TOSHIBA

Toshiba Group Management Policy

June 2, 2022

Toshiba Corporation

Representative Executive Officer,
President and CEO

Taro Shimada

Thank you for the introduction. I am Shimada, Representative Executive Officer, President and CEO of Toshiba Corporation. Thank you very much for joining us today.

Today, I wish to share with you our long-term vision for Toshiba Group. Our Company is currently considering strategic alternatives including privatization as one option and, as stated, we are pleased to have received strong interest from a range of potential participants that recognize the enormous value inherent in Toshiba. We intend to complete the process with an appropriate level of transparency.

At the same time, we recognize the need for clear and ambitious long-term vision for our Company to guide our internal actions and decision-making, even as the Company continues to create more detailed financial estimates and to assess these strategic alternatives.
Our management team believes it is essential to have this agreed-upon vision for transformation so that we can develop and advance a detailed plan of action for the near term that will preserve and enhance the corporate value.

I am pleased to share the high level outline of our vision approach to the future with you today.

Forward-looking Statements and Other Cautionary

- This document has been translated from the Japanese-language original document for reference purposes only. In the event of any conflict or discrepancy between this document and the Japanese-language original, the Japanese-language original shall prevail in all respects.
- This document contains forward-looking statements, prospects and targets concerning the future plans, strategies, and performance of Toshiba group.
- These statements are not historical facts; rather, they are based on assumptions and judgments formed by the management of Toshiba group in light of currently available information. They include items which have not been finalized at this point and future plans which have yet to be confirmed or require further consideration. Toshiba therefore cautions readers that actual results may differ from such statements.
- Since Toshiba group promotes business in various market environments in many countries and regions, its activities are subject to a number of risks and uncertainties which include, but are not limited to, those related to economic conditions, worldwide competition in the electronics business, customer demand, foreign currency exchange rates, tax and other regulations, geopolitical risk, and natural disasters. Toshiba therefore cautions readers that actual results may differ from those expressed or implied by any forward-looking statements. Please refer to the annual securities report (yuukashoken houkokusho) and the quarterly securities report (shihanki houkokusho) (both issued in Japanese only) for detailed information on Toshiba group's business risks.
- Unless otherwise noted, all figures are 12-month totals on a consolidated basis.
- Results in segments have been reclassified to reflect the current organizational structure, unless stated otherwise.
- Since Toshiba is not involved in the management of Kioxia Holdings Corporation (formerly Toshiba Memory Holdings; hereinafter "Kioxia") and is not provided with any forecasted business results for Kioxia, Toshiba group's forward-looking statements concerning financial conditions, results of operations, and cash flows do not include the impact of Kioxia.

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Today's Agenda

01 Toshiba Group's Vision

02 Current Status of Toshiba Group

03 Resolving Corporate Challenges

04 Toshiba Group's Vision for Evolution: DE→DX→QX

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This is the agenda today.

“Committed to People, Committed to the Future,” this is the basic commitment of Toshiba.

This was not created yesterday or today. It has been around since the 1990s and these words make Toshiba people be proud of Toshiba.

And “We turn on the promise of a new day” is our purpose.

This is exactly what makes Toshiba as “Toshiba.”

01

Toshiba Group’s Vision

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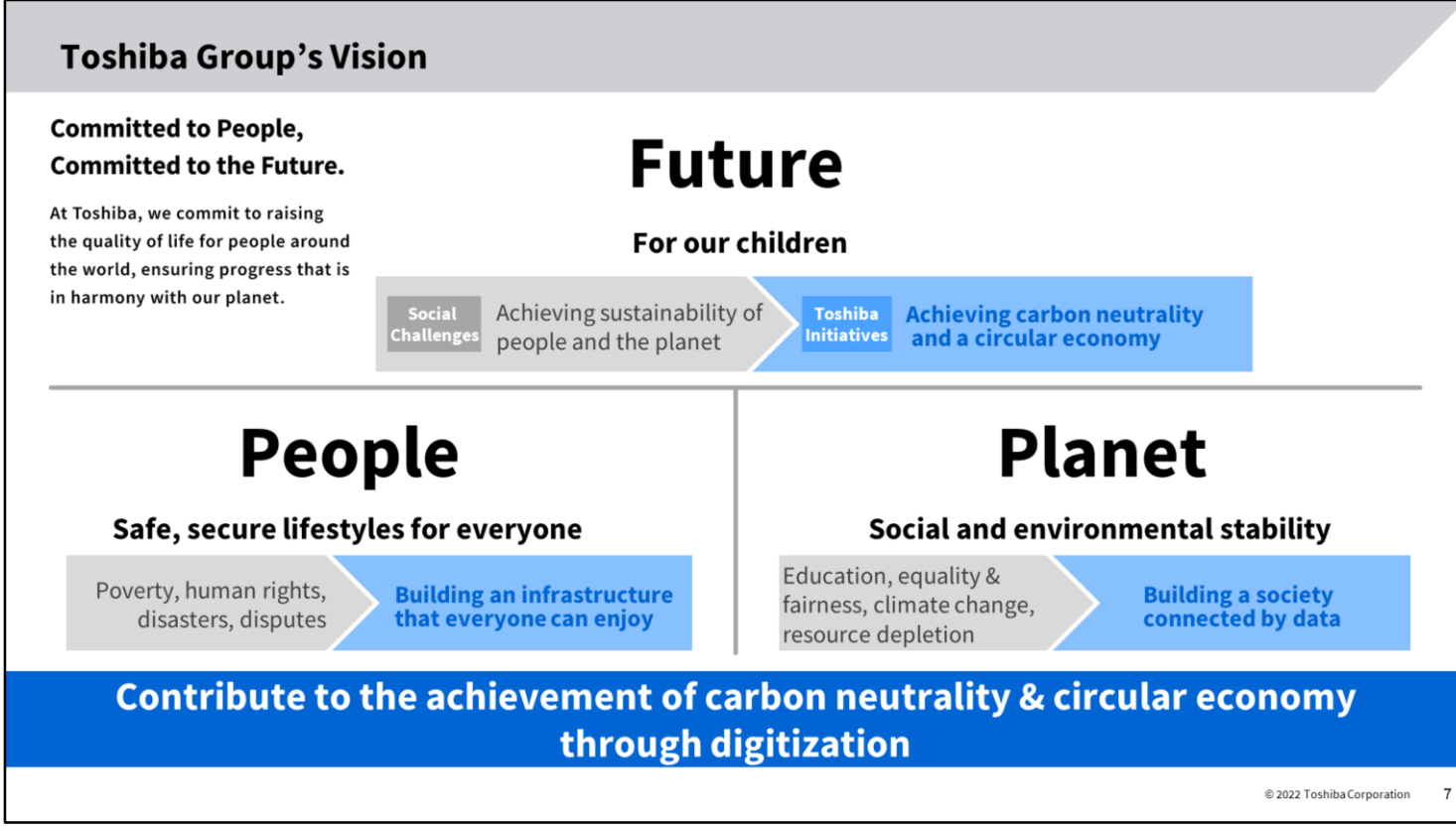
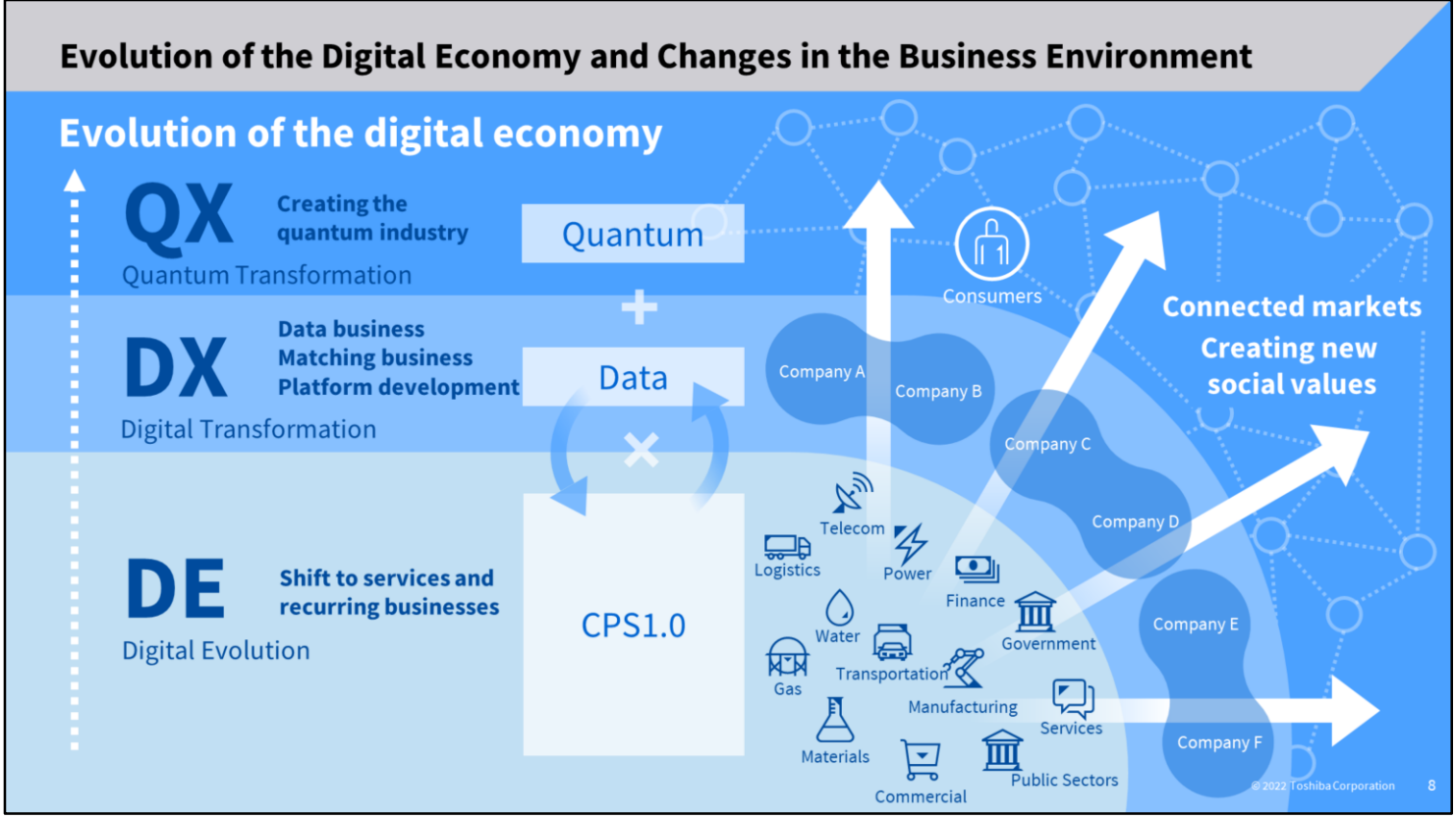
In Chapter 1, I will talk about Toshiba Group’s vision, mid-to-long term targets and challenges.



