INNOVATING FOR A SUSTAINABLE FUTURE

NTT

WHAT ARE LEADERS IN SUSTAINABILITY DOING TO BE MORE EFFECTIVE?

INTRODUCTION

Milton Friedman, the Nobel laureate economist once wrote an article stating that "the only social responsibility of business is to increase its profits." As the world emerges from the pandemic and enters a new era, that view has been replaced by a broader mission for business: to enrich all corporate stakeholders by contributing to the health and wellbeing of people and the planet.

NTT and ThoughtLab conducted a comprehensive study of 500 companies across seven industries and eight world markets to understand this corporate mandate and how firms achieve it. The study examined how firms incorporate sustainability into their business strategies and plans and the outcomes they are seeing. Crucially, it analyzed how they are leveraging digital innovation to achieve their social, environmental, and economic goals.

As part of the research, we grouped companies into three maturity categories based on their progress against a framework of 10 initiatives for driving sustainable innovation (see appendix).

This framework enabled our research team to investigate the business approaches and digital solutions that help sustainability leaders achieve their goals.

It also allowed us to identify a roadmap to sustainability excellence and the steps firms take along their journey. This report presents the key findings of our research and shares valuable insights that will help others follow the path that leaders have created.

THE SUSTAINABILITY IMPERATIVE

Sustainability is no longer an afterthought. More than two-thirds of executives surveyed report that building a sustainable future is a top priority for their boards. The share is even higher in Europe, where 85% say it's a board imperative, and in the US, with 72% reporting the same.

Boards are feeling pressure from multiple stakeholders: investors seeking profits with purpose through Environmental, Social and Governance (ESG) funds; consumers valuing and buying sustainable goods and services; communities expecting companies to support their social and environmental goals; employees desiring to work for firms with sustainable missions; and regulators using their authority to push for the public good.

For many, the pandemic was a watershed moment. Almost half of executives say the health crisis elevated the importance of sustainability goals. Nearly 4 out of 10 companies told us that customers, employees, shareholders, and communities expect them to drive positive change across social, environmental, and economic areas of life. Only a minority of firms—12% worldwide and just 3% in North America and 5% in Europe—see sustainability the old way: as lip service or a drag on profits.

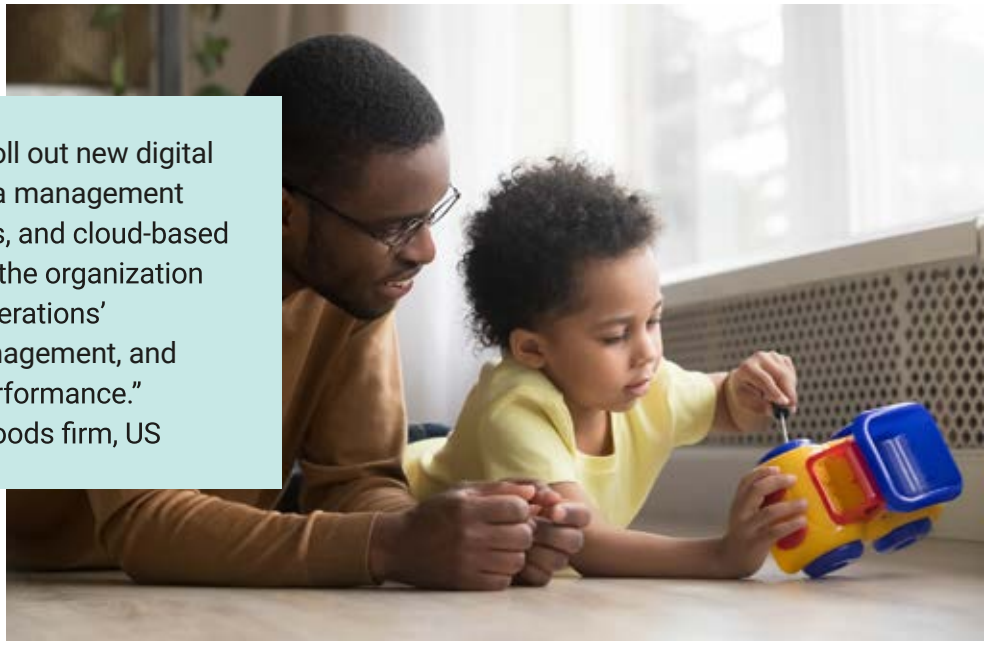
The corporate view on the financial impact of sustainability is changing.

Only a small number of executives, 16% worldwide and only 6-7% in North America and Europe, still believe it is challenging to achieve sustainability goals while meeting shareholder profit expectations.

