

Fujitsu Technology and Service Vision 2024



The rapid evolution of technology, especially AI, and sustainability are now critical management issues.

Fujitsu Technology and Service Vision (FT&SV) is an evolving story that describes the future of business and society we want to create with our customers and partners, the role of technology and the actions needed to make it happen.

The response to the rapid evolution of AI is now a critical management issue. At the same time, many regions are feeling the impact of climate change, including global boiling, affecting both economies and people's daily lives.

How should organizations transform in response to these twin pressures?





AI will increasingly be applied across all business areas.

According to the Fujitsu survey¹⁾, more than half of business leaders believe that their response to AI's rapid advancement will determine the future of their businesses. 88% of organizations said they expect to increase their investment in AI in 2024, compared to 2023.

Organizations are planning to expand their use of AI from automating routine tasks to supporting more complex judgment and decision-making.

AI will drive innovation in the development of products and services, as well as productivity improvement through automating business processes.

Within the next three years, AI usage will expand to areas requiring more complex judgment

Current status of AI usage

Automation of customer service, such as chatbots **52%**

Human tasks supported by generative AI, such as ChatGPT **31%**

Creation of images and other content **22%**

Plan to use AI within three years

Enhancing products and services, such as dynamic pricing **82%**

Enhancing management decision-making **79%**

Automating business processes, such as supply chains **74%**

Number of samples: 798 (organizations who answered 'engaging in digital transformation')

1) Fujitsu commissioned Oxford Economics to conduct a survey of 800 CxOs from 15 countries in January 2024 (online and partially interviewed).

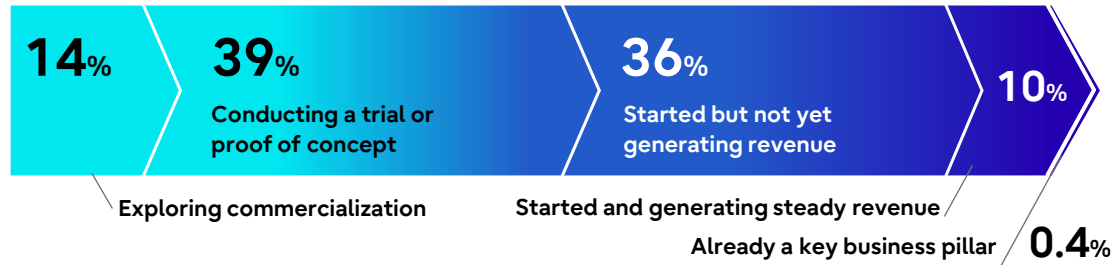
Environmental and social sustainability are inseparable from corporate sustainability.

Sustainability challenges such as climate change and energy supply are also having a significant impact on business.

In our survey, over half of organizations engaged in sustainability transformation identified initiatives such as achieving more sustainable use of energy, decreasing waste and promoting recycling as important business opportunities.

However, so far, only a few organizations have started to generate revenue from these business opportunities. Organizations need to transform themselves to establish sustainability as one of their key business pillars.

Progress in the commercialization of sustainability opportunities



Number of samples: 794 (organizations who answered 'engaging in sustainability')
Calculated based on the progress in the commercialization of each for the top three key business opportunities selected by respondents