Applying Maslow's hierarchy of needs to the essence of Toshiba "Committed to People, Committed to the Future," it is important to first protect the safety and security of everyday life of each individual. It is to make a world without poverty, disasters or conflicts. What we can do is to "build an infrastructure that everyone can enjoy."

Once "People" are satisfied, the next level is to consider the "Planet." Realization of social and environmental stability becomes the next important step, and Toshiba aims to "build a society connected by data."

Once the society is further stabilized, we will move on to consider the "Future." In other words, the greater question becomes the future of our children, and the sustainability of people and the planet. What we can do and what we should do is to "realize carbon neutrality and circular economy."



As a means to realize these things that need to be done, “digital” is important. As the digital economy evolves, new social value will be created in the future having various companies get connected across industrial boundaries.

Toshiba has identified the DE, DX, and QX strategy to respond to those changes.The first stage of its development is the digital evolution (DE) to enhance services and recurring businesses. That is to be followed by the digital transformation (DX), which is a stage to build platforms based on DE. We will further develop this into a quantum transformation (QX), a quantum world where various platforms are connected across industries.

Today, I would like to explain how we will accomplish this.

Toshiba Group Mid-to-Long Term Target

FY 30 Target: Net sales 5.0 T yen, ROS 12.0%, Operating Income 600 B yen

	FY 21 Results*1	FY 22 Forecast*1	FY 25 Target	FY 30 Target
Net sales	**3.34** T yen	**3.30** T yen	**4.00** T yen	**5.00** T yen
Operating income (ROS%)	**159** B yen (4.8%)	**170** B yen (5.2%)	**360** B yen (9.0%)	**600** B yen (12.0%)
EBITDA*2	**244** B yen	**270** B yen	**500** B yen	
ROIC*3	**15.8** %	**13.8** %	**17.0** %	
FCF*4	**125** B yen	**100** B yen	**250** B yen	

*1 FY21 results and FY22 forecast includes the results and forecast of Toshiba Carrier Corporation, *2 EBITDA = Operating income + Depreciation
*3 ROIC = (Net income - Non-controlling interest - Interest expense × (1 - tax rate)) / (Net interest - bearing debt + Net assets) *4 Free Cash Flow

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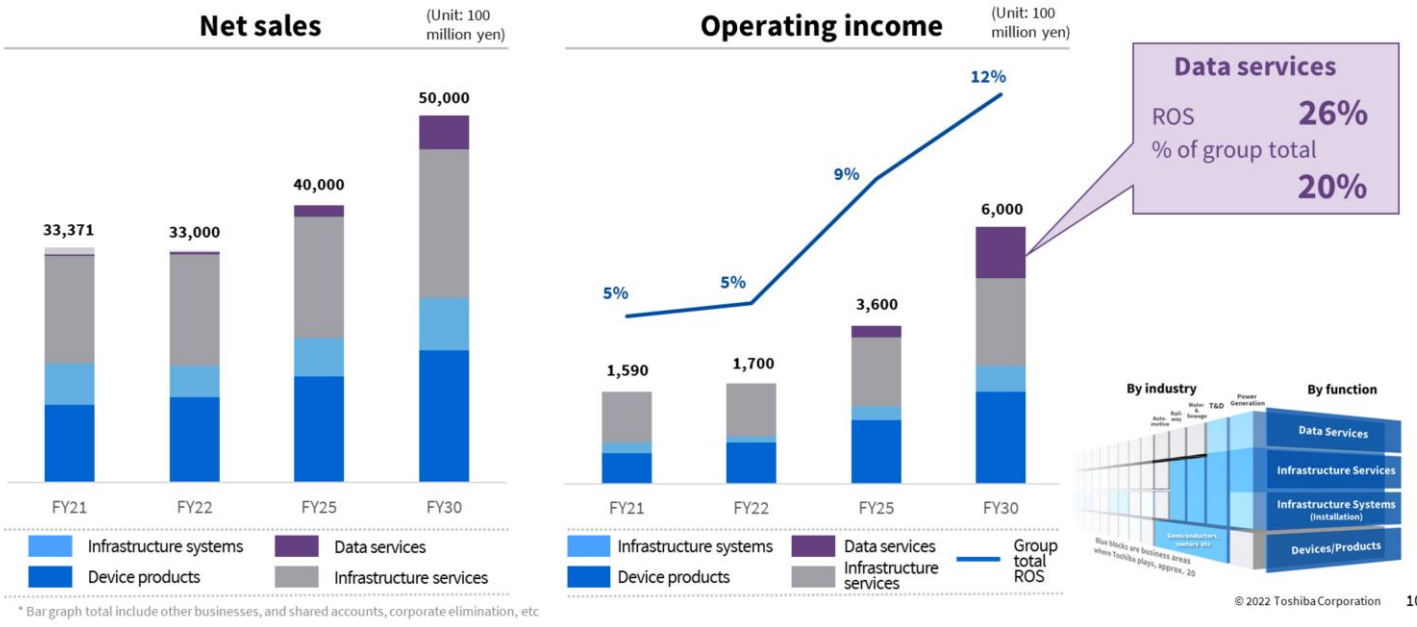
This is Toshiba Group's mid-to-long term target.

The target for FY25 is net sales of 4.0 trillion yen, operating income of 360 billion yen, operating income margin of 9.0%, EBITDA of 500 billion yen, ROIC of 17%, and free cash flow of 250 billion yen.

Furthermore, for FY30, we target to achieve net sales of 5.0 trillion yen, operating income of 600 billion yen, and operating income margin of 12.0%.