How firms view sustainability

Digital innovation is key to achieving our sustainability goals	**69%**
Building a sustainable future is a top priority for our Board of Directors	**68%**
The pandemic is elevating the importance of sustainability goals	**47%**
Customers, employees, shareholders, and communities expect our firm to drive positive change across social, environmental, and economic areas of life	**38%**
Our sustainability program enables us to deliver better financial results	**29%**
Our company needs to take a stand on sustainability issues and communicate it in a way that relates to our brand	**27%**
It is challenging to achieve sustainability goals while meeting shareholder profit expectations	**16%**
Sustainability is mostly lip service: the goal of a business is to make a profit for its shareholders	**12%**

Sustainability leaders are even more convinced. About 4 out of 10 believe that sustainability allows them to deliver stronger financial results. Part of the reason is the board's commitment: in 9 out of 10 leader firms, sustainability is a top priority for the board. The bulk of leaders—82%—also recognize that digital innovation is key to driving sustainability.



"We continue to roll out new digital technologies, data management and data analytics, and cloud-based platforms across the organization to improve our operations' safety, waste management, and environmental performance."
CEO, consumer goods firm, US

How firms view sustainability by maturity

BECOMING A SUSTAINABILITY LEADER

To identify where companies are in their journey, we created an analytical framework that measures a firm's level of progress in 10 key areas of sustainability. We classified the 500 companies that we surveyed as sustainability beginners, intermediates, or leaders based on their level of progress in these 10 areas.

Ten key sustainability steps	Leaders	Others	Difference
Set a sustainability vision, strategy, and organization:			
Develop a vision, strategy, plan, and budget	79%	7%	+72
Build organizational structure, skills, and resources	49%	15%	+34
Communicate goals to all stakeholders	42%	23%	+19
Monitor performance against sustainability metrics:			
Integrate goals and metrics into investment decisions	63%	11%	+52
Set, track, and report performance	56%	10%	+46
Utilize common framework (such as GRI, SASB, or TCFD)	47%	7%	+40
Build sustainability deep into the business:			
Harness advanced digital technology	67%	11%	+56
Drive supply chain efficiency and operational innovation	50%	7%	+43
Lead product and service innovation	50%	7%	+43
Embrace business model innovation	45%	6%	+39

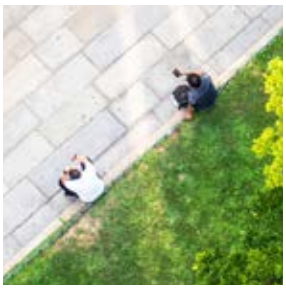
Sustainability Leader Best Practices

We found that leaders are far more advanced than others in these 10 areas of sustainability excellence. Taken together, these steps define a practical roadmap toward sustainability and can be distilled into three key categories of best practice.

(1) Set a sustainability vision, strategy, and organizational structure. Leaders create a foundation for success by setting a vision and strategy, supported by an implementation plan and budget. They know that real change requires people's commitment, so they build the skills, structure, and resources needed to drive sustainability. They also communicate their goals widely to all stakeholders, from investors and employees to customers and communities.

(2) Monitor performance against sustainability metrics. Leaders understand that what gets measured gets done. That is why 63% of them integrate their sustainability goals and metrics into their investment decisions, and over half set, track, and report on sustainability metrics. They also adopt common sustainability frameworks, such as the Global Reporting Initiative, the Sustainability Accounting Standards Board, and the Task Force on Climate-related Financial Disclosures

(3) Build sustainability deep into the business. Leaders recognize that sustainability is not a show of corporate responsibility. It is an essential ingredient for business growth. Leaders embed sustainability into innovation around products and services, supply chains, and business models. And two-thirds harness digital innovation to achieve their sustainability goals.



Top ways leaders plan to drive positive social, environmental, and economic change

Achieving sustainable results is hard work, and leaders plan to take more tangible, measurable, and effective steps over the next two years to drive change. Particularly noteworthy, 50% of leaders plan to set a goal of carbon neutrality (removing an equivalent level of carbon to offset carbon emissions) vs. 39% of others. Similarly, 49% of leaders expect to have a target for becoming Net Zero (removing an equivalent level of carbon to offset carbon emissions) against 42% of non-leaders. But the largest difference between leaders and laggards is that the former plan to move to virtual engagement to avoid the carbon emissions from business travel and commuting. According to the business unit head of a US tech company, "We reduce our travel impact with the use of various technologies, and we record and analyze data to best manage our carbon footprint when we do travel."

