Group needed to create a systematic framework to overhaul its value creation model, fulfill its mission and vision, and assess its relationship with society and the environment.

Secondly, to ensure the success of its value creation model, Ant Group would need to incorporate ESG initiatives into all its lines of business. For this reason, the group established an ESG governance structure (see Figure 2): At the top of the hierarchy was the Board of Directors, which was responsible for leading the ESG Sustainable Development Committee. In the middle was the ESG Sustainable Development Leadership Team, which was co-chaired by the group CEO and CSO and included the presidents of the company's various business units. At the bottom were ESG Working Groups, which were led by the aforementioned presidents and their immediate subordinates. These groups worked on 19 key issues (each with its own OKRs) related to the four core pillars of the company's ESG strategy.

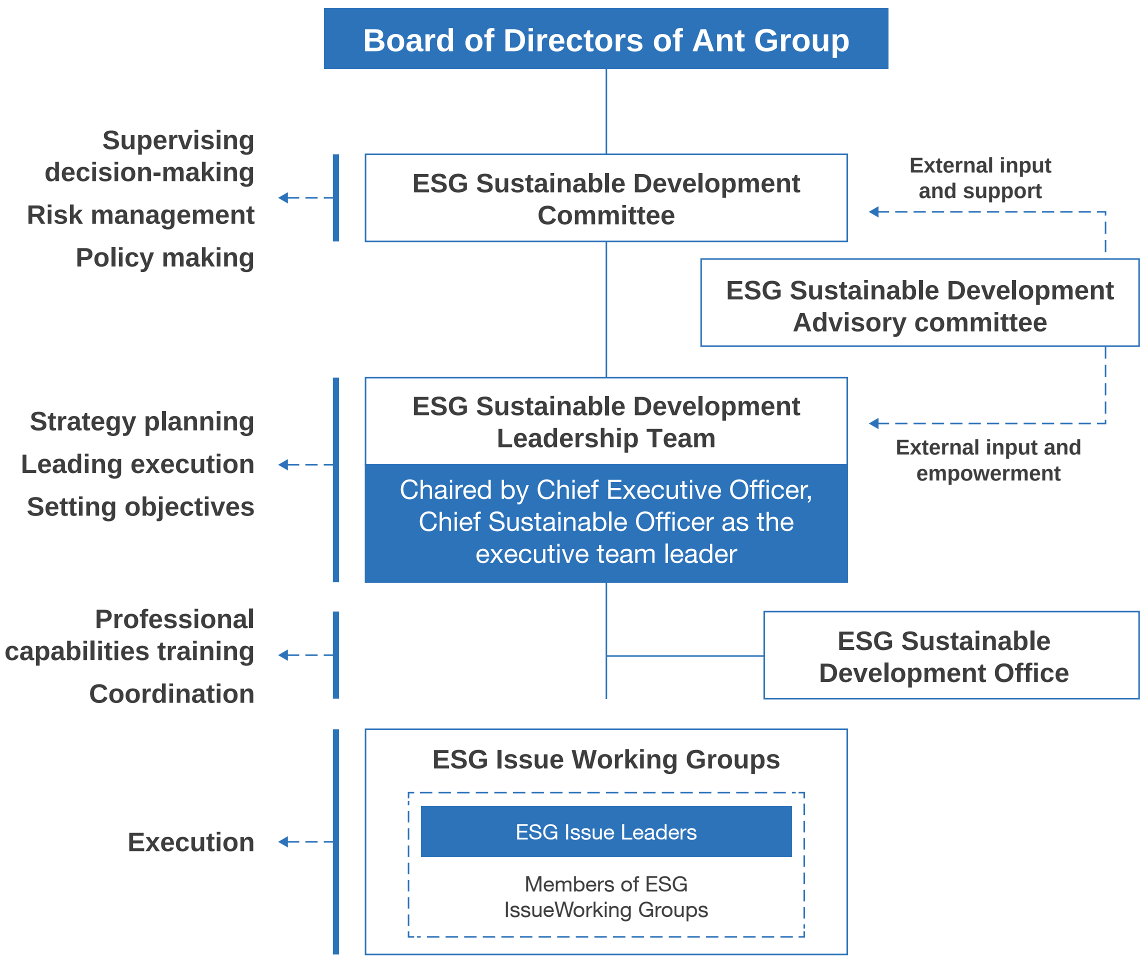


Figure 2: Ant Group's ESG governance structure

Source: Ant Group

Thirdly, Ant Group wished to integrate the concepts of economic and social value. In its opinion, economic and social value were two sides of the same coin – the reason why good products and services could achieve lasting success was because they could create value for society while also generating a profit for the company. However, integrating these two concepts was not without its challenges – although some lines of business were inherently of social value, Ant Group still needed an efficient mechanism that would enable it to simultaneously pursue social value creation and profitability across all its lines of business.

Ant Group was confident that its ESG strategy would be effective in achieving these three goals, because social value creation was an essential part of the company's mission statement – a fact demonstrated by its proven track record in this area. “Green and low-carbon development” was an important pillar of its ESG strategy, differentiating it from other tech firms. In practice, Ant Group not only acted on its own carbon neutrality ambitions, but also took advantage of its platform capabilities and resources to influence others. Specifically, it worked with its partners to promote low-carbon, eco-friendly lifestyles; encouraged SMEs and farmers to participate in green, low-carbon economic activities through green financing measures; and used carbon footprint management tools to help companies transition toward green and low-carbon growth models.

ENCOURAGING GREENER LIFESTYLES AMONG CONSUMERS

Ant Group also launched an initiative called “Ant Forest” to encourage consumers to lead low-carbon lifestyles.

Ant Forest was an in-app initiative launched by Alipay in August 2016. Once authorized by the user, it could record over 60 low-carbon lifestyle choices such as using public transportation, reducing paper and plastic waste, utilizing online services, recycling, reducing energy use, and using energy-efficient appliances. The emissions savings generated by these activities were then calculated and converted into “points” , which users could redeem in order to plant a tree or protect a conservation area. The initiative was designed to motivate users to lead greener lifestyles and create a closed-loop incentive mechanism for reducing carbon emissions. At the time of writing, the environmental projects funded by Ant Forest included the restoration of terrestrial ecosystems as well as the rebuilding of coastal wetlands and other marine ecosystems.

Ant Forest allowed users to record low-carbon lifestyle choices with hundreds of business partners, such as manufacturers of energy-efficient appliances and electric vehicles. The initiative therefore enabled both consumers and businesses from all sectors of society to participate in environmental conservation projects.

By August 2022, Ant Forest had attracted over 650 million users, who together offset more than 26 million tons of CO_2 emissions and contributed to a range of environmental projects in 19 provinces across China. For example, Ant Forest funded the planting of over 400 million trees across 300,000 hectares of land. It also helped to safeguard 24 parcels of protected land covering an area of 270,000 hectares and home to over 1,600 species of wild plants and animals. In addition, Ant Forest's afforestation projects created approximately 3.3 million green job opportunities for local residents (such as tree planters and forest rangers), generating employment income of around RMB 490 million.

The motive behind Ant Group's decision to invest in Ant Forest was to promote greener lifestyles among consumers. “By launching Ant Forest, we can enable Alipay, a digital lifestyle services platform, to leverage its resources in order to create social value,” said Sabrina. “We positioned Ant Forest as a non-profit green initiative, because we want to make a long-term commitment and win the trust of users.”

Initially, the low-carbon lifestyle choices through which users could earn points were all related to the Alipay ecosystem. In 2017, Ant Forest launched a campaign to attract new partners to the platform, and in August 2021, it teamed up with socially responsible companies from different sectors to launch the “Green Energy Points Initiative” , which provided over 60 different ways for users to collect points, such as using public transportation, choosing eco-friendly packaging, using energy-efficient household appliances, and booking eco-friendly accommodation.

There were two main reasons behind Ant Group's decision to launch the Green Energy Points Initiative. Firstly, consumers were acutely aware of the importance of environmental protection, but very few people consciously made low-carbon lifestyle choices. The initiative therefore offered a new way for users to reduce their carbon footprint. Secondly, the sustainability-conscious users Ant Forest had acquired were precisely the target audience green brands were marketing to. By August 2022, Ant Forest had engaged over 500 businesses in the initiative.

Ant Forest sought to continuously expand its partnerships with other like-minded companies. In 2020 alone, it donated RMB 780 million to environmental conservation and restoration projects. Aware that many socially responsible companies were keen to contribute to environmental causes, Ant Group also shared its expertise and platform capabilities in order to encourage more companies to become its partners.

In addition, Ant Group participated in the development of a new online incentive mechanism to encourage individuals to reduce their carbon footprint, which was launched in November 2022 by the China Energy Conservation Association. “We want to share our six years of experience with the rest of the industry,” said Sabrina.

Ant Forest also made its digital capabilities available to local governments looking to introduce the so-called “Tan Pu Hui” initiative, a mechanism for incentivizing low-carbon lifestyle choices first launched in Guangdong in 2017. At the time of writing, Zhejiang, Jiangxi, and Ningxia had embraced the Tan Pu Hui system. For example, Ningxia used Ant Forest's methodology to quantify low-carbon activities, and integrated its Tan Pu Hui system with the Ant Forest platform, enabling local residents to benefit from both initiatives via the same platform. “Local governments are better positioned than companies to incentivize the general public”, explained Sabrina.

INCENTIVIZING SMES AND FARMERS THROUGH GREEN FINANCE

In addition to hundreds of millions of individual consumers, Ant Group also served tens of millions of small and micro-enterprises (SMEs) and farmers through its green financing strategy, which aimed to encourage investment in green and low-carbon technologies.

For example, MYbank, an online bank backed by Ant Group, provided SMEs and farmers with unsecured lines of credit under a so-called “3-1-0” financing model (3-minute loan applications, 1-second approvals, and zero manual intervention). MYbank also developed a system called “Tomtit” to assess loan applications from farmers: comprised of dozens of risk control models, “Tomtit” could determine the applicant's credit line and repayment period based on the estimated yield and value of the farmer's crop. By June 2022, over 49 million small and micro-sized merchants had obtained loans from MYbank over the internet, 80% of whom had not previously received a business loan.

Starting in 2019, MYbank doubled down on its SME-oriented green finance strategy in order to promote financial inclusion. For example, the bank launched an interactive mini program “Green Operations” to provide access to eco-friendly services such as online payments, electronic invoices, electronic waybills, and sustainable procurement.

MYbank also designed a green credit rating system for SMEs. By June 2022, the bank had given ratings to some six million SMEs. Those that received high ratings became eligible for low-interest loans.

If an SME placed a successful bid for a green project covered by China's Green Industry Guidance Catalogue (2019), MYbank would raise the SME's borrowing limit. In the first half of 2022, the bank granted loans to 191 SME-led green projects spanning areas such as wastewater treatment, settlement improvement, rural construction, and land conservation. SMEs were able to borrow up to 30% of the amount of the successful bid.

“MYbank offers green SMEs loans on favorable terms, and covers most of the costs incurred,” said Sabrina. Ant Group was confident about the growth prospects for green finance, and strove to cement its first-mover advantage. In addition, data analysis conducted by the company showed that green business practices were associated with lower default rates.

In 2022, Ant Group's foray into green finance attracted the attention of numerous financial institutions, such as the Taizhou branch of the PBOC (People's Bank of China). In November of that year, Ant Group announced that it had developed a set of green rating standards for SMEs in collaboration with MYbank and a number of partner banks and research institutes.

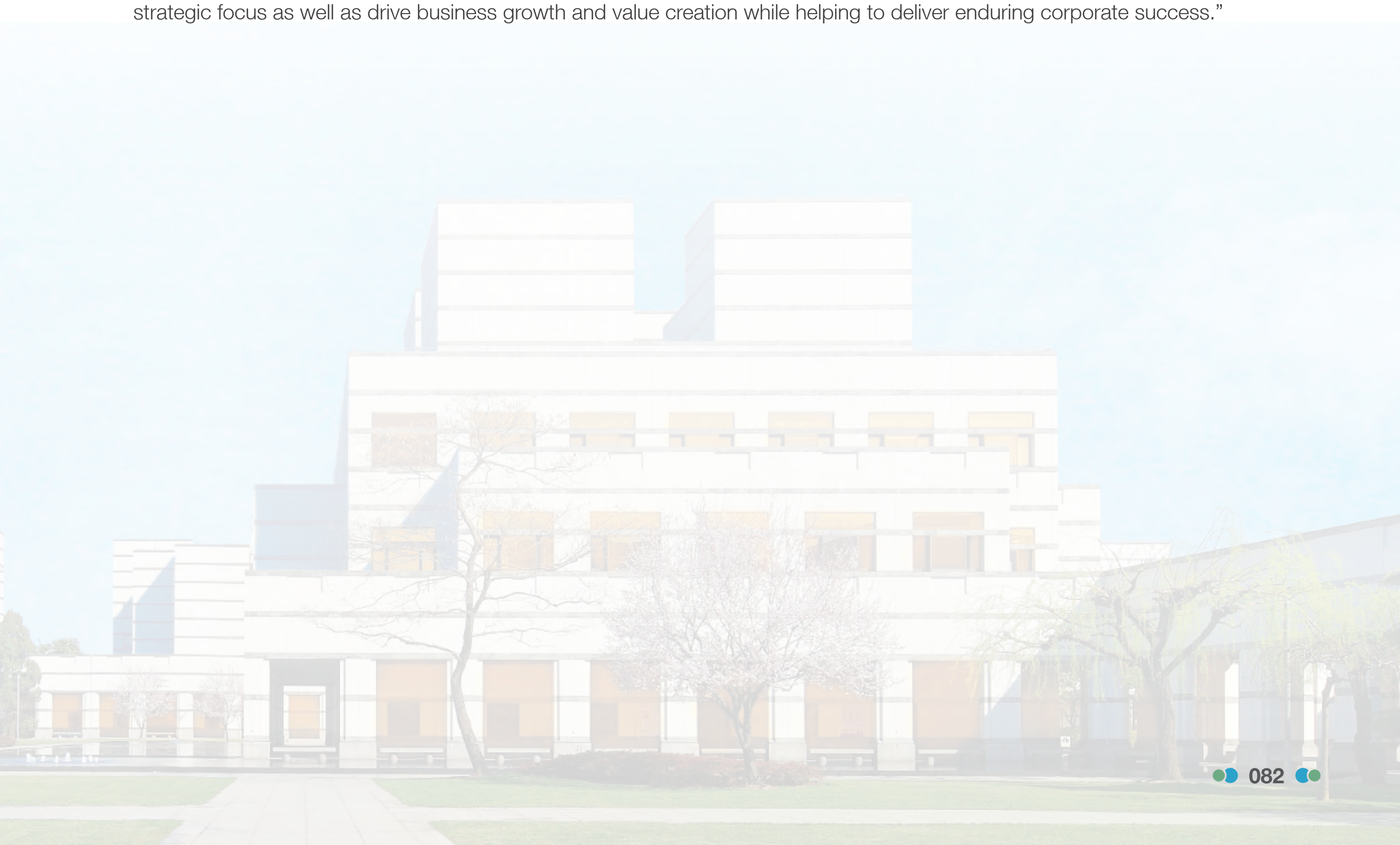
HELPING COMPANIES TO BECOME CARBON NEUTRAL

In addition to providing green finance to encourage green business practices among SMEs, in 2021 Ant Group introduced “Carbon Matrix” , an SaaS platform to help companies manage their carbon footprint. The platform was powered by blockchain and confidential computing technologies and connected to multiple certification bodies, enabling uploading of encrypted data for certification as well as blockchain-based storage of certification documents. At the same time, Carbon Matrix made data related to carbon footprints, emissions reductions, clearing and settlement, regulatory oversight, and auditing visible in the blockchain, thus increasing the credibility of companies' carbon management strategies.

Carbon Matrix was inspired by Ant Group's own carbon neutral strategy. In 2021, the group set out its net zero roadmap and objectives, and successfully achieved net zero emissions from its operations in the same year. This would not have been possible without transferring its carbon neutrality roadmap (and corresponding data on carbon emissions, clearing and settlement, regulatory oversight, and auditing) to the blockchain to ensure traceability.

In 2019, Ant Group started to develop its own green computing technologies, including adaptive auto scaling, tidal scheduling, and OceanBase database technologies, which helped the company to cut carbon emissions from data centers across its supply chain. According to third-party estimates, green computing technologies enabled Ant Group to save over 46 million kWh of electricity and reduce its CO2 emissions by almost 30,000 tons in 2021.

At the time of writing, Ant Group had gained considerable expertise in driving value creation through ESG practices. However, Sabrina believed that the road ahead would not be without challenges: “We will need to make many trade-offs. We therefore need to think outside the box and avoid competing in the red ocean. Our ESG journey will help to improve our strategic focus as well as drive business growth and value creation while helping to deliver enduring corporate success.”



04

PERSPECTIVES OF CEIBS FACULTY ON ESG

Digital Technology, Gender, and Environmental Behavior*

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Digital technology plays a significant role in facilitating and incentivizing individuals' participation in environmentally friendly behaviors. In a representative sample of 200,000 Alipay users from 332 cities in China, over 86% of the sampled individuals participate in Ant Forest, a green digital initiative launched by Alipay that incentivizes individuals to opt for green behaviors in lifestyles in exchange for real tree planting and contribute to environmental conservation areas by Alipay. We find a higher participation rate and more active participation in pro-environmental activities among women than men through the digital initiative. Moreover, women exhibit a stronger preference for greener funds in their financial investment made through Alipay, although such a preference does not yield higher financial returns. Overall, our study provides support for the ideas of utilizing digital technologies can be used to combat climate change and of enhancing women's representation in environmental governance.

Climate change is increasingly recognized as a fundamental social problem, highlighting the need for research that illuminates social factors that promote or impede public engagement with the issue. Among them, the importance of understanding environmental issues through a gender lens and integrating gender perspectives in development and implementation of environmental policies at international and national levels has been discerned globally. The Paris Agreement's clause to include more women in the environmental decision-making process supports the advancement of women's leadership in environmental governance. The gender-and-environment nexus is also increasingly acknowledged in the corporate world. Public companies are facing growing pressure from institutional investors to increase the representation of women in corporate leadership in addressing environmental, social, and governance (ESG) issues.

In this study, we investigate a green digital initiative, Alipay Ant Forest (AAF), an interactive interface embedded in Alipay launched by Ant Group (Ant), a leading BigTech platform in China, and document a significant role that digital technology can

* This paper is adapted from “Digital Technology, Gender, and Environmental Behavior” by Sheng Huang, Shaoyan Jiang, and Qigui Liu.

play in addressing the climate change issue. Specifically, AAF tracks users' behaviors in their daily activities, recording avoided emissions derived from individual behavioral changes to low-carbon activities, which are then converted into "green energy points" . Users can then plant and water their virtual trees with their energy points or exchange them virtually for the protection of a small unit (e.g., one square meter) of a conservation area. In converting users' virtual environmental behavior to real outcomes, Ant plants real trees in partnership with NGOs in desertified areas of western China and donates funds to related non-profit environmental protection organizations, which are responsible for the patrolling of the conservation areas.

Main findings

Our sample consisted of 200 thousand individuals residing in all major cities in China, who are randomly selected users of Alipay during 2018-2019. Our main findings can be summarized as follows:

The role of digital technologies in combatting climate change

Participation in AAF was prevalent among the sampled individuals; over 82.6% of them were users of AAF during the sample period. Among those who participated, 21.7% (19.3%) of them chose to plant trees (contribute to conservation areas) with their accumulated energy points. Among the participants who planted trees or contributed to conservation areas, an average participant planted 2.25 trees and contributed to 1.38 conservation areas by the end of our sample period. These findings are consistent with the effectiveness of digital technology in relaxing participation constraints and incentivizing participation in environmentally friendly behavior.

Gender differences in environmentalism

There exists a gender difference in AAF participation and to a larger extent, in participants' environmental behaviors on AAF. First, women are more likely to participate in AAF than men. Second, conditional on their participation, relative to male participants, female participants are more likely to plant trees and plant more and are more likely to contribute to the protection of conservation areas and contribute more with energy points earned through their environmentally more friendly behavioral changes in lifestyle. It also takes less time for female participants to start planting the first tree or contributing to the first conservation area after participating in AAF, which is further evidence that women are more proactive in environmental behaviors.

Further, we find that females are more likely to invest in funds whose portfolios of stocks have higher ESG ratings and higher ratings on the environment component, although such an investment preference does not yield higher returns for them. It suggests that women exhibit stronger social preference in their personal investment decisions with financial incentives playing less of a role.

Overall, the evidence is consistent with a gender difference in environmentalism.

Policy implications

First, our study strengthens the support for the utilization of digital technology innovations to combat climate change. It is noteworthy that BigTech plays an important role in promoting participation in environmental behaviors, mobilizing individuals' behavioral changes towards more sustainable lifestyles, and closing the environmental attitude-behavior gap. As AAF became more popular among participants, Alibaba data shows that more participants started to adopt low-carbon, eco-friendly lifestyles and became more aware of environmental issues.

Second, our study supports the call for enhancing women's representation in environmental governance. Our research finding points to a significant gender difference in environmentalism.

Third, through proper calculation by AAF, every low-carbon activity of an individual can be converted into "green energy points" , which are recorded as saved energy. This individual-based evaluation system represents a significant innovation in the field of carbon accounting, as the impact of carbon emissions is usually measured from a production standpoint, assessing the amount of CO_2 released into the environment at the point of emissions. AAF could be the first step towards individual carbon accounting.

Will Lab-Grown Meat be the Food of the Future? *

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While the old Chinese saying holds true, "food is the paramount necessity of life," the consumption of food, especially meat, has become a key environmental concern. Lab-grown meat, produced using cellular biotechnology, is considered a promising and innovative solution to the environmental challenges associated with meat production. Yet it remains to be seen if it can replace traditional meat products as an alternative protein source for consumers. This research combines biological and psychological perspectives to examine consumer attitudes toward lab-grown meat through a number of studies. We find that consumers have negative attitudes towards lab-grown meat because it triggers a perception of creating life artificially and, therefore, violating the laws of nature. In conclusion, our research thoroughly explains consumer resistance to lab-grown meat and proposes theory-based marketing interventions.

Food technologies play a pivotal role in enabling sustainable food production and consumption. In recent years, as a solution to remove conventional livestock from the protein consumption equation, lab-grown meat has already started to enter into reality. To create lab-grown meat, scientists extract animal stem cells, cultivate them into muscle tissues, harvest the tissues, and transform them into meat products, such as steaks and chicken nuggets. This technology has attracted significant investments from both private and government sectors, many countries, including Singapore, the US, and China, are investigating how to develop related legislation and policies to regulate this emerging industry. In December 2020, Singapore became the first country to allow the sale of lab-grown meat. In addition to regulation, consumer acceptance is another critical piece in the bigger picture of commercializing lab-grown meat.

How do consumers react to lab-grown meat?