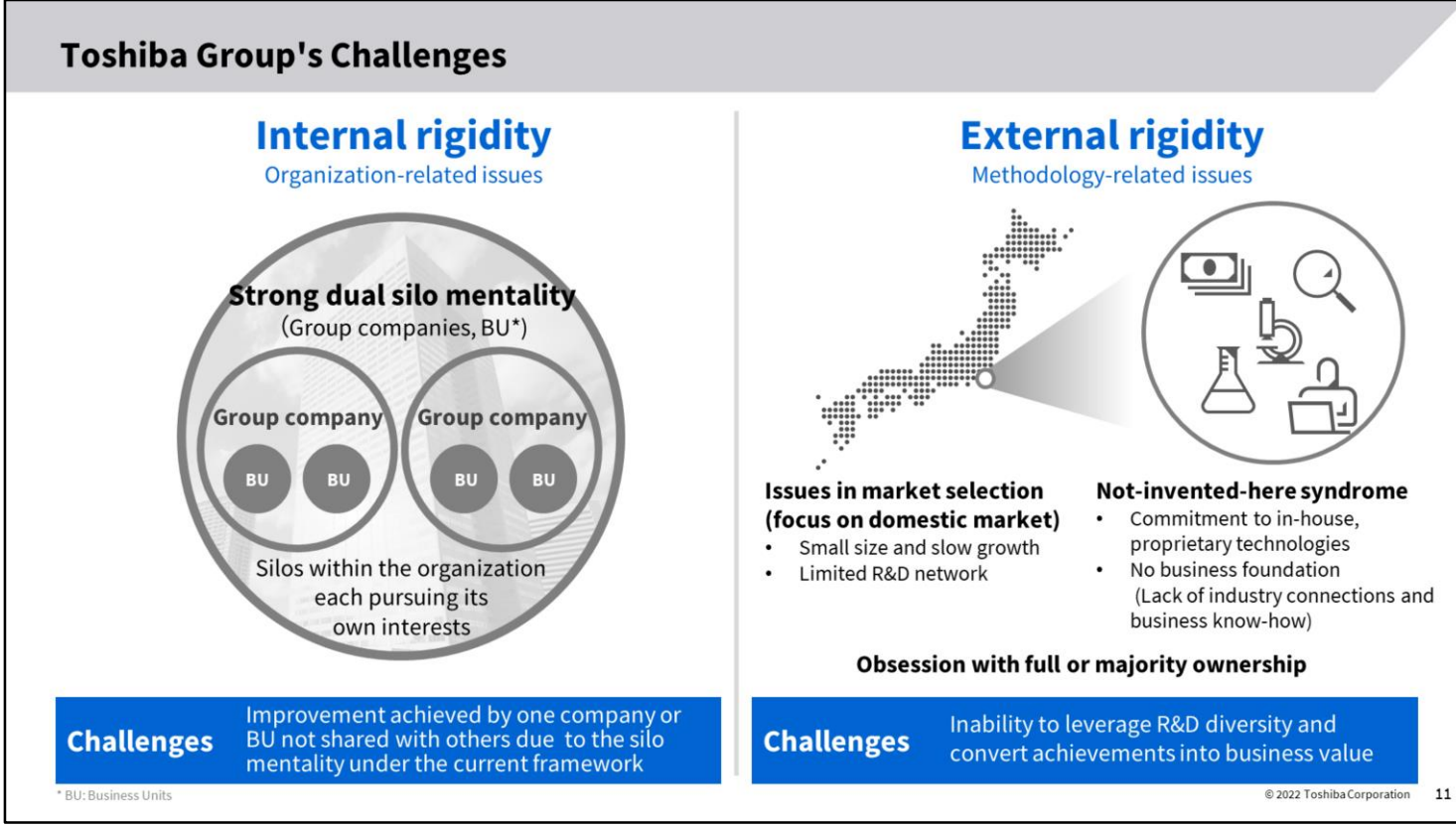
Plan by Functional Classification

Forecasting growth in the highly profitable data service business toward FY30



More specifically, toward FY30, we aim to transform Toshiba into a company with a data service as the pillar that generates our earnings. In the area of data services, we plan to achieve extremely high profitability with an operating income margin of 26%, and we expect it to generate approximately 20% of the company's operating income.

In fact, preparations are already underway and we will discuss the specifics of these initiatives later in this presentation.



Toshiba's challenges in achieving these goals are two types of rigidities.

Toshiba is quite versatile company. The entrepreneurial spirit within Toshiba has led to many successes as the company has challenged itself in one new area after another. However, over time, many successful businesses have become confined within their own business units. What was once the right business unit at the time of its inception, is no longer relevant in today's digitalized, service-oriented era. This is what I call "internal rigidity."

The appeal of Toshiba lies in its ability to develop technologies that are completely new to the world. There are many "world's first" that originated from Toshiba. Toshiba, because of its versatility, tries to do everything by itself. However, this is the age of ecosystems and platforms. Rather than launching a completely proprietary technologies single-handedly leveraging its ecosystems to enable earlier takeoff of businesses should lead to significantly greater corporate value. I call this "external rigidity."

Under the new management policy, we would like to break through these two rigidities.

02

Current Status of Toshiba Group

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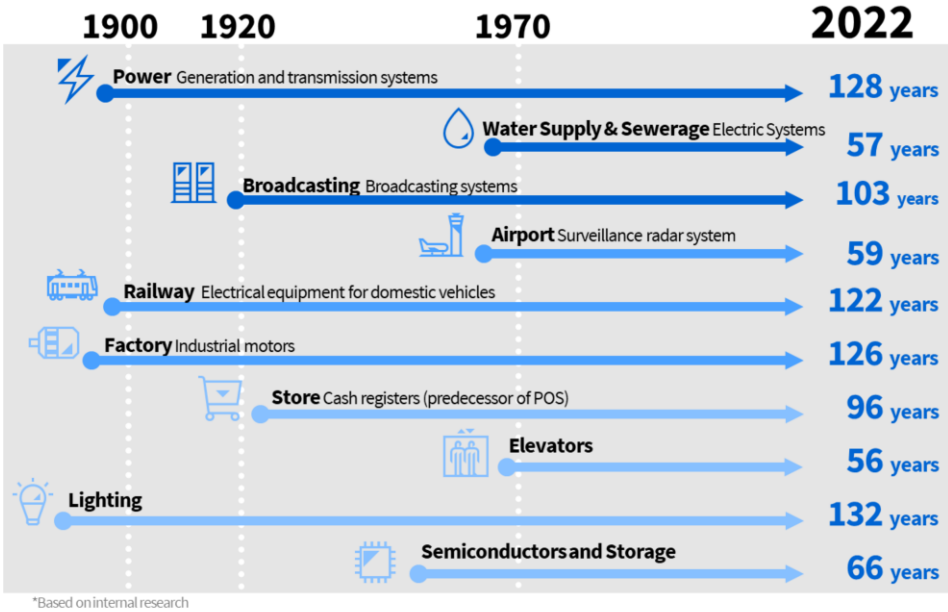
Chapter 2 will go into Toshiba Group's current situation.

Businesses that Support Daily Lives and Social infrastructures

Many businesses contribute to economic security by supplying core infrastructure and key products that support industries



*Based on internal research

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For more than 100 years, Toshiba Group has been involved in businesses that support critical public infrastructures, such as electric power and railroads. We hold the No.1 market share in many of these businesses including water supply and sewerage systems. These businesses will be valuable assets for a digital business.

I would like to introduce some representative examples of our businesses.

Device Business (Power Semiconductors)

Toshiba's power semiconductors

High efficiency, high quality, and high reliability

Technologies and products that support competitiveness

SiC-equipped module for electric railways

High-voltage multichip package for power converters (under development)

Future investment and development strategy

- Create a 300mm wafer manufacturing line in Kaga Toshiba (mass production will start in the second half of FY22) and build a 300mm manufacturing wing (scheduled to start operations in 2024)
- Accelerate the development and commercialization of compound semiconductors (SiC and GaN) that can achieve high power, high efficiency, and miniaturization
- Expand product lineup including control ICs and promote R&D investments in high-efficiency package development

Supporting the economy with semiconductors that ray the foundation of the digital industry

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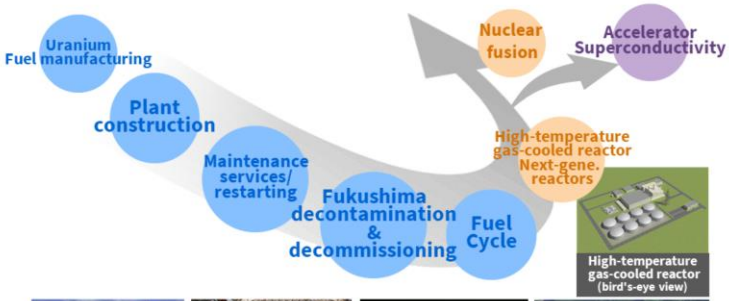
In the device business we have supported the foundation of the digital industry by supplying power semiconductors, which are high in efficiency, quality and reliability. We constructed a 300 millimeter wafer production line in Kaga Toshiba, located in Ishikawa Prefecture, and will commence mass production during this fiscal year. We are also planning to construct a new manufacturing facility which is expected to be in operation from FY24.

We will also actively invest in R&D in next generation compound semiconductors such as SiC and GaN.

Energy Business (Nuclear Power)



Technologies and products that support competitiveness

Digital I&C:
monitors and controls plant systems

Superconducting rotating gantry:
contributing to precision medicine

Future investment and development strategy

- Create reactors with excellent safety features, etc.
  - Develop accident tolerant fuel
  - Innovative light water reactors and high-temperature gas-cooled reactors
- Contribute to stable storage of radioactive waste
  - Provide support to resolve the situation at the Fukushima Dai-ichi Nuclear Power Station
  - Focus on supporting completion of reprocessing plant
- Secure baseload power supply and adjust supply and demand with next-generation reactors
  - Use high temperature for heat storage and hydrogen production

Contributing to stable supply of energy that supports economic activities and lifestyles

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In the energy business, we have contributed to the stable supply of energy that supports economic activities and people's lives through plant construction, maintenance, and support for restarting nuclear power plants. In addition, we have consistently engaged in activities to decommission the Fukushima Daiichi Nuclear Power Plant. Going forward, we will continue to invest in and conduct research and development of technologies that contribute to the realization of innovative light water reactors and high temperature gas-cooled reactors with superior safety features and stable storage of radioactive waste.

Infrastructure Business (Defense & Electronic Systems)

●: Toshiba Group's cutting-edge consumer technology

Technologies and products that support competitiveness

Multiparameter phased array weather radar (MP-PAWR)

Counter-drone security systems

Future investment and development strategy

- Continue to focus on the development and production of defense equipment that protects the safety and security of society by leveraging the comprehensive strengths of the Toshiba Group
- Strengthen technological advantages by applying potentially game-changing cutting-edge consumer technologies such as artificial intelligence technologies, simulated bifurcation machines (SQBM+™), and quantum cryptography communications technologies
- Contribute to achieving infrastructure resilience by expanding new businesses, such as MP-PAWR and counter-drone security systems, utilizing the technologies cultivated in defense equipment development