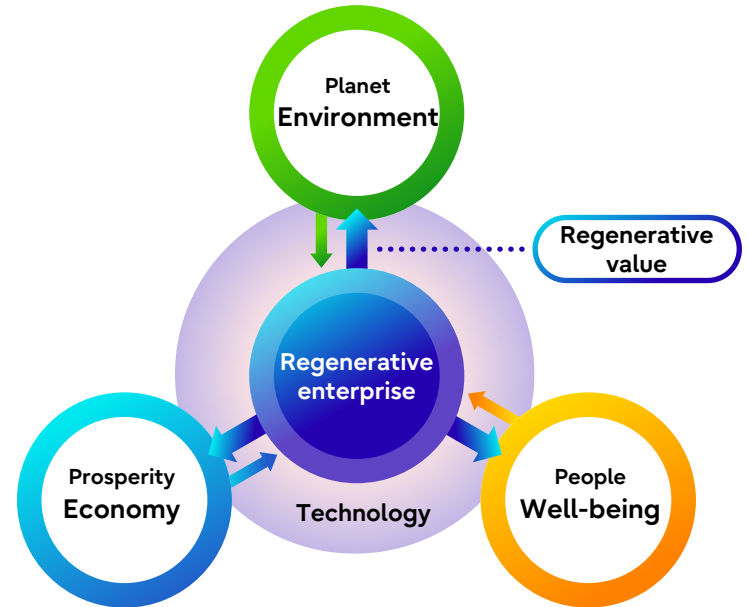


Transformation to regenerative enterprise is key.

We believe that by harnessing the power of rapidly evolving technologies such as AI, organizations can streamline their businesses and accelerate sustainability transformation, helping to regenerate the environment and people's well-being while creating new economic models.

We describe an organization that uses technology to create net positive¹⁾ regenerative value to the environment, economy and well-being as a regenerative enterprise.

A regenerative enterprise focuses on implementing sustainability initiatives as a business while at the same time driving business growth.



Creating net positive regenerative value with technology

1) Net positive: to have a positive rather than negative impact on environment and society.

The four characteristics of regenerative enterprise.

We will now explore four specific characteristics that help to define regenerative enterprise: who creates value, what value is created, how value is created and where value is created.

We describe how organizations will transform, describing possible future scenarios for regenerative enterprise and the emerging technologies required to make them possible.

— Who

1. AI is becoming our trusted assistant



— What

2. Regenerative value from AI and data



Regenerative
enterprise

— How

3. Autonomous distributed decision-making



— Where

4. Physical-digital converged ecosystems



1 | Who

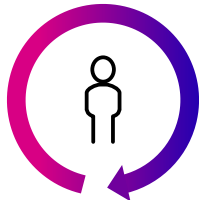
With AI as a trusted assistant, people and AI will create new value and grow together.

Previously, value has been created by applying human knowledge and experience. From now on, people and their assistant AI will play a central role in creating value for organizations.

By complementing each other's strengths, people and AI will boost both productivity and creativity. This will help to improve well-being across society, enabling people to develop their creativity and drive value creation.

Today

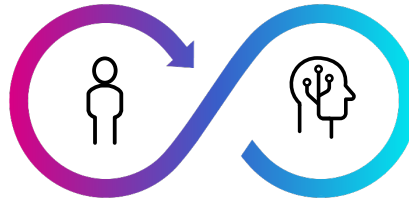
Value creation based on human knowledge and experience



People

Future

Value creation through human-AI collaboration



People

AI

Future scenario #1

Being more creative with AI

Eddy is leading new product development at SustenaFood. He collaborates with planning and research AI using sign language to design new products. With designer AI, he creates a virtual store and conducts test marketing to fine-tune his planning. Collaboration with multiple AIs increases productivity and helps Eddy to enhance his individual creativity continually.

Natural communication with AI and trust will promote people-AI collaboration.

Generative AI will evolve into a multimodal AI that interprets diverse information such as images and human emotions, enabling people to interact with AI more naturally. By using Large Language Model (LLM), people will access AI platforms consisting of multiple AI models and knowledge graphs.