We conducted five primary studies and several supplementary studies (each involving hundreds of participants) to explore how consumers react to lab-grown meat and what kind of interventions can improve consumers' acceptance of

* This is adapted from the paper by Qihui Chen and Yajin Wang, "How Do Consumers React to Lab-Grown Meat?"

lab-grown meat.

First, we compare lab-grown food with another type of innovative alternative food: plant-based food. Plant-based food is made from plants, such as soybeans, grains, and peas. The production of plant-based food relies on innovative bioengineering technologies to mimic the texture and taste of conventional food. We find that consumers have more negative attitudes toward lab-grown meat than plant-based meat. This is because plant-based meat is made from existing life, plants, and does not trigger the perception of creating life and the perception of violating the laws of nature to the same level.

Next, we compare lab-grown food with cloned animal food, which is indeed a life-creating technology. Cloned animal meat is taken from cloned animals. Presumably, cloned animal meat should taste the same as conventional animal meat as it comes from cloned livestock, which are genetically identical to the original animal. However, we observe that consumers have more negative attitudes toward cloned animal meat than lab-grown meat. The reason behind this is that consumers' perception of creating life with cloned meat products is even stronger than with lab-grown meat products, which leads to a stronger perception of violating the laws of nature.

We also examine the role of religiosity in consumers' acceptance of this food technology. Religiosity refers to the extent of commitment that an individual displays to their religious beliefs, principles, and activities. Our findings reveal that more religious consumers tend to be less willing to purchase lab-grown products, especially lab-grown meat, due to a stronger perception of creating life and a stronger perception of violating the laws of nature.

In addition, we look into the impact of product labeling on consumer attitudes and find that consumers' negative attitudes toward lab-grown meat is not influenced by product labeling. While previous studies showed that consumers have a more positive view on products labeled as “cultured” , they still hold more negative views about “cultured” meat than “cultured” dairy products.

In conclusion, our research shows that the perception of creating life artificially and violating the laws of nature explains consumer resistance to lab-grown meat. Behaviorally, consumers' negative attitudes should lead to lower willingness to try, pay for, and purchase lab-grown meat.

How can marketers enhance consumer acceptance of lab-grown meat？

We propose three theory-based marketing interventions that could effectively improve consumer acceptance. These findings provide valuable insights for developing tailored strategies for visual design and communication in lab-grown meat marketing.

Disassociating meat from the animal. Since meat is naturally associated with the living animal from which it comes, we propose disassociating lab-grown meat from its animal origins in marketing. Specifically, our research suggests that consumers tend to have a higher acceptance of lab-grown meat when the product package displays the image of the food product (such as a beef burger) rather than an animal figure (such as a cow).

Deconstructing the concept of meat. Lab-grown meat triggers a strong perception of creating life because meat has a cellular and tissue structure. In line with this logic, we propose and demonstrate that when the concept of meat is deconstructed into simpler biological structures (i.e. water, protein, and fat) in the advertising information, consumers will associate lab-grown meat less closely with life and thus have more positive attitudes toward lab-grown meat.

Drawing an analogy between producing lab-grown meat with growing plants from cuttings. In the production of lab-grown meat, small and immature stem cells are grown into complex biological structures, giving consumers a sense that life has been created from scratch. Inspired by initial research by the Good Food Institute, we find that drawing an analogy between the process of producing lab-grown met and the process of growing plants from plant cuttings (growing life from seedling rather than from scratch) will effectively decrease the perception of creating life and violating the laws of nature and improve consumers' attitude towards lab-grown meat.

How does ESG shape consumption? *

Hongyu Shan
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ESG concepts have grown in popularity significantly in recent years, with a growing number of investors considering ESG factors beyond a company's financial performance when making investment decisions. However, this increased focus on ESG have also led to concerns about greenwashing[1] and debates on the financial materiality of ESG. Questions have arisen as to whether a company's ESG performance correlates with its financial performance, and whether ESG scandals will influence consumer decisions. To address these concerns, our research focuses on these questions and offers empirical evidence. Using 296 million points of purchase data of American households from 2007 to 2019, we investigate how ESG shocks ripple through consumer market. Our research has revealed that consumers take ESG considerations into account, and ESG performance directly impacts financial performance.

Consumers are one of the most important stakeholders to a firm, as their spending directly turns into the revenue and profit of corporations. Therefore, when negative events like pollution or product safety occur, examining the influence of ESG shocks on consumer spending is an ultimate test of how society values ESG performance.

Data

Our analysis relies on two key datasets. We estimate a difference-in-differences (DiD) model to study consumer spending following staggered ESG scandals.

We utilize the Nielsen Retail Scanner Consumer Panel to capture the consumption data, which provides 296 million points of detailed shopping records, covering the spending habits of approximately 40,000 - 60,000 U.S. households from 2004 to 2019. For each record, the data presents detailed information for each product purchased (e.g., time, location, product identity, price, quantity, and deals). In addition to product purchase information, the Consumer Panel also has rich demographic data for the surveyed household, such as family size, income, education, etc. The sufficient granularity of the

* This is adapted from the working paper How Does ESG Shape Consumption? by Houston, Joel F. and Lin, Chen and Shan, Hongyu and Shen, Mo, (October 10, 2022). Available at SSRN: https://ssrn.com/abstract=4243071 or http://dx.doi.org/10.2139/ssrn.4243071

1 Greenwashing refers to businesses or organizations that misrepresent or exaggerate their efforts on environmental issues.

product-level information allows us to rule out alternative explanations, such as supply-side factors – phase-out of obsolescent product portfolio and/or product recalls, which can also result in a reduction in consumer spending.

To evaluate companies' ESG performance, we use RepRisk's ESG risk rating database. Unlike other leading ESG databases, RepRisk identifies ESG risks by tracking only negative news from external sources like independent third-parties or other external stakeholders. Without considering firms' self-disclosures, it essentially provides a "reality-check" on companies' ESG performance from an "outside-in" approach.

Will household spending be affected by ESG scandals?

Our research reveals that the average ESG shock triggers a firm-wise 8% drop in customer sales that extends for at least six months, and consumer purchases drop further in more severe ESG scandals. We find that consumers' reaction is swift – the purchasing quantity of the affected goods in an ESG scandal declines immediately following the news coverage of such events. Product prices also decrease, but more slowly - on average 2-3 months after the scandal, reflecting efforts from firms to regain grounds and the transition to a new supply-demand equilibrium. From cross-sectional analysis, we conclude that the extent to which consumers respond to ESG scandals is related to other factors, including different consumer social-economic profiles, consumer awareness/salience about climate change, and ESG issues.

Firstly, we investigate how household wealth and age influence consumers' reactions to ESG scandals. While consumer spending decreases across all households when ESG scandals hit, two groups respond most proactively. One is Millennials (those born after 1980), who have the highest awareness of ESG issues. The other is middle-class households with annual incomes between 100K and 200K, who react more strongly than households with higher or lower incomes.

Secondly, our findings demonstrate that consumers who have recently experienced extreme weathers or natural disasters close to their residence are also more reactive to E-related scandals, but NOT to scandals involving Social or Governance Issues. Their personal experience likely increases their awareness of environmental issues (the "E" dimension of ESG), which shapes their consumption decisions.

Our analysis shows that consumers are sensitive to different ESG issues to varying degrees. Among all 28 ESG issues being identified by RepRisk, scandals involving social discrimination, poor employment conditions, local pollution trigger the greatest backlash among consumers, followed by negative events involving climate change and animal mistreatment. Consumer sales fall most significantly when these scandals occur.

ESG scandals and firm performance

Further analysis reveals that the exposure of negative ESG events generates decreased sales for the affected product and firm. These shocks also trigger a negative spillover effect for similarly priced goods within the same product group. For instance, if a firm is reported to have poor management of its supply chain's environmental impact, these scandals can trigger concerns among consumers for all products sourced from the same or similar suppliers.

In conclusion, by showing that consumers are actively responding to negative ESG events, we demonstrate the financial materiality of ESG matters and the power of the consumer wallet in driving change. For corporations, it is crucial to move beyond the traditional "shareholder primacy" mindset and instead rethink and balance their relationship with all stakeholders, including consumers, for sustainable development and growth. ESG issues can significantly affect a firm's cash flow and warrant significant attention from corporate management.

05

2022 STUDY ON THE ESG REPORTS OF A-SHARE LISTED COMPANIES

(CONDENSED)

2022 Study on the ESG Reports of A-share Listed Companies (Condensed)

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Programme Director of the Family Office Diploma Programme

The evolution from CSR to ESG has brought about two changes. First, ESG offers a clearer, more standardized framework for evaluating the behavior of companies based on environmental, social, and governance factors. Second, it enables investors to make more informed decisions and select investments that align with their values and goals. As a result, companies that prioritize ESG considerations are more likely to attract investment, leading to a virtuous cycle that integrates economic, social, and environmental value.

We owe a special thanks to Sichuan Swellfun Co., Ltd. for its support in compiling this report.

Introduction

Research subject

2021 annual environmental, social, and governance (ESG) reports and corporate social responsibility (CSR) reports published by A-share listed companies listed in 2021 or earlier.

Methodology

A distinctive corporate social responsibility indicator system is used that combines Chinese and international methodologies, ESG reporting guidelines from authoritative bodies, key societal concerns in China, and big data technology.

Data sources

Most data used in the study was derived from digital ESG reports, CSR reports, and the annual reports of listed companies published on cninfo.com.cn. Other sources include the ESG Database, Internal Control Database, Green Patent Database, and Environmental Governance Database of the Chinese Research Data Services Platform (CNRDS); the Basic Information of Listed Companies, Actual Controllers of Listed Companies, and CSI Industry Classification sections of the WIND database; and relevant news stories from Baidu and the Genius Finance database.

Data processing

A range of big data techniques was used to derive the indicators in this study, including data collection, data cleaning, data mining, and data cross comparison. Data was also manually corrected where necessary:

(1) Data collection: Big data techniques were used to collect large amounts of raw data from the websites of companies and regulatory authorities, as well as popular search engines;

(2) Data cleaning: Data was cleansed according to predefined rules to correct errors and eliminate duplicates and outliers for consistency;

(3) Data matching: The required information was precisely matched from a large number of social responsibility reports, news reports, and announcements;

(4) Data mining and visualization: Manual processing and machine learning techniques were combined to extract and mine information from vast quantities of data and visualize relevant findings.

Changes in the study from previous years

The 2022 Study on the ESG Reports of A-share Listed Companies is an extended and upgraded version of our previous annual reports, formerly entitled “Study on the CSR Reports of A-share Listed Companies”. In addition to the CSR reports of A-listed companies, the scope of the study has been expanded to include these companies' ESG reports.

To extend the study, we adapted our original indicator system to cover three main dimensions, namely environmental, social, and governance (ESG), under which there are two, three, and three topics, respectively; each topic features 4–9 sub-indicators, for a total of 50.

For industry classification, the study has transitioned from using its own custom industry classification to the CSI Industry Classification, which is consistent with the Global Industry Classification Standard (GICS), an internationally recognized standard. The GICS was developed in 1999 by Standard and Poor's (S&P) and Morgan Stanley Capital International (MSCI). It is used by most international index companies to classify industries and is also widely used by investors, analysts and economists for analysis and comparison.

About the authors

Center for Wealth Management, CEIBS

Established with the approval of CEIBS, the CEIBS Center for Wealth Management (“The Center”) is committed to creating and sharing financial knowledge and promoting exploration and innovative research in the fields of finance and wealth management, while maintaining the highest academic and pedagogical standards. The Center endeavors to promote industry standardization and specialization and generate sustainable value for the world of finance. In addition, the Center prepares high-net-worth individuals and families, financial advisors, and wealth management professionals to be well-intended and responsible stakeholders, enabling people, capital, and society to be forces for good.

Please scan the QR code and follow our official account on WeChat to view the full study

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Abstract

ESG is an investment philosophy that focuses on corporate social responsibility, environmental protection, internal governance and sustainability, rather than just financial metrics. ESG investing seeks to integrate environmental, social, governance, and other external factors into a company's internal business management processes, thereby facilitating sustainable business growth, fulfilling corporate social responsibility, and creating greater corporate value. ESG shares the same ultimate goal as CSR, which we explored earlier – that companies can achieve long-term sustainable growth while creating value for shareholders and other stakeholders.

However, ESG and CSR also have several differences. First, they have different target audiences. CSR is more public oriented and communicated through public relations, whereas ESG is primarily geared toward capital markets, and has professional rating and assessment systems that provide clear definitions and requirements for fulfilling CSR obligations, as well as consistent environmental, social, and governance standards. Second, they have different perspectives. CSR takes the perspective of business management and is influenced by the independent decisions of business leaders, while ESG takes the perspective of capital market investors and focuses on the relationship between corporate social performance and shareholder returns, which in turn impacts business management. Third, they are applied to different scenarios. CSR is mainly applied to responsible business practices, i.e. how to be a good corporate citizen, which indirectly includes corporate governance, while ESG is mainly applied to capital markets, which explicitly includes corporate governance and focuses on how companies and investors integrate environmental, social, and governance issues into their business models. In short, ESG has a broader definition and scope than CSR, and can be seen as an upgraded version of CSR. Therefore, starting this year, we have expanded the focus of this study from the CSR performance of listed companies to their ESG performance.

ESG and CSR reports, both of which contain important non-financial information, are tools for listed companies to communicate their sustainable development capabilities to the outside world. In most developed Western capital markets, investors include CSR and ESG reporting in their valuation models. Building on previous years' research, we have expanded the scope of our study to include both CSR and ESG reporting of A-share listed companies. As only 146 A-share listed companies provided ESG disclosures in 2021, which is too small a sample size, CSR reports form the primary basis for this study, while ESG reports are used for additional data where available.

Overall, A-share listed companies further improved their ESG disclosure practices in 2021 compared to the previous year. In 2021, a total of 1,343 A-share listed companies published CSR reports, 237 more than the previous year. By sector, manufacturing had the most disclosing companies, while the financial sector had the highest disclosure rate; by region, east China had the most disclosing companies, while central and western regions had higher disclosure rates; by business type, the disclosure rate of non-SOEs increased significantly, accounting for more than half of the total; by board, a total of 77 companies on the STAR board disclosed CSR reports in 2021, 3.7 times higher than in the previous year.

Following the inclusion of ESG reporting in the study, we have also expanded the CSR analysis system we have developed over the years to include three main indicators, namely environmental, social, and governance, under which there are two, three, and three topics, respectively; each topic features 4–9 sub-indicators, for a total of 50. The study made the following key findings:

Environmental

(1) In terms of environmental management, 583 companies achieved the Environmental Management Systems (EMS) standard (ISO14001), an increase of 160 or 37.8% over the previous year. More than half of the companies disclosed their participation in environmental protection and public welfare activities.

(2) Driven by China's national commitments to peak carbon dioxide emissions by 2030 and achieve carbon neutrality by 2060 (referred to as the “30-60” targets), companies in the sample increased their disclosure of energy-saving and emission reduction activities and actively participated in the circular economy.

Social

(3) Nearly 70% of companies adopted measures to improve the quality of their products and services, and nearly 70% of companies received quality awards or certification, all of which represented significant increases over the previous year. A total of 231,882 patents were disclosed, representing a rapid growth rate, while R&D expenditure increased by 35% over the previous year.

(4) In terms of employee wellness, 968 companies disclosed their remuneration incentives, representing a significant increase from the previous year. A total of 1,155 companies disclosed their supplementary benefits for employees, an increase of more than 200 companies from the previous year. Meanwhile, 1,235 companies disclosed their provision of on-the-job training for employees, 200 more than the previous year.

(5) In terms of charitable activities, 1,156 companies disclosed their engagement in social welfare programs, up 200 from the previous year. Total donations stood at RMB 14.1 billion, an increase of RMB 2 billion from the previous year.

Governance

(6) In terms of CSR management, more than three-quarters of companies published ESG or CSR columns on their websites; 96% of the companies provided in-house education and training on ESG. The number of companies with dedicated ESG leadership and management structures increased by nearly 400 from the previous year.

(7) In terms of company operations and management, accounting irregularities and financing disputes fell sharply from the previous year to new all-time lows.

(8) In terms of diversity and equal opportunities, 872 companies disclosed that they had at least one female executive, an increase of 154 from the previous year. 416 companies emphasized equal opportunity in the hiring process, an increase of 106 from the previous year.

In sum, in 2021, the 1,343 reporting A-share listed companies recorded a weighted average score of 50.84 (out of 100) and median of 51.8 for all ESG indicators, an increase of 1.15 points or 2.3% from the previous year. Based on 2017–2021 data, the score is showing an upward trend.

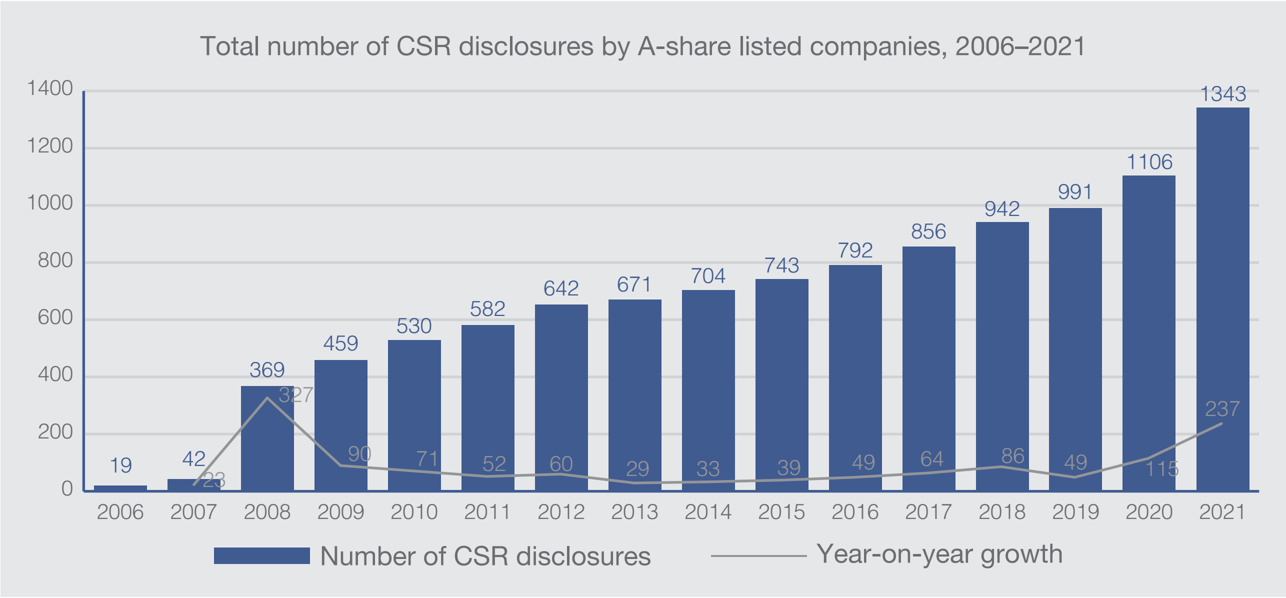
To measure the economic value of ESG disclosures, we compared the composite and component scores of the reporting companies, divided them equally into five groups in order of rank, took about one fifth of the individual stocks in each group, and then counted the weighted returns by group. It is assumed that we buy this portfolio on the first trading day of May and sell it on the last trading day of the year. The five groups ranked by their composite ESG score recorded an increase in weighted average returns of 12.32%, 8.02%, 6.93%, 5.03%, and 4.19% in 2022, respectively, showing a step-like progression, while the top fifth had an excess return of 8.13% relative to the bottom fifth.

In addition, this study also includes ESG-related statistics for companies in the consumer sectors (including both consumer staples and discretionary). According to the GICS, the consumer staples sector can be further divided into three subsectors: food & staples retailing; food, beverage & tobacco; and household & personal products. The consumer discretionary sector consists of four subsectors: automobiles & components; consumer durables & apparel; consumer services; and retailing.

In 2021, 79 listed companies in the consumer staples sector and 143 in the consumer discretionary sector reported on CSR or ESG, representing 31.9% and 24.7% of the total number of listed companies in the sector, respectively. The 222 consumer companies achieved a weighted score of 50.55 (out of 100), slightly lower than that of all the 1,343 listed companies. The 143 consumer discretionary companies outperformed the 79 consumer staples companies, with weighted scores of 51.46 and 48.87 respectively.

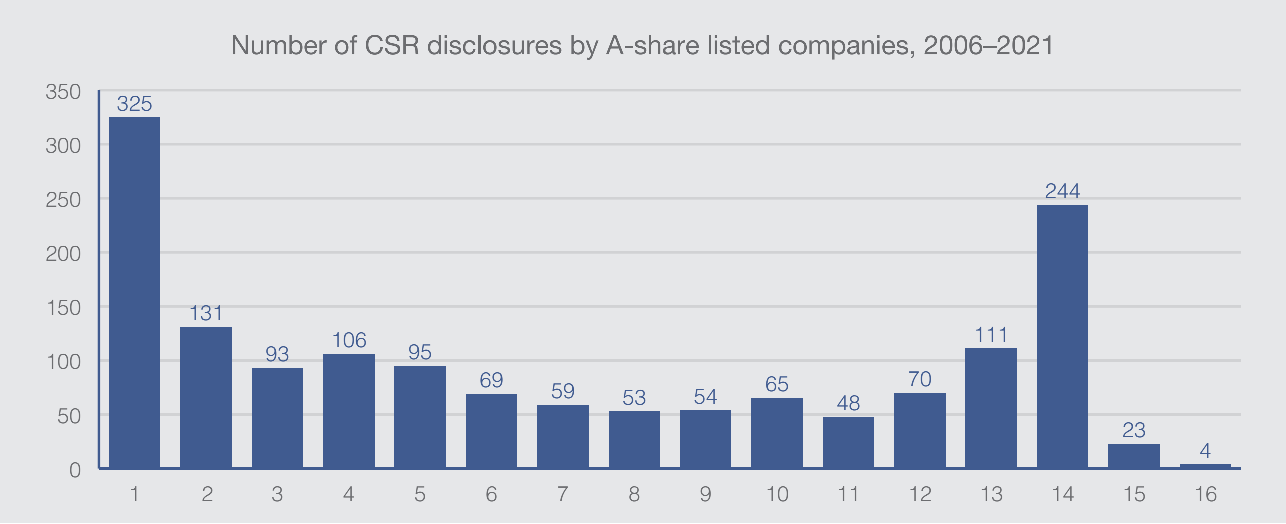
Overview of ESG disclosures by A-share listed companies

Total disclosures: ESG disclosures by A-share companies keep growing steadily. In 2021, the number of companies that disclosed CSR reports reached 1,343 or 29.18% of the total, recording triple-digit growth over 2020. Despite achieving an average disclosure rate of 26.67% for the five years from 2017 to 2021, there is still considerable room for future growth.