Leveraging our comprehensive strengths to promote social safety and security

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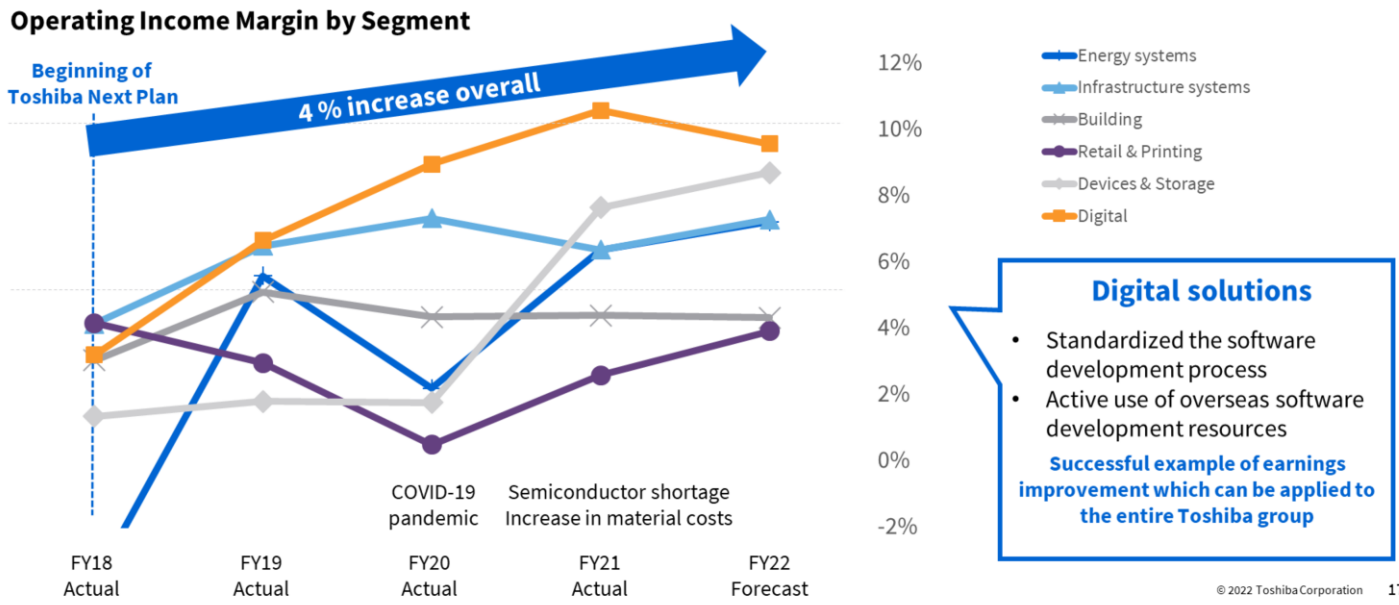
In the infrastructure businesses, the Toshiba Group's cutting-edge civilian technologies were applied to air defense radar systems and air traffic control systems. We have been contributing to ensure the safety and security of the society. We will continue to focus on the development and production of defense equipment by leveraging Toshiba Group's comprehensive capabilities, and to contribute to the realization of a resilient social infrastructure protected by high security through the application of cutting-edge civilian technologies such as artificial intelligence and quantum cryptographic communications.

Impact of the Toshiba Next Plan

Steady improvement in core profitability at each segment



Digital solutions

- Standardized the software development process
- Active use of overseas software development resources

Successful example of earnings improvement which can be applied to the entire Toshiba group

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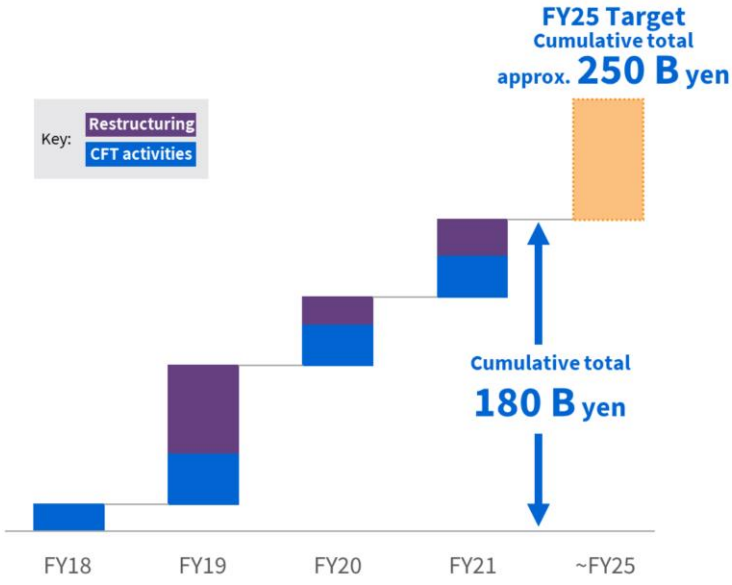
Under the Toshiba Next Plan, launched in 2018, we have been working to strengthen core profitability as Phase 1. Despite the impact of COVID in FY20 and a shortage of semiconductors and soaring material prices in the previous fiscal year, profitability has recovered steadily in all segments so far, and we have seen four-point improvement in the overall operating income margin.

In particular, the digital solutions business have shown stable improvement, which we attribute to our steady improvement efforts, such as standardization of software development processes and utilization of overseas software development bases.

Going forward, we intend to build a stronger earning structure by expanding this successful example to the entire company.

Efforts toward Further Enhancement of Core Profitability

Expanding from CFT activities and restructuring efforts to value chain transformation



Restructuring

- Mitigate future risks through thorough portfolio management
- Streamline fixed costs by optimizing personnel
- Strengthen governance through reorganization of subsidiaries

CFT activities

- Reduce the cost of sales ratio through engineering, procurement, and manufacturing transformation
- Strengthen overhead cost control through spend management
- Improve operating returns through sales transformation

Continuous improvement of core profitability through two reforms in value chain transformation

Two reforms in value chain transformation

Operational process reform

- Design & product modularization
- Smart factory
- Strengthen sales and procurement capabilities

IT system reform

- ERP reform
- Strengthen PLM/MES
- Centralized management of Integrated DB

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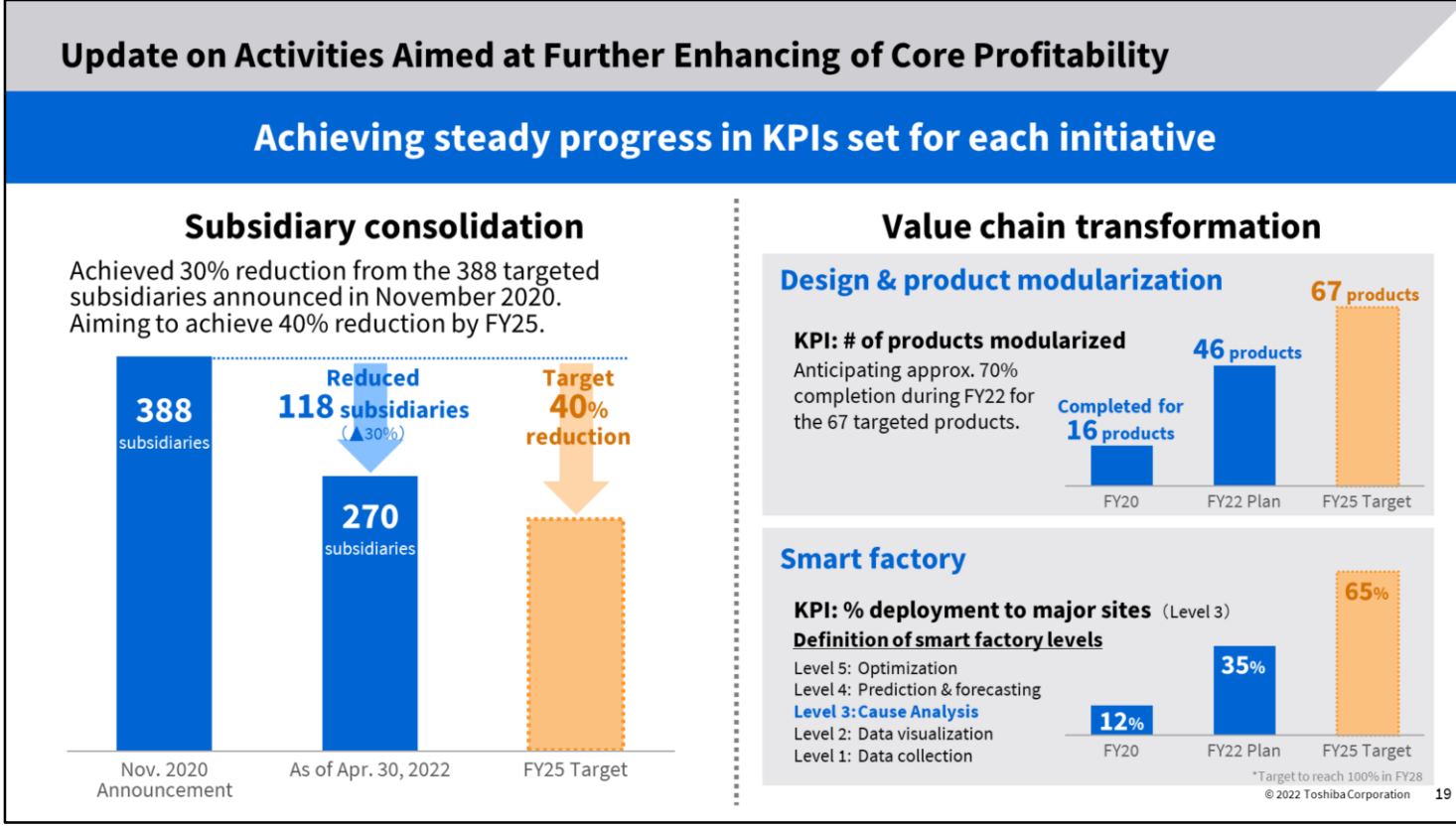
Our company had focused first on materializing the low hanging fruits that can be achieved in the short term, such as structural reforms and CFT activities in procurement, sales and other areas, and has realized 180 billion yen improvement over four years starting from 2018.