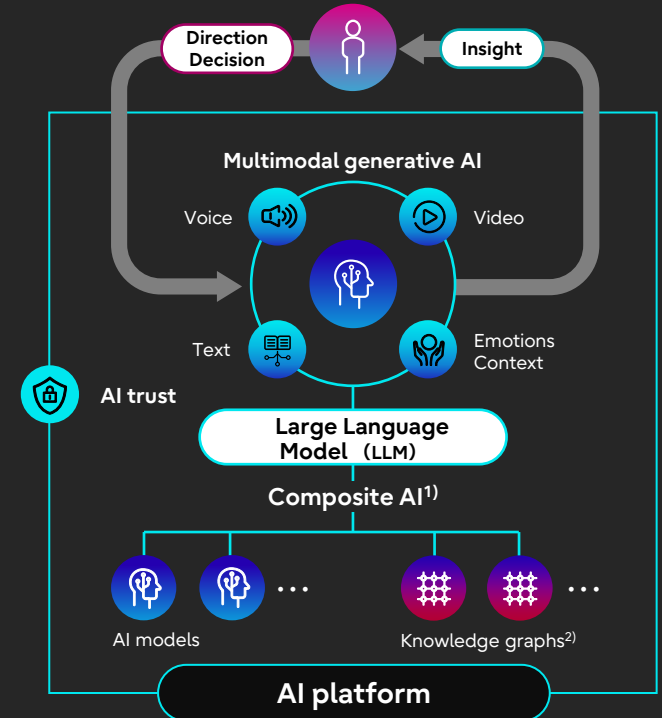
Generative AI trust technology, addressing issues of disinformation, bias, and fairness, will become increasingly important, enabling people to trust AI and use it with confidence. By gaining insights from trusted AI, people will develop new skills and knowledge, while the capability of the AI platform itself will also be strengthened.

Fujitsu R&D focus areas

We're developing and introducing the latest AI technologies on our AI platform to help organizations accelerate their AI adoption.

- Platform to accelerate AI adoption
- Generative AI and Large Language Model (LLM) for automation
- Generative AI trust technologies, improving trust in AI

Interactive communication between people and AI



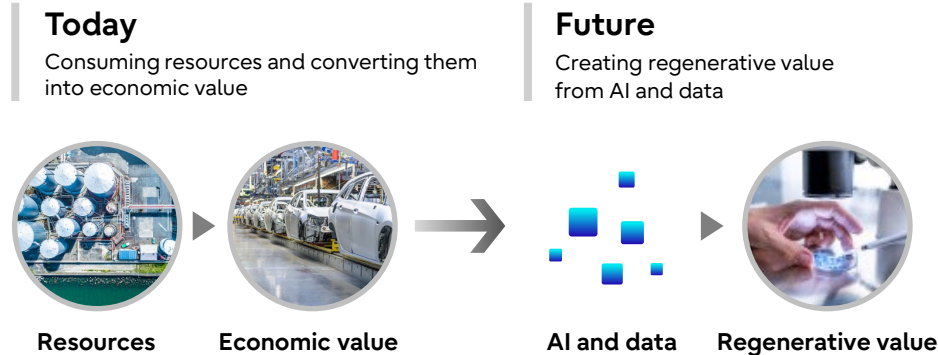
1) Composite AI: AI technology automatically orchestrating multiple AI models and knowledge graphs

2) Knowledge graph: a systematic graphical representation of various knowledge connections

Regenerative value will be created by using AI and data.

We have previously created value by consuming natural resources. In the future, it will be possible to create regenerative value for the environment, economy and well-being from AI and data.

The rapid evolution of AI and computing will enable end-to-end development processes to be carried out much faster in the digital space. Combining enhanced computing power with low power consumption will help to solve complex environmental and social issues.



Future scenario #2

Developing sustainable foods

Taylor, a food scientist, is researching cultured meat¹⁾. By analyzing multiple biological processes relating to cell growth and protein synthesis, AI helps Taylor to discover chemical substances for rapid cultivation. He conducts simulation for safe verification and mass production. By using AI and computing, SustenaFood can produce sustainable meat with low environmental impact.

1) cultured meat: a new type of meat produced by the culturing of animal cells.

The integration of AI and computing helps to overcome complex challenges.

Creating regenerative value from data requires building and linking AI models through R&D, manufacturing and evaluation processes. The integration of AI and computing makes this possible.