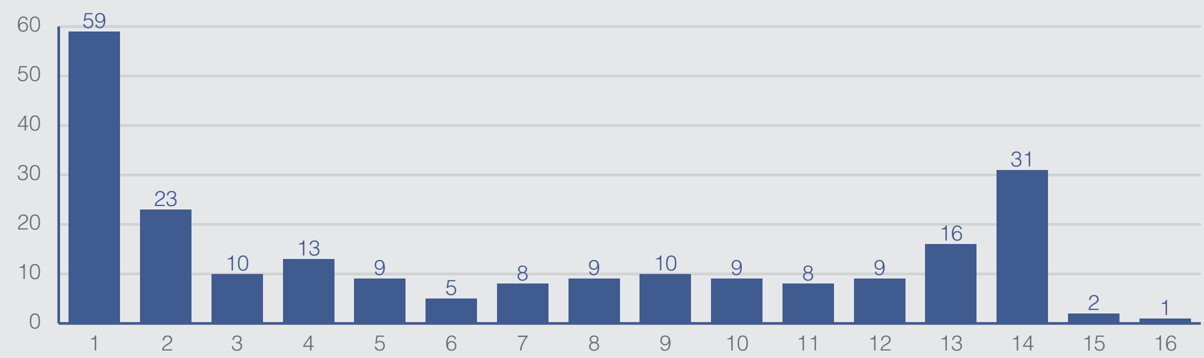
During the 16 years from 2006 to 2021, the number of companies that made CSR disclosures rose steadily. In 2021, a total of 1,343 A-share listed companies made CSR disclosures, which is 21.4% or 237 more than the previous year, representing the largest single-year increase since 2008 and the highest growth rate in the past ten years. Between 2017 and 2021, on average, 26.67% of A-share listed companies made CSR disclosures each year, and the disclosure rate in 2021 reached 29.18%. This shows that there is still considerable room for improvement in overall disclosure rates.

Per-company disclosure count: Owing to a sharp increase in the number of companies that made CSR or ESG disclosures in 2021, companies that only disclosed once between 2006 and 2021 were the most numerous, at 325 or 20.97% of the total. Second most numerous were companies with 14 disclosures, of which there were 244, accounting for 15.74% of all companies. There were only four companies that disclosed CSR reports every year. The per-company disclosure count showed a u-shaped distribution when plotted on a chart. The total number of disclosures in 2021 was higher than the previous year, indicating that A-share listed companies are increasingly aware of and paying more attention to CSR.



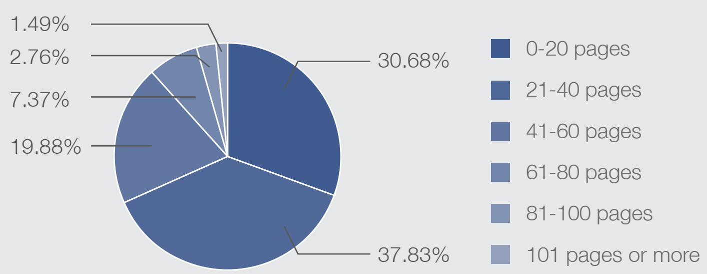
Between 2006 and 2021, CSR disclosures by companies in the consumer sector showed a similar distribution to those in other sectors. 59 companies had disclosed once, representing the highest percentage, followed by 31 companies that had disclosed 14 times; one company (Gree Electric) disclosed CSR reports every year.

Number of CSR disclosures by A-share listed companies in the consumer sector, 2006–2021



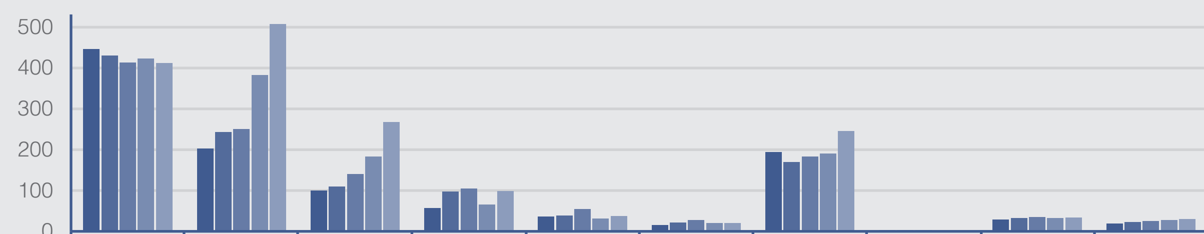
Length of CSR reports: In 2021, nearly 70% of the CSR reports disclosed by A-share listed companies were no more than 40 pages long. There was also a larger gap between the shortest and longest page counts than in previous years.

Length of CSR reports by A-share listed companies, 2021



In 2021, the shortest CSR report disclosed by the 1,343 reporting companies was one-page long, while the longest was 246 pages, a gap of 245 pages. The average report length was 34.2 pages and the median 30, a slight increase from previous years. 30.68% of the reports were between 0 and 20 pages, while 37.83% totaled 21–40 pages, together accounting for 68.51% of the total. 31.49% were over 61 pages long, of which 2.76% and 1.49% were over 80 and 100 pages, respectively. After reading through the CSR reports, we discovered that those with fewer than 20 pages featured mainly descriptive language and were narrower in scope. In contrast, those ranging between 21 and 100 pages were more detailed, better structured, and featured a more appealing visual design.

Length of CSR reports by A-share listed companies, 2017–2021

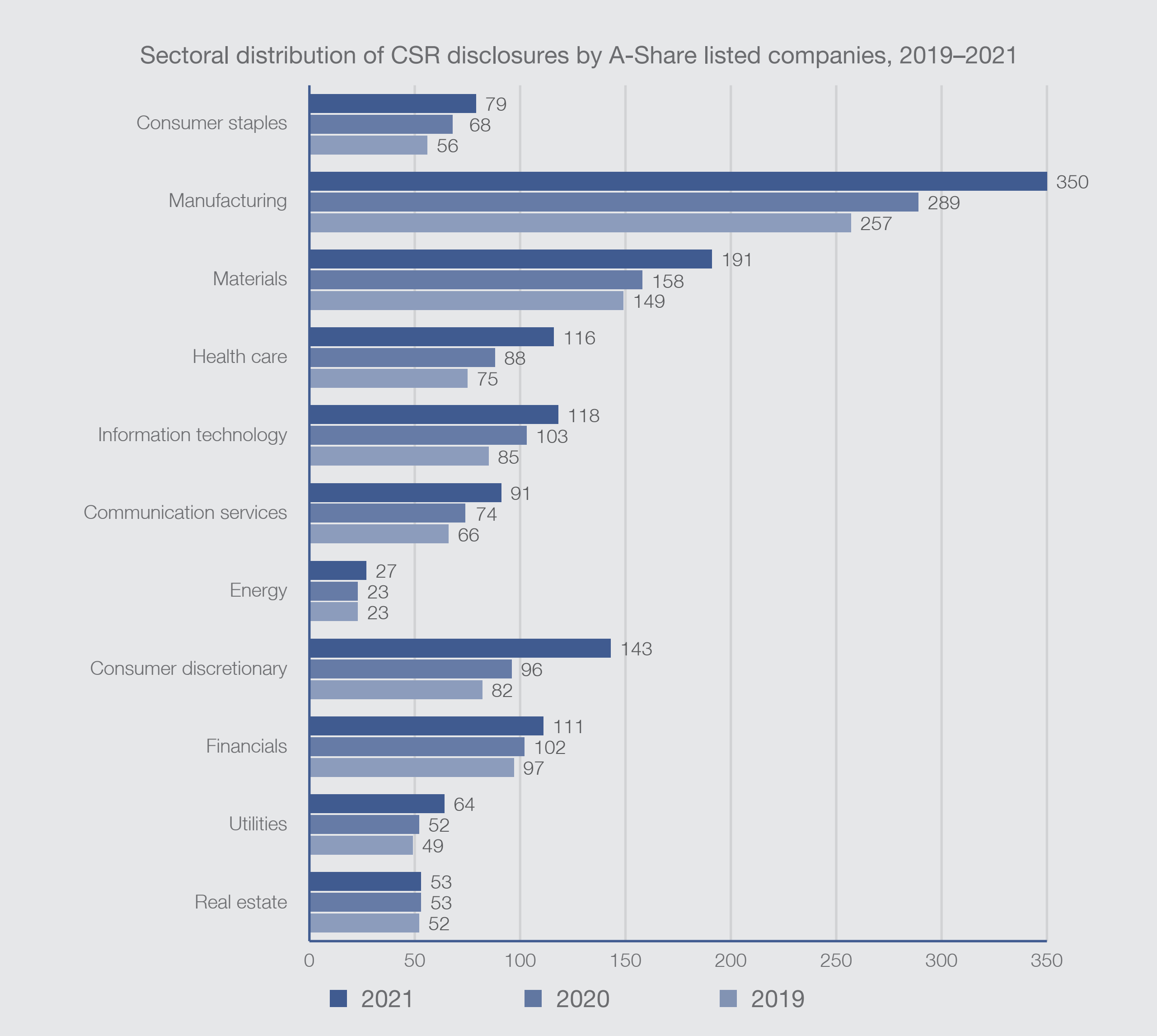


	0-20 pages	21-40 pages	41-60 pages	61-80 pages	81-100 pages	101 pages and above	Most pages	Least pages	Average page count	Median
2017	446	203	100	57	36	15	194	3	29.2	19
2018	430	243	109	97	39	22	170	3	32.4	23
2019	413	251	140	105	55	28	183	3	35.3	25
2020	423	383	183	66	31	20	191	1	32	27
2021	412	508	267	99	37	20	246	1	34.2	30

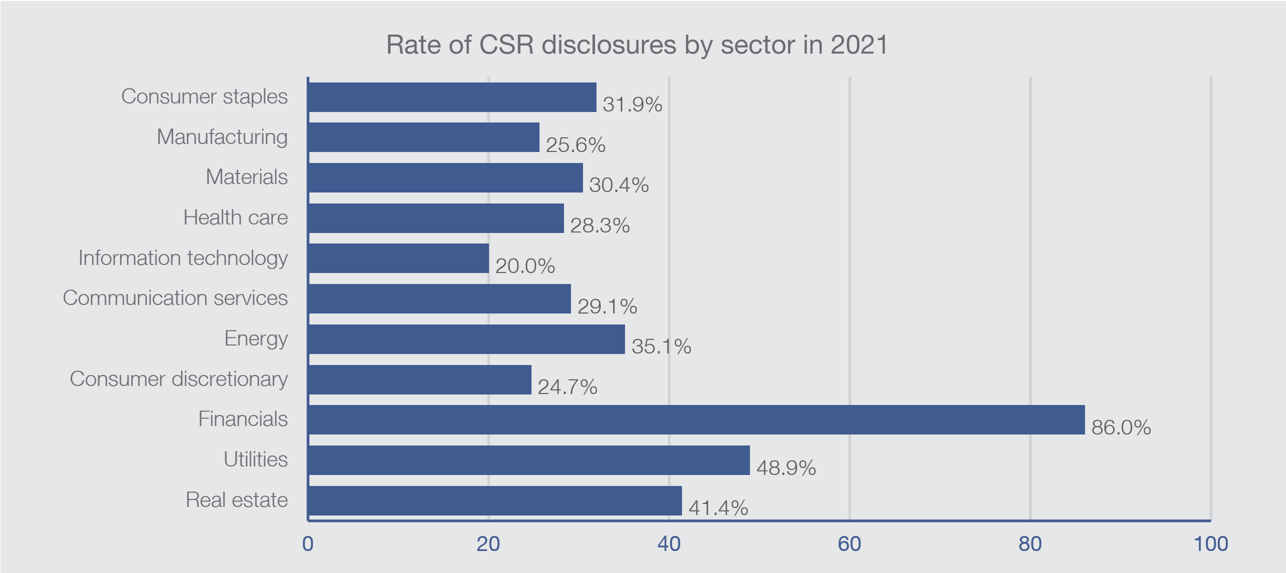
From 2017–2021, there were between 400 and 450 reports of 0–20 pages in length; the number of reports with 21–40 or 41–60 pages increased every year, with a sharp uptick in 2021; and the number of reports with 61–80, 81–100, or over 101 pages increased more moderately. Over the same period, the median number of pages trended upward significantly, suggesting that A-share listed companies were attaching greater importance to CSR reports.

Analysis of CSR reporting companies in 2021

I. Sectoral distribution of reporting companies: All sectors showed a significant upward trend in the number of annual CSR disclosures between 2019 and 2021. In 2021, only the real estate sector saw the same number of disclosures as the previous year, while all other sectors saw positive growth, with the most disclosures in the manufacturing sector at 350 and the highest percentage of disclosures in the financial sector at 86%.

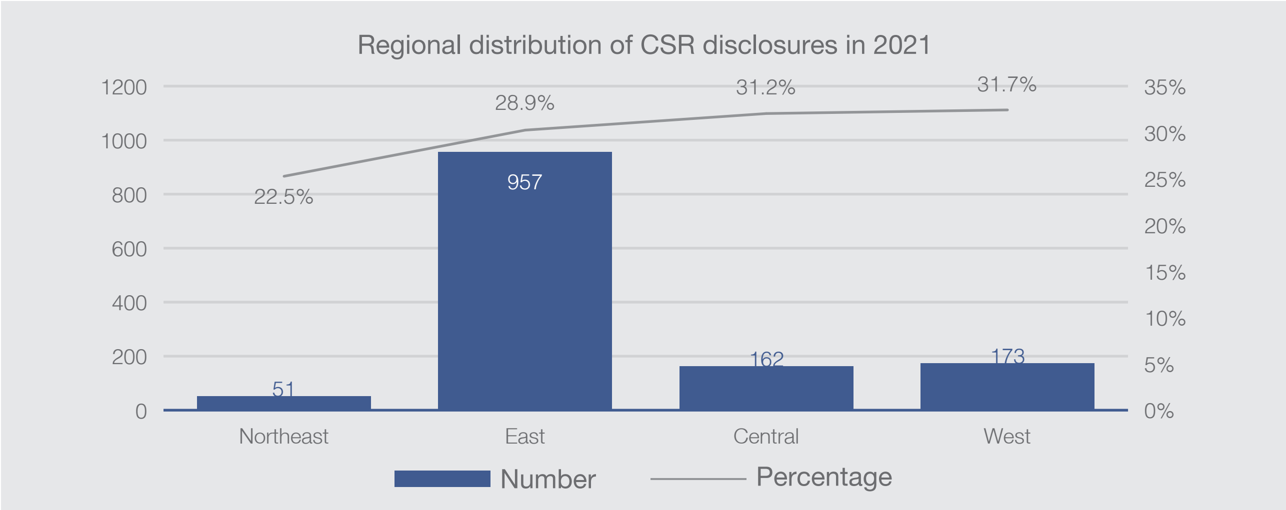


In 2021, the manufacturing sector had the most CSR disclosures at 350, up 61 from the previous year. The largest increase came from the consumer discretionary sector, with a total of 143 disclosures, an increase of 47 disclosures or 49% over the previous year. All sectors recorded an average of 122 reports, up 22 from the previous year.



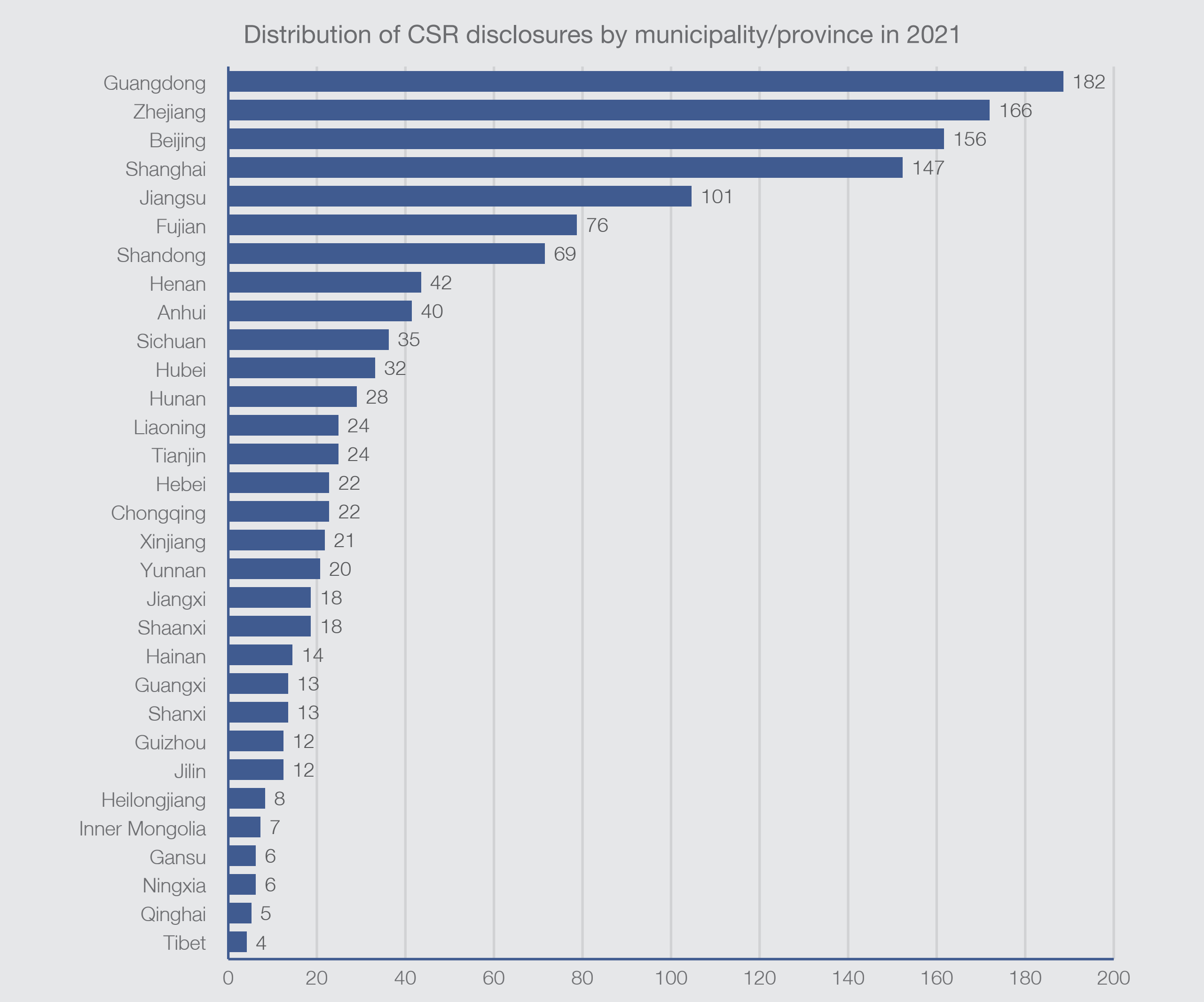
The manufacturing sector made the most disclosures in absolute terms, but the disclosure rate was low, at just 25.6%. The financial sector, which only produced 11 reports, boasted the highest disclosure rate at 86%, largely due to mandatory disclosure requirements from regulatory agencies. The utilities and real estate sectors had the second and third-highest disclosure rates at 48.9% and 41.4%, respectively.

II. Regional distribution of companies: There were slight regional differences in disclosure rates among reporting companies, with west China taking the lead, followed by central and then east China, and a lower rate in northeast China.



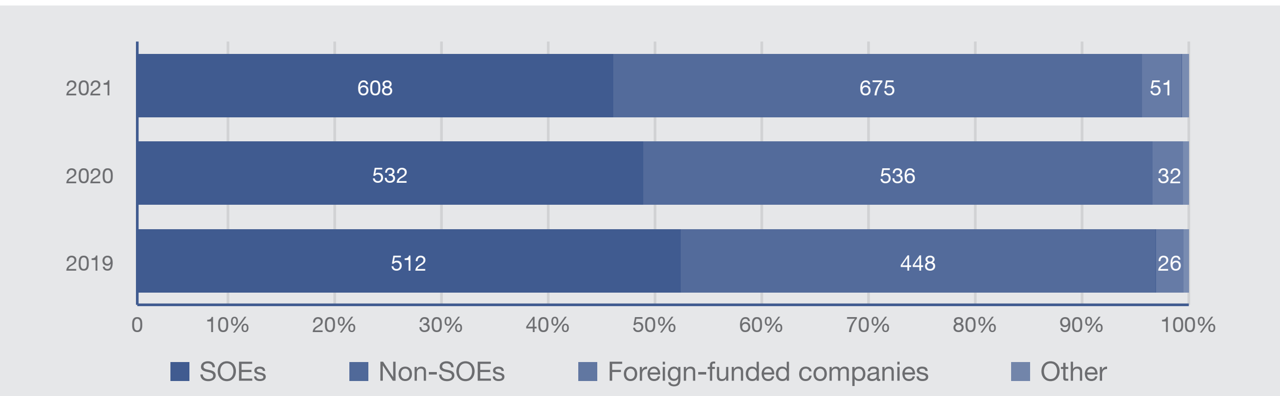
East China recorded the highest total number of CSR disclosures in 2021, accounting for 71.3% of the total that year and far more than in central, west, and northeast China. All regions saw positive growth in the number of companies with CSR disclosures, with the fastest growth in west China at 32.1% and the slowest growth in central China at 6.6%. Disclosure rates varied by region, with the highest in west China at 31.7%, followed by central (31.2%), east (28.9%), and then northeast China (22.5%).

III. Distribution of companies by municipality/city: Guangdong, Zhejiang, Beijing, Shanghai, and Jiangsu had the highest concentration of disclosing companies, each with more than 100 disclosing companies. The overall number of disclosures increased across all localities.



