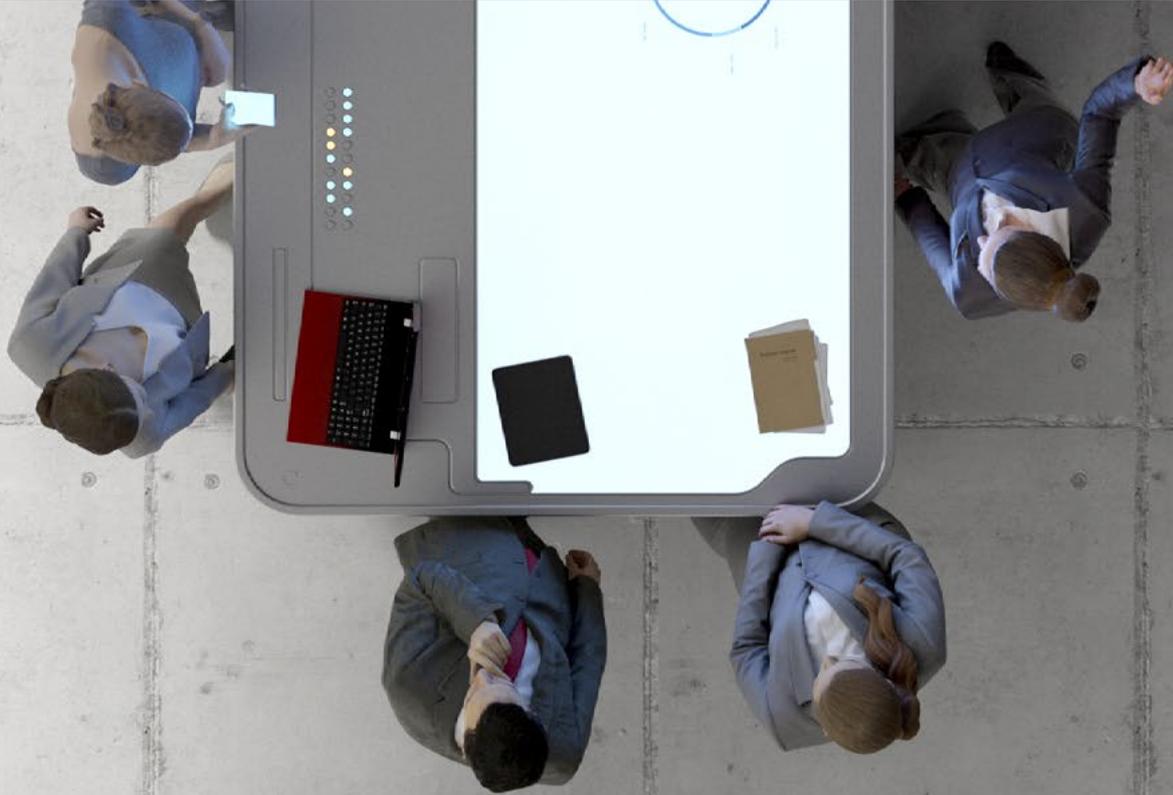




**IBM Institute for  
Business Value**

# The Virtual Enterprise

The Urgency of  
Sustainability and Impact



# The Urgency of Sustainability and Impact

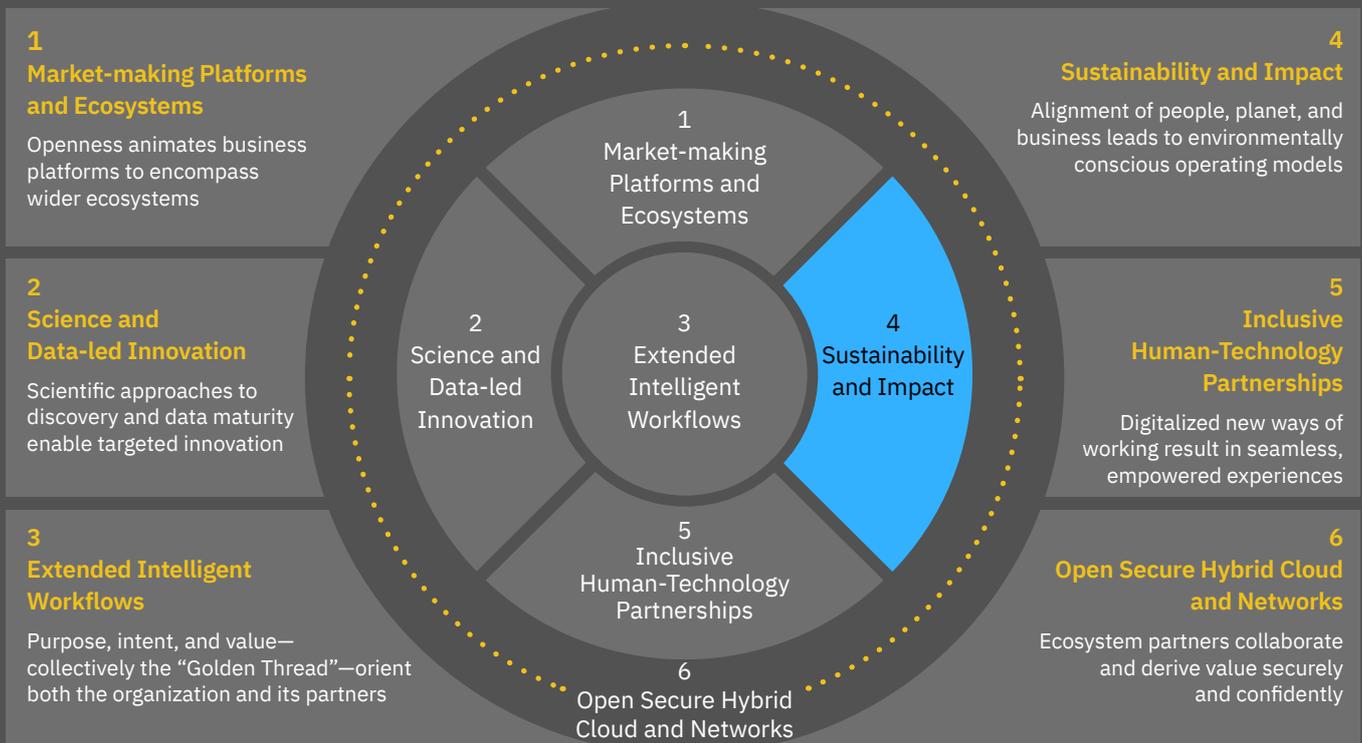
Technology is transforming the business models of enterprises across the globe, creating new opportunities for growth and fresh benchmarks of cost and efficiency. The ability to apply AI, automation, blockchain, the Internet of Things (IoT), 5G, cloud, and quantum computing at scale has made the promise of Cognitive Enterprises real.