Going forward, we will promote a business process reforms, including design and production and also IT system reforms to realize these reforms as value chain transformation and work to sustainably strengthen core-profitability through a chain of two reforms.

Through these activities, we aim to improve profitability by further reducing costs of approximately 70 billion yen by FY25.



I would like to look at this in more detail.

With regard to the reduction of the number of subsidiaries, we aim to achieve 40% reduction by FY25, and as of the end of this April, we have already achieved a 30% reduction.

As for initiatives related to a value chain transformation in the area of design and product modularization, we expect to achieve approximately 70% by the end of FY22 toward the completion of modularization of 67 target products by FY25.

In the smart factory initiative, we are aiming to expand to all major production sites, and planning for 35% of its production sites to reach level 3 by FY22.

03

Resolving Corporate Challenges

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Now, Chapter 3 describes how to solve the challenges of internal rigidity and external rigidity as mentioned earlier.

Approach to Resolving Corporate Challenges

Software Defined Transformation

Transform businesses through "DE → DX → QX" evolution and discover new business potential from a data-oriented perspective

Integration and optimization of software development

- Aggregate software personnel dispersed throughout Toshiba group
- Improve efficiency through standardized processes

Realizing the value of potential technologies

Consider working with external partners in order to realize value from high potential technologies with large expected target markets

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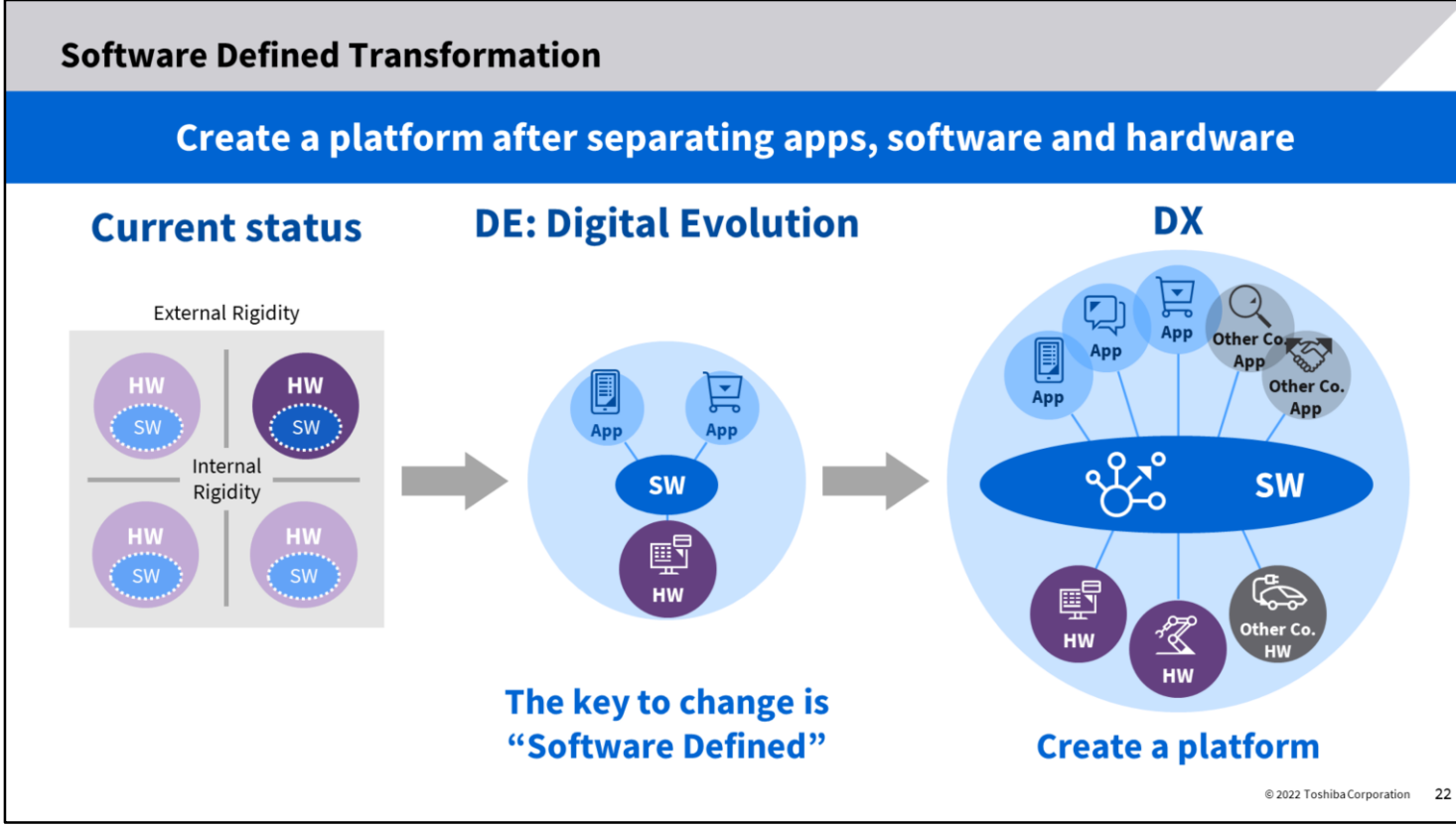
First, I would like to talk about internal rigidity.



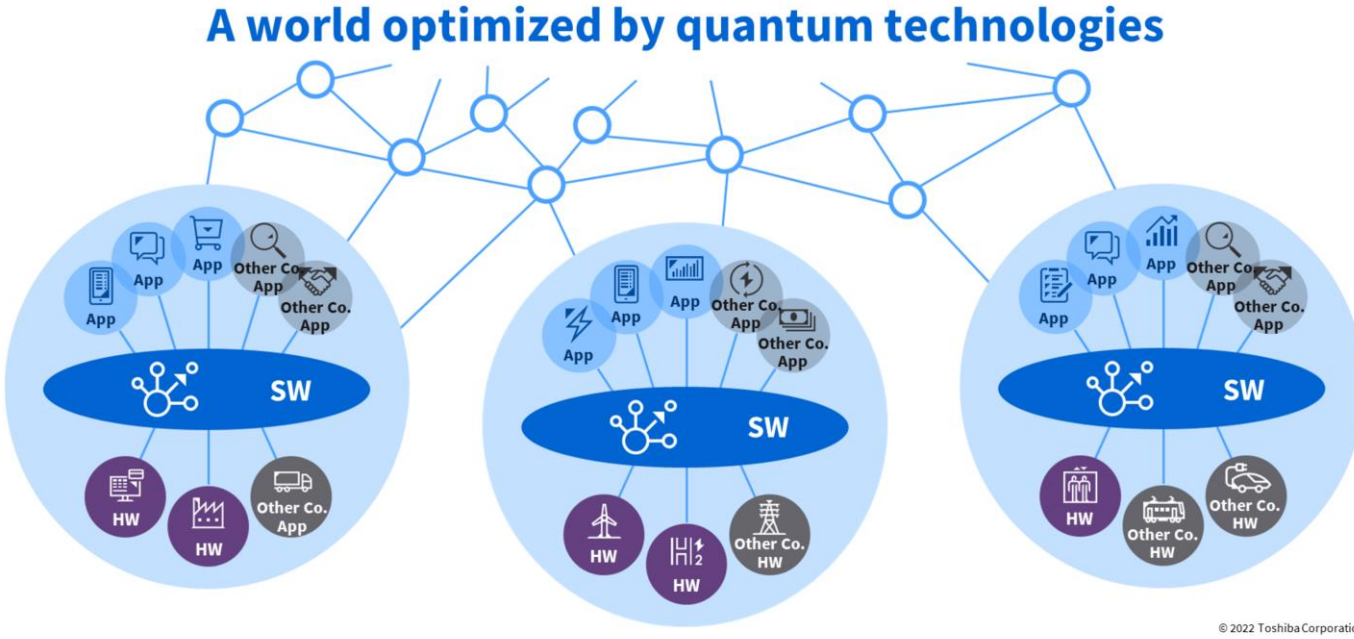
This shows the steps for software defined transformation to resolve the internal rigidity. Currently, the product is developed in a vertically divided organization in silos, and the software is incorporated into the hardware and provided as a part of a system.

To take this to the Digital Evolution (DE), the first stage, it is important to separate the software from the hardware.
This will enable us to add a variety of applications, which will generate new services as well as to enhance the recurring businesses or providing SaaS business; these will greatly contribute to making the business more profitable.

Next, we need to standardize the software so that such software could be connected to other companies' hardware and applications, making it possible to create a platform. Once this is completed, then services will be greatly expanded and the scale-free network comprised of such software will be formed; it will enable data-centric service development as the second stage, called DX. It will be extremely asset-light and also scalable business model that will consequently allow us to achieve exponential growth.