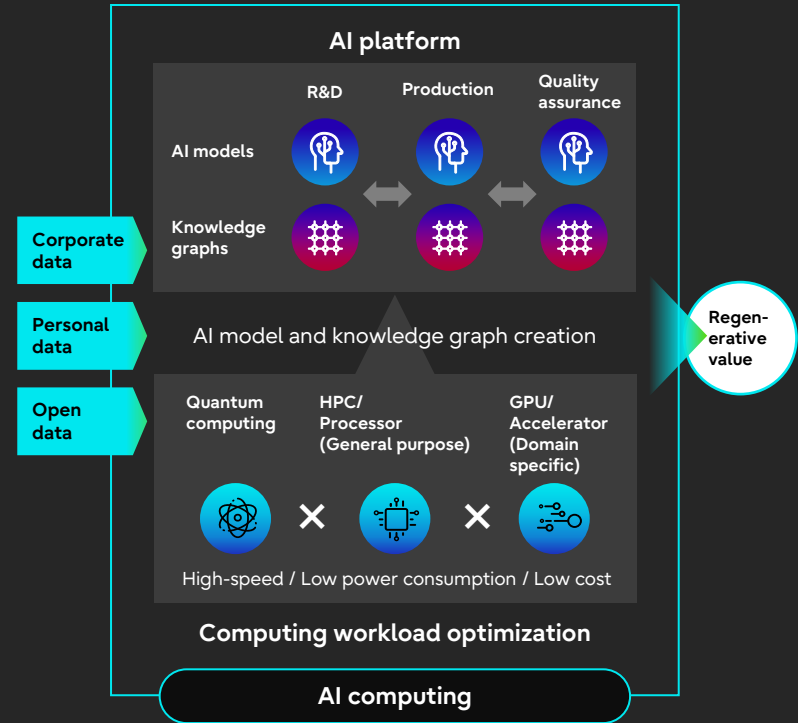
Intensive research into the inference of complex causality is now being conducted by combining multiple data sources with specialized AI models and knowledge graphs. Energy-efficient computing, optimized for large-scale data processing, AI models and knowledge graphs will help to overcome complex challenges.

Fujitsu R&D focus areas

We're advancing and integrating AI and computing technologies to enable the creation of regenerative value.

- Using AI to derive causal relationships from large-scale data
- The evolution of computing with AI
- Large-scale computations with Quantum-HPC hybrid computing

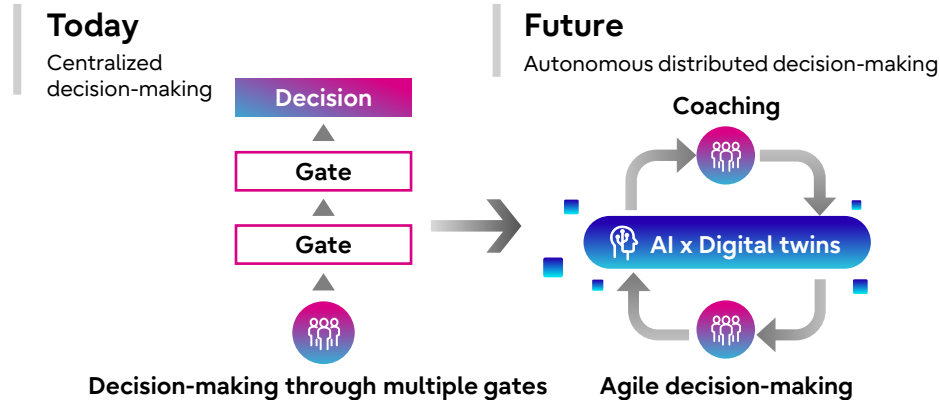
Regenerative value from combined AI models



Agility will be improved by enabling autonomous decision-making.

In the face of uncertainty and disruption, the shift from multi-stage decision-making to autonomous decision-making can strengthen organizational resilience. Simulations that predict what is likely to happen in changing circumstances can enable front line decision-making. By recognizing situations in real-time, front-line teams can respond flexibly and quickly to change.

In turn, management and support functions can understand front-line challenges, providing data-driven coaching and oversight to help them to work more autonomously.



Future scenario #3

Enabling quick decision-making

Sarah is promoting a personalized delivery service of products created by Eddie and Taylor. Using digital twins and AI, she predicts products and quantities for each household, updating procurement, manufacturing and logistics in real time. Digital twins and AI support rapid decision-making to address personalized needs, helping reduce food waste while improving customer satisfaction.