As we place this revolution in the context of an increasingly virtual world, we see even more power arising from the ecosystems, digital workflows, and networked organizations that are made possible. The Virtual Enterprise is emerging, supported by a “Golden Thread” of value that animates the enterprise and binds ecosystem participants (see Figure 1).

The Virtual Enterprise reinforces the extent of connectedness around the world and the impact of humans on each other and on the planet. It aligns purpose and intent with wider societal impacts. With sustainability and stakeholder capitalism taking hold in the C-suite, new ecosystem business models are helping provide solutions to the biggest challenges of our time around climate, health, security, and equality. This plays an increasing part, too, in the way that customers, partners, and employees feel about engaging with the organization.

**Figure 1**

Building blocks of the Virtual Enterprise



The Virtual Enterprise makes ecosystems the heart of its strategy to enhance innovation, make markets, and massively enhance capabilities.

# How sustainability and impact drive positive enterprise transformation

Even before the pandemic, a new focus on sustainability and environmental, social, and governance (ESG) goals for business was emerging. Against that backdrop came lessons from the COVID crisis about the interconnectedness of the globe and the role of nature and its relationship to humanity. We have seen that the shifts to more virtual work, less travel, and lower levels of urban activity and global physical trade have made a meaningful impact on carbon in the atmosphere.

The evolution toward the Virtual Enterprise reinforces this trend and can be part of a systemic shift to a sustainable planet. The connection of business intent to a wider intent has arisen as corporations seek to embrace and scale stakeholder capitalism and as customers and employees seek to make purchases and work choices based upon the values of the organization with which they are interacting (see Figure 2).

The extended ecosystems of the Virtual Enterprise that operate with their automated Intelligent Workflows, remodeled asset mixes, and smart leverage of data have the potential to live up to this new level of impact. The partnerships that will characterize them will be made up of participants with shared values.

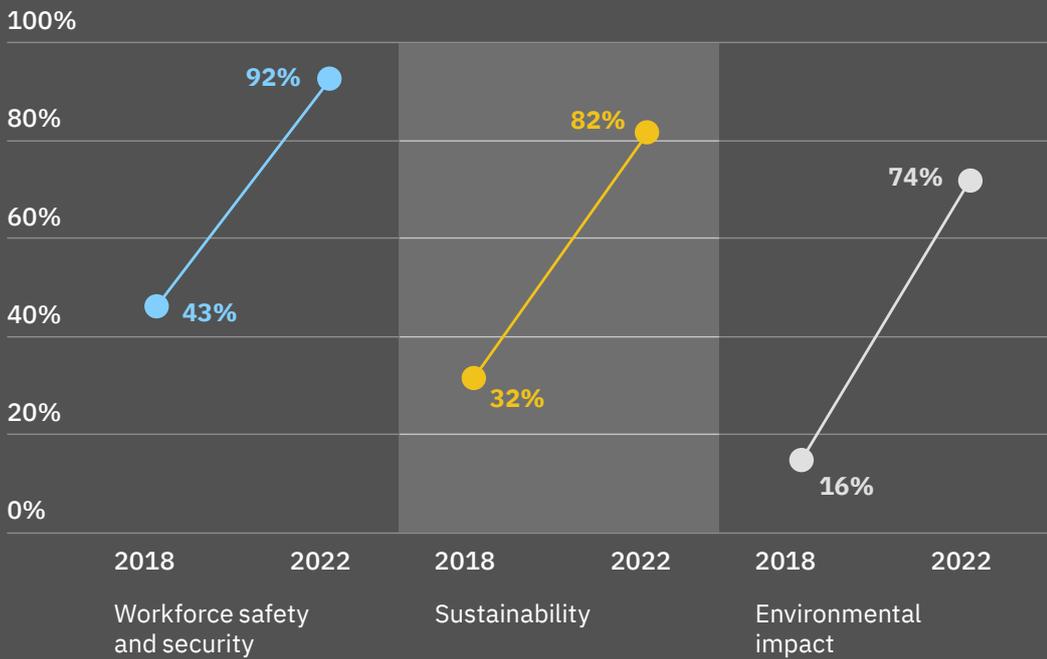
This is all happening against a rising focus on stakeholder capitalism where the purpose of the enterprise has been extended to its societal impact. All the big issues that the world faces—from health, climate, and food security to inequality—are now being targeted by growing partnerships and ecosystems.

## What is sustainability?

Sustainability can be a complex, somewhat nebulous concept, with different meanings for different groups. For some, it signals environmental objectives only. Others apply the term to a broad agenda of social, economic, and even political factors. Regardless of specific focus, sustainability requires a commitment to ongoing transformation. Transformational sustainability is both a necessity and a tool for organizations to future-proof themselves against looming risks, deliver on community needs, and enable new opportunities and business models.