The Future Created by Quantum Technologies (2030-)

QX



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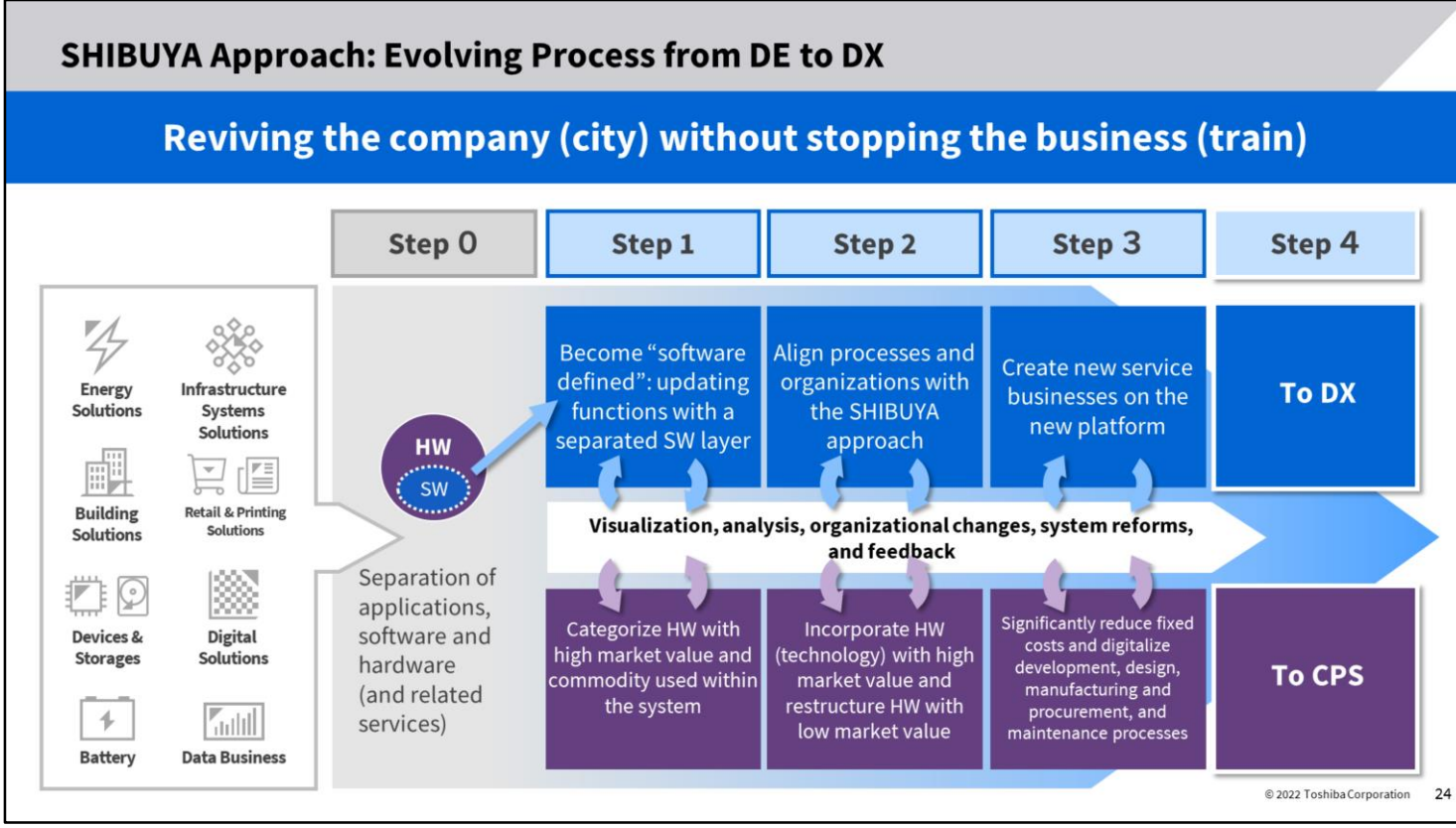
Beyond that, various platforms under DX stage will be created, and a quantum world of quantum transformation (QX) will emerge, in which optimal solutions are identified from a complex interplay of platforms.



We have named this project as "SHIBUYA Project" as we call it internally.

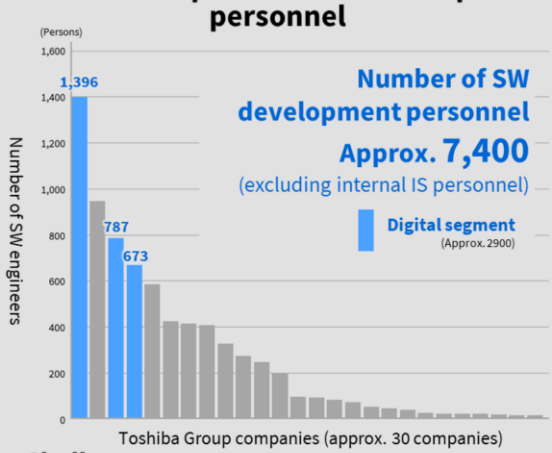
The city of Shibuya is currently undergoing a major transformation. It has fundamentally been transforming the city without stopping millions of people come and go. This is exactly what we are trying to do.

We will not stop our business while we revitalize the Company.

In order to succeed in the "SHIBUYA project", it is necessary to break down the walls of the organization. We need to break down internal rigidity.

Integration and Optimization of Software Development

Toshiba Group's software development personnel



Challenges

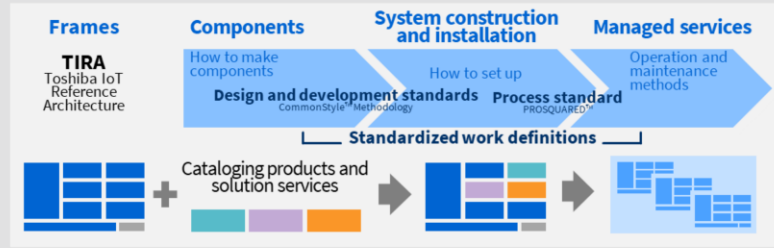
- Software development personnel are dispersed within the group
- Development processes and management metrics are not standardized across the organization, as each company engages in development separately
- Duplication of development efforts

Steps to optimize software development that leads to evolution from DE to DX

1 **Visualization of development maturity using the same metrics**

2 **Company-wide application of methodologies of the leading digital solutions segment**

Potential benefits : 1. Reduction of development and operation costs
2. Reduction of quality losses



3 **Consolidation of divisions**

Potential benefits : 1. Strengthening governance of software development
2. Flexible resource allocation
3. Sharing development and maintenance environments

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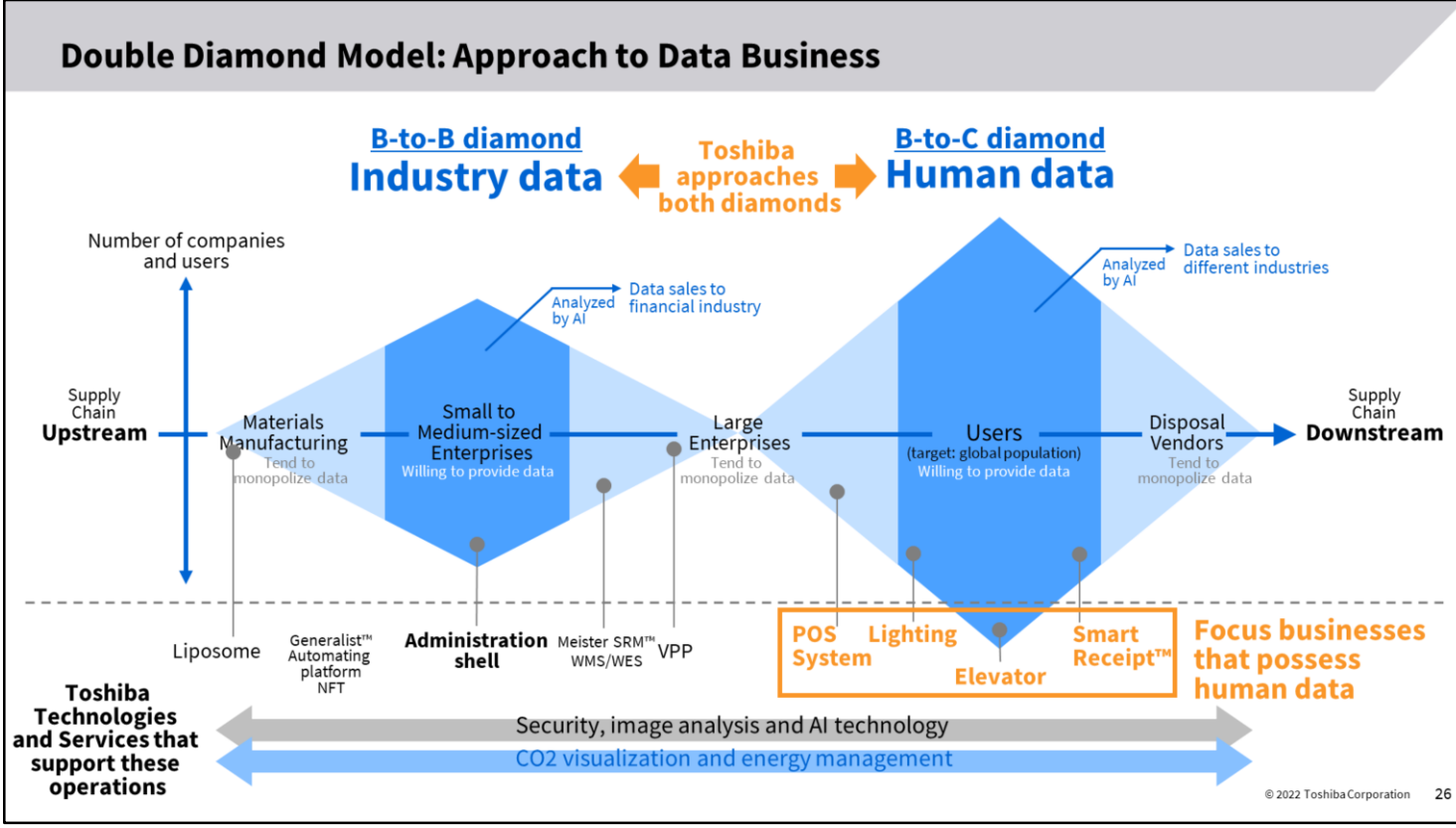
Our software development is one of the examples.