Digital twins and AI enable autonomous decision-making.

Federated digital twins can connect and visualize the status of customers, manufacturing, HR and other functions, collaborating with specialized AI models to support decision-making on the front line. Rapid decision-making is made possible by sharing the results of digital rehearsals with stakeholders, enabling them to evaluate multiple scenarios across functions.

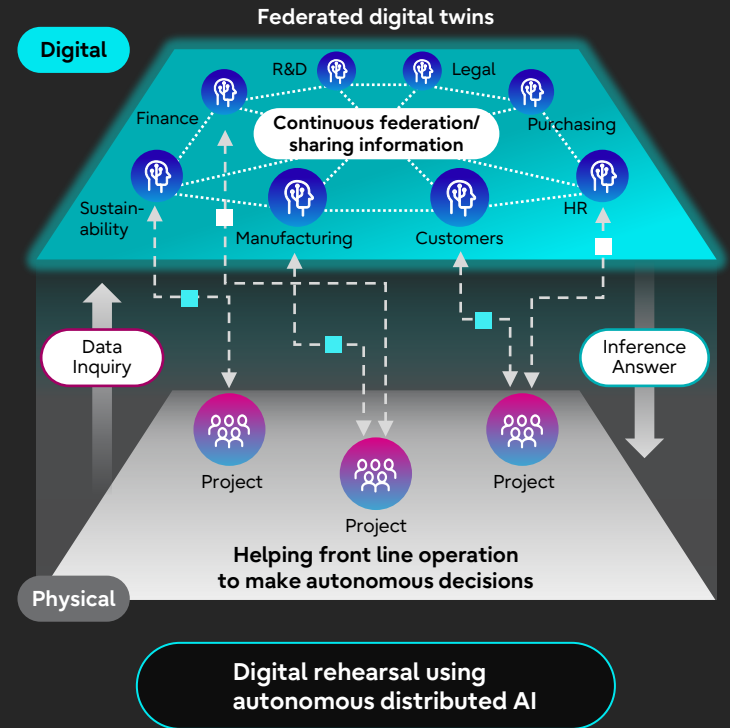
In addition, by incorporating knowledge from the humanities and social sciences into AI, organizations can create projects that reflect individual work styles and skills. Improving autonomous decision-making at a project level will improve overall organizational agility as well as the productivity and well-being of the project members.

Fujitsu R&D focus areas

We're helping to improve business agility and resilience in society by researching converging technologies, integrating digital technology with the humanities and social sciences.

- Federated digital twins supporting decision-making
- Predictive simulation through digital rehearsals
- Understanding and predicting human behavior

Supporting autonomous decision-making



4 | Where

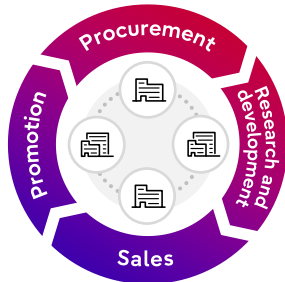
Co-creation with common purpose in the physical-digital converged world.

In the future, co-creation among stakeholders with shared purpose will be possible in the physical and digital converged world. Building trusted ecosystems that leverage digital trust technology will connect organizations, helping them do business with confidence.

We expect a new digital economy to emerge, distributing regenerative environmental and well-being value as tokens across trusted ecosystems. This will help change the mindsets and behaviors of people and organizations.

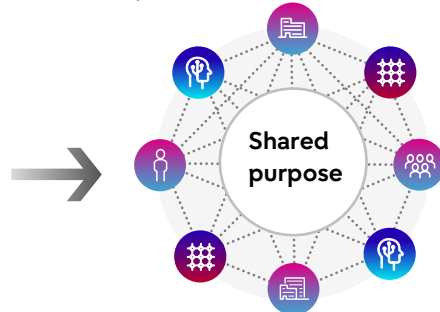
Today

Business through physical-world value chains



Future

Business in physical-digital converged ecosystems



Future scenario #4

Co-creation with purpose

SustenaFood is co-creating with ecosystem partners that share its purpose of 'achieving well-being through food innovation'. Digital trust securely shares personal data, granting tokens in response to individual health initiatives that can be used in exchange for partner services. People's interest in health will grow, with new services co-created across industries.