**Figure 2**

Business leaders express more concern about people and the planet than ever before



Source: "COVID-19 and the future of business: Executive epiphanies reveal post-pandemic opportunities." IBM Institute for Business Value. September 2020. [ibm.co/covid-19-future-business](https://ibm.co/covid-19-future-business).  
Q: To what extent is your organization prioritizing the following business competencies? Figure depicts "high" and "very high" responses.

With companies vying to take the lead in shaping new transformative platforms and models, the Virtual Enterprise is the perfect vehicle to facilitate these moves. Its open approach enables the integration of sustainability into a company's fiber—its DNA. Organizations can weave sustainability into value propositions, business partnerships, and customer engagement strategies to influence how humans treat each other and the planet, encouraging behaviors that contribute to a positive ecological footprint. Relying on new exponential technologies, they can create innovative products and services linked specifically with sustainability efforts.

Ways of working have changed forever, and the explicit recognition of health and wellness of employees and

stakeholders will remain a high priority. As the Virtual Enterprise develops new networks of activity and team models, technology will play a huge role in taking the relationship between employee, employer, and organizational IT to a richer level.

The enterprise will be brought into the homes of employees, resulting in new relationships between work, employees, their families, and the community as a whole. Recognizing the ethics and governance issues that arise as technology is increasingly woven into our lives, the Virtual Enterprise espouses the spirit of responsible computing. It works to channel technology toward positive outcomes and identify ethical principles and practices that protect data privacy and integrity.

# Sustainability and impact: Connecting with stakeholders, improving outcomes, and solving the unsolvable

Organizations that lead on sustainability and impact do not approach them as secondary objectives. They integrate the related objectives into their core motivation, radically altering the corporate equation for success. Sustainability and impact provide a guiding prism through which priorities and activities are viewed.

The Virtual Enterprise appreciates that pursuing “social-good” agendas can go hand in hand with delivering business results. Recalibrating the relationship between business and society can trigger new processes and drive discovery at unprecedented speed, scope, and scale.

Increasingly, investors, consumers, employees, and partners consider sustainability and societal impact when making purchasing, employment, investment, and engagement decisions. Together these imperatives are shaping a new corporate agenda. According to IBM Institute for Business Value (IBV) research, 9 out of 10 companies today are working on sustainability initiatives, up from about half prior to the pandemic.<sup>1</sup> In fact, almost 60% of executives say the upheaval associated with the pandemic will impact the broader social contract and fundamentally change the relationship between business and society.<sup>2</sup>

Some of the corporate motivation behind social responsibility is about future-proofing: Government-imposed sustainability regulations are increasing; consumer demands related to sustainability are becoming more strident; and investors are increasingly emphasizing ESG criteria and other sustainability metrics. Organizational leadership cannot ignore these rising pressures and requirements.

The COVID-19 pandemic also underscored society’s interconnectedness—how actions taken in one part of the world can have global implications. In such circumstances, supporting the collective interest can also serve an organization’s self-interest. For the Virtual Enterprise, serving a social agenda can also contribute to growth and market gain.

Whether it’s digitizing resource-intensive processes, uncovering new efficiencies using high-performance digital-enabled systems, or solving problems through science and data-led innovation, sustainable practices help open the door to new markets and growth. Ethical innovation that progresses the ESG agenda can shift the business-as-usual paradigm and transform into profit-with-purpose, a higher form of capitalism. Organizations that follow such a path can serve as paradigms of the future, reaping outsized gains and identifying future avenues for growth.

Sustainability and purpose are now corporate imperatives in the fullest sense of the word. Environmental and wider societal challenges are influencing organizational strategies and operating models across sectors and functions. This increased focus on sustainability and social responsibility is creating new market opportunities, driving operational efficiencies, impacting risk management strategies, influencing customer and employee expectations, and operationalizing new supply chain strategies.

## What differentiates leaders

The cycle of change mandated by sustainability requires enhanced virtualization: market-making platforms and ecosystems; science and data-led innovation; Extended Intelligent Workflows; inclusive human-technology partnerships; and the open, secure sharing and collaboration enabled by hybrid-cloud engagement.

A focus on sustainability can strengthen both corporate purpose and customer and employee engagement. In addition, digital technologies can help companies combine improved sustainability performance with better business outcomes.

We found that successful sustainability leadership depends on four priorities:

*Commitment:* According to surveyed executives, the #1 leadership hurdle in developing a post-pandemic workforce is fostering a culture rooted in empathy, adaptability, and innovation.<sup>3</sup> Leaders are embracing sustainability and purpose as a corporate imperative, embedded within their organizations' business strategies and value propositions.

*Deployment:* One in three executives report that increasing sustainable operations is one of their most important business priorities.<sup>4</sup> Tapping digital technologies and data insights can help align operational improvements with better sustainability outcomes.

*Collaboration:* Platform-enabled ecosystems can facilitate open innovation focused on building a more sustainable future. Recognizing the need to support such synergy, 65% of executives say their organization will leverage digital command centers to enable ecosystem collaboration within the next 3 years.<sup>5</sup>

*Transformation:* According to 60% of executives, customers and citizens will access and consume their products and services remotely over the next 3 years.<sup>6</sup> To meet societal and business needs, transformation itself must be an ongoing, sustainable practice—not simply a step, action, or plan.

The Virtual Enterprise brings these priorities to life. We identified 3 key insights that serve as a foundation for responding to and advancing the urgency of sustainability and impact. They are focused on:

- **Stakeholder motivation**
- **Business and societal outcomes**
- **Open innovation**

## Sustainability appeals to and motivates stakeholders



Sustainability and corporate purpose are an increasingly important ingredient of success with customers, employees, ecosystem partners, and the community as a whole.