For instance, this is a summary of software development personnel of the Toshiba Group. A far greater number of personnel currently belong to non-digital segment and are dispersed over our 30 group companies. And there are many things that can be improved in development practices and staffing. We would like to thoroughly improve this going forward.

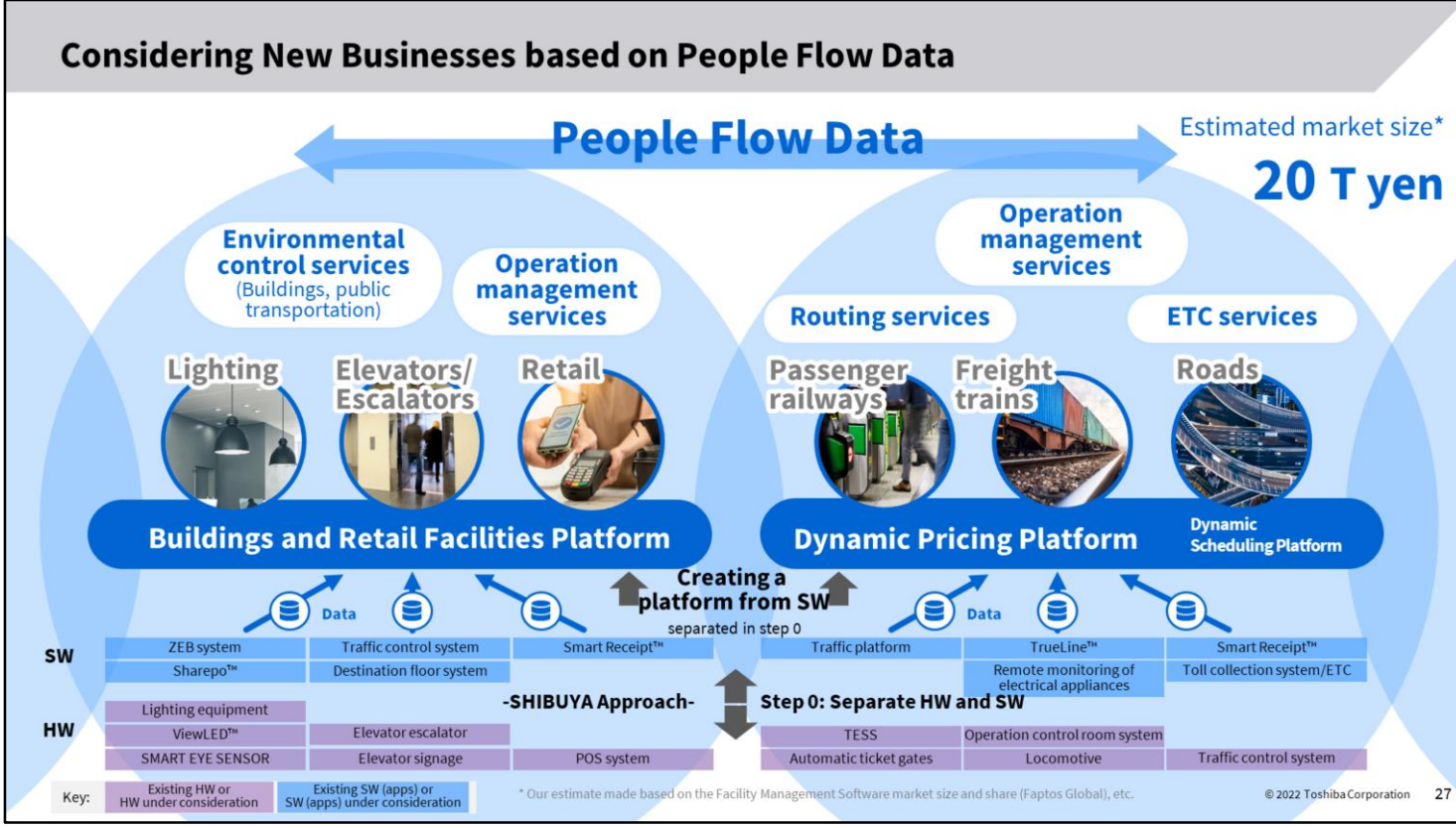


This is a model of where data is generated from the DX stage. This is a graph with a number of companies and users on the vertical axis and the supply chain on the horizontal axis. We call this “double-diamond model.”

Platforms emerge from the consumer diamond on the right, just as the so-called GAFA are collecting data directly from consumers. However, even there, there are much data that can be extracted from the hardware that so far has not yet been acquired. POS, lighting, elevators and other businesses will greatly contribute to the acquisition of such human data. In terms of acquiring human data, these are our focus areas.

Furthermore, in the B2B area on the left, data acquisition has not been accomplished. Many companies try to acquire data from large corporations in this very small end, but it is very difficult. In fact, when we take a look at successful examples of acquiring human data, it is more reasonable to capture data from the bigger diamond.

Toshiba will tackle both these diamonds. Toshiba hopes to become a platformer in both of these areas, especially in the B2B area where data acquisition has not been successfully accomplished yet.



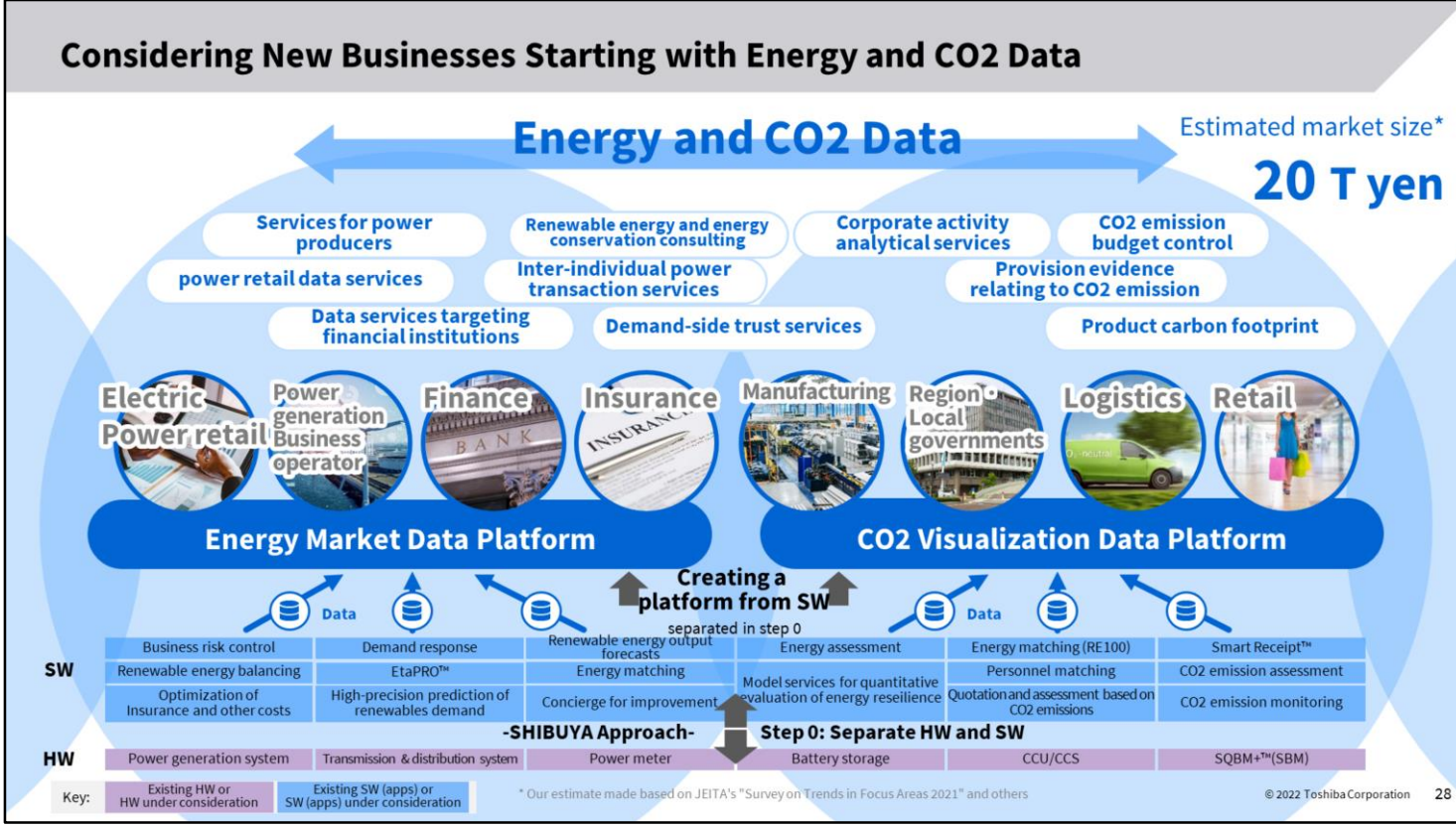
I would like to introduce two examples of how data can create great value.

The first is a group of services that start with people flow data.

In the future, As a Service platforms are to be created in buildings and commercial facilities. Elevators have many touch points with people, and “signage in the car” can contribute to changing people’s behavior. And the linkage with Toshiba Tec’s retail platform will create great business opportunities.