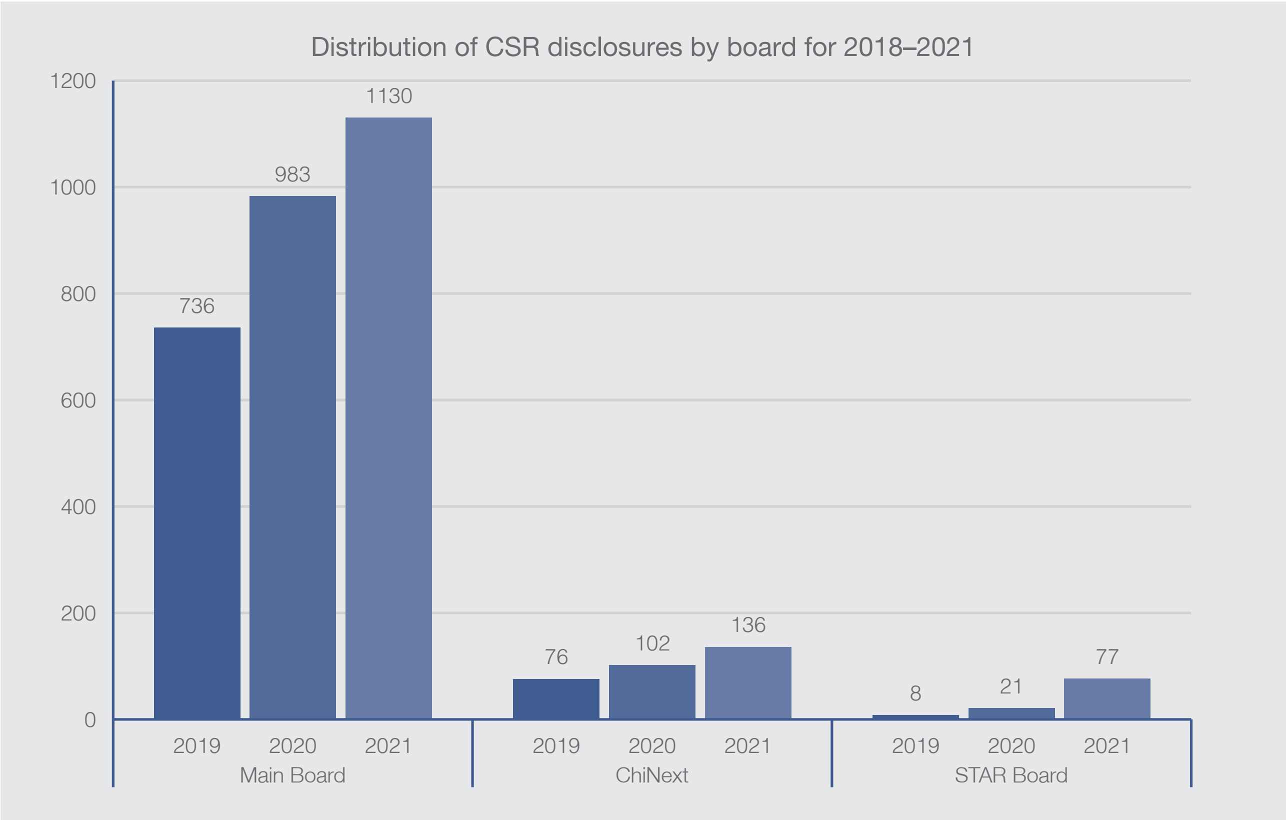
In 2021, the majority of municipalities or provinces in China (excluding two provinces that remained unchanged from 2020) saw an increase in the number of CSR reports disclosed by A-share companies on the previous year, with Zhejiang leading the way with an increase of 48 reports. Guangdong, Zhejiang, Beijing, Shanghai, and Jiangsu topped the list in 2021, with 182 reports recorded in Guangdong, 166 in Zhejiang, 156 in Beijing, 147 in Shanghai, and 101 in Jiangsu. Zhejiang jumped to the top of the ranking from fourth place in the previous year.

IV. Distribution of companies by business type: The share of reporting non-SOEs rose steadily, accounting for more than half of the total.



Of the 1,343 CSR reports published in 2021, 608 reports, or 45.27%, were from SOEs (including both central and local SOEs), an increase of 76 from the previous year; 675 reports, or 50.26%, were from non-SOEs, an increase of 139 from the previous year; 51 reports, or 3.8%, were filed by foreign-funded companies. Statistics from 2019–2021 show that the share of reports from SOEs continued to decline while that of non-SOEs increased.

V. Distribution of companies by board: In 2021, Main Board listed companies made the most CSR disclosures, accounting for more than 80% of the total; STAR Board listed companies saw the sharpest rise in disclosures, which increased 3.6 times faster than in the previous year.



Of the 1,343 CSR reports released by A-share listed companies in 2021, 1,130 or more than 80% were from Main Board listed companies. From 2019 to 2021, the share of reports by Main Board and ChiNext listed companies both trended upward. Specifically, 147 more CSR reports were disclosed by Main Board listed companies, up 15% from the previous year. A total of 136 CSR reports were disclosed by ChiNext listed companies, 34 or 33.3% more than the previous year. It is also notable that the STAR board, which was launched in July 2019, disclosed 8 CSR reports in 2019, 21 in 2020, and 77 in 2021, growing at an average annual rate of over 200%, and showing considerable promise for the future.

Analysis of ESG research indicators in 2021

The 2022 Study on the ESG Reports of A-share Listed Companies is an extended and upgraded version of our previous annual reports, formerly entitled “Study on the CSR Reports of A-share Listed Companies”. For the new version, we adapted our original indicator system to cover three main dimensions, namely environmental, social, and governance, which each comprise several topics. The environmental topics are (1) environmental management and (2) energy conservation and emission reduction; the social topics are (3) product quality and innovation, (4) employee wellness, and (5) social contributions and charity; and the governance topics are (6) information disclosure and management, (7) company management, and (8) diversity and equal opportunity. Each topic features 4–9 sub indicators.

ESG research indicator system

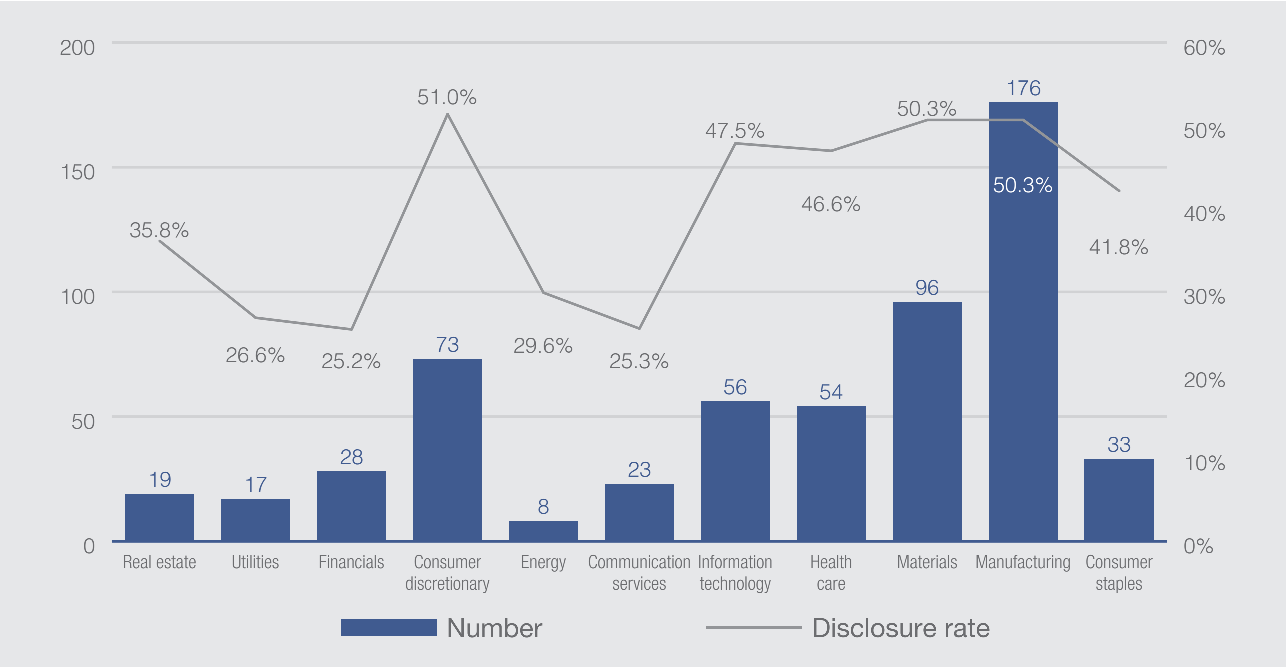
Environmental (E)	A. Environmental management	(1) environmental benefits (2) environmental certification (condensed) (3) environmental protection and public welfare (condensed)	(4) environmental commendations (5) environmental penalties
	B. Energy conservation and emission reduction	(1) energy conservation (2) reduction of three types of waste (condensed)	(3) the circular economy (condensed) (4) the green office
Social (S)	C. Product quality and innovation	(1) quality management (2) quality reputation (3) after-sale services (condensed) (4) customer satisfaction (condensed)	(5) patents (condensed) (6) R&D expenditure (condensed) (7) share of R&D personnel (8) share of technical personnel
	D. Employee wellness	(1) remuneration incentives (condensed) (2) supplementary benefits (condensed) (3) on-the-job training (condensed) (4) communication with employees (5) staff care	(6) safety management system (7) training on production safety (8) occupational health and safety certification (9) disputes over staff health and safety
	E. Social contributions and charity	(1) donations (condensed) (2) social contribution value per share (3) contribution to education (4) charitable activities (5) volunteering	(6) international aid (7) job creation (condensed) (8) contribution to economic growth (condensed) (9) layoffs
Governance (G)	F. Information disclosure and management	(1) CSR report reliability (2) CSR report comprehensiveness (3) ESG website columns (condensed)	(4) ESG education and training (condensed) (5) ESG leadership teams (condensed)
	G. Operations and management	(1) strategic cooperation and sharing (2) anti-bribery and anti-corruption (3) business integrity	(4) accounting irregularities (condensed) (5) financing disputes (condensed)
	H. Diversity and equal opportunities	(1) female executives (condensed) (2) female directors (3) all-male directors, supervisors, and executives	(4) vulnerable groups (5) equal opportunities (condensed)

Note: Sub-indicators marked with “condensed” are presented in the condensed version of the study; for all other sub-indicators, please refer to the full study.

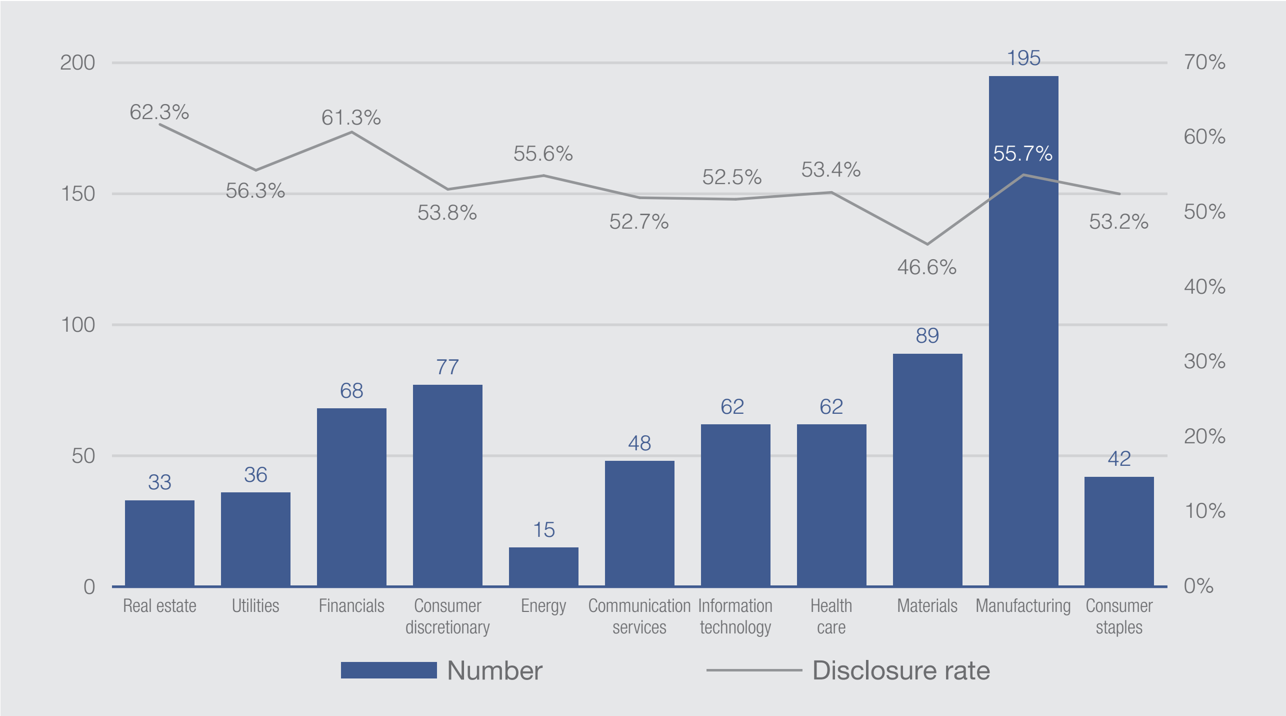
I. The environmental dimension

Environmental management

This topic features five sub-indicators: (1) environmental benefits, (2) environmental certification, (3) environmental protection and public welfare, (4) environmental commendations, and (5) environmental penalties.



(2) Environmental certification: In 2021, a total of 583 (approx. 43.4%) companies disclosed that they had achieved the Environmental Management Systems (EMS) standard, (ISO14001), up by 160 or 37.8% from the previous year. Of these, the manufacturing sector had the most disclosing companies and a high disclosure rate, at 176 and 50.3% respectively. The consumer discretionary sector ranked first in terms of disclosure rate (51.0%), while the consumer staples sector placed somewhere in the middle (41.8%).



(3) Environmental protection and public welfare: In 2021, a total of 727 (54.1%) of companies disclosed their participation in environmental public welfare activities, such as planting trees and cleaning up garbage. This represents an increase of 108 companies from the previous year, indicating that companies' awareness of environmental public welfare has been strengthened. By sector, the real estate and financial sectors had a higher level of disclosure in environmental public welfare, at 62.3% and 61.3% respectively.

In terms of consumer sectors, the disclosure rates for the consumer discretionary sector and consumer staples sector were 53.8% and 55.7% respectively, both ranking in the middle of the pack.

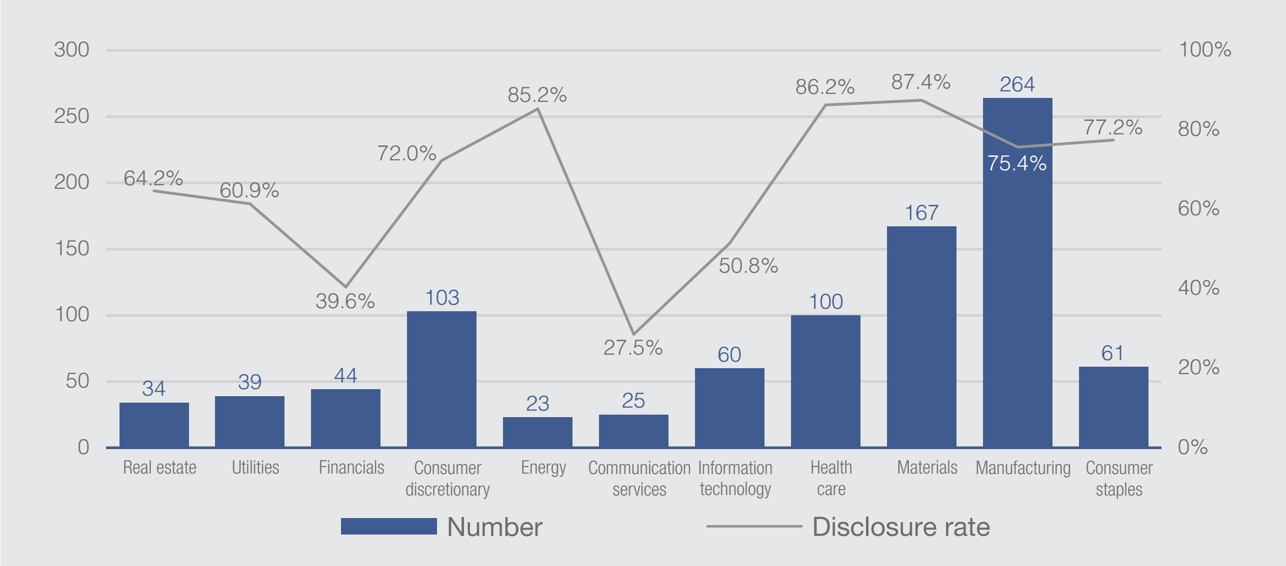
Environmental management summary

Human activities cause irreversible harm to the environment and key resources. If left unchecked, our current actions could pose a significant threat to the future of humanity, the planet, and nature. To counter this threat, we must urgently make fundamental changes. In the Report to the 20th National Congress of the Communist Party of China, Jinping Xi called for upgrades to environmental infrastructure; the improvement of urban and rural living environments; comprehensive implementation of a permit system for discharging pollution; the modernization of environmental governance systems; strict prevention and control of environmental risks; and the strengthening of central government environmental inspections.

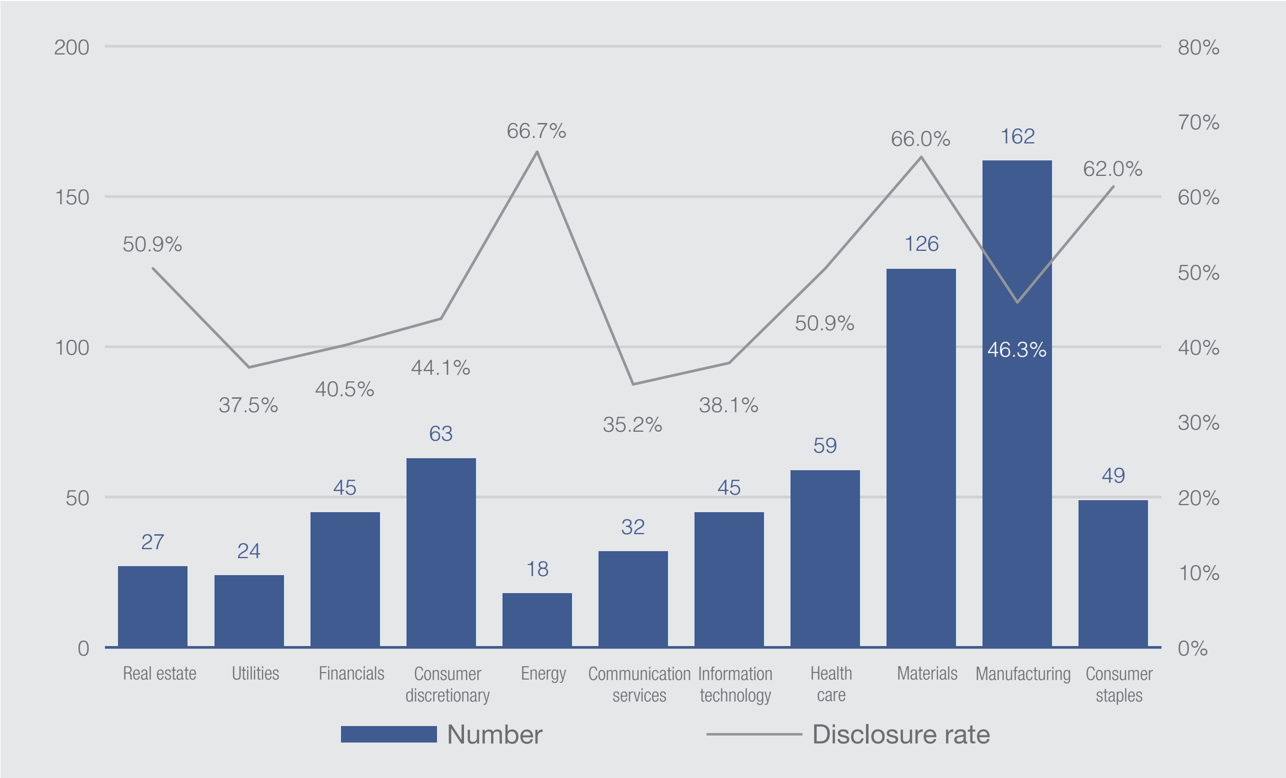
Measures have been taken by listed companies in the sample to tackle the above-mentioned issues. Specifically, 48.3% of companies have developed or used environmentally beneficial products, equipment, or technologies; 43.3% have been certified to ISO 14001 for their environmental management systems; and 54.1% have participated in environmental public welfare activities. In 2021, a total of 341 companies received recognition for their environmental achievements while 13 received environmental penalties. Corporate investment in environmental protection continues to grow, indicating enhanced environmental awareness among A-share listed companies. If companies can sustain or continue to increase their investment in environmental management and make it part of their corporate social responsibility strategy, they will improve their corporate value, brand image, and competitiveness in the long run.

Energy conservation and emission reduction

This topic includes 4 sub-indicators: (1) energy conservation, (2) reduction of three types of waste, (3) the circular economy, and (4) the green office.



(2) Reduction of three types of waste: In 2021, a total of 920 (approx. 68.5%) companies disclosed their policies and measures for reducing three types of waste (waste gas, waste water, and waste residue). The manufacturing sector had the most disclosures at 264, while the highest disclosure rates were in the materials (87.4%), healthcare (86.2%), and energy sectors (85.2%). In the consumer sector, consumer staples and consumer discretionary placed 4th and 5th, at 77.2% and 72.0%, respectively.



(3) The circular economy: This refers to the use of renewable energy or the adoption of other policies and measures relating to the circular economy in a company's daily operations. In 2021, about 48.4% of the 650 companies in the sample disclosed their attempts and initiatives in this area. By sector, manufacturing placed first on the list, with 162 companies that made disclosures. By disclosure rate, energy and materials headed the list at 66.7% and 66%, respectively. Consumer staples ranked third with a disclosure rate of 62.0%, while consumer discretionary ranked toward the middle of the pack with a disclosure rate of 44.1%.

Energy conservation and emission reduction summary

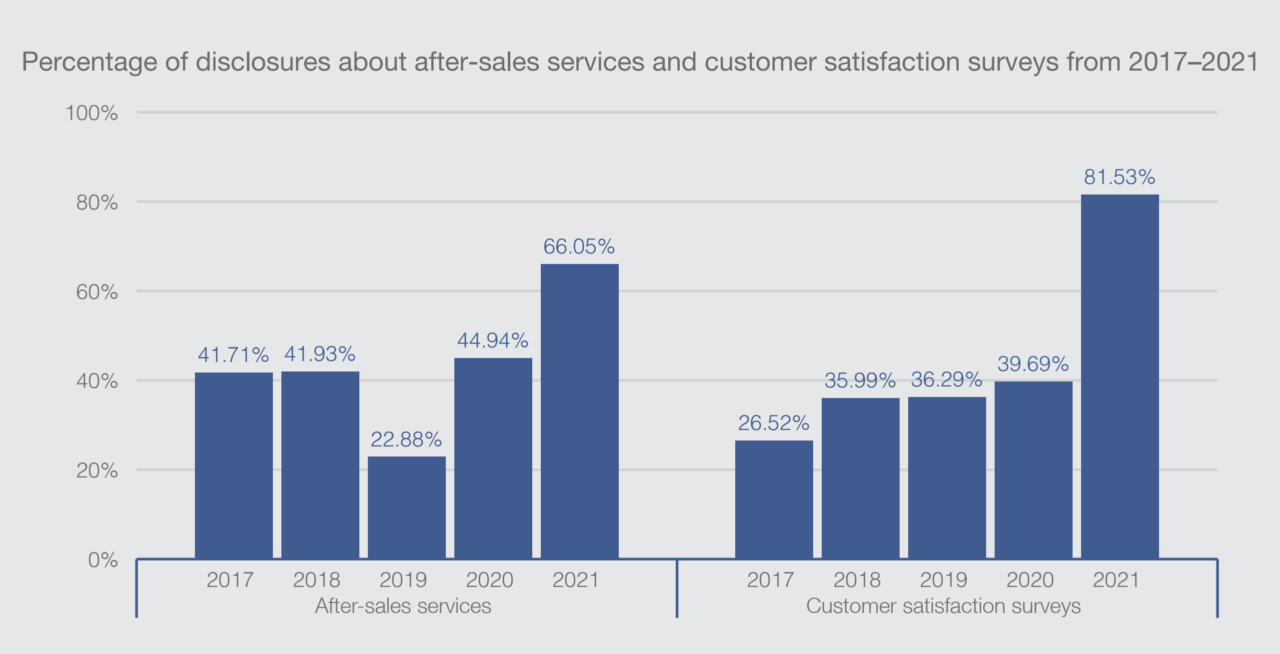
According to the 14th Five-Year Comprehensive Work Plan for Energy Saving and Emission Reduction, the Chinese government will implement and improve a system that aims to control both energy intensity and total energy consumption, while curbing emissions of major air pollutants. The government will implement key energy conservation and emission reduction projects and further enhance relevant policies and mechanisms to deliver significant improvements in energy utilization and continuous reductions in air pollution. These coordinated efforts will reduce energy consumption, carbon emissions, and pollution while continuing to improve the natural environment. This is conducive to meeting the energy conservation and emission reduction targets set out in the 14th Five-Year Plan, while laying a solid foundation for the achievement of the “30-60” goals.