*The Virtual Enterprise recognizes that because stakeholders (such as customers, employees, companies, and countries/governments) are motivated and animated by sustainability, its influence spans the enterprise experience—from consumer decisions, to workforce issues, to relationships with investors and partners.*

Customers have become more environmentally conscious and aware of the societal impact of their consumer choices. According to a 2021 IBV consumer survey, 93% of global consumers say COVID-19 affected their views on environmental sustainability, and more than 2 in 3 say environmental issues are significantly important to them personally. More than half are even willing to pay a premium for brands that are environmentally responsible.<sup>7</sup> Many consumers are embracing the philosophy of sustainable living, which involves making choices that aim to reduce their individual and society's collective environmental impact.<sup>8</sup>

Consumers are also focused on social responsibility issues, viewing environmental and social responsibility as two sides of the same coin. Roughly 3 in 4 say access to education and ensuring good health and well-being are significantly important to them, while 72% cite ending poverty and hunger.<sup>9</sup>

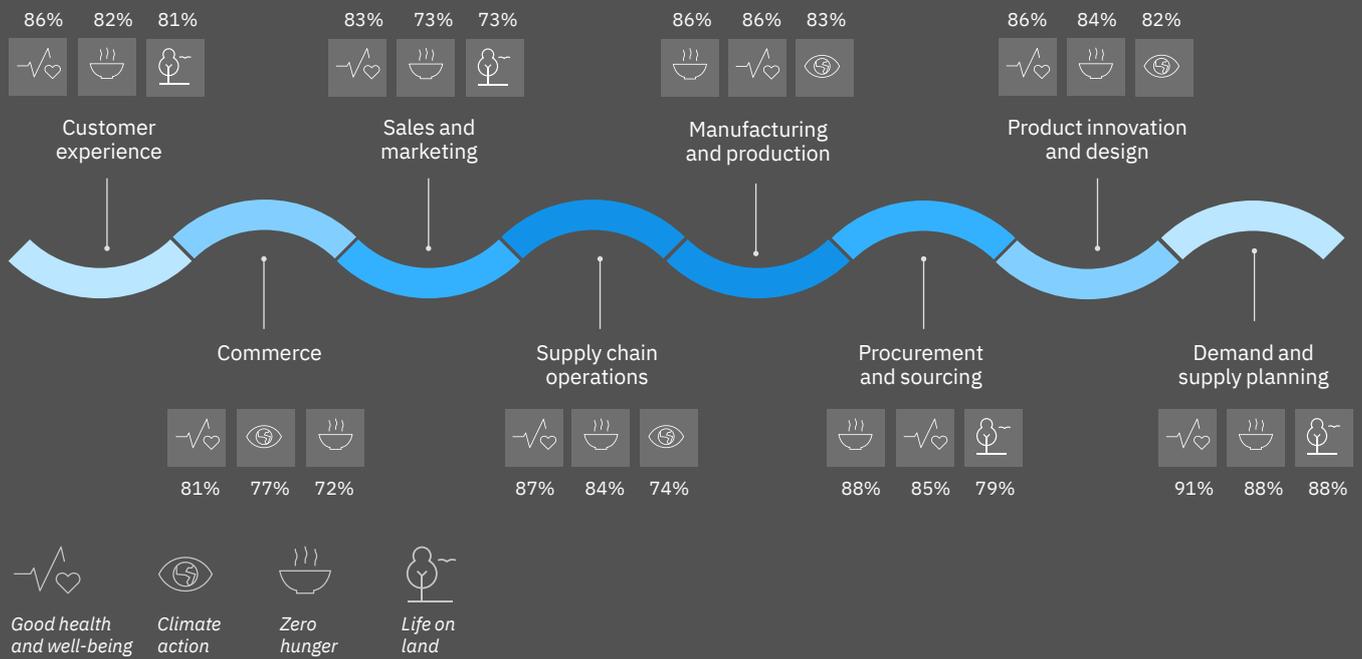
This perspective is echoed when the subject is potential employment: 69% of respondents say they're more likely to accept a job with an organization they consider environmentally sustainable—and roughly half would accept a lower salary to work for such a company. Sustainability can also impact employee retention, with 7 in 10 workers more likely to stay with an employer that has a good reputation on environmental sustainability. In addition, nearly 3 in 4 expect their employers to take action on social responsibility issues.<sup>10</sup>

More and more, investors and financial managers are also incorporating sustainability criteria in their decisions: Blackrock, the world's largest asset manager, announced in early 2020 "that sustainability should be our new standard for investing."<sup>11</sup> Ecosystems, too, are increasingly animated by these goals. Some organizations now include sustainability criteria in their purchasing and business partner decisions, in some cases requiring key suppliers to set carbon reduction targets.

Many companies are moving in the direction of the Virtual Enterprise and incorporating sustainability goals into functions across the value chain (see Figure 3). By embracing responsible sourcing—or considering the social and environmental ramifications of supply chain decisions—organizations can make great strides in creating more sustainable products and services.

**Figure 3**

Consumer companies increasingly consider sustainability across the value chain



Source: Cheung, Jane, Sachin Gupta, Chris Wong, and Sashank Yaragudipati. "The last call for sustainability: An urgent growth agenda for consumer products and retail." IBM Institute for Business Value. August 2021.  
 Q: To what extent are you applying your top 3 sustainability goals as part of initiatives in the following areas?  
 Figure depicts "to some extent" and "to a great extent" responses.

### Does your organization share a common commitment to sustainability with its stakeholders?

- Q1** How have you embedded sustainability as a core element of your value proposition, internally and externally?
- Q2** How are you engaging your customers, employees, and ecosystem partners in shaping and executing your sustainability and social impact objectives?

- Q3** Can you do more to effectively track sustainability data and outcomes and share learnings broadly through your organization and across your ecosystems?

# Yara

## Feeding a growing population

As part of its efforts to create a sustainable world without hunger, Norway-based Yara has built a digital farming platform, Atfarm/FarmX, supporting sustainable farming globally and covering over 10 million hectares of arable farm land. One of the world's largest mineral fertilizer producers and a global leader in digital farming solutions, Yara created the platform to connect and empower independent farmers across the globe.