Digital trust facilitates data sharing and the distribution of regenerative value.

Web3 technology ensures trust in people and data. Distributed identity technology protects people's identities, while blockchain ensures trust in the value being distributed as tokens. Security technologies ensure trusted data. Anti-fake technology, which detects disinformation generated by AI, enables safe and secure data sharing.

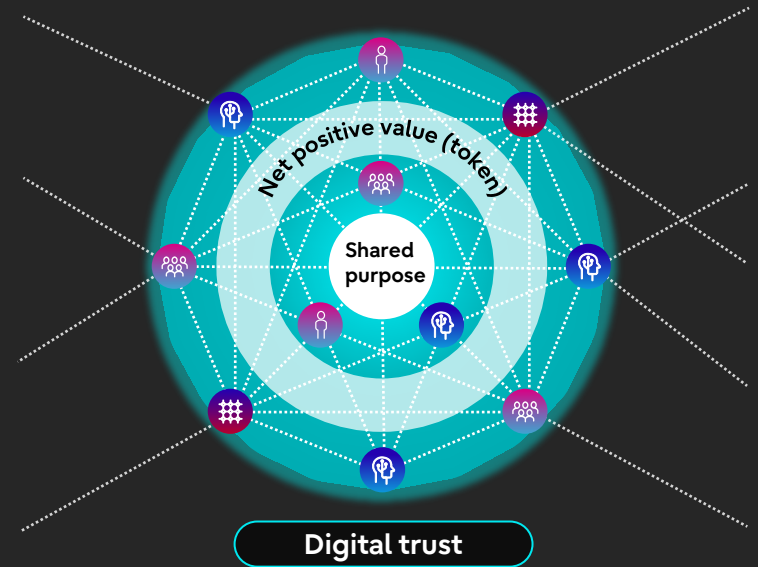
The convergence of 6G networks and AI enables the intelligent networks required to distribute regenerative value. Digital trust will contribute to the development of a new economy, enabling the exchange of intangible value tokens such as carbon credits and plastic waste recycling.

Fujitsu R&D focus areas

We're contributing to the creation of trusted ecosystems by advancing digital trust through the convergence of security, networking and AI technologies.

- Building digital trust through data and security technology
- Using AI to enhance trust between the physical and digital worlds
- Distribution of trust value through intelligent networks

Distribution of regenerative value through trusted ecosystems



Web3

- Distributed ID (SSI/DID¹)
- Blockchain
- DAO²

Security

- Trustable Internet
- Anti-fake, AI security, and continuous authentication

Network

- 6G
- Intelligent networks

1) Self-Sovereign Identity (SSI): The concept of allowing individuals to own and manage their identity DID (Decentralized Identifier): An identifier used to provide distributed identity management

2) DAO (Decentralized Autonomous Organization): A form of blockchain-based organization characterized by the autonomy of each member without the need for a centralized administrator

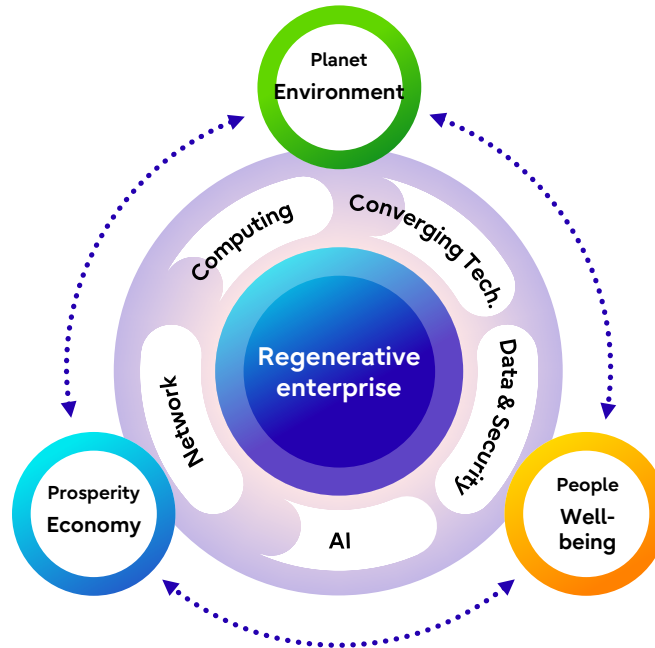
Regenerative enterprise leverages AI and other technologies to create net positive value.

