Fujitsu Uvance

Sustainability Transformation for our **planet**

How do we go from forward thinking to generational thinking?

By Ichiro Aoyagi, SVP and Co-Head of Solution Service Strategic Unit at Fujitsu

As the climate crisis progresses, environmental sustainability will be increasingly essential to long-term growth and profitability of businesses across sectors.

Every industry is now facing calls to reduce its carbon footprint, with demands for sustainability coming from customers, consumers, regulators and lawmakers alike. To stay commercially relevant in the coming decades, organizations must actively minimize their environmental impact as a key part of their operations, just as they seek to maximize productivity and shareholder returns.

> **To achieve our vision of a thriving future, we must move toward a more regenerative society: one in which economies, the environment and people's wellbeing can grow within the boundaries of our planet.**

Stakeholders want to see companies building an environment where people and nature can thrive. This task comes with systemic challenges which demand a variety of solutions across the public and private sphere, including a move towards carbon neutrality and circular economies as key objectives. But these endeavors can be more than ethical obligations or regulatory requirements—they can be a pathway to competitive advantage. Businesses have a chance to leverage sustainability as a profit-driving opportunity.

The key is digital transformation, using technology as a catalyst for regeneration and data as the fuel. By leveraging emerging technologies, businesses can find new ways to innovate and grow their corporate value while simultaneously building an environment where humanity can live comfortably for generations to come.

In this article, we explore some ways that organizations can use digital means to drive this shift. With the right tools at our disposal, it is possible to unlock siloed data that reveals the tangible impact of environmental measures on business outcomes. By drawing a clear line between the two, we can prove that profit does not need to be sacrificed in pursuit of sustainability.

Harnessing your organization's data effectively, and—once this has been achieved—participating in data ecosystems, is the foundation of this change. It starts with four critical steps.

1. Collect the right data

Transformation must begin with information. Businesses need a clear understanding of their current operational processes in order to change them, which means gathering as much data as possible. Technologies such as internet of things (IoT) sensors and 5G networks are critical to enabling this.

Ensuring reliability is an important part of the data-collection process. The value of data relies on its credibility—if it's not trustworthy, it's not usable. It is vital to ensure data quality and integrity before using it to make any informed decisions. Routine data-hygiene audits are useful measures to reveal the areas where inaccuracies are creeping in and infecting data integrity. Identifying these weak points will allow you to embed quality-control fixes that ensure data is correctly formatted, standardized and stored, free from errors and duplicates, and protected with proper cyber security systems. Data lakes and warehouses, combined with best-in-class cyber security solutions, are key to ensuring data reliability.

2. Use the data to visualize businesses processes

Once you have a foundation of reliable data to work with, you can use this to start building detailed insights about your business processes. For example, data obtained from sensors in manufacturing equipment could demonstrate how different aspects of the manufacturing line are working in isolation, which in turn can be used to calculate the environmental impact of each step.

Businesses can strengthen this data visualization by incorporating data from other sources. A rich network of data sources should include data from your partners in your upstream and downstream supply chain, whose carbon footprints contribute to your own. Combining their data in this way will allow you to join the dots between your operational processes and progress against your sustainability objectives.

3. Simulate to unlock valuable insights

Next, apply AI models to digitally map specific processes within the business. One significant implementation of AI is pattern recognition, using algorithms to classify and cluster unstructured data points. This will reveal connections and anomalies in the data, which can identify opportunities to reduce your carbon footprint.

AI has great potential when applied to simulation models, which enable businesses to test scenarios and make informed decisions based on the results. Many companies are already using this technology to predict and plan resource and energy usage, inventory levels, environmental conditions and customer trends.

The insights that AI brings will allow you to significantly accelerate decision-making and forecast future outcomes. Importantly, it will also help you set realistic sustainability goals with a deliverable timeframe and appropriate interim targets. It's no use setting ambitious goals if they are impossible to achieve; lasting change requires actual results, not broken promises.

4. Optimize business operations and track progress

At this stage, your data should be able to paint a detailed picture of your operational activities and their broader environmental impact. You can forecast future conditions, simulate improvements, and anticipate business performance in light of these changes. Now it's time to move from the virtual space to reality.

Use your data-driven insights to optimize and refine your processes for efficiency and sustainability. After executing these changes you should loop back to the first step: gathering more data. This should be used to monitor your progress against sustainability goals, and make adjustments where necessary. Sustainability transformation is an iterative process that takes time to perfect. The more data you gather, the more you can learn and improve.