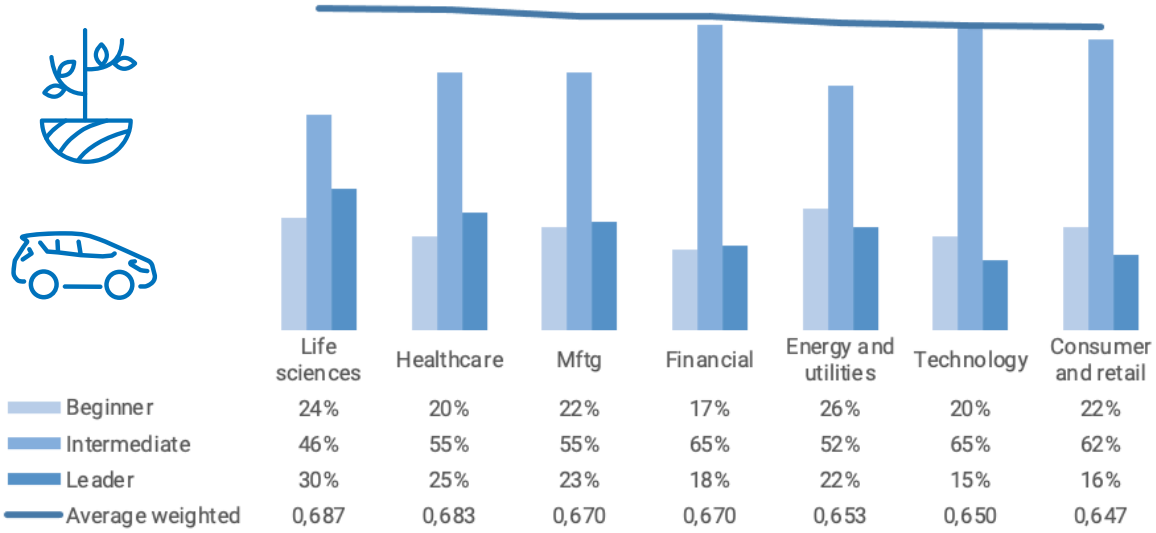
Step	Leaders	Others
Promote and implement ethical business practices	92%	71%
Reduce business travel and commuting (collaborate virtually)	55%	10%
Set a carbon neutrality goal	50%	39%
Set a Net Zero goal for emissions	49%	42%
Ensure suppliers and partners are sustainable	44%	38%
Diversify workforce and hire the underprivileged	42%	37%
Ensure energy efficient buildings and plants	34%	23%
Tie executive incentives to achieving sustainability goals	28%	11%

Leadership by industry, region, and size

The path to sustainability varies by industry. Life sciences and healthcare are among the biggest polluting industries. But our research shows that they are setting higher goals for themselves and are now among the most advanced in sustainability. Manufacturers are not far behind, rethinking design, sourcing, production, and logistics while using green energy and circular economy models to reduce their carbon footprint and deliver more sustainable products and services.

Many technology firms, particularly fast-growing startups, are less proactive in developing a sustainability vision, strategy, and plan and setting the metrics and performance tools to measure their success. Consumer and retail firms are also well behind. Still, with the pandemic elevating the importance of sustainability to consumers, over half of these firms will move more quickly to make up lost ground.

Sustainability maturity by industry

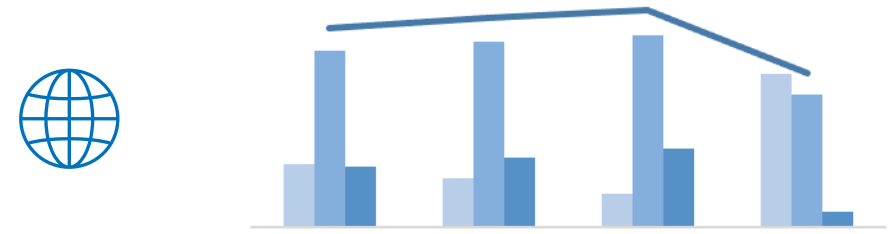


	Life sciences	Healthcare	Mftg	Financial	Energy and utilities	Technology	Consumer and retail
Beginner	24%	20%	22%	17%	26%	20%	22%
Intermediate	46%	55%	55%	65%	52%	65%	62%
Leader	30%	25%	23%	18%	22%	15%	16%
Average weighted	0,687	0,683	0,670	0,670	0,653	0,650	0,647

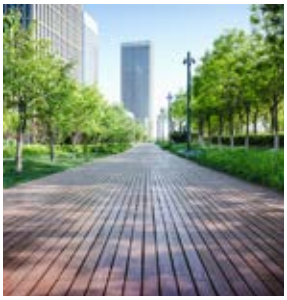
Clearer distinctions emerge by region. Europe holds a slight edge over North America in the percentage of sustainability leaders companies. APAC, which includes Australia, Hong Kong, and Singapore, have significantly fewer. Had we included Japan in our survey, long a champion of sustainability, this gap would not have been so pronounced.

Larger firms, with revenue of $25 billion or more, have made more progress toward achieving their sustainability goals and boast more leaders (25%) and fewer beginners (15%). Larger firms have deeper pockets to invest in green initiatives, face more significant pressure from stakeholders, particularly regulators, and are more apt to see and measure the business benefits.