Efforts to regenerate the environment, economy and well-being through technology are gathering pace across all sectors.

Fujitsu is collaborating globally with companies, start-ups and universities to pursue joint research and proof of concepts into technology innovation that will benefit business and society.

Creating resilience with AI and digital twins

Enhancing resilience will enable local regions to stimulate their economy and well-being by attracting new talent and investment. Fujitsu is currently working to create safe and secure communities around the world by using digital twins, including in Helsinki, Pittsburgh, and Kawasaki.



Developing CO₂-free next-generation energy with AI and HPC

Green hydrogen and ammonia, which do not emit CO₂ between generation and combustion, are attracting attention as potential next-generation fuels. Fujitsu is collaborating with an Icelandic start-up, using AI and HPC to discover catalyst materials capable of enabling the efficient synthesis of ammonia.

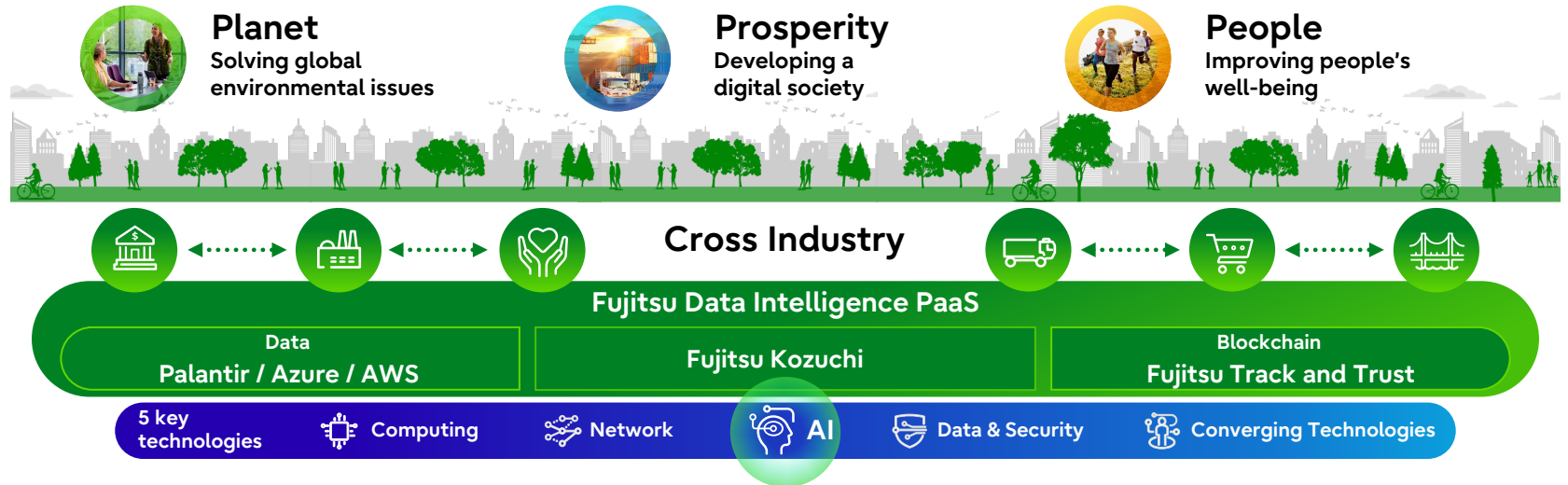
Using AI and computing for healthcare innovation

By extending healthy life expectancy, people can enjoy new possibilities and longer, fuller lives. Fujitsu has been conducting research with Kyoto University and Chordia Therapeutics to discover biomarkers for the development of new cancer drugs.