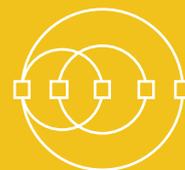
By providing holistic digital services and instant agronomic advice, Yara ultimately helps avoid deforestation and increase food production on existing farmland. For example, the platform provides timely and accurate crop yield forecasts and nitrogen and water management recommendations, supported by hyperlocal minute weather data.

The cloud-agnostic platform follows a pay-as-you-go commercial model and delivers cutting-edge data services. It uses IoT sensors and AI to provide farmers with hyperlocal weather forecasting, crop damage predictions, and real-time fertilization suggestions.

Already accessed by more than 3 million farmers, the platform has enabled Yara to expand its business model and create a competitive differentiator—all while supporting sustainable operations. It has also paved the way for other advanced technologies that can empower farmers, such as blockchain for transparency and trust in trade transactions.



## Deploying technology for societal good can be good for business



Virtualization expands the ability of organizations to open up to new economic opportunities, while becoming more sustainable at the same time.

*The Virtual Enterprise is dedicated to improving society—and that effort can improve business outcomes, too.*

Pursuing an environmental and social agenda and improving business outcomes are not mutually exclusive goals. On the contrary, 7 in 10 executives say achieving sustainability goals can improve operational effectiveness and agility.<sup>12</sup>

The technological forces reshaping the modern economy are not just commercial tools—but tools to address some of the most complex environmental and societal challenges. At the same time, pursuing ESG goals pushes organizations to embrace technology, data, and insights that can enhance business efficiency and opportunity (see Figure 4).

By applying hybrid cloud and exponential technologies to create new business platforms and implementing Intelligent Workflows to drastically improve operations and customer experiences, the Virtual Enterprise aligns business with positive environmental outcomes and societal impact.

Forty-two percent of recently surveyed Chief Information Officers point to sustainability as the business area where digital technologies will have the greatest impact over the next 3 years.<sup>13</sup> For example, virtualization can support decarbonization through digital access for remote working, reducing office space and commuting. It can also underpin the circular economy.

Analytics applied to extended supply chain provenance and predictability can help reduce

waste and align consumption to sourcing. New engines for carbon reduction and renewable energy will arise as climate progress is embedded deeper in the measures and metrics of success for all entities. In fact, 50% of executives say their organization will move toward carbon neutrality in the next 3 years.<sup>14</sup>

We already see digital twins being applied to simulate sustainable practices in big infrastructure. At Hong Kong Airport and the Port of Rotterdam, the combination of operational technology innovation, renewable outputs, and human-machine interactions are driving better outcomes.<sup>15</sup>

In the context of the supply chain, becoming net-zero requires increased visibility across ecosystem workflows, as well as collaboration with partners to develop more sustainable solutions. By integrating data and insight across open ecosystems, the Virtual Enterprise can achieve positive environmental and social outcomes, as well as enhanced organizational value. Moreover, data can be infused into business processes and decision making to drive improved environmental and social outcomes.

From a business perspective, these types of efforts enable organizations to differentiate themselves by turning environmental and societal challenges into marketplace opportunities, benefitting both society and the individual enterprise. In fact, the Business and Sustainable Development Commission has identified a \$12 trillion market opportunity associated with environmental sustainability.<sup>16</sup>

**Figure 4**

## Integrated technologies help support ESG objectives



### **The virtual community: Customers, employees, ecosystem partners**

**Environment:** Open innovation can help solve some of the planet's most daunting challenges

**Social:** The extended virtual community supports agility, diversity, and inclusion

**Governance:** Many environmental and social challenges cut across industry sectors requiring new forms of governance



### **Virtualization and new ways of working**

**Environment:** Remote working can support decarbonization by reducing office space and commuting

**Social:** AI-powered workflows leverage continuous learning and new skill enhancements

**Governance:** Agile and virtual operating models can uncover new opportunities for stakeholder engagement



### **New business platforms and ecosystems**

**Environment:** Platform visibility and transparency enhance ecosystem collaboration

**Social:** New insights to working conditions and sourcing behaviors support cooperation on resolutions

**Governance:** Platforms provide opportunities to promote ethical standards



### **Hybrid cloud and exponential technologies**

**Environment:** Analytics for operational predictability can reduce waste and reinforce the circular economy agenda

**Social:** Digital twins model the physical to simulate sustainable practices in infrastructure and impact decisions

**Governance:** Stakeholder entrepreneurship can provide a holistic lens of people, planet, purpose, and profit impact



### **Human-technology partnerships**

**Environment:** Circularity requires partnerships and technology-enabled platforms

**Social:** New team models and technology create purpose-driven relationships from the home to the community

**Governance:** Ethics and governance issues arise as technology weaves into our lives



### **Intelligent Workflows and transparency**

**Environment:** Intelligent Workflows can monitor and provide insights into energy, water, and waste management

**Social:** Customers and employees make purchase and work choices based on trust in the organization's values

**Governance:** Increased visibility and transparency can transform the way economies operate and govern

Source: IBM Institute for Business Value analysis.

## What business opportunities will your organization's sustainability efforts uncover?

**Q1** How have you applied technology and data to examine and improve your organization's and ecosystem's sustainability and social impact?

**Q2** Are you deploying exponential technologies to break down silos and enable AI-powered processes to identify efficiency improvements that align environmental objectives with business goals?

**Q3** Could you advance and refine the sustainability outcomes and metrics you are using in process improvement and automation efforts?

# Farmer Connect

## Fostering supply chain transparency— and sustainability

Coffee drinkers consume more than half a trillion cups per year, and two-thirds aged 19-24 say they prefer to buy coffee that is sustainably grown and responsibly sourced.<sup>17</sup> But despite progress by international certifying bodies, there is still a lack of knowledge around the need for coffee farmers to earn a sufficient living. The industry's large global supply chain makes tracing coffee difficult, with participants tracking only their small segments of the journey and using their own systems to log data.