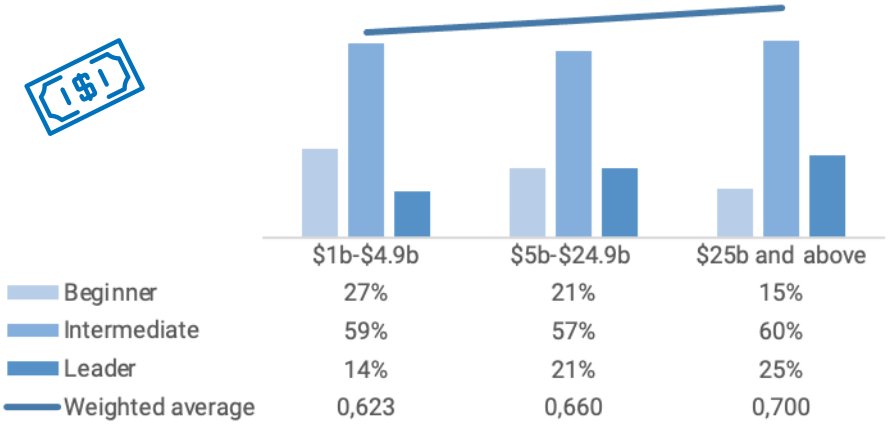
Sustainability maturity by region



	Total	North America	Europe	APAC
Beginner	21%	16%	11%	51%
Intermediate	59%	62%	64%	44%
Leader	20%	23%	26%	5%
Weighted average	0,663	0,697	0,723	0,513



Sustainability maturity by revenue size



ALIGNING SUSTAINABILITY GOALS WITH BUSINESS STRATEGIES

In September 2015, 193 countries worldwide adopted the UN's 17 Sustainable Development Goals (SDGs), a blueprint for creating a more sustainable future by 2030. Since then, companies, including NTT, have taken proactive steps to align their business objectives with the SDGs. This has led to a wider definition of sustainability development, which now covers three broad areas: (1) the social good, (2) the environment, and (3) economic growth and development.

With the pandemic still top of mind for many executives, it is not surprising that health and wellbeing are businesses' chief goals, followed by decent work conditions. Corporate leaders are making greater social commitments, prioritizing education and upskilling, equality, and reduced poverty. One very large consumer goods company reported that it just released new sustainability goals, including 100% renewable energy usage, increased water efficiency, and advancement in supply chains. A large US financial firm said it just achieved its target of carbon neutrality one year before schedule and has set a target of deploying $1 trillion by 2030 in environmental business initiatives.

The technology sector is the most advanced in setting net-zero goals, followed by financial services and consumer and retail. Healthcare is the furthest behind: less than 2 out of 10 have set net-zero goals. The industries stack up differently on carbon neutrality. More firms in energy and utilities, manufacturing, and life sciences have set carbon neutrality targets, while consumers and retail are the furthest behind. Healthcare also trails on this measure.

Goals set	% citing
Net Zero	
Technology	47%
Financial services	42%
Consumer and retail	41%
Energy and utilities	38%
Manufacturing	34%
Life sciences	26%
Healthcare	18%
Carbon neutrality	
Energy and utilities	40%
Manufacturing	38%
Life sciences	38%
Technology	27%
Financial services	26%
Healthcare	25%
Consumer and retail	23%

Each industry is mapping out its sustainability plans.

Industries are typically focused on business mission and strengths. Healthcare sets higher goals than others on health and wellbeing and decent work conditions. For instance, a giant US healthcare firm is striving to provide affordable and high-quality healthcare facilities by managing its healthcare platform with the help of the cloud and digital enterprise platforms. Energy companies are concentrating on goals around clean energy and climate action. One large Canadian energy firm surveyed is developing innovative ideas around photonic networks and renewable energy sources.

Sustainability leaders set their sights even higher, giving increased priority than others to most aspects of people, planet, and prosperity. Leaders are particularly ahead in embracing goals for education and upskilling, equality clean water, decent work conditions and reduced equality.

Leaders are well ahead in setting sustainability goals

Goal	% leaders citing	% others citing	Leaders' edge
Social good			
Health and wellbeing	84%	77%	+7
Education and upskilling	82%	54%	+28
Equality	66%	50%	+16
Reduced poverty	56%	47%	+9
Justice and peace	35%	30%	+5
Environment			
Clean energy	73%	64%	+9
Clean water	67%	51%	+16
Waste management	51%	45%	+6
Sustainable cities and communities	37%	31%	+6
Economic and industry development			
Decent work conditions	77%	65%	+12
Industrial innovation	60%	53%	+7

"Our sustainability strategies include five areas: people, community, customer, environment, and business. We try to bring in improvement in these areas with the help of advanced data management and data analytics, and cloud technologies."
CEO, consumer goods firm, Australia

HARNESSING TECHNOLOGY TO DRIVE SUSTAINABILITY

Digital innovation and sustainability are inextricably linked. On the one hand, digital technology is generally more resource-efficient and the driver of modern green solutions, such as alternative energy sources. On the other hand, sustainability goals foster innovation by introducing new design constraints that shape how firms use resources in their products, services, and processes.