Fujitsu Uvance – combining digital platforms and advanced technologies to meet environmental and social challenges.

Addressing environmental and social challenges such as climate change and a declining working population requires a cross-industry approach. Fujitsu provides Fujitsu Uvance to help organizations address these complex challenges.

Fujitsu will contribute to solving global environmental issues, developing a digital society and improving people's well-being. To achieve this, we're using Fujitsu Kozuchi AI platform, Fujitsu Track and Trust blockchain technology and our data intelligence platform, combined with our deep industry skills and expertise.





To address social issues, we're strengthening Fujitsu offerings to focus on four cross-industry areas.

We're continuing to strengthen Fujitsu Uvance offerings by focusing on four critical, cross-industry areas.

This is helping us create solutions capable of cross-industry data utilization, enabling new offerings and services aimed at solving complex societal issues.

Fujitsu Uvance – focused areas and offerings



Sustainable Manufacturing

Driving environmentally-aware, recyclable, traceable manufacturing

- ESG Management Platform
- GHG Visualization and Reduction
- Engineering Accelerator
- Supply Chain Risk Management
- Supply Chain Planning



Trusted Society

Creating a safe, secure and resilient society

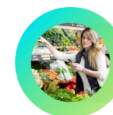
- Connected Front-line Worker
- Unified Logistics



Healthy Living

Supporting the well-being of all people

- Digital Care Platform
- Virtual Pharma



Consumer Experience

Delivering diverse consumer experiences across payment, retail and distribution

- Omnichannel Services
- Personalized Marketing Services

We're driving sustainability transformation through Fujitsu Uvance around the world.



Centralized management of environmental value data

IHI Corporation

The heavy industry group IHI worked with Fujitsu in anticipation of full-scale trading of CO₂ emissions. Fujitsu's ESG Management Platform was deployed to address system-wide silos and to respond to environmental challenges. The Platform enables siloed data to be managed while enabling quicker decision-making. It also helps accelerate new environmental businesses.



Providing disaster countermeasures using digital twins

Hexagon

Hexagon, the global leader in digital reality solutions, and Fujitsu have been working together to support safe and secure urban development. We have jointly developed use cases by using digital twin technology that can predict and visualize damage from natural disasters. Organizations can now perform complex flood calculations and formulate disaster response plans using prediction models and precipitation data.



Analysis and visualization of patient journeys

Takeda Pharmaceutical Company Limited
National Cancer Center Hospital East

Leading pharmaceutical company Takeda and Japan's National Cancer Center Hospital East, working with Fujitsu, have extracted and standardized pseudonymized medical data from ovarian cancer patients to enable the visualization of treatment patterns by Fujitsu's Healthy Living Platform. In the future, we will create a digital health ecosystem by collaborating with a wide range of well-being organizations.



Improving customer contact through headless commerce

Life Corporation

Life, a chain of more than 300 supermarkets in Japan, needed to enhance customer experience and meet fast-changing customer needs. They utilized Fujitsu's Flexible Commerce, a new headless commerce¹⁾ solution, to create an omnichannel system capable of operating across multiple service channels.

¹⁾ Headless commerce: Headless commerce is an e-commerce architecture where the front-end is decoupled from the back-end commerce functionality

It's time to embark on your sustainability transformation journey.

How can we address the challenges posed by sustainability and the rapid evolution of AI? We have outlined the transformation to regenerative enterprise as our future vision, enabling organizations to revitalize the environment, economy and well-being through the deployment of AI-driven digital technology.

We can realize a more sustainable society by combining AI with other digital technologies to address the specific social and environmental issues we face. It's time for us all to embark on the transformation to regenerative enterprise. By harnessing the power of AI and other technologies, we can work together towards a more sustainable future.



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