As a major carbon-dioxide emitter, China has implemented a range of carbon peaking and carbon neutrality policies. In 2021, a significant uptick in environmental disclosures shows that A-share listed companies are increasing their investment in energy conservation and emission reduction. This indicates an increased awareness about these issues, which should provide a solid foundation for attaining the “30-60” goals.

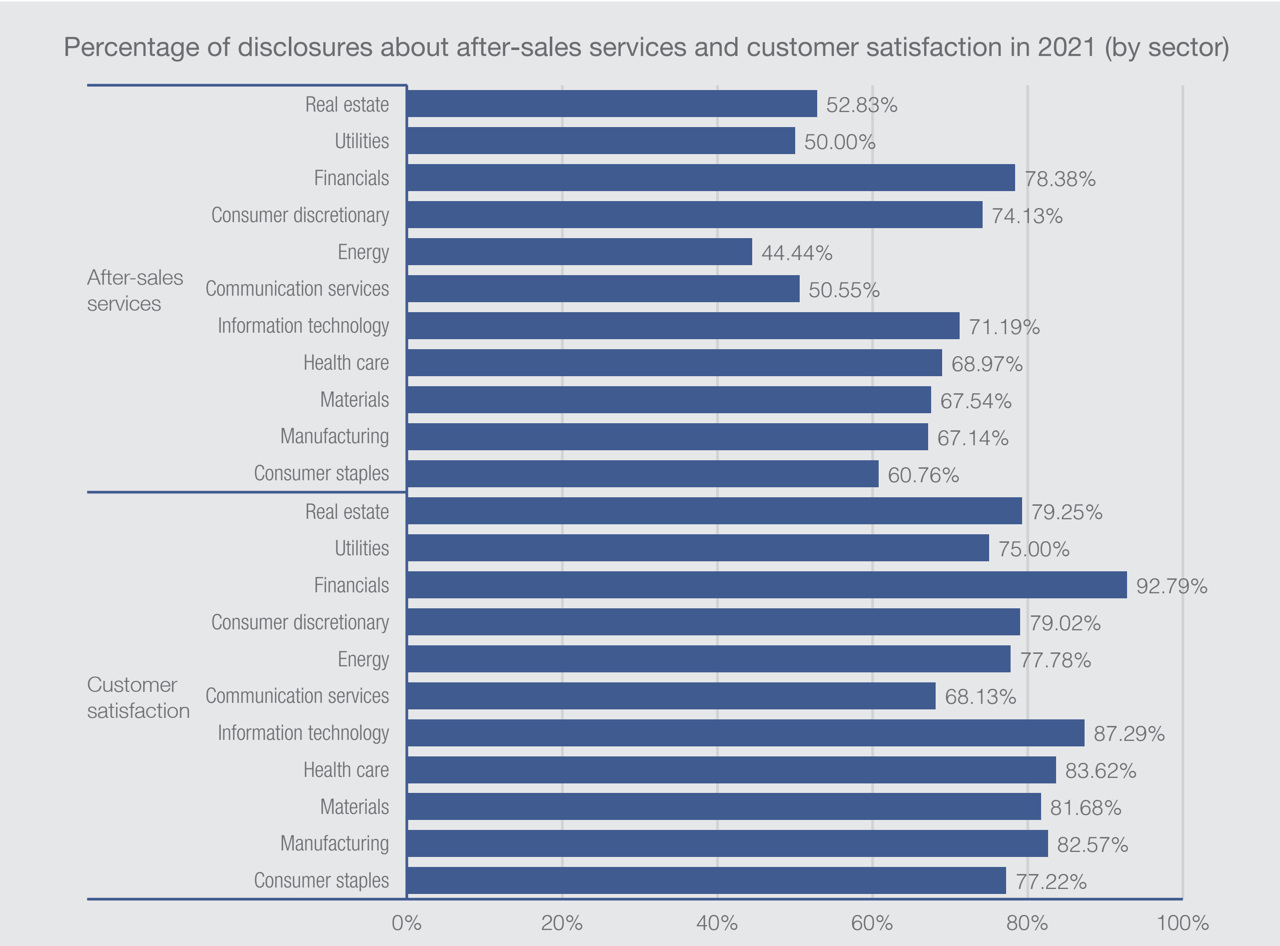
II. The social dimension

Product quality and innovation

This topic comprises 8 indicators: (1) quality management, (2) quality reputation, (3) after-sales services, (4) customer satisfaction, (5) patents, (6) R&D expenditure, (7) share of R&D personnel, and (8) share of technical personnel. By aggregating the above indicators, this topic evaluates the overall performance of A-share listed companies with respect to product development and services.

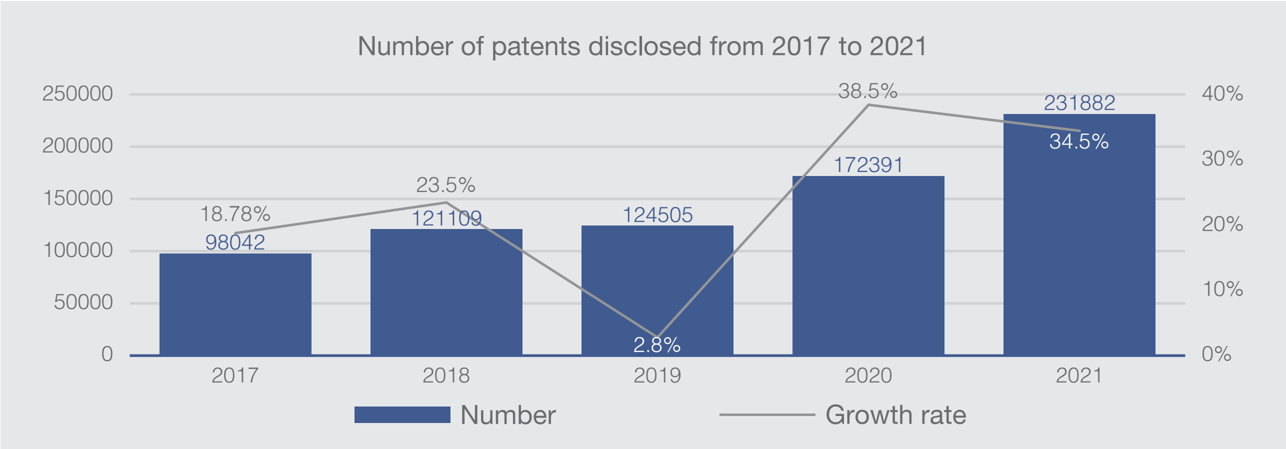


(3) After-sales services: Of the 1,343 reporting companies in 2021, 887 (66.05%) disclosed steps they had taken to improve after-sales services, an increase of 390 from the previous year. By sector, financials and consumer discretionary showed higher disclosure rates, at 78.38% and 74.13% respectively. In addition, the consumer staples industry (60.76%) ranked somewhere in the middle in this respect.



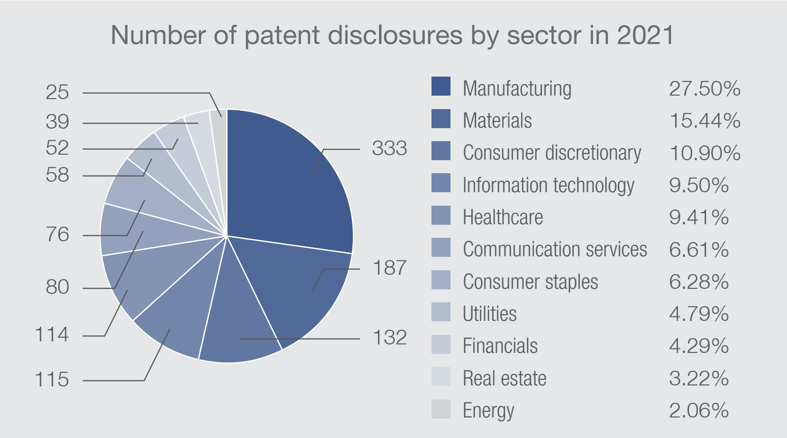
(4) Customer satisfaction: In 2021, 1,095 companies, or 81.53%, conducted customer satisfaction surveys, an increase of 656 companies or more than 100% year on year. By sector, the proportion of companies that conducted customer satisfaction surveys was generally high across industries, with communication services (68.13%) at the bottom of the list and financials (92.79%) at the top.

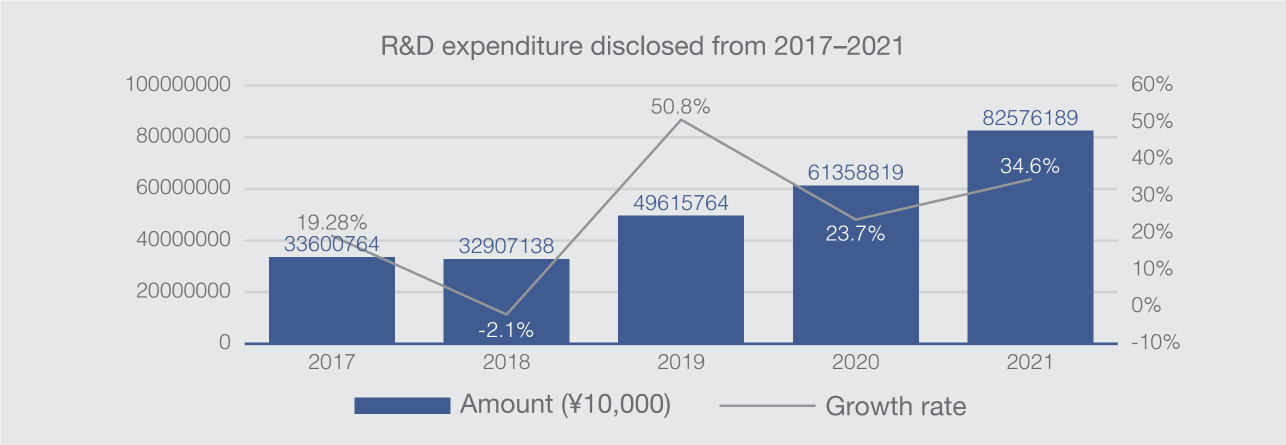
Consumer discretionary and consumer staples ranked somewhere in the middle in this respect, at 79.02% and 77.22% respectively.



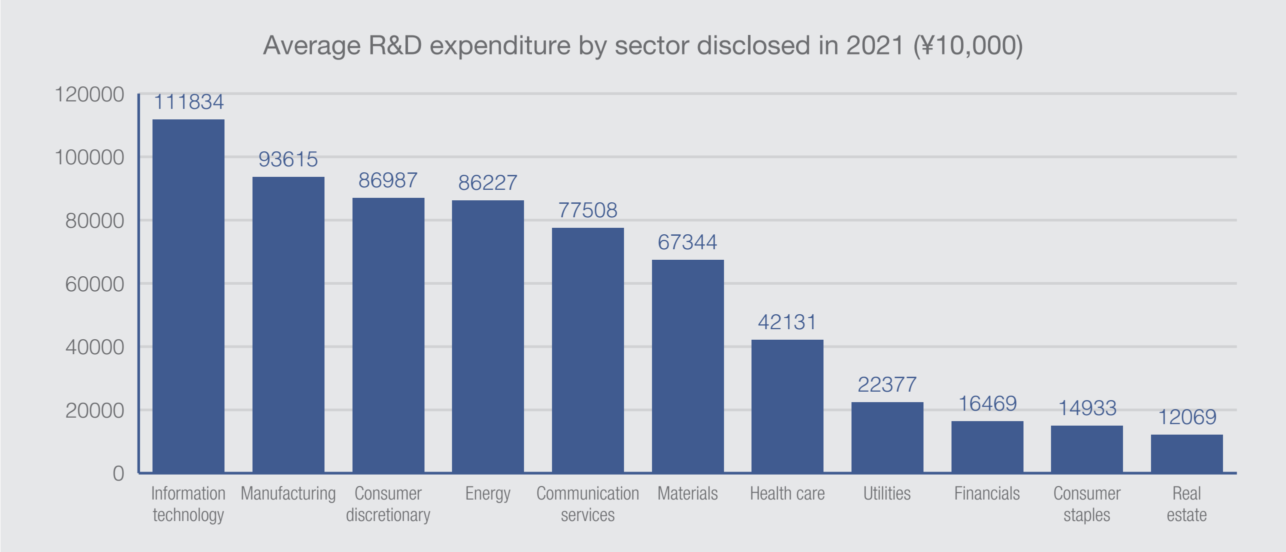
(5) Patents: Based on statistics from the past five years, the number of patents disclosed by A-share listed companies has risen notably. In 2021, a total of 231,882 patents were disclosed by A-share listed companies in CSR reporting, up by nearly 60,000, or 34.5%, over the previous year. This sustained growth can be attributed to incentive policies provided by the Chinese government and improved protection of intellectual property rights.

By sector, manufacturing had the highest disclosure count and rate, at 333 or 27.5%. This was followed by materials and consumer discretionary, at 15.4% and 10.9%, respectively. As for consumer staples, 96.2%, or 76 of a total 79 companies disclosed patents, placing the sector top in terms of disclosure rate.





(6) R&D expenditure: Based on available statistics, a total of RMB 825.8 billion in R&D expenditure was disclosed by A-share listed companies in 2021, up 34.6% from the previous year. Overall R&D expenditure rose between 2016 and 2020, with growth peaking between 2018 and 2019 at 50.78%, followed by 34.6% between 2020 and 2021.



By industry, in 2021, companies in the IT sector spent the most on R&D, to a tune of RMB 1.118 billion on average, making it the only sector exceeding 1 billion on the list. Second to IT were the manufacturing and consumer discretionary sectors, with an average investment of RMB 936 million and 870 million, respectively. By comparison, companies in the financials (RMB 165 million), consumer staples (RMB 149 million), and real estate (RMB 121 million) sectors spent less in this area.

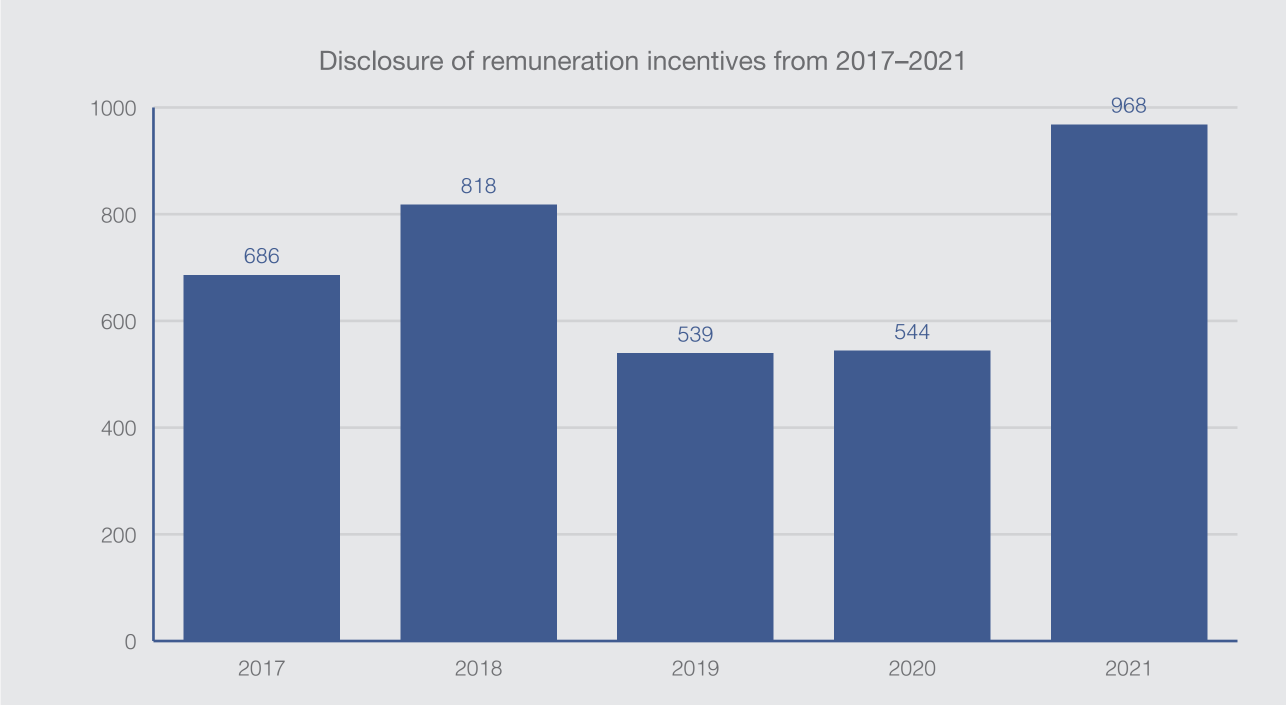
Product quality and innovation summary

In the Report to the 20th CPC National Congress of the Communist Party of China, Jinping Xi emphasized the need to accelerate implementation of an innovation-driven development strategy: "Setting our sights on the global frontiers of science and technology, national economic development, the major needs of the country, and the health and safety of the people, we should speed up efforts to achieve greater self-reliance and strength in science and technology. To meet China's strategic needs, we will concentrate resources on original and pioneering scientific and technological research to achieve breakthroughs in core technologies in key fields. In order to enhance China's innovation capacity, we will move faster to launch a number of major national projects that are of strategic, big-picture, and long-term importance. We will strengthen basic research, prioritize original innovation, and encourage researchers to engage in free exploration. To inspire greater creativity, we will invest more effectively in science and technology and advance reform of the mechanisms for the allocation and use of government research funds. We will promote closer enterprise-led collaboration between industries, universities, and research institutes, stay goal-oriented, and promote the industrial application of scientific and technological advances. We will reinforce the principal role of companies in innovation, give full play to the guiding and supporting role of key high-tech companies, create an enabling environment for the growth of micro, small, and medium sized technological companies, and promote deeper integration of the innovation, industrial, capital, and talent chains."

In 2021, sub-indicators for product quality assurance and innovation, such as the number of patents, R&D expenditure, the proportion of R&D staff, and the proportion of technical staff, rose across the board. This not only underscores the growing importance that A-share listed companies attach to product quality, but also reflects the transformation of China's manufacturing industry from traditional processing and manufacturing to more high-end, R&D-driven manufacturing.

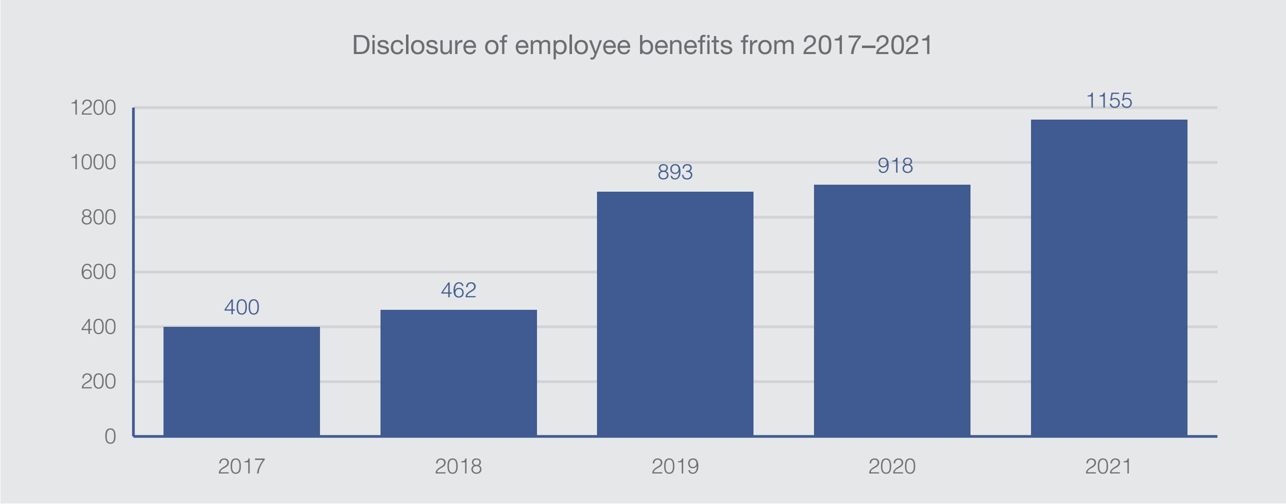
Employee wellness

This topic comprises nine sub-indicators: (1) remuneration incentives, (2) supplementary benefits, (3) on-the-job training, (4) communication with employees, (5) staff care, (6) safety management systems, (7) training on production safety, (8) occupational health and safety certification, and (9) disputes over staff health and safety.