Most senior executives recognize the central role of technology in a sustainability strategy. **Over two-thirds of our study's CEOs, COOs, and business unit heads believe digital innovation is key to achieving sustainable results**. The percentage of **CIOs and CFOs is even higher, 72% and 74%**, respectively. For sustainability leaders, the rate is still higher, 82%.

On average, firms use about four technologies to support sustainability and expect to use five over the next two years. While each technology can help achieve sustainability goals, the combination of these tools can have a multiplier effect on results. For this reason, companies often use several technologies. The three most popular are:

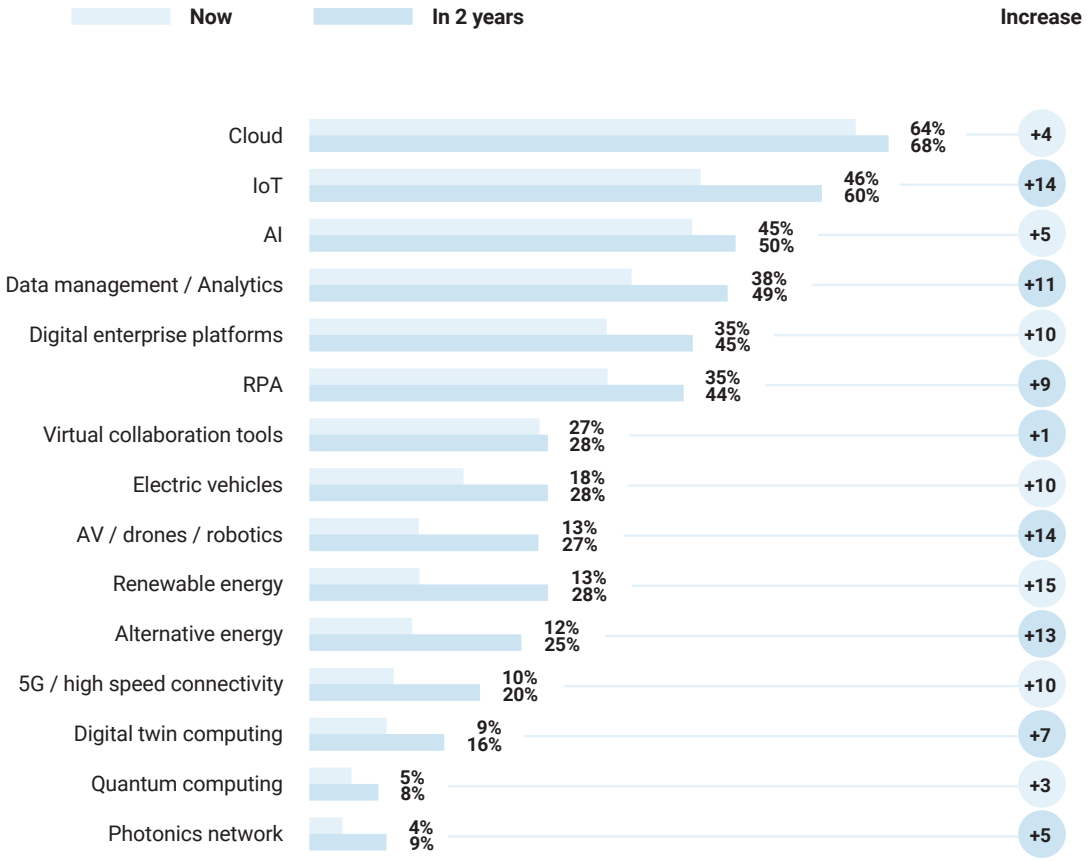
- **Cloud technologies**. The cloud is the most widely used technology to drive sustainability, cited by 64% of all firms and 82% of technology firms. It enables companies to replace high-carbon physical facilities and products with virtual equivalents, helping to reduce energy use and the carbon footprint. It does so by enabling data centers, disaggregated computing, and greater sharing of data. Said the CFO of a large financial services firm in Australia: "The adoption of cloud-based systems has reduced our energy consumption drastically." Tellingly, 78% of sustainability leaders plan to increase their use of the cloud over the next two years.

- **Internet of Things (IoT)**. A full 46% of companies now use IoT to achieve their sustainable goals, and the percentage will jump to 60% in two years. IoT allows businesses in any industry to connect assets, people, and objects in ways that support real-time decision-making and resource optimization. One huge US healthcare firm in our study uses IoT to support flexible working and improve the health and well-being of its employees. A US manufacturer joined the UN's Business Ambition for 1.5°C initiative thanks to its implementation of IoT. And the CEO of a large US technology company told us that the firm "introduced the world's first recycled plastic card reader with the help of IoT, which supports the use of recycled plastic."