In transportation, it is clear that there will be a shift to dynamic pricing and scheduling. To control more effectively and efficiently, we can imagine the emergence of a platform that covers various industries like roads, freights, and rail companies, which could easily be reached out from our ongoing businesses.

We believe that by linking the data held by these two platforms, newer services can be created and huge market will emerge.



Next is the data on energy and CO2.

Energy and CO2 data will become increasingly important to realize sustainability and circular economy. By consolidating energy data, including renewable energy and energy saving data, and creating a platform, it is conceivable that in the future we will see the emergence of services, such as individual-to-individual electricity trading services, whereby electricity generated by each household can be traded. In addition, the visualization of CO2 emissions, which is attracting attention along with the shift to renewable energy, will make it possible to track the carbon footprint of products.

For example, here I have a water bottle in front of me. How much CO2 has been emitted until it reached my hand? The ways to make it measurable, is a very important indicator for achieving carbon neutrality.

These two types of data, when combined, will encourage companies and people to be more mindful of environment and to change their behavior. And we believe that it would lead to building a more environmentally friendly society.

Approach to Resolving Corporate Challenges

Internal Rigidity
Organization-related issues

Software Defined Transformation

Transform businesses through "DE → DX → QX" evolution and discover new business potential from a data-oriented perspective

Integration and optimization of software development

- Aggregate software personnel dispersed throughout Toshiba group
- Improve efficiency through standardized processes

External Rigidity
Methodology-related issues

Realizing the value of potential technologies

Consider working with external partners in order to realize value from high potential technologies with large expected target markets

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Next is about the issue of external rigidity.

Materializing the Value of Potential Technologies

Leveraging diverse technology development efforts to create valuable products

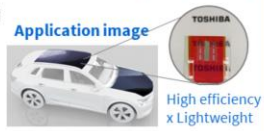
Cu_2O Tandem-type PV[*1]

Estimated market size[*2]: 2.5T yen (2030)

-Tandem cell estimated **Efficiency : 27.4%**
*Target : 30% or more

Achieved EVs recharged without plugs

Application image



High efficiency x Lightweight

Core Techs : Cu_2O(material) x Semiconductor Process

Film-Based Perovskite PV

Estimated market size[*3]: 0.5T yen (2030)

CEATEC AWARD 2021 Minister of Economy, Trade and Industry Award Carbon Neutral category Grand Prix

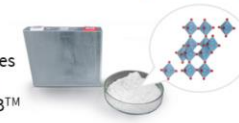
- Lightweight and flexible: **can be installed where current products can not be installed**

Core Techs : Coating x Nanomaterials

NTO[*4] Anode Batteries

Estimated market size[*5] : 0.7T yen (2030)

- High energy, power density, and safety
- Prototype cell achieves more than **1.5 times capacity** for 20Ah SCiB™

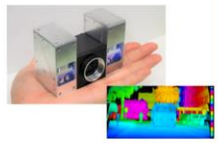


Core Techs : SCiB™ × Nb(material)

LiDAR (Light Detection And Ranging)

Estimated market size[*6]: 1.5T yen (2030)

- **300m detection range** with palm-sized device with world-class image resolution

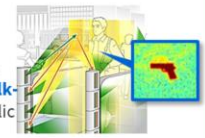


Core Techs : Sensor x Packaging x Signal Processing

Millimeter-wave Imaging

Estimated market size[*7]: 1.3T yen (2027)

- Identifies object shapes precisely **with 2mm resolution**
-Detects dangerous objects hidden under clothes in **walk-through** inspections at public areas, buildings etc.



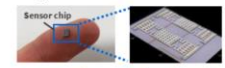
Core Techs : Radar x Signal Processing

MEMS Sensors

Estimated market size[*8] : 2.1T yen (2030)

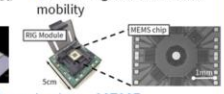
Hydrogen gas sensors

-**High-speed detection of gas leakage,** contributing to a safe hydrogen-based society



Gyro sensors

- **Small size, accurate sensing,** contributing to autonomous mobility



Core Techs : Semiconductor x MEMS

*1 Photovoltaics, *2 Estimated global market of PV panels for EV based on the expected number of EVs in 2030 (https://www.nedo.go.jp/content/100873452.pdf), *3 Fuji-Keizai: Trends in advanced PV development and market outlook in future(FY2020 version), *4 Niobium Titanium Oxide , *5 Estimated by Fuji-Keizai Outlook of energy, large size rechargeable batteries and materials(2020) , *6 LiDAR module global market estimated by 3D LiDAR marketing analysis(TSR) etc., *7 Global market of security screening systems,*8 MEMS sensor global market in global forecast in 2030(SDKI Inc.)

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Toshiba's strength lies in its diversity in its development. In the past, we have created and introduced products that had never existed before by combining technologies in many areas.

Even today, for example, there are a number of technologies with strong business potential such as semiconductors and material technologies that have an estimated market size of over 2.5 trillion yen. Others are copper oxide tandem PV, perovskite, NTO anode batteries, LiDAR, millimeter wave imaging and MEMS sensors.

Case Study: Materialized Value

Rapid-changing business environment where significant enterprise value can be created through disruptive innovation and by demonstrating future potential in growth areas

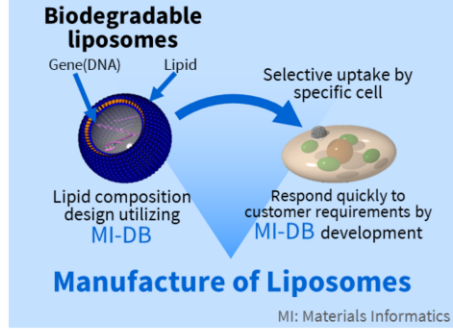
Biodegradable liposomes

Estimated market size*1: 12T yen (2030)

- The lipid composition design allows **genes to be delivered to specific target cells**, such as cancer cells
- Focus on gene delivery providing a **material platform** that meets individualized customer needs

Alliances

Shinshu University	Tumor-tropic gene therapy
Other univ. & companies	Gene therapy, regenerative medicine, drug delivery applications etc.



Manufacture of Liposomes

MI: Materials Informatics

Core Technologies : New designed materials x MI*(AI)

Biotechnology Sector Averages*2

Sales growth rate	51.7%
Operating profit margin	-402.0%
Enterprise Value / Sales	**x 16.9**

*1 Global market for regenerative medicine products etc. (METI estimate)

*2 SPEEDA (as of May 25, 2022)

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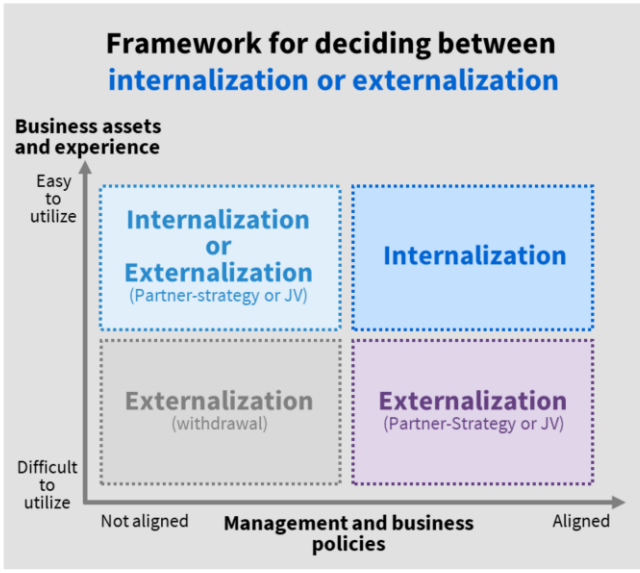
However, Toshiba has not fully capitalized on these business seeds.

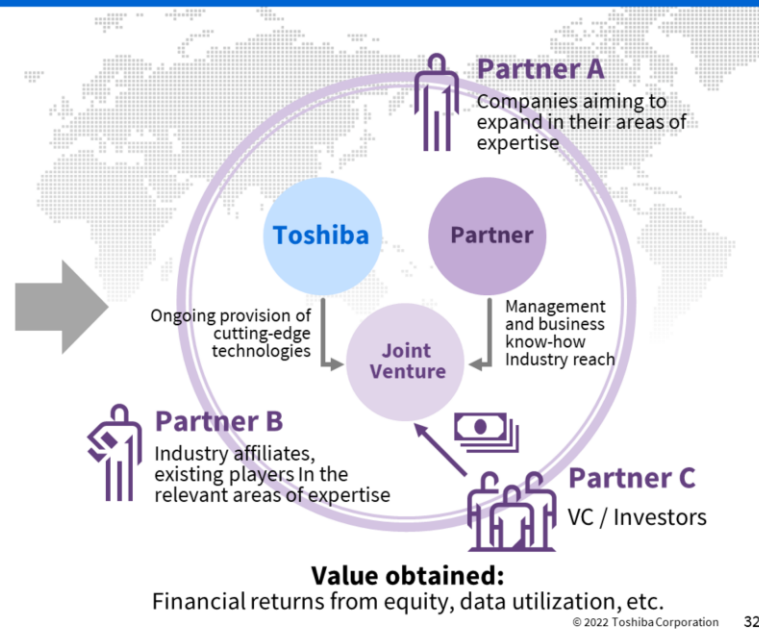
For example, biodegradable liposomes. Toshiba's proprietary nano-sized capsules for gene therapy deliver therapeutic genes accurately and efficiently to target cancer cells.

The field of biotechnology is considered a growth-area worldwide and