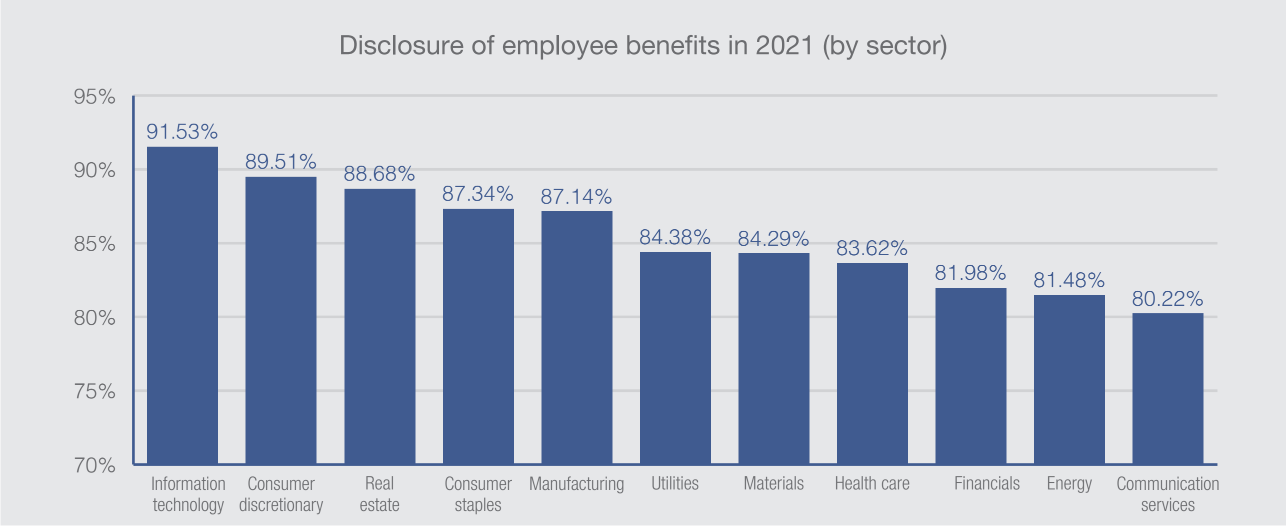


(1) Remuneration incentives: In 2021, a total of 968 A-share listed companies disclosed their remuneration incentives, such as encouraging employees to hold company equity, share in earnings, share financial information, or participate in management decision-making through stock options. These 968 companies accounted for 72.1% of all disclosed companies, a sharp jump from the previous year both in absolute and percentage terms. In the past five years, the number of A-share listed companies that disclosed remuneration incentives initially declined between 2019 and 2020, before later rebounding, achieving an average growth rate of approximately 25%.

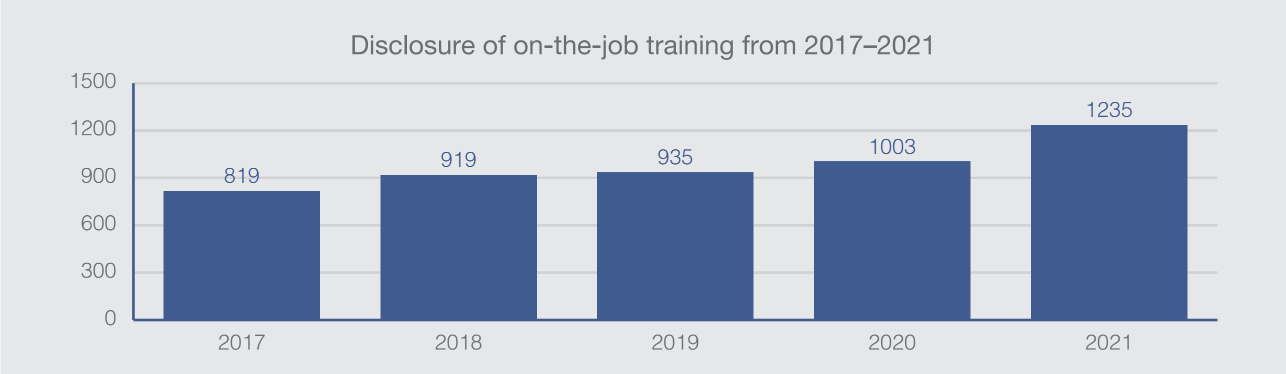
In the consumer sector, 108 consumer discretionary companies and 49 consumer staples companies disclosed their remuneration incentives, accounting for 75.5% and 62% of all the A-listed companies in each industry, respectively.



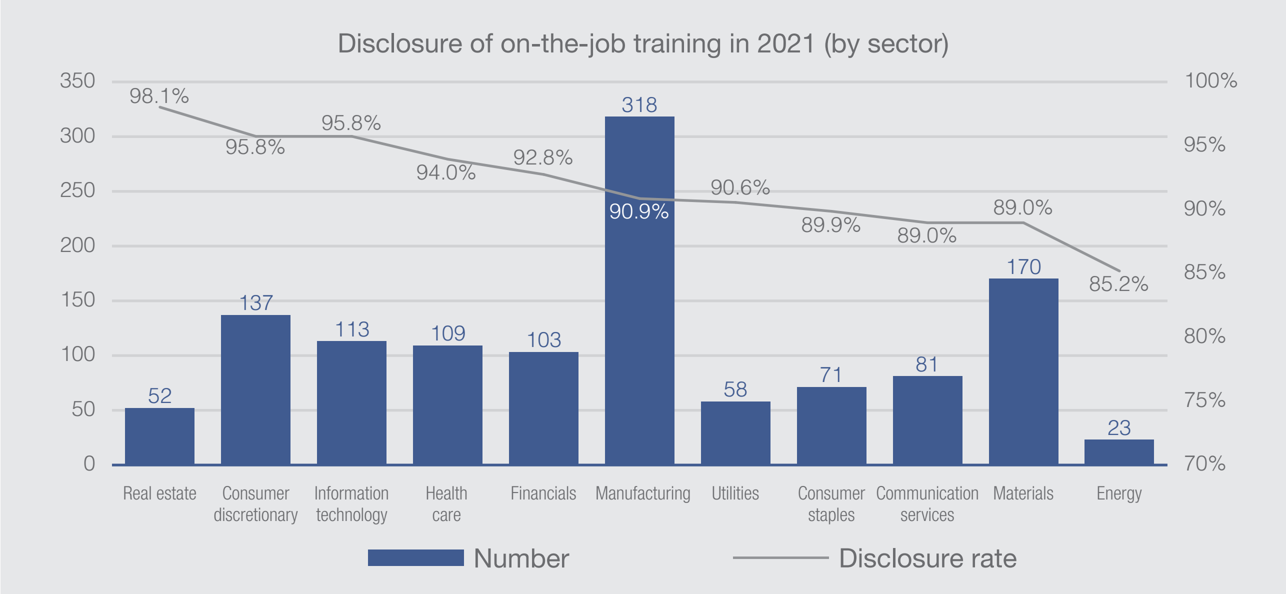
(2) Supplementary benefits for employees: Of all CSR reporting companies in 2021, a total of 1,155 companies, or 86%, disclosed their supplementary benefits for employees, which included supplementary housing funding, pensions, and medical insurance, up by 237 from the previous year. From 2017 to 2021, companies' focus on employee benefits kept increasing, with a peak in the growth rate in 2019 at 40.1%, followed by this year at 25.8%. By business type, 510 SOEs and 594 non-SOE companies disclosed additional employee benefits in their CSR reports, representing a share of 44% and 51% respectively.



By sector, information technology headed the list with a 91.53% disclosure rate, followed by 89.51% for the consumer discretionary sector and 87.34% for consumer staples.



(3) On-the-job training: Of all reporting companies in 2021, 1,234 companies disclosed their provision of on-the-job training for employees, 232 more than the previous year. According to data from 2017 to 2021, the number of companies providing on-the-job training rose progressively, with an average annual growth rate of 10.9%, indicating that companies had higher expectations for employee skills.



By sector, the manufacturing sector had the most companies that disclosed on-the-job training for employees, at 318, with a mid-ranking disclosure rate. Consumer discretionary ranked second by disclosure rate, at 95.8%, while consumer staples ranked eighth at 89.9%.

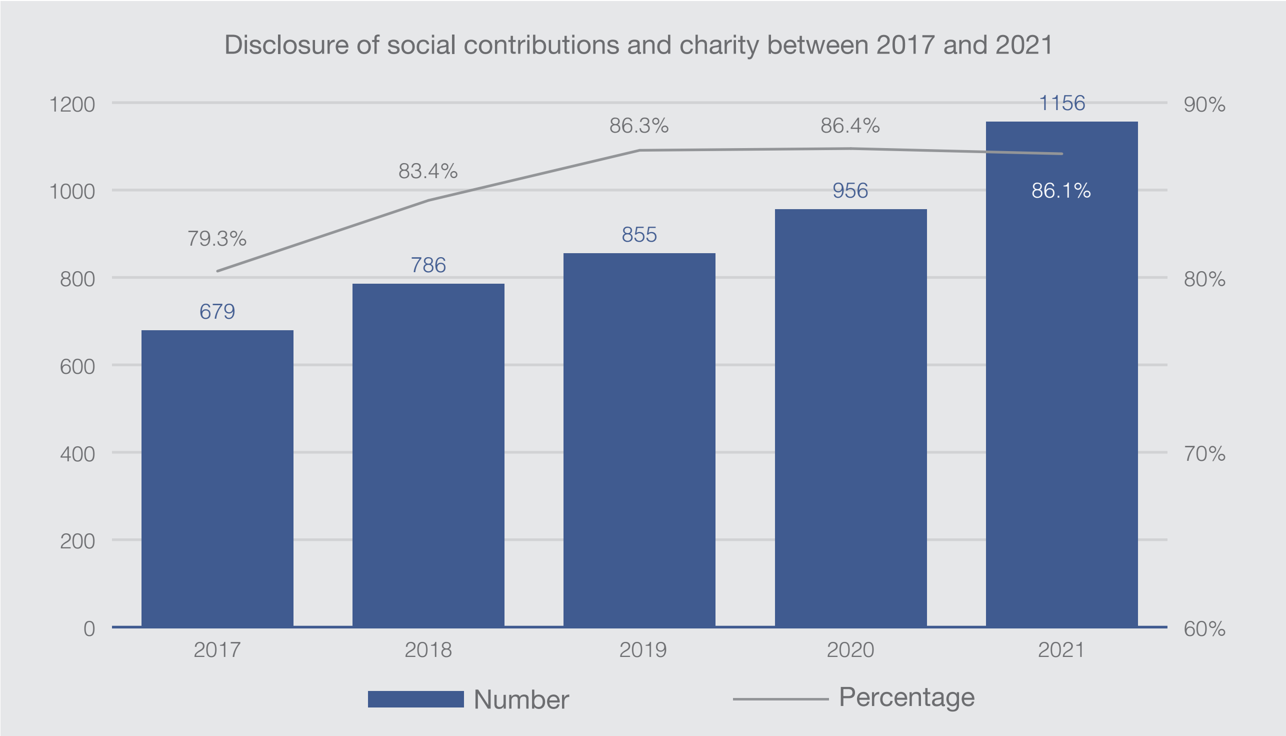
Analysis of employee wellness

Human resources are an essential part of business operations and at the foundation of a company's organizational structure. Company employees are at once producers, sellers, operators, and service providers for the business. Therefore, paying attention to the treatment of employees, improving their work environment, and enhancing their professional skills are all key components of CSR. According to an empirical study by Nicholas Chileshe and Theodore Haupt, CSR has a strong positive correlation with employee loyalty and a significant impact on business profits.

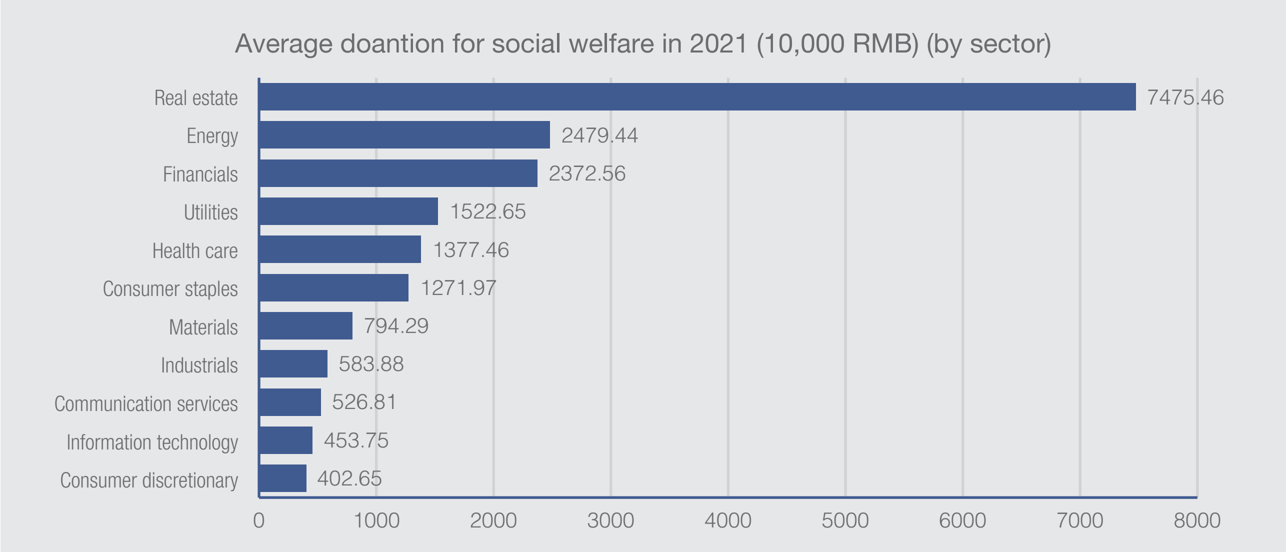
In 2021, reporting A-share listed companies significantly increased their investment in human resources over the previous year. More people-centered companies stepped up efforts to motivate, train, and develop their employees while paying more attention to communication and information exchange. For companies, improving employee wellness is a win-win strategy. By boosting employee motivation, enhancing professional qualities and skills, and improving employees' sense of loyalty and wellbeing, companies can increase their operating efficiency, while creating a positive and harmonious workplace. An efficient workforce, in return, can help companies establish a positive corporate image, facilitate strategic partnerships, and boost business sustainability. For countries, when companies take responsibility for employee wellness, they not only enable workers to exercise their employment rights and realize their potential, but can also help to reduce social tensions and improve people's life satisfaction, which in turn contribute to social harmony and stability.

Social contributions and charity

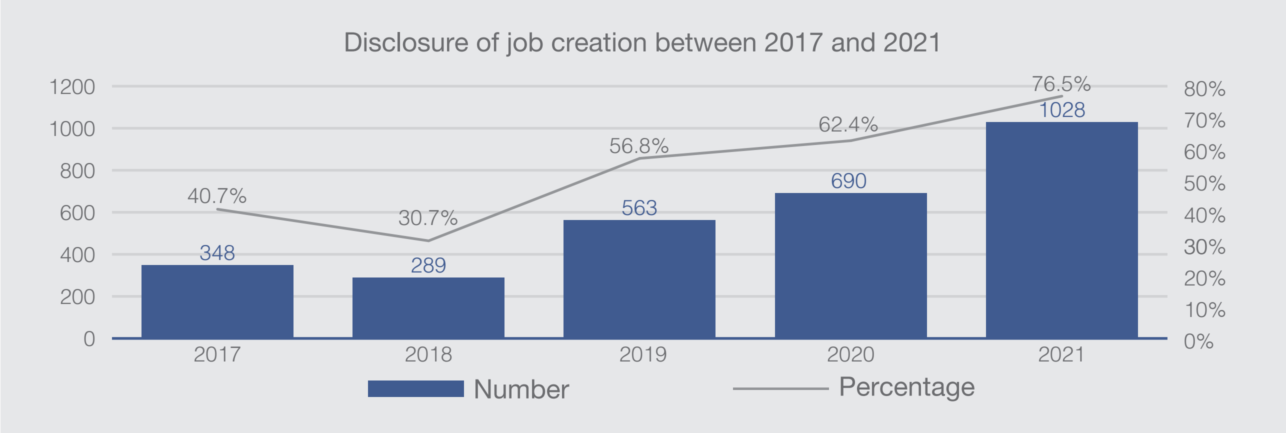
This topic comprises nine sub-indicators: (1) donations, (2) social contribution value per share, (3) contribution to education, (4) charitable activities, (5) volunteering, (6) international aid, (7) job creation, (8) contribution to economic growth, and (9) layoffs.



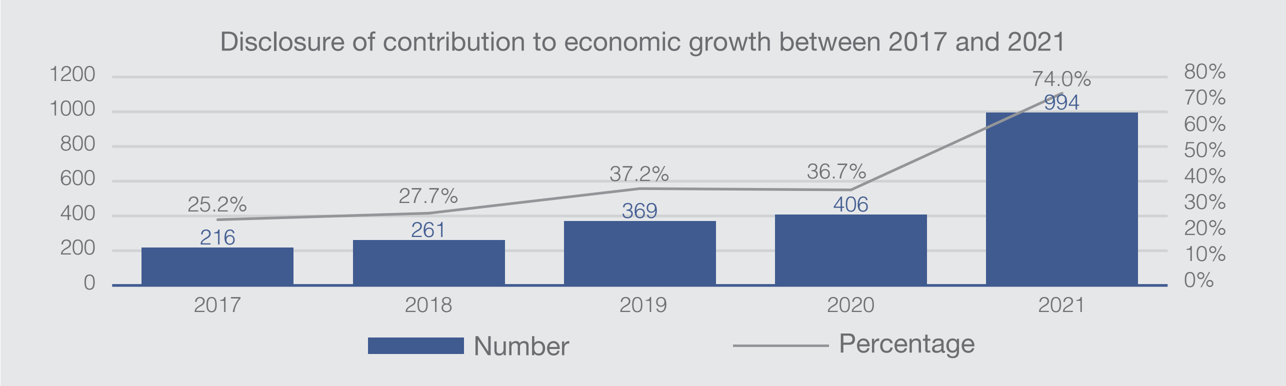
(4) Donations: In 2021, 1,156 companies disclosed their engagement in social welfare activities, or 200 more than the previous year, representing 86.1% of the total and a similar level to 2020. These companies donated a total of RMB 14.16 billion, up approximately RMB 2 billion from the previous year. Overall, the number of companies that made charitable donations rose between 2017 and 2021.



In 2021, average donations in the real estate sector far exceeded all other sectors, at approximately RMB 74.7546 million, which was three times more than the energy sector. This was followed by energy and financials, at RMB 24.7944 million and RMB 23.7256 million, respectively. Consumer staples ranked in the middle, at RMB 12.7197 million, while consumer discretionary placed lowest, at RMB 4.0265 million.



(7) Job creation: In 2021, 1,028 or 76.5% of the reporting companies disclosed steps they had taken to create jobs and promote employment, up by 338, or nearly 50% over the previous year. According to data from the last five years, the number of companies that took measures to create jobs was on the rise, with an average annual growth rate of 37.35%. In terms of the number of disclosures, consumer discretionary placed third with 121, whereas consumer staples was below the average at 61. Consumer discretionary and consumer staples both had elevated disclosure rates, at 84.6% and 77.2% respectively.



(8) Contribution to economic growth: In 2021, 994 companies disclosed the positive impact of their operations on local economies and communities. 74% of companies also disclosed policies and measures to boost the development of local economies, such as localized procurement and employment policies, up by 145% over the previous year. When ranked by sector, consumer discretionary placed third with 104 disclosures, while consumer staples placed seventh at 61. In terms of the disclosure rate, consumer discretionary and consumer staples both ranked in the middle, with rates of 72.7% and 77.2%, respectively.

Social contributions and charity summary

In China, social contributions and charity are often referred to as the "third distribution" (i.e. the voluntary redistribution) of wealth, because they help to narrow the wealth gap, improve the lives of disadvantaged groups, alleviate social tensions, enhance social cohesion, and promote social harmony. Gary Becker, a Nobel Prize-winning US economist, defined charity as the transfer of time and products to disinterested individuals or organizations.

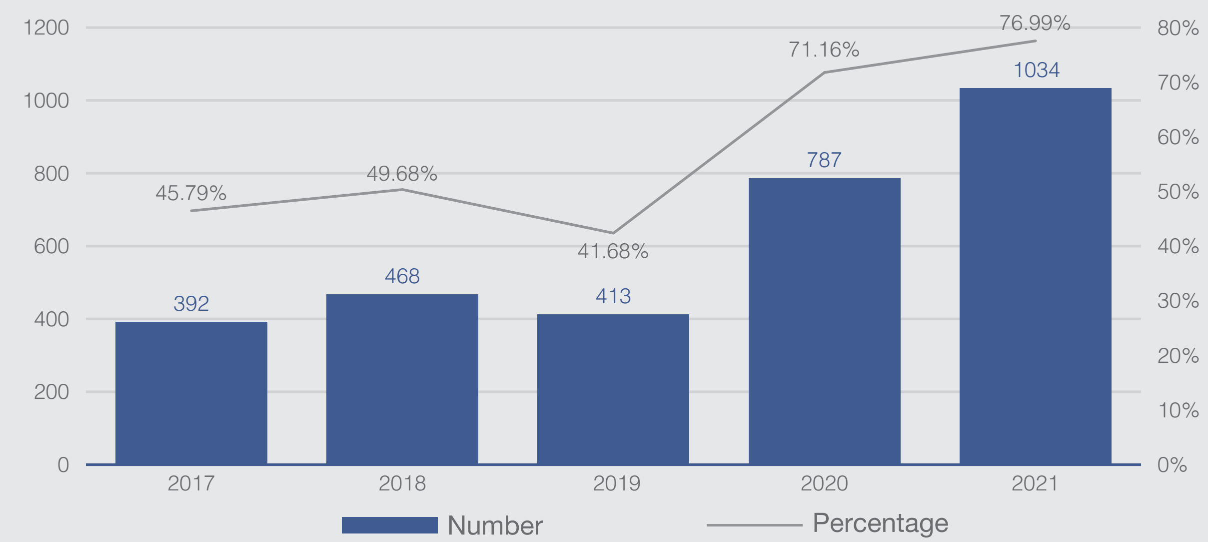
Statistics show that in 2021, reporting A-share listed companies stepped up their participation in charitable activities and increased investment in this area, resulting in a noticeable improvement to all indicators except for international aid. In general, investment in philanthropy from reporting A-share listed companies increased, but remained polarized. Companies can only achieve their true development potential when they create a favorable social environment by integrating philanthropic culture into their everyday operations and corporate values.