•**Artificial intelligence**. AI is another powerful enabler of sustainability, used now by 45% of firms. It can help companies better understand and respond to data coming from myriad sources and teach itself how to optimize and predict resource consumption. The CTO of a manufacturer in Singapore gave an example: "AI is the most impactful technology helping our farmers with valuable insights to improve the quality and quantity of their crops." Our study found many other AI use cases. A UK healthcare company is drawing on AI to reduce carbon emissions and improve public health. A $25-billion-plus consumer goods firm in the US uses AI to generate clean energy and water and produce greener products.

Sustainability leaders rely on cloud and AI more often than others. They are also early adopters of more specialized technologies, such as digital twins. By enabling real-time, virtual simulations of products, processes, or ecosystems, digital twins would allow leaders to test assumptions. The CFO of a UK-based life sciences firm noted, for example, that "by using digital twin computing techniques, we have made innovations in medicines for respiratory, HIV, and other illnesses." For a UK company in the technology sector, digital twins offer an effective way to reduce energy usage and reach their target of net-zero emissions.

Technologies used to achieve sustainability goals



Technologies industries will use in 2 years to support sustainability

	Financial	Healthcare	Life sciences	Tech	Consumer/ retail	Energy/ utilities	Manufact.
Cloud	84%	80%	68%	87%	56%	54%	51%
IoT	65%	73%	44%	88%	52%	52%	51%
AI	52%	50%	56%	82%	38%	35%	48%
Data manage. / analytics	63%	63%	60%	63%	36%	34%	32%
Digital platforms	49%	55%	44%	57%	44%	35%	34%
RPA	39%	58%	42%	53%	52%	31%	38%
Electric vehicles	15%	25%	22%	15%	40%	42%	34%
Virtual collaboration	29%	40%	22%	48%	25%	18%	20%
Renewable energy	10%	28%	34%	23%	27%	54%	32%
Alternative energy	9%	23%	24%	28%	26%	63%	28%
5G/high-speed connectivity	31%	25%	14%	55%	29%	9%	5%
AVs/drones/ robotics	11%	25%	8%	8%	32%	26%	26%
Digital twin computing	20%	23%	14%	33%	10%	8%	9%
Photonic networks	8%	18%	8%	10%	12%	8%	2%
Quantum computing	21%	13%	4%	15%	0%	0%	0%

PARTNERING FOR SUSTAINABILITY

Sustainability is best managed collaboratively through ecosystems that work together to deliver on common social, environmental, and economic goals. Collaboration can create new opportunities and enable organizations to share resources, reduce risks, leverage funding, and build scale and credibility. It can also help organizations overcome regulatory barriers and even create new standards in some cases.

The average firm works with four partners, but leaders typically collaborate with five. While leaders partner more, they also recognize that success depends on hooking up with the right allies. Often these are multilateral organizations, such as the UN or World Bank. Many leaders also set up partnerships with NGOs, industry associations, academic institutions, and consumer groups—alliances that are often overlooked by their corporate counterparts.

Here are the partners that sustainability leaders work with most to achieve their goals:

Multilateral organizations

Sustainability leaders collaborate with multilaterals more than any other type of partner. They are much more likely than others—by 25 percentage points—to work with entities such as the UN, IMF, Asian Development Bank, or World Bank.

While all industries can benefit from working with multilateral organizations, the life sciences sector is particularly active in this area: 58% partner with multilaterals vs. an average of 41% for all industries. For example, the life science and biotechnology industry work closely with the European Green Deal to make Europe the first climate-neutral continent by 2050.

Suppliers and partners

According to a McKinsey report, 90% of a company's environmental impact comes from the supply chain. Yet our research shows that less than one-third of firms ensure suppliers and partners follow sustainable practices. Even firms that do so experience difficulties since sustainability risks can lurk deeper in supply chains, with suppliers' suppliers often based in less regulated markets.

That is why two-thirds of sustainability leaders collaborate with suppliers to achieve their social, environmental, and economic goals. Not only do they establish sustainability commitments with top-tier and lower-tier suppliers, but they put people and processes in place to ensure compliance. According to the CTO of a US manufacturing firm, "We always try to manage, measure, and continuously improve our operations with our supplier communities to help us create a more sustainable supply chain."

Partnering with suppliers can have a domino effect. Suppliers who know their client makes purchasing decisions based on sustainability-driven metrics come under more significant pressure to change. That can be a catalyst for the supplier's own creativity, drive, and motivation.

Non-governmental organizations

Almost half of the sustainability leaders work with NGOs, considerably more than other firms. Entities like the World Resources Institute, Nature Conversancy, Environmental Defense Fund, and the World Wildlife Fund can be a valuable source of innovation, resources, and introductions to other like-minded organizations.