Accelerate success through digital ecosystems

Mastering your organization's own data by following the four steps above is vital to making progress towards both sustainability and business targets. But no business exists in a vacuum, and a single company can only be one piece of the solution. To create more impactful initiatives, companies must come together to enable cross-border, cross-industry regeneration—enabled by partnerships and data ecosystems.

A data ecosystem is a form of collaborative infrastructure that enables the integration, exchange and analysis of data from multiple sources. These sources could be locally distributed, such as partners within a certain region or business network, or globally distributed across industries, sectors, countries and continents.

Data ecosystems allow companies to expand beyond the frontiers of their own organization and take their sustainability efforts to the next level. Participation in these networks is a critical step on the journey towards carbon neutrality and circular economies. Here's how it's done.

Cross-sector collaboration for decarbonization

When data is shared and combined with other sources, it gains in value, as it can highlight new patterns and connections that generate further insights.

For example, data sharing between companies in a single supply chain allows them to see their combined environmental impact—including Scope 3 emissions. These emissions are particularly tough to calculate as they are produced indirectly by customers using the company's products, or by suppliers making products that the company uses. That means it's impossible to identify their full extent without cross-sector data collaboration.

The success of this cooperative approach can be seen in the European automotive industry. In an unprecedented

collaboration, 28 automotive companies, including BMW and Mercedes-Benz, have united to create Catena-X, an open-data ecosystem with a focus on sustainability. Among its many benefits is a standardized methodology to record and compare carbon data, which will be used to create software that calculates precise carbon emissions across several tiers of manufacturing.[1]

Data ecosystems like these show the power of data sharing in action. Alongside commercial opportunities, they also have a broader, mutual benefit: they allow organizations to take a holistic approach to sustainability.

1   https://catena-x.net/en/benefits/sustainability

Data ecosystems optimize sustainable systems

Fujitsu enabled a cross-sector data collaboration between the World Business Council for Sustainable Development, Arcadis and National Grid in the UK that optimizes the operation of electric vehicles (EV) for grocery delivery. By modelling scenarios on the charging process, we were able to align EV charging schedules with periods with an abundant supply of green energy. This simple change reduced CO_2 emissions by 15% and eased the burden on the power grid, while also introducing capital-efficiency gains.

Supporting sustainable models of production

Global industrialization has raised the standard of living alongside competition for resources, and we now face a future where demand for certain raw materials will outstrip the supply. To ensure we make effective use of these limited resources, we need to create a circular economy centered on sustainable production, consumption and reuse.

Data ecosystems will significantly accelerate these efforts. Data is the lifeblood of the circular economy because it allows us to track objects or resources throughout their lifecycle, understand whether and how they can be reused, and assess their deterioration over time.

This is why the EU has set up a circular-economy monitoring framework that collects extensive data on everything from production and consumption to waste management and secondary raw materials[2]. Armed with this information, the European Commission has set out an action plan with policies to support new sustainable business models in EU member states. We can expect other regions to follow its example.

Initiatives like these are supported by developments in recycling technologies, such as depolymerization, which allow us to recycle a broader range of materials than ever before. Meanwhile, innovations in sustainable product design are helping manufacturers in the electronics industry create more products that can be repaired, reused and remanufactured.

2   https://ec.europa.eu/eurostat/web/circular-economy/overview

Strengthening the circular economy with blockchain

Fujitsu is powering up the circular economy through the use of blockchain technology, exploring its potential for traceability at the enterprise level. We are collaborating with Teijin to create a blockchain-based recycling platform that gives manufacturers reliable and transparent information on the origin of recycled resources and data on GHG emissions. This improves the reliability and the environmental value of recycled materials, encouraging their continued use across the value chain.

Enhancing sustainability metrics

Businesses are increasingly using IoT sensors and analytics platforms to continuously monitor their assets and operations, generating reams of data that they can use to make their processes more energy- and resource-efficient.

The continuous flow of real-time information provided by the IoT brings a deeper level of detail to data ecosystems, which increases the value for those participating in them. This technology is proving to be particularly valuable for large companies with complex supply chains. By connecting buildings, infrastructure and shipments of goods through the IoT, multiple companies can assess their ESG performances in real time and visualize the full impact of their environmental initiatives. Additional analytics can find new connections in the data and reveal correlations between sustainable activities and corporate profits.