III. The governance dimension

Information disclosure and management

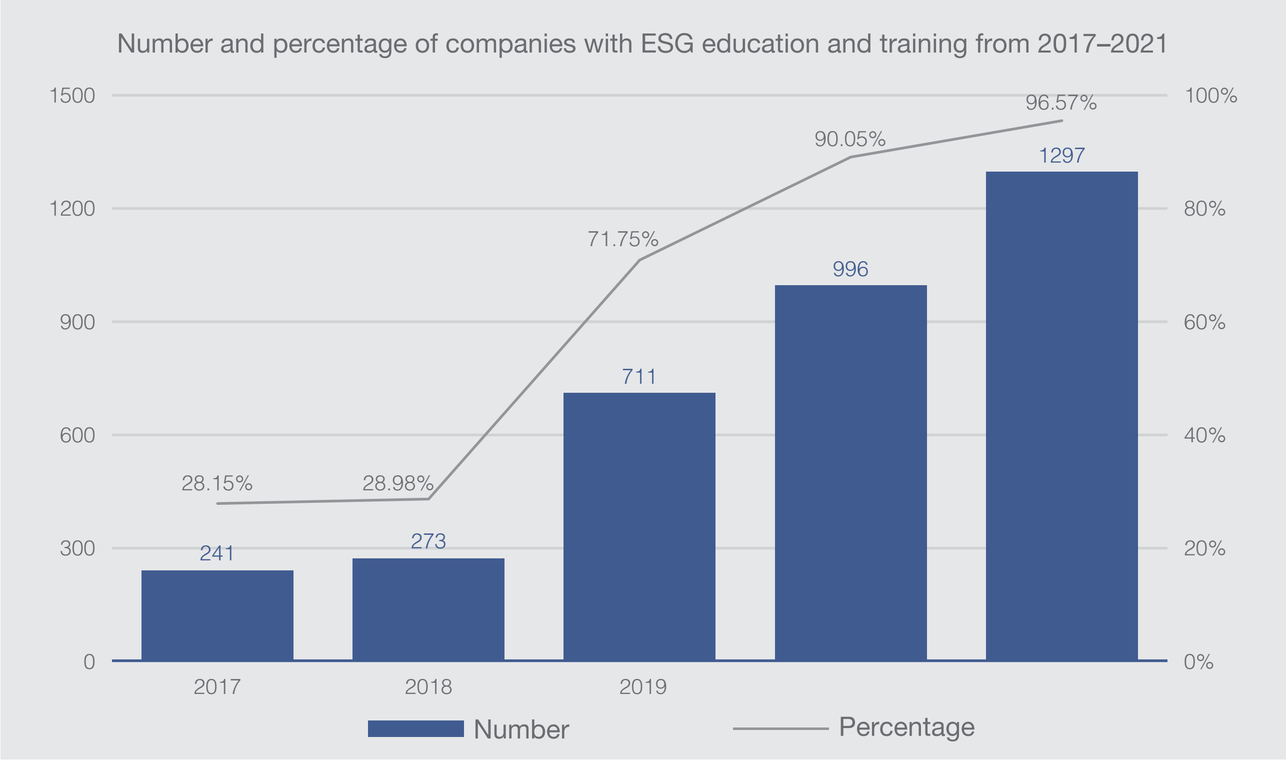
This topic comprises five sub-indicators: (1) CSR report reliability, (2) CSR report inclusiveness, (3) ESG website columns, (4) ESG education and training, and (5) ESG leadership teams, demonstrating reporting companies' focus on and performance thereof.

Number and percentage of ESG columns on the websites of companies from 2017–2021

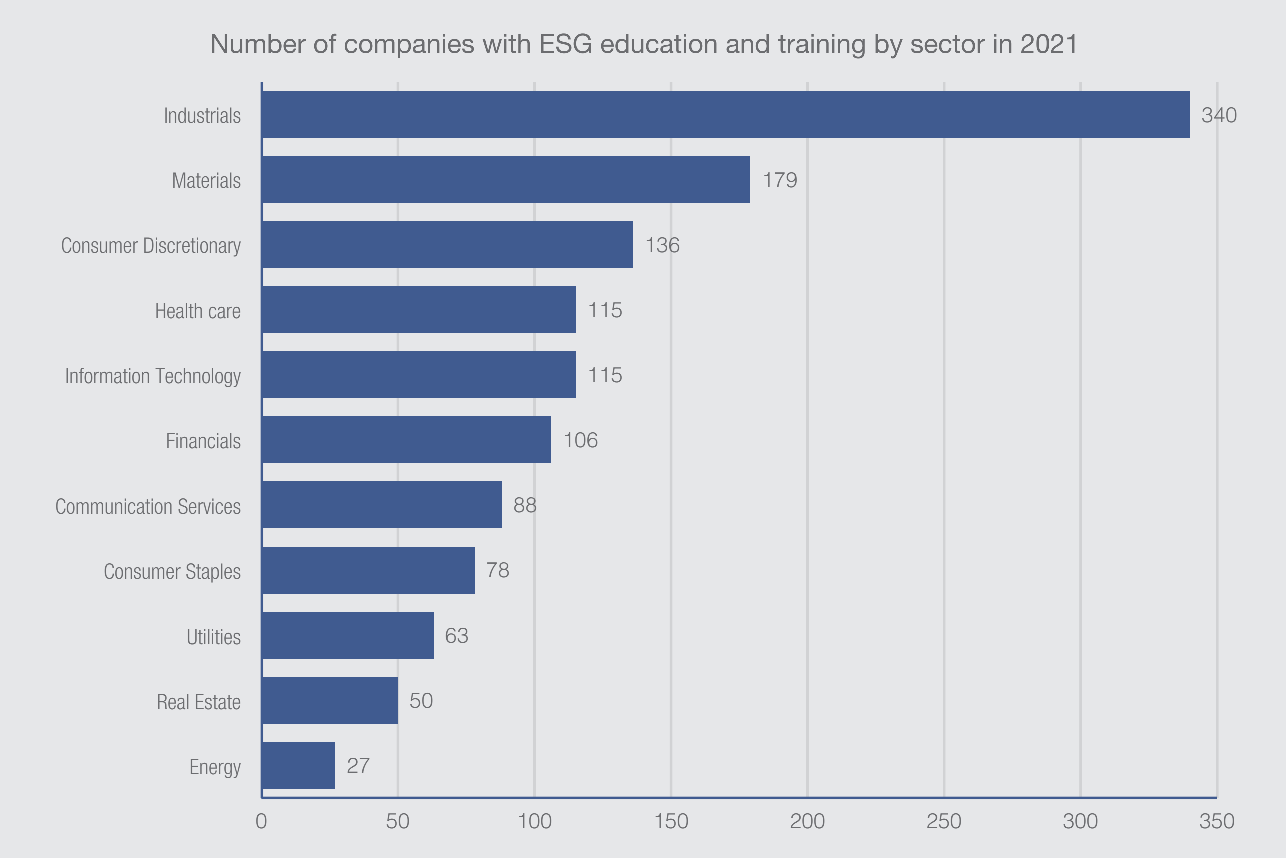


(3) An ESG website column refers to columns published on the websites of reporting companies that feature information about ESG or CSR topics. In 2021, of all the reporting A-share listed companies, 1034 (76.99%) had published a CSR column on their websites where visitors could find ESG information, an increase of 5.83% from the previous year. According to statistics from 2017 to 2021, both the number and proportion of companies that published ESG columns on their websites increased, suggesting that A-share listed companies were attaching greater importance to CSR.

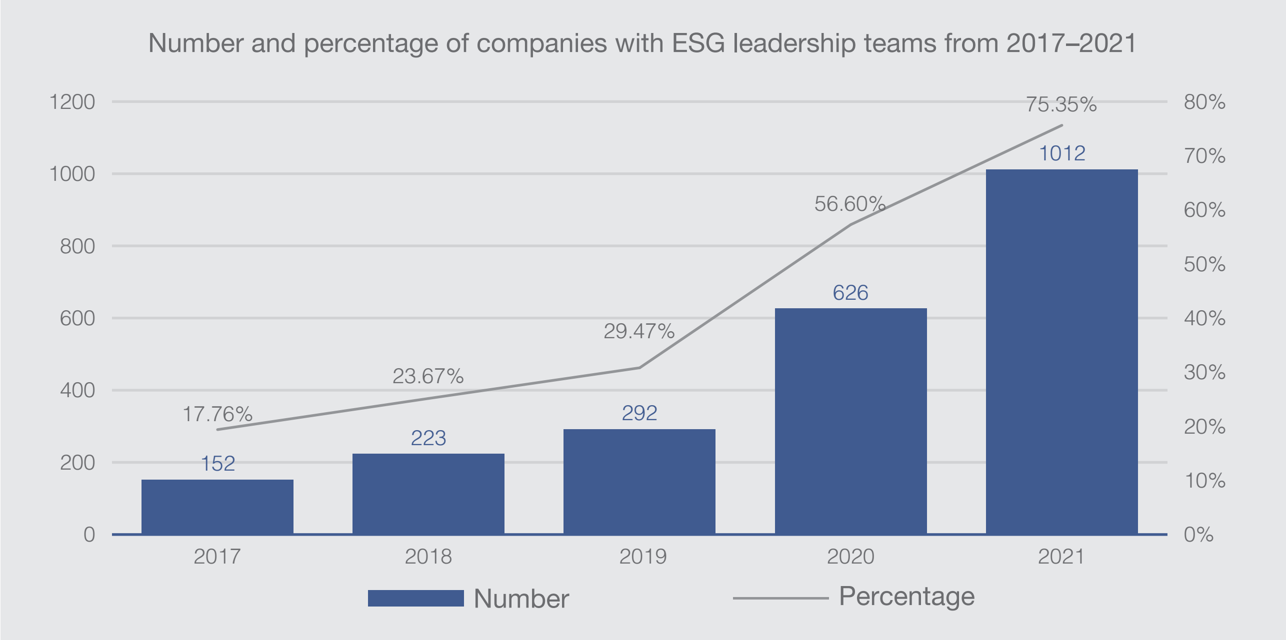
The consumer goods sector outperformed other industries for this sub-indicator, with all reporting companies publishing a CSR column on their websites.



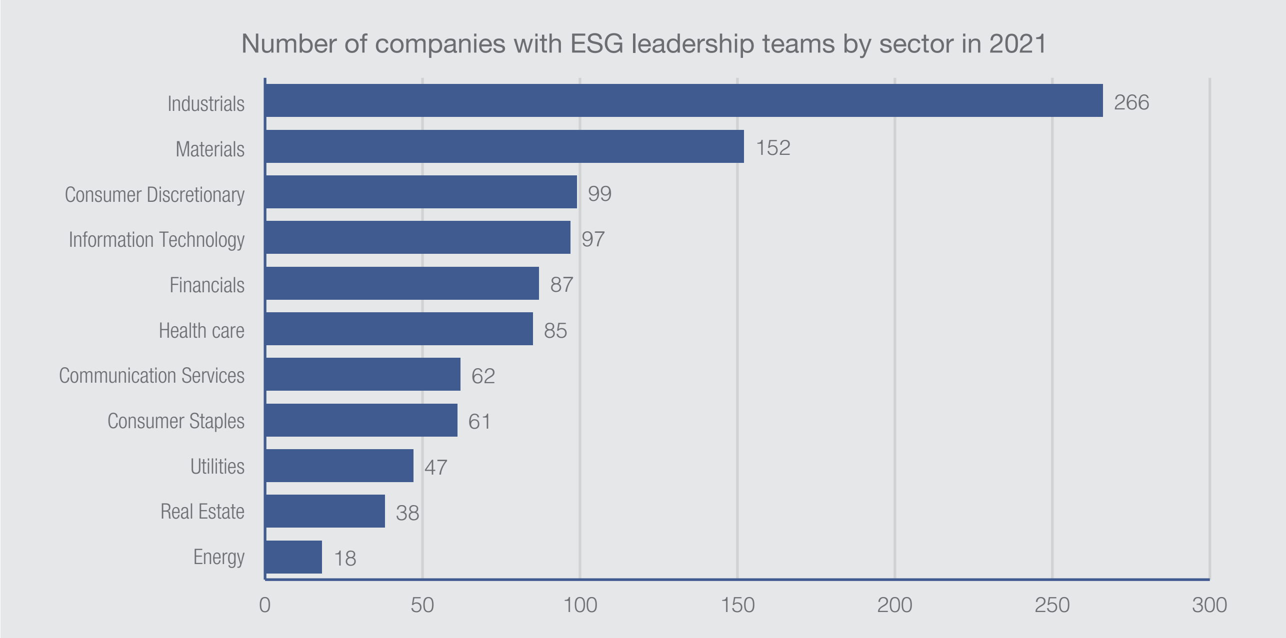
(4) ESG education and training: In 2021, of all the reporting A-share listed companies, 1,297 provided training on ESG. Between 2017 and 2021, the number and proportion of companies that provided training rose, with growth peaking between 2018 and 2019, when the number of companies rose from 273 to 711 companies, a 42.77% increase. While growth in 2021 was more moderate, the overall proportion of companies that provided training reached a high of 96.57% in that year.



By sector, 340 companies in the industrials sector conducted in-house education and training on ESG, followed by 179 companies in the materials sector and 136 companies in the consumer discretionary sector. 77 out of 78 companies in the consumer staples sector provided ESG education and training, outstripping all other industries at 98.7%.



(5) A leadership team refers to a dedicated ESG leadership team, sustainable development leadership team, or other such dedicated ESG department established by a company. In 2021, a total of 1,012 companies established dedicated teams or departments responsible for ESG management, accounting for 75.35% of all reporting companies that year, an increase of 486 companies, or 61.66%, from the previous year. Data from 2017 to 2021 shows that the number of companies with dedicated in-house ESG departments increased, providing further evidence that A-share listed companies increasingly view ESG as an important part of their daily operations.



The industrials sector was home to the most companies with dedicated ESG teams or departments, at 266; next were the materials and consumer discretionary sectors, at 152 and 99 respectively; the consumer staples sector ranked eighth at 61. The disclosure rates for the consumer discretionary and consumer staples sectors were 69.23% and 77.22% respectively.

Information disclosure and management summary

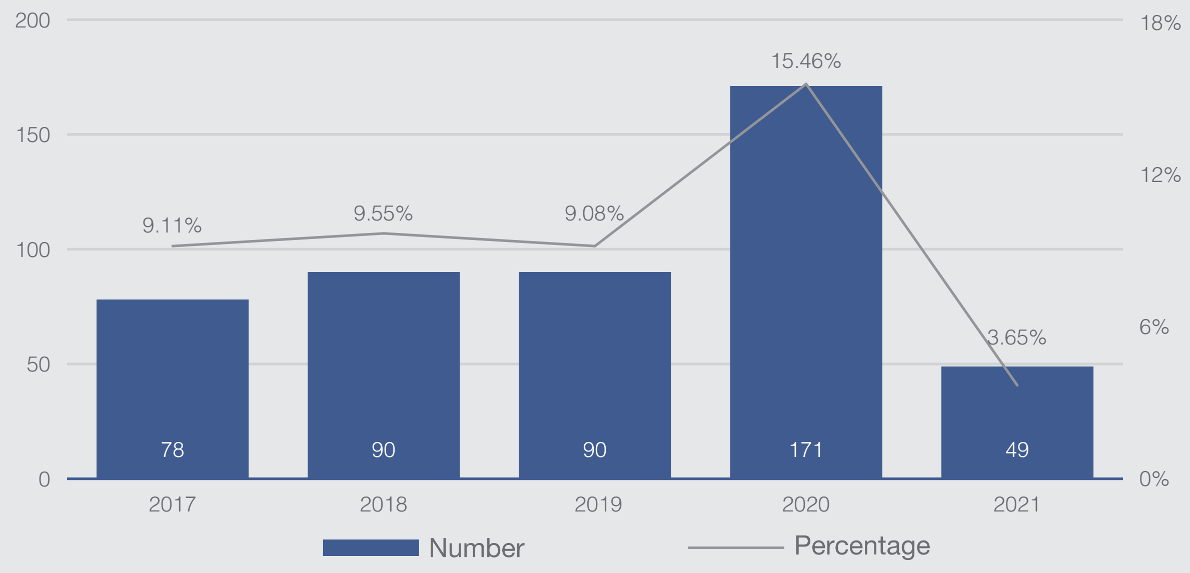
Having evolved for nearly four decades, today CSR is not just part of a company's business strategy, but also an increasingly important factor that outside investors use to evaluate a company's financial competitiveness. Empirical studies based on years of publicly available market data have concluded that corporate financial indicators, such as return on assets and total assets, have a strong positive correlation with CSR performance. In addition, the absence of CSR practices in companies' everyday operations may put them at greater risk of legal disputes and administrative penalties, thus impairing their strategic advantage and blurring their choice of future direction.[①]

Although ESG disclosures are not mandatory in China, Chinese companies have nonetheless been learning from global businesses and striving to improve their ESG disclosure rates and performance. Changes in the five sub-indicators for information disclosure and management reflect the growing number and improved quality and formatting of ESG disclosures made by A-share listed companies in China. Moreover, more and more listed companies are attaching importance to internal training, external publicity, and leadership buy-in on ESG as they grow their businesses. We believe that ESG disclosures will become the norm among Chinese companies over time, which will result in more socially responsible companies that give back to society.

Company operations and management

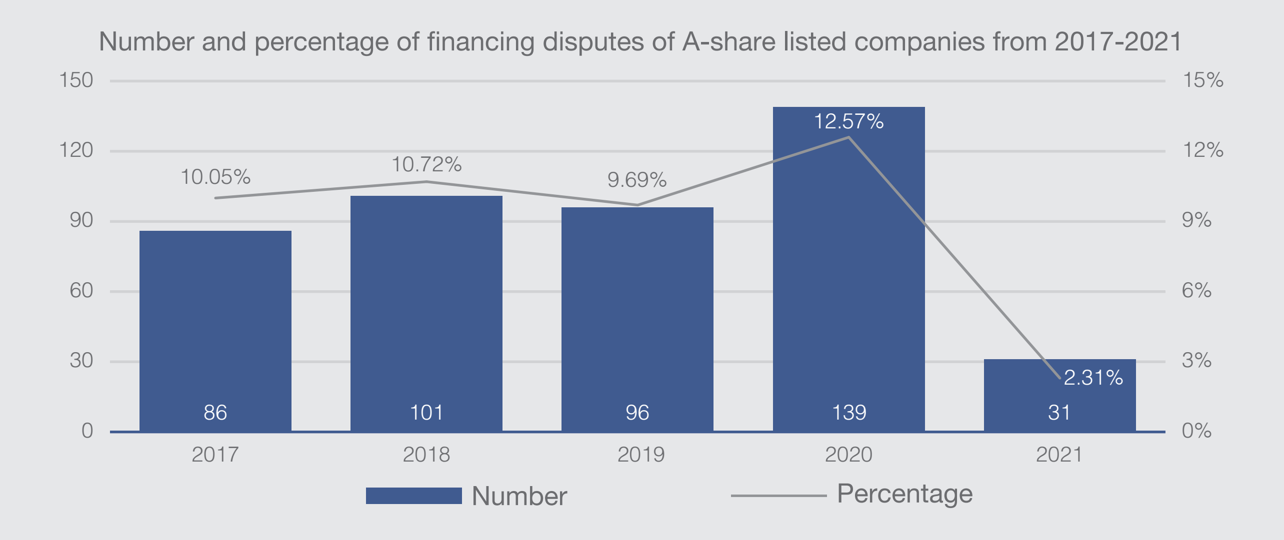
This topic comprises five sub-indicators that measure the performance of A-share listed companies in terms of daily operations, business and social ethics compliance, and financial management, looking at both positive and negative aspects. These are namely (1) strategic cooperation and sharing, (2) anti-bribery and anti-corruption, (3) business integrity, (4) accounting irregularities, and (5) financing disputes.

Number and percentage of accounting irregularities of A-share listed companies from 2017-2021



(4) Accounting irregularities: According to a publicly accessible database on corporate violations and punishments, the accounting irregularities of the reporting companies are summarized as follows. From 2017 to 2019, the overall number of accounting irregularities by A-share listed companies remained stable, compared to a significant increase in 2020 and a sharp fall in 2021. Only a total of 49 violations were reported in 2021, or just 3.65% of the total, down by 122 on the previous year. The five-year average proportion of reporting companies that disclosed accounting irregularities was 9.37%, which is generally consistent with the proportion in the period from 2017 to 2019. The consumer discretionary and consumer staples sectors accounted for 12.2% and 4.1% of accounting irregularities in 2021, ranking joint third and joint seventh respectively.

① Jean B. M, Alison S., and Thomas S. 1988. Corporate Social Responsibility and Firm Financial Performance. The Academy of Management Journal , Dec., 1988, Vol. 31, No. 4



(5) Financing disputes: According to information obtained from publicly accessible databases, the public announcements of A-share listed companies, and industry news, we found that in 2021, 31 A-share listed companies, or 2.31% of the companies that disclosed CSR reports that year, disclosed their financing disputes, down by 108 on the previous year. This sharp decline reversed a gradual rise in the number and proportion of financing disputes disclosed by A-share listed companies over the past five years. Companies in the consumer discretionary and consumer staples sectors disclosed 3 and 5 financing disputes case, ranking third and second respectively.

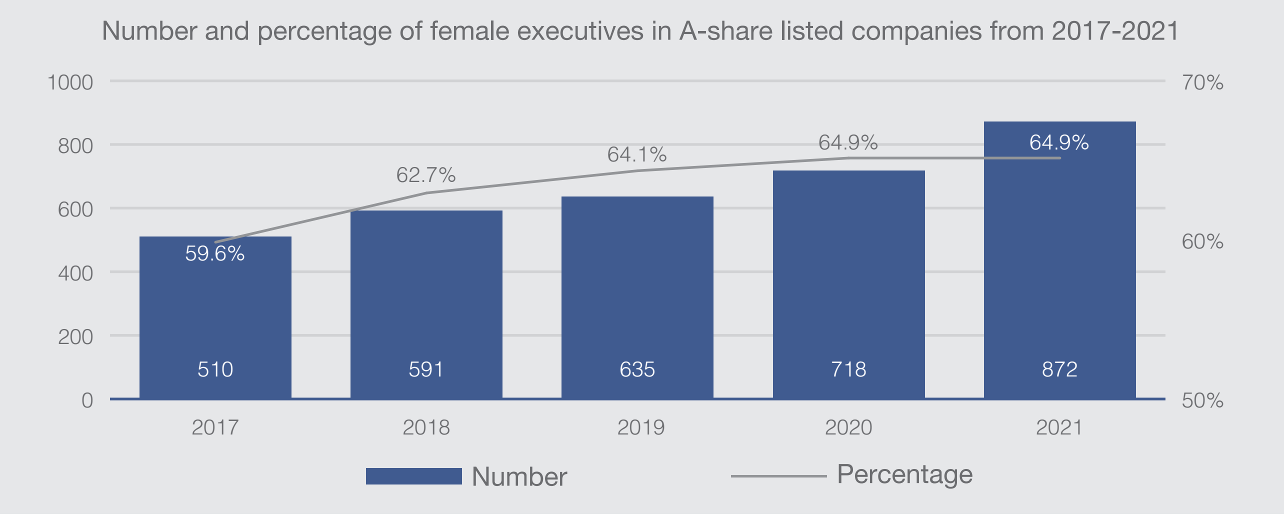
Analysis and conclusion on corporate operations and management

Maximizing shareholder value was once seen as a key objective of any organization. However, as society has evolved, this traditional business philosophy is increasingly being challenged by a diverse mix of stakeholders. Today, there is a growing recognition that companies should not only seek to maximize profit, but also perform certain social responsibilities (such as business integrity and strategic sharing), and this has become a key component of many companies' corporate values.