Consumers hoping to close the gap between their neighborhood barista and the farmer who grew their coffee now have a solution. farmer connect® has created “Thank My Farmer,” a consumer-facing

application that connects consumers to farmers and everyone in between for a more transparent and sustainable food supply chain. Information is presented on an interactive map, allowing each product to tell a story in a simple and scalable way. The “Thank My Farmer” app also presents sustainability projects in coffee communities and an opportunity for consumers to support them.

The solution is underpinned by blockchain technology that brings all the parties in the coffee and cocoa supply chain together. Farmers, cooperatives, traders, and retailers can interact more efficiently, and consumers can gain new insights about the origins of the products they consume.



## Open collaboration and partnerships are instrumental in tackling vexing societal challenges



Ecosystems and their technology-enabled platforms will be at the heart of solving complex challenges and providing purpose to customers and employees.

***Developing sustainable solutions requires open innovation and collaboration among diverse stakeholders, which the Virtual Enterprise is ideally suited to enable.***

Sometimes new ideas for advancing sustainability come from unexpected sources. Open innovation channels input from a wide range of partners, stakeholders, and other sources across ecosystems.

Going beyond traditional collaboration, open innovation involves breaking down silos to harness the innovation potential and collective intelligence of entire ecosystems. Perhaps with this in mind, 58% of organizations stress that executing their environmental sustainability strategy requires effective engagement with ecosystem partners.<sup>18</sup>

Data, co-created and shared, is one important aspect of this open innovation. Shared data can highlight areas of common interest and help break down barriers. Digital technologies like AI and blockchain can further accelerate discovery, helping cultivate a more sustainable future. For example, digital command centers can facilitate open innovation within an organization, with customers, and across entire ecosystems (see Figure 5). Business platforms enabled by these tools support co-creation and new ways of working in a manner hitherto impossible, fostering the creation of business strategies that align with climate objectives and other social purposes.

But to fully tap the potential of platform-enabled open innovation, traditional approaches and operating models must be transformed from linear processes to more complex dynamics. Ecosystem collaboration must be inclusive of every element in the workflow, as openness helps identify differentiated capabilities.

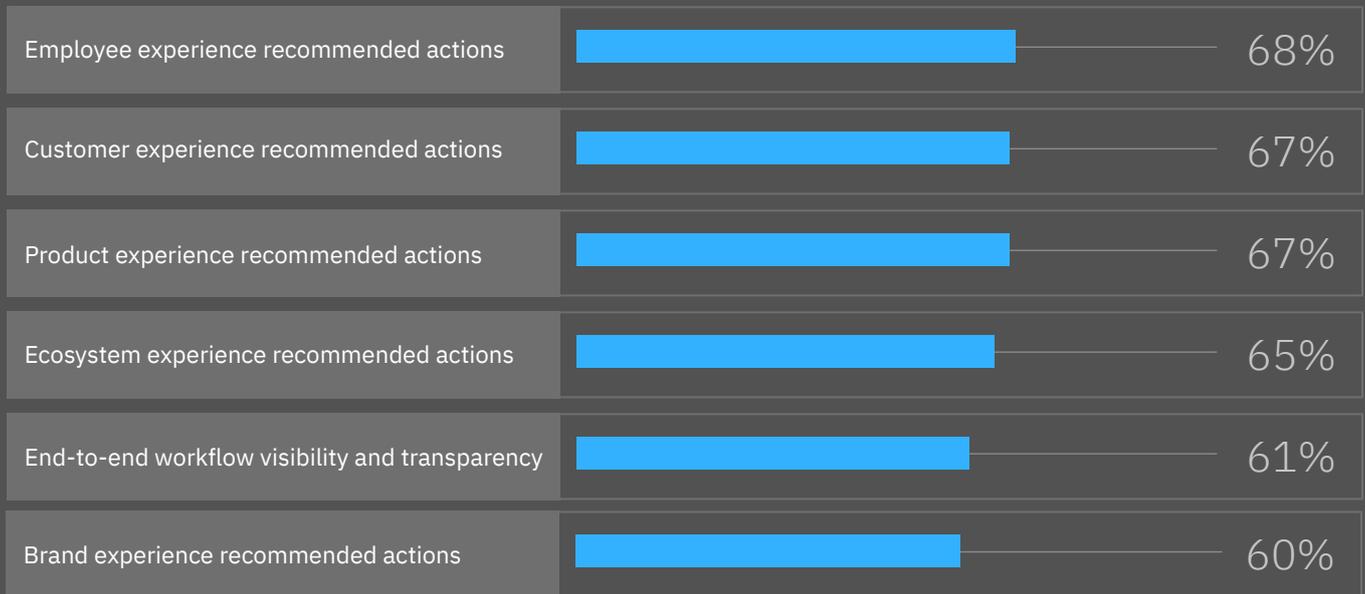
Greater transparency and insight allow consumers, companies, investors, and governments to change the way they buy, produce, sell, transport, consume, and govern, which in turn has the potential to transform the way economies operate. Many environmental and social challenges cut across industry sectors, demanding cross-sector collaboration. Take plastic waste, for example, and the promise of a more circular economy. A chemical company produces ethylene to create plastic, which a manufacturer then uses to make a plastic bottle; a consumer products company fills the bottle with a beverage that's sold to a consumer.

If all goes well, the consumer places the emptied plastic bottle in a recycling bin, from which a transporter collects it and moves it to a waste management company. There it's sorted and sent to a recycling company, which transforms it into recycled polyester. A clothing company then spins the polyester into a fleece jacket for sale at a sporting goods store. Making this sort of circular cycle more routine, efficient, and expected demands cross-industry collaboration—the kind that can be achieved through ecosystem partnerships and technology-enabled platforms.