This information will become increasingly important as more countries adopt mandatory sustainability reporting legislation. On a strategic level, it allows leaders to connect the dots between their business model and environmental outcomes, helping them to make a strong, data-driven case for sustainability. Those that can clearly demonstrate breakthrough results are more likely to maintain momentum towards carbon neutrality and circular economies.

Trustworthy sustainability metrics increase data's value

Data is only valuable if it's reliable, which is why security and authentication must be the cornerstone of its use. Fujitsu has developed a range of innovative data and security technologies, including our Data e-TRUST service, which offers tamper-proof management of data trails. This transparency gives companies the confidence to take part in secure, cross-industry data-exchange networks that allow them to better track and manage their carbon footprints.

A forward-thinking strategy will have long-term results

Many organizations are focusing their energies on short-term sustainability initiatives that bring immediate benefits, such as carbon-offsetting schemes or lean practices for reducing waste and use of resources.

These are positive steps that can drive sustainability and business opportunities in the short term, but genuine, long-term Sustainability Transformation should go further than reactive action. It's time for business leaders to take a broader view, using digital solutions that enable them to look at returns on investment (ROI) over a longer period.

Companies that go further than just fulfilling their corporate duties and invest in environmental solutions will get enduring benefits. The ones that invest early with an eye to the future will have a first-mover advantage, gaining talent, customers, partnerships and investment opportunities before the companies that are slower to act.

> "As new technologies emerge, we will see industry-wide shifts in energy use, transportation, logistics, retail, construction and manufacturing techniques. That means today's businesses must be preparing now to meet the standards of the net zero era, before they risk falling behind their competitors."

At a minimum, they should be gathering the data they need to calculate their carbon footprints, and confirming their data is secure and reliable, before using it to set meaningful sustainability goals. With this foundation in place, companies will be ready to take part in emerging data ecosystems, which will help them meet those goals.

Taking this more proactive approach to sustainability will help companies to avoid greenwashing, which is when their environmental impact contradicts their brand messaging.

Fujitsu is working on supporting this with a centralized ESG Management Platform that will combine environmental management, reporting compliance and data-integration services in one place.

The data-driven insights it provides will inform recommendations that lead to better business decisions. They will also give companies much better oversight of their sustainability initiatives, putting them in good stead to tackle the environmental challenges of the next decade: water scarcity, urban air pollution, biodiversity loss and extreme weather events.

These are shared challenges that organizations, governments, academics and communities all have a responsibility to address. A regenerative society cannot be a reality unless it becomes a common purpose for everyone – and for businesses, that begins with technology and data.

Key takeaways

1. Develop a data strategy that's centered on sustainability. Consider what data your organization is collecting and using, and think about how you can expand on this. At a minimum, you should be able to accurately track your sustainability progress and make your processes transparent.

2. To take your data to the next level, explore data-sharing partnerships that will help you form a clearer picture of the landscape your business operates in. Invest in a secure data-analytics platform that utilizes AI to identify trends, patterns and anomalies, which will drive both sustainability and business objectives.

3. Use these insights to support circular models of production and consumption—for example, by shifting to products that can be reused, upgraded or repaired, or by finding new uses for scrap and by-products.

4. For significant environmental challenges, adopt a long-term ROI perspective. Aiming for impactful environmental solutions can yield greater returns in the long run—for profits and the planet.

Find out more about our work on Sustainability Transformation and explore how your business can help solve global environmental issues.

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Ichiro Aoyagi joined Fujitsu Limited in 1998, after working at Matsushita Electric Industrial Co., Ltd. (now Panasonic). He formulated and executed international strategies in several business divisions, including international marketing of middleware, promotion of overseas M&As, and international expansion of smartphones.

After earning his MBA from Kellogg School of Management, he was seconded to the Ministry of Foreign Affairs, working on economic partnership agreement negotiations between Japan and Indonesia. From 2013, based in France (Fujitsu Technology Solutions), he launched and expanded the IoT business across Europe. Around the same time, as a director and vice-president of the Japanese Chamber of Commerce and Industry in France, he worked on improving the business environment for Japanese companies in France.

In April 2020, he assumed the position of Head of the Digital Experience Platform Business Unit, launching data businesses such as data analytics and blockchain. From April 2022, as Head of Fujitsu Uvance Unit, he led initiatives aiming to solve social issues globally. He has held his current position since April 2023.

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