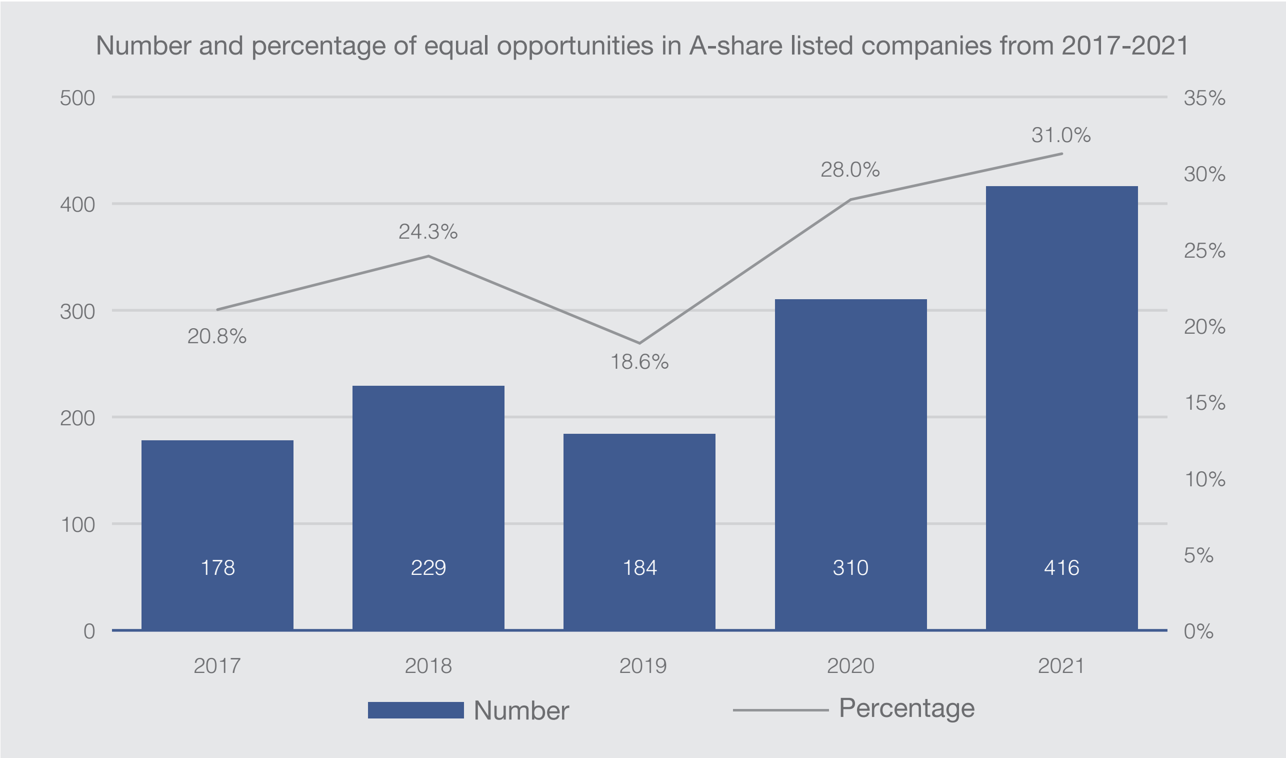
Based on data from 2017 to 2021, we can see that reporting companies made progress in the following three areas: strategic cooperation, business integrity, and anti-bribery and anti-corruption. Meanwhile, the number of financing disputes and accounting irregularities declined significantly in 2021.

H. Diversity and equal opportunities

This topic comprises five sub-indicators, namely (1) female executives, (2) female directors, (3) all-male directors, supervisors & executives, (4) vulnerable groups, and (5) equal opportunities.



(1) Female executives: Of the 1,343 A-share listed companies that disclosed CSR reports in 2021, 872 companies, or 64.9% (flat with the previous year), disclosed that they had at least one female executive, an increase of 154 companies on 2020. From 2017 to 2021, the number and proportion of female executives trended upward. The consumer discretionary and consumer staples sectors had the fifth and sixth-highest proportion of female executives at 67.83% and 65.82% respectively.



(5) Equal opportunities: In 2021, 416 companies, or 31% of reporting companies, emphasized promoting equal opportunities for people of different ethnic background, religion, and nationality, up by 106 from the previous year, the highest number and proportion ever recorded. The consumer discretionary and consumer staples sectors had the second- and ninth-highest number of companies that disclosed equal opportunities, at 57 and 19 respectively.

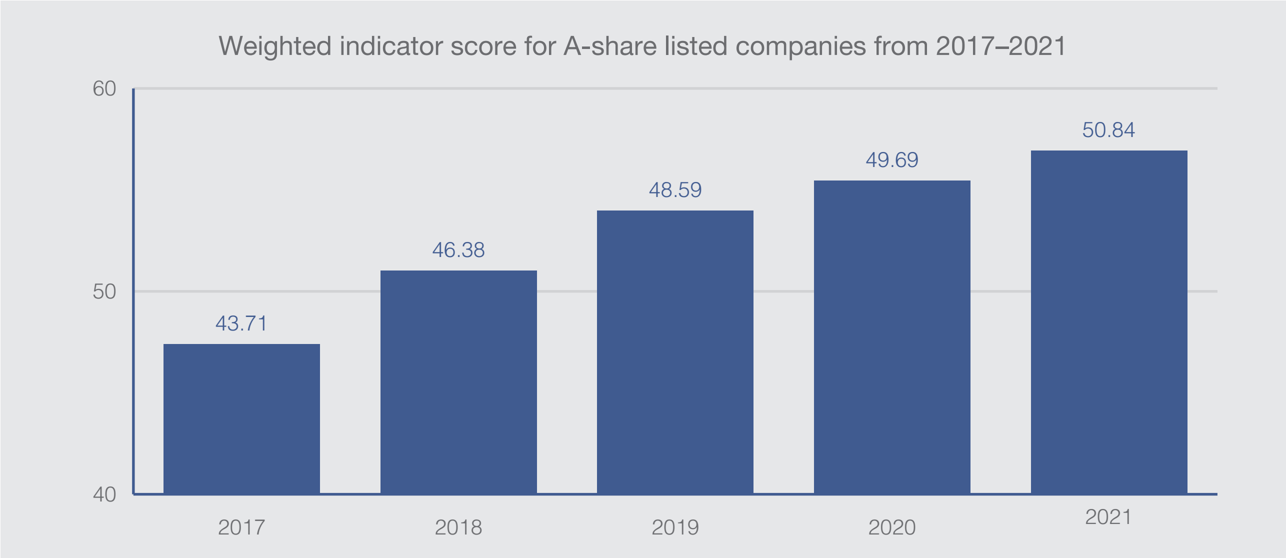
Analysis and conclusion on diversity and equal opportunities

Over the course of history, women's emancipation and progress have been indispensable to the emancipation and progress of mankind. In China, with the continuous elevation of women's status, a growing number of women are breaking through the glass ceiling at work and taking on roles once dominated by men. This is notable because during the everyday operations and governance of companies, female executives attach greater importance to social issues than their male counterparts. In a study of female executives, Terjesen and other scholars found that female executives were more likely to factor ethics into an evaluation of the business environment. As a result, their company's business decisions were also more likely to be guided by ethics, which includes focusing on investor protection, disadvantaged groups, employee well-being, and other matters pertaining to corporate social responsibility.[②]

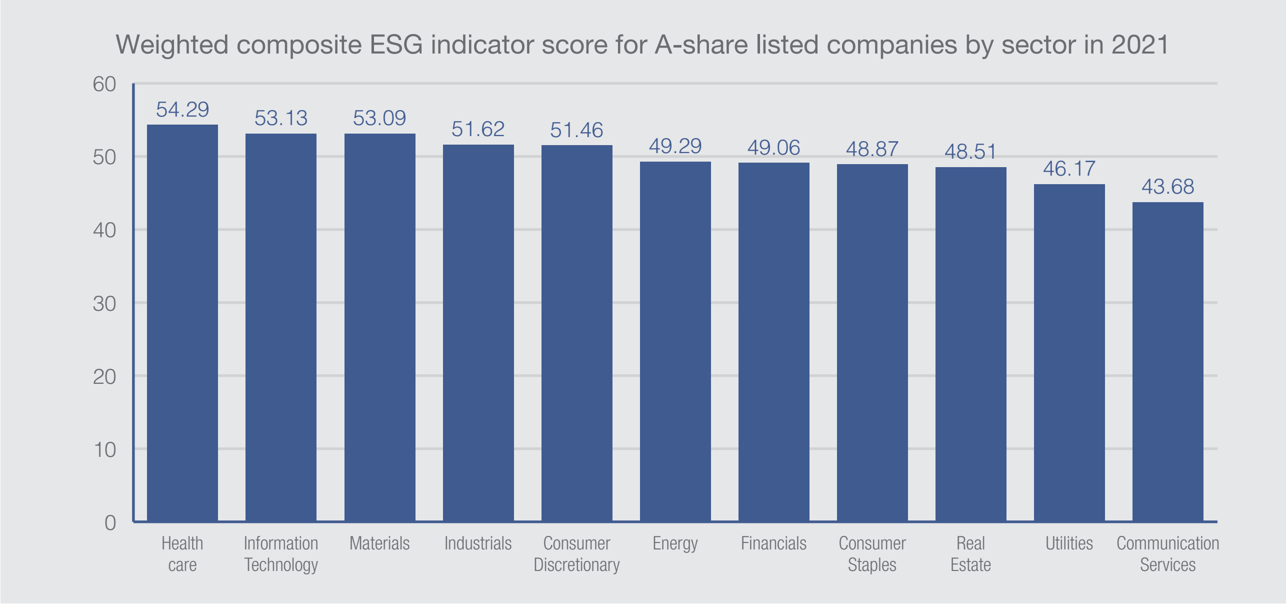
Although China is in many respects already a moderately prosperous society, over the years rapid economic growth and institutional change have meant that the needs of some vulnerable groups have been neglected. In the Report to the 20th National Congress of the Communist Party of China, Jinping Xi stated that, “We will eliminate unjustified restrictions and discrimination that undermine equal employment opportunities, so that people can advance themselves through hard work.” In 2021, the performance of companies improved for the vast majority of sub-indicators. However, A-share listed companies still need to pay more attention to the fundamental interests of vulnerable groups. This can help to promote social harmony, ease social tensions, and contribute to common prosperity.

② S. Terjesen, R. Sealy, V. Singh. Women Directors on Corporate Boards: A Review and Research Agenda. Corporate Governance: An International Review, 2009(3)

YEAR-ON-YEAR COMPARISON AND ANALYSIS OF COMPOSITE ESG INDICATORS

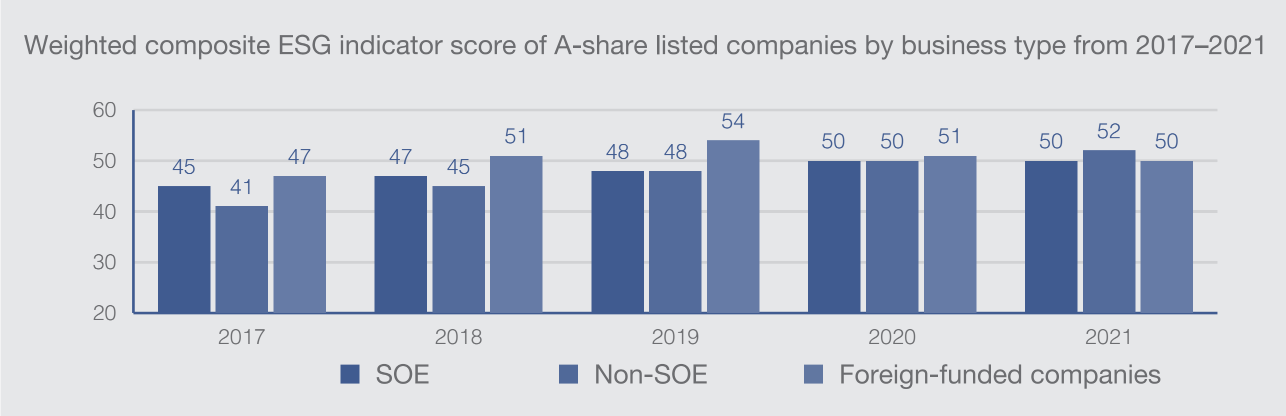


In 2021, 1,343 reporting companies recorded a weighted score of 50.84 (out of 100) and median of 51.8 for all ESG indicators, an increase of 1.15 points or 2.3% from the previous year. This score rose every year from 2017 to 2021, but is still far from the “pass mark” of 60.

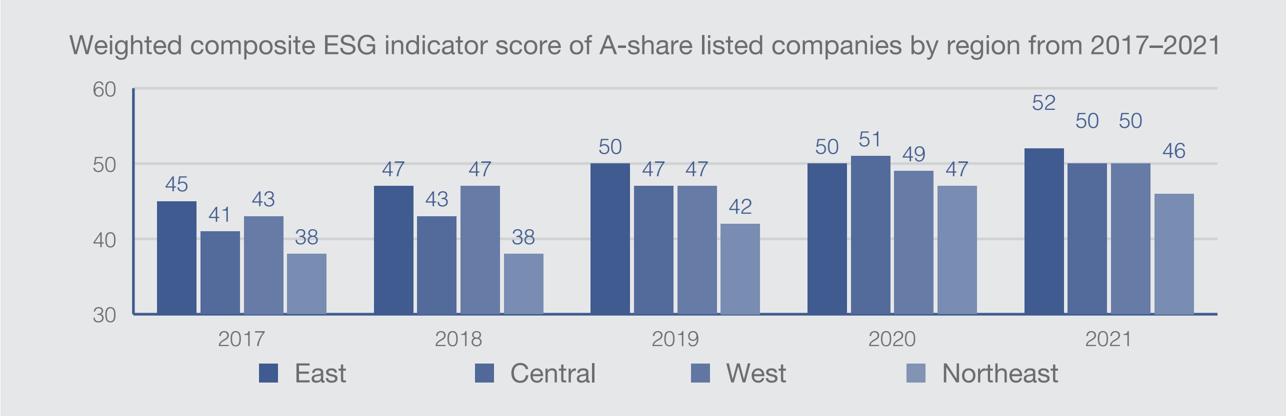


All sectors recorded a higher weighted composite ESG indicator score in 2021. The health care sector scored the highest at 54.29, up by 2.19 points from the previous year; the information technology and materials sectors came in second at 53.13 and 53.09 respectively; then came the communication services sector at 43.68.

In 2021, the weighted score of the 222 reporting companies in the consumer goods sector was 50.55 (out of 100), slightly lower than the weighted score of 50.84 for all 1,343 A-share listed companies. Specifically, the 143 companies in the consumer discretionary sector had relatively high scores, with a weighted score of 51.46, in contrast to a lower weighted score of 48.87 for the 79 companies in the consumer staples sector. Overall, both of these sectors ranked somewhere in the middle compared to other industries.



By business type, SOEs scored 50 in 2021, flat with the previous year; non-SOEs scored 52, up by 2 points from the previous year; foreign companies scored 50, slightly lower than the previous year. The CSR scores for SOEs and non-SOEs rose between 2017 and 2021, with a significant increase for non-SOEs, from the lowest score of 41 for all business types in 2017, to the highest score of 52 in 2021.

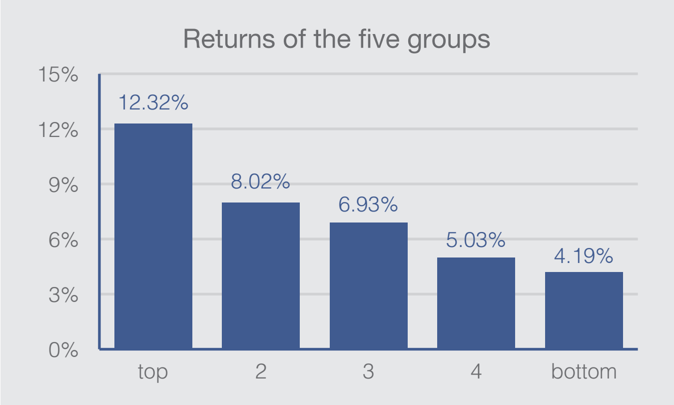


By region, in 2021, companies in east China led the market, as their scores increased by 2 points to 52 from the previous year. Meanwhile, companies in west China climbed 1 point to 50 and central and northeast China were each down 1 point to 50 and 46 respectively. The CSR scores for companies in all regions gained steadily from 2017 to 2021, up by 7, 9, 7 and 8 points respectively for east, central, west, and northeast China.

ANALYSIS OF THE ECONOMIC VALUE OF COMPOSITE ESG INDICATORS

Capital market investors are particularly interested in the economic value of companies' composite ESG indicators. This report explores the issue of economic value by constructing an investment portfolio based on the composite ESG indicator scores of A-share listed companies and measuring its profitability. Specifically, we compared the scores of comprehensive and component indicators by grouping companies into five equally sized groups and selecting approximately 1/5 of the companies from each group to calculate their weighted return by group. We assume that trading begins on the first trading day of May each year (May 5, 2022) with a buy order and ends on the last trading day of the year (December 30, 2022) with a sell order. The five groups achieved weighted average increases of 12.32%, 8.02%, 6.93%, 5.03%, and 4.19% respectively in 2022, showing a step-like progression. Implementing a long-short strategy by taking a long position for the top group and a short position for the bottom group resulted in a significant excess return of 8.13%. The data shows that reporting companies with higher composite indicator scores tend to generate greater excess returns.

We also grouped the companies into five equally sized groups. The score of each indicator also showed a step-like progression. Significant excess returns can be achieved by implementing a long-short strategy for the top and the bottom groups. Hence, based on the actual excess returns recorded in this report, we believe that the CSR performance of companies can serve as a guide for investors.



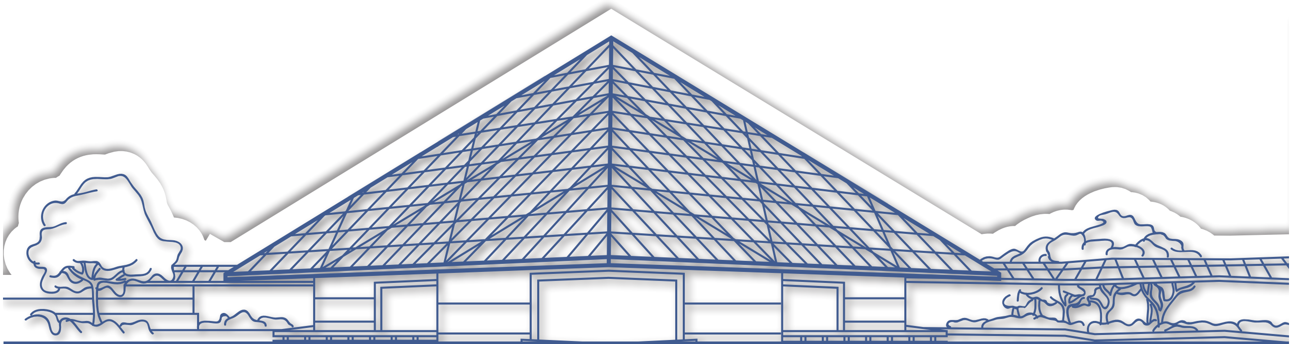
Conclusion

In November 2022, China's Ministry of Human Resources and Social Security, together with the Ministry of Finance and the State Taxation Administration, issued the *Notice on the Implementation of Private Pension Schemes in Pilot Cities (Regions)* stating that private pension schemes, which would form the third pillar of China's pensions system, would be rolled out across 36 pilot cities or regions (including Beijing, Shanghai, and Guangzhou).

ESG principles encourage investors and companies to monitor factors that can help their business adapt and develop sustainably in the long run. In a similar way, pension funds are responsible for the sustainability of the assets they manage, and invest prudently to maximize their long-term risk-adjusted returns. Therefore, it can be said that ESG investments are closely aligned with the long-term sustainability needs of pension funds, both in terms of long-term returns and risk management. Moreover, pension funds are ideally positioned as a leading force in ESG investment thanks to their access to long-term capital, mature research systems, and their ability to adapt to market changes. Many overseas pension funds, such as the Government Pension Investment Fund (GPIF) in Japan and the National Pension Service Fund (NPSF) in Korea have deeply integrated ESG investment into their portfolio management and performance evaluation frameworks.

In order to match the principles of ESG investing, this year we expanded our indicators to also include environmental, social, and governance dimensions. Under the environmental dimension, we observed that companies made progress on the topics of environmental management and energy conservation and emission reduction, showing that A-share listed companies are paying more attention to environmental protection and investing more resources in energy conservation, emission reduction, and waste reduction. Under the social dimension, we noted that more and more companies are striving to improve the quality of their products and services, while also focusing on innovation. In addition, the continuous growth of investment in research and development has driven a rapid increase in patent applications. There is also a growing trend among companies to attach greater importance to employee accountability, as well as safety management systems and occupational health. Additionally, more companies are participating in various social welfare activities, with significant improvements made for indicators of social contributions and charity. Lastly, under the governance dimension, companies have placed greater emphasis on publicity and broadened the scope of CSR reports; more companies are striving to improve their operations and management capabilities, as evidenced by their business integrity practices, as well as anti-bribery and anti-corruption efforts. In addition, a growing number of A-share listed companies are promoting diversity and equal opportunity in the workplace, and increasingly acknowledging the importance of having female executives.

Finally, we also checked whether our composite ESG indicator score can serve as a basis for investment strategies. The five groups achieved weighted average increases of 12.32%, 8.02%, 6.93%, 5.03%, and 4.19% respectively in 2022, showing a clear step-like progression. Implementing a long-short strategy by taking a long position for the top group and a short position for the bottom group resulted in a significant excess return of 8.13%.



Afterword

We believe that as companies incorporate the principle of sustainability into their operations, ESG will become more than a mere appendage to their existing business, but rather the foundation for their effective transformation, helping them to build up a sustainable competitive advantage in the long run. To translate ESG concepts into action, companies need to think about how to leverage the sustainability framework to address the risks and opportunities that lie ahead, while seeking new drivers of growth.

With its focus on sustainable consumption, the *China Europe International Business School ESG White Paper 2023* combines the research findings of CEIBS faculty with the hands-on experience of alumni companies. By examining international trends and Chinese practices from both a theoretical and empirical perspective, this white paper sheds light on how ESG can make a big difference to companies in terms of management and operations, branding, and user communication. In addition, it offers a glimpse into how companies are addressing the challenges associated with ESG.

Finally, we would like to express our gratitude to everyone who has contributed to the creation of this white paper over the past year. In particular, we are grateful to the School's leadership for their staunch support and encouragement, which has brought this project to fruition. We would also like to thank the faculty, Case Center, Alumni Relations & Development Office, Marketing and Communications Department, Translation and Interpretation Department, and program departments for their indispensable help in choosing topics, compiling the report, and publicizing it.

We are especially indebted to the CEIBS Alumni Association (CAA) for regularly hosting the CSR Forum and for calling on CEIBS alumni to get involved in public welfare programs and fulfill their CSR obligations, which is consistent with the CAA's goals of “Service to alumni, contribution to CEIBS, and dedication to society” . Our thanks also go to alumni from a wide range of fields and industries for generously sharing their internal practices and valuable insights into sustainability, and providing a wealth of case materials for our ESG research.

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