**Figure 5**

AI-powered digital command centers foster collaboration inside and outside the enterprise

**Digital command centers provide...**



Source: Previously unpublished data from the 2021 IBM Institute for Business Value Virtual Enterprise Survey.  
Q: To what extent do you agree with these statements regarding your organization's use of digital command centers in the next 3 years? Figure depicts "agree" and "strongly agree" responses.

## How does your organization facilitate open innovation?

**Q1** How open is your technology architecture to enable data sharing and collaboration with ecosystem partners?

**Q2** What are you doing to expand participation in open innovation platforms and develop improved collective-intelligence architectures?

**Q3** Do you have ecosystem orchestration capabilities that encourage open innovation to thrive, and how are you measuring and monitoring them for maximum impact?

# Plastic Bank

## Revolutionizing recycling by creating an ecosystem for plastic

The name says it all. Theoretically, Plastic Bank is where plastic is deposited and currency is withdrawn. Practically, Plastic Bank builds ethical recycling ecosystems in the world's most vulnerable coastal communities where collectors come to exchange plastic waste for bonuses. The collected waste is reborn as Social Plastic® for reintegration into products and packaging while the bonuses help collectors improve household income and affordability for basic family necessities such as groceries, cooking fuel, school tuition, and health insurance.

At one end, Plastic Bank strives to eliminate the need for single-use plastic by creating a closed-loop

supply chain for global manufacturing. On the other, it enables collectors in vulnerable communities to become recycling entrepreneurs, potentially lifting millions out of poverty. Plastic Bank has deployed a blockchain infrastructure under the name of Alchemy™ that secures every transaction and provides real-time data visualization—allowing for transparency, traceability, and rapid scalability.

A social enterprise in its true sense, Plastic Bank reveals the value in plastic waste by gathering corporations and consumers together to stop ocean plastic while improving the lives of collector communities in some of the most vulnerable coastlines of our planet.



## Action guide

# Prioritizing sustainability and impact to drive positive transformation

The Virtual Enterprise does not compartmentalize social responsibility into a separate building block or function but, instead, ingrains it into every function across the enterprise. Understanding the importance stakeholders place on social responsibility, the Virtual Enterprise integrates transformation and sustainability efforts both strategically and operationally, leveraging digital technologies to drive progress in both areas.

The Virtual Enterprise relies on technology to drive sustainability efforts, while also expanding economic opportunities. It prioritizes sustainability through collaboration, ecosystem partnerships, and platform participation. Through its open approach, the Virtual Enterprise can unlock new solutions that align with its goals for a responsible, equitable, and sustainable world.

Below are actions to help your organization align its purpose and intent with wider societal impacts:

### Evolve your strategy

- Integrate environmental sustainability and social impact into your enterprise strategy using the United Nations Sustainable Development Goals as a North Star.<sup>19</sup>
- Identify materiality, marketplace, and ecosystem opportunities from sustainability as well as integrated ESG risks including regulatory, financial, economic, and political.
- Recalibrate value using stakeholder capitalism and a holistic lens of people, planet, purpose, and profit impact.

### Expand your tools

- Assess how data, digital technologies, and automation can improve your operations and enterprise workflows while achieving more sustainable outcomes.
- Optimize production processes and supply chains through automation and AI to reduce your environmental footprint.
- Experiment with open innovation and science-led discovery to explore new solutions and possibilities.

### Leverage your platforms and ecosystems

- Engage with ecosystem partners from within and outside your industry to accelerate improvements to workflows and the development of more sustainable products and services.
- Expand your ecosystem network to embrace private, public, and not-for-profit sectors.
- Share what you find broadly and learn from others on an ongoing basis.

### Transform your operating model

- Commit to open innovation in pursuit of more sustainable outcomes and practices.
- Break down internal and external barriers to cooperation.
- Accelerate adoption of new technologies and reliance on transparent data.

### Measure your progress

- Emphasize sustainability in operational metrics, leadership assessment, and investment criteria.
- Establish sustainability benchmarks, measurement tools, and reporting processes.
- Deploy big data and analytics to assess efficiency and uncover opportunity.
- Review, rethink, and reinforce priorities on an ongoing basis as new information and insights become available.

The Virtual Enterprise  
The Urgency of Sustainability  
and Impact



**Sanjay Tugnait**

Chief Market Maker and Global  
Managing Partner, Sustainability  
Practice

IBM Consulting

sanjay.tugnait@ibm.com

linkedin.com/in/sanjaytugnait

Perspectives from  
across the field

Sanjay Tugnait is responsible for shaping and positioning market-making and industry business platforms and developing IBM's value propositions in sustainability to make a difference for clients and the planet. Recognized as a thought leader in sustainability, Sanjay engages with global clients to accelerate their journeys to sustainability and meet ESG goals. He is a strong proponent of UN SDG 17 partnerships to foster collaboration among industry and technology providers and collectively address the UN's social and environmental goals. In addition, Sanjay established Cloud Value Transformation (CVT), IBM's leading growth campaign bringing together hybrid cloud, AI, global business, and technology capabilities to deliver outcome-based transformation engagements for clients with a one IBM approach.



**Sheri Hinish**

Global Executive Partner, Enterprise  
Sustainability, Sustainable Supply  
Chain

IBM Consulting

sheri.hinish@ibm.com

linkedin.com/in/supplychainqueen

Sheri Hinish's purpose is simply to make a meaningful impact for the clients, colleagues, partners, and communities she serves. She helps customers design and build supply chains of the future that empower the human experience, strategically champion stewardship, and create change that is impactful, equitable, responsible, and profitable. Sheri is recognized as the 2021 Top Supply Chain Leader by Supply Chain Digital; a 2021, 2020, and 2019 Supply & Demand Chain Executive Pro to Know; the People's Choice 2020 Global Woman in Supply Chain Leader; a Corporate Vision Excellence award recipient for 2020's Most Influential Leader in Supply Chain & Technology; and a trusted partner for insights in supply chain, retail, manufacturing, sustainability, and the SDGs.