Our research found multiple examples of corporate-NGO partnerships. One CEO of a US technology firm reported that he partners with various NGOs to tackle waste management. A Canadian consumer goods company CTO said his firm collaborates with various NGOs to implement socially responsible procurement practices.

Other partnerships

Sustainability leaders also engage much more with industry and consumer groups. Industry associations, which are excellent sources of ideas for sustainable innovation, are a partner for 45% of leaders vs. 35% of non-leaders. Other partners include external consultants and outsourcing firms, energy and waste management providers, academic institutions, and even state, local or national governments.

Partnerships: What leaders do differently

Partnerships	All firms	Leaders	Difference
Suppliers and partners	48%	65%	+17
Multilateral organizations	41%	66%	+25
Non-governmental organizations	38%	47%	+9
Industry associations	37%	45%	+8
Academic institutions	17%	20%	+3
Consumer/customer groups	14%	26%	+12
Employee groups	13%	16%	+3

DELIVERING RESULTS

Sustainability is not new. While sustainability goals have been building momentum, the pandemic brought the issue into focus for companies and their stakeholders around the world.

Today, sustainability is no longer about corporate altruism or compliance. It is tied to delivering superior business performance. Our research shows that many firms are supercharging their business performance by putting sustainability front and center. Nowhere is this more evident than among sustainability leaders, which are already unlocking substantial financial, operational, and strategic benefits:

•**Greater shareholder value**. For leaders, increased shareholder value is the most often cited benefit. With sustainability on the minds of investors and consumers, it is no wonder that leaders have higher share prices. Over the next two years, more than 6 out of 10 leaders expect to attain greater shareholder value. A CIO told us that "AI has helped in achieving gender equality and empower all women to expand economic growth and business performance."

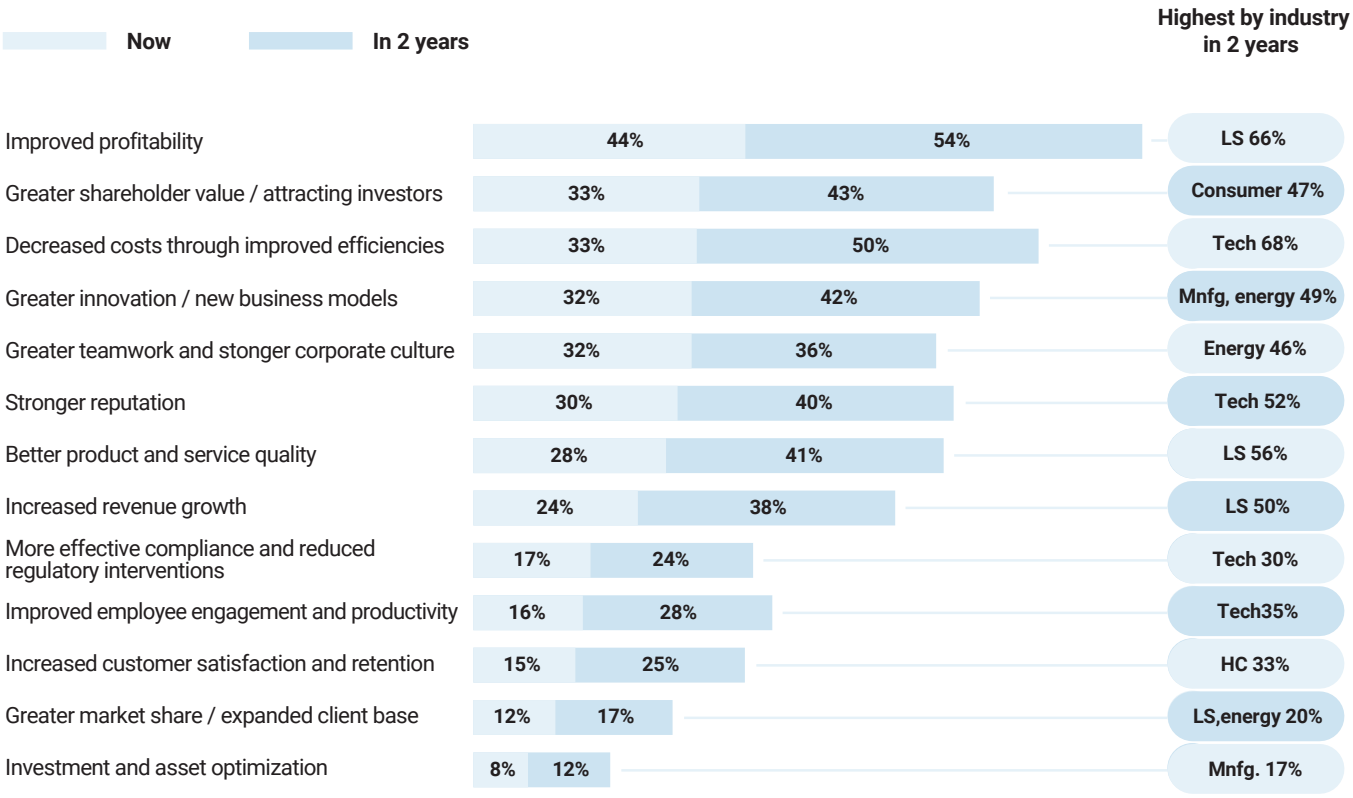
•**Increased revenue growth**. Today, 45% of leaders report top-line growth from sustainability, which will rise to 68% in two years, becoming the main benefit. Thanks to their enhanced corporate reputation and higher demand for environmentally friendly products and services, leaders anticipate more robust revenue growth. Manufacturing, consumer goods, and life sciences enjoy the more significant boosts in revenue. For example, the CIO of a US consumer goods firm told us, "We offer high-quality, affordable, and convenient products that meet customer preferences as well as make our community sustainable."