**Manish Chawla**

General Manager, Global Industrial  
Sector and Chemical, Petroleum,  
and Industrial Products Industries

IBM Consulting

Manish.Chawla@us.ibm.com

linkedin.com/in/manishchawla1

Manish is an experienced global leader with a demonstrated history of developing and scaling technology-driven businesses. An ecosystem thinker with an entrepreneurial mindset, he creates high-performing teams and is known for leading complex turn arounds and high-growth missions. Manish's personal passion is helping clients leverage exponential technologies (AI, IoT, blockchain, industry 4.0, AR/VR, 5G, edge, etc.) to fundamentally re-imagine their enterprises in the platform economy and survive (and thrive) in the face of the three climate changes: environment, globalization, and technology. Manish helps clients transform their operations, talent, customer experience, and products in an agile manner and, most importantly, drive sustainable development for themselves and the world.

## Notes and sources

- 1 Cheung, Jane, Sachin Gupta, Chris Wong, and Sashank Yaragudipati. "The last call for sustainability: An urgent growth agenda for consumer products and retail." IBM Institute for Business Value. August 2021. <http://ibm.co/sustainability-consumer-products-retail>
- 2 Previously unpublished data from the 2020 IBM Institute for Business Value AI Value Survey.
- 3 Previously unpublished data from the 2021 IBM Institute for Business Value Virtual Enterprise Survey.
- 4 Ibid.
- 5 Ibid.
- 6 Ibid.
- 7 "Sustainability at a turning point: Consumers are pushing companies to pivot." IBM Institute for Business Value. May 2021. <http://ibm.co/sustainability-consumer-research>
- 8 "What is sustainable living?" Sustainable Jungle website, accessed October 26, 2021. <https://www.sustainablejungle.com/sustainable-living/what-is-sustainable-living/>
- 9 "Sustainability at a turning point: Consumers are pushing companies to pivot." IBM Institute for Business Value. May 2021. <http://ibm.co/sustainability-consumer-research>.
- 10 Ibid.
- 11 Stevens, Pippa. "Here's how the world's largest money manager is overhauling its strategy because of climate change." CNBC website. January 14, 2020. <https://www.cnbc.com/2020/01/14/blackrock-is-overhauling-its-strategy-to-focus-on-climate-change.html>
- 12 Cheung, Jane, Sachin Gupta, Chris Wong, and Sashank Yaragudipati. "The last call for sustainability: An urgent growth agenda for consumer products and retail." IBM Institute for Business Value. August 2021. <http://ibm.co/sustainability-consumer-products-retail>
- 13 2021 IBM Chief Information Officer Study data.
- 14 Previously unpublished data from the 2021 IBM Institute for Business Value Virtual Enterprise Survey.
- 15 Sharon, Alita. "HKIA develops digital twin." OpenGov Asia. October 3, 2019. <https://opengovasia.com/hkia-develops-digital-twin/>; Boyles, Ryan. "How the Port of Rotterdam is using IBM digital twin technology to transform itself from the biggest to the smartest." IoT blog, August 29, 2019. IBM website, accessed April 2021. <https://www.ibm.com/blogs/internet-of-things/iot-digital-twin-rotterdam/>
- 16 "Sustainable business can unlock at least US\$12 trillion in new market value and repair economic system." Business and Sustainable Development Commission press release. January 16, 2017. <http://businesscommission.org/news/release-sustainable-business-can-unlock-at-least-us-12-trillion-in-new-market-value-and-repair-economic-system>
- 17 Goldschein, Eric. "11 incredible facts about the global coffee industry." Business Insider. November 14, 2011. <https://www.businessinsider.com/facts-about-the-coffee-industry-2011-11>; "Millennial coffee drinkers want farmers appropriately rewarded." *Financial Times*. September 24, 2017.
- 18 2021 IBM Institute for Business Value Sustainability Survey.
- 19 "The 17 goals." United Nations Department of Economic and Social Affairs, Division for Sustainable Development Goals website, accessed October 27, 2021. <https://sdgs.un.org/goals>

## IBM Institute for Business Value

The IBM Institute for Business Value develops fact-based, strategic insights for senior business executives on critical public and private sector issues.

### For more information

To learn more about this study or the IBM Institute for Business Value, please contact us at [iibv@us.ibm.com](mailto:iibv@us.ibm.com). Follow @IBMIBV on Twitter, and, for a full catalog of our research or to subscribe to our monthly newsletter, visit: [ibm.com/ibv](http://ibm.com/ibv)

© Copyright IBM Corporation 2021

IBM Corporation  
New Orchard Road  
Armonk, NY 10504

Produced in the United States of America  
November 2021

IBM, the IBM logo, and [ibm.com](http://ibm.com) are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at "Copyright and trademark information" at [www.ibm.com/legal/copytrade.shtml](http://www.ibm.com/legal/copytrade.shtml).

This document is current as of the initial date of publication and may be changed by IBM at any time. Not all offerings are available in every country in which IBM operates.

THE INFORMATION IN THIS DOCUMENT IS PROVIDED "AS IS" WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, INCLUDING WITHOUT ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND ANY WARRANTY OR CONDITION OF NON-INFRINGEMENT. IBM products are warranted according to the terms and conditions of the agreements under which they are provided.

This report is intended for general guidance only. It is not intended to be a substitute for detailed research or the exercise of professional judgment. IBM shall not be responsible for any loss whatsoever sustained by any organization or person who relies on this publication.

The data used in this report may be derived from third-party sources and IBM does not independently verify, validate or audit such data. The results from the use of such data are provided on an "as is" basis and IBM makes no representations or warranties, express or implied.