•**Improved profitability**. About 4 out of 10 leaders report higher profitability from their sustainability programs, and the percentage will grow to more than half in two years. The improved margins come from both sides of the ledger: cost savings from lower energy consumption, less waste, and other efficiencies, and revenue growth from increased customer engagement and employee productivity.

•**Greater innovation and new business models**. Sustainability spawns the development of products, services, and processes that are more resource efficient and environmentally friendly. Said the CTO of a US healthcare firm: "We are providing our customers with product alternatives that are less hazardous, more energy efficient, and use sustainable packaging and shipping materials." Sustainability leaders often go one step further, developing new business models that can attract new customers or create entirely new markets.

•**Other benefits**. Leaders see a variety of other benefits. These include a stronger reputation, greater efficiency and lower operating costs, better product and service quality, improved employee engagement and productivity, and increased customer satisfaction and retention.

Benefits from sustainability strategy



CONCLUSION

The adoption of the UN's 17 Sustainable Development Goals created a sustainability blueprint for the public and private sectors. The global pandemic showed the linkages between these goals and the imperative to move faster to attain them. Today, business and government are working closely together to drive the long-term health and wellbeing of people and our planet.

Sustainability leaders, which are ahead of others in achieving their social, environmental, and economic goals, provide a roadmap to success for others to follow:

1. Build the foundation for sustainability excellence. Set a clear sustainability vision, strategy, and organizational structure; monitor performance against sustainability metrics; and incorporate sustainability deep into the business.

2. Harness digital innovation to drive sustainability results. For leaders, sustainability and digital innovation are two sides of the same coin. Leaders draw more on digital technologies, particularly the cloud, AI, and IoT, and understand that the best results come from interconnecting them.

3. Build partnerships that work together to deliver on common sustainability goals. Leaders work more closely with supply chains and develop ties with a broader range of partners, from multilateral organizations and NGOs to industry and consumer groups.

The business case for sustainability leadership has never been more apparent. Leaders do not just help their stakeholders and the wider world; they also drive greater top-line and bottom-line growth that will translate into higher shareholder value.

APPENDIX: HOW WE DEFINED SUSTAINABILITY LEADERS

To understand how companies are incorporating sustainability and ESG goals into their business strategies and the digital technologies that are helping drive their sustainability agendas, NTT conducted a survey of 500 senior executives worldwide in September-October 2021, in North America, Europe, Asia, and seven key industries.

We classified firms as beginners, intermediates, and advanced/leaders based on their level of progress in implementing 10 initiatives to achieve their sustainability goals.

These initiatives were:

- Develop a vision, strategy, implementation plan, and budget
- Develop an effective organizational structure, skills, and resources
- Communicate goals to all stakeholders: investors, customers, and employees
- Set, track, and report metrics for sustainability performance
- Drive supply chain efficiency and operational innovation
- Lead product and service innovation
- Embrace business model innovation
- Harness advanced digital technology
- Integrate sustainability goals and metrics into investment decisions
- Utilize a commonly used measurement framework (such as GRI, SASB, or TCFD)

According to this maturity framework, beginners comprised 21% of the firms surveyed, intermediates 59%, and advanced/leaders 20%.

INNOVATION FOR A SUSTAINABLE FUTURE

MOVING TOWARD A BETTER US

NTT believes in resolving social issues through our business operations by applying technology for good. We help clients accelerate growth and innovate for current and new business models.

Our services include digital business consulting, technology and managed services for cybersecurity, applications, workplace, cloud, data center and networks – all supported by our deep industry expertise and innovation.

As a top 5 global technology and business solutions provider, our diverse teams operate in 80+ countries and regions and deliver services to over 190 of them. We serve over 80% of Fortune Global 100 companies and thousands of other clients and communities around the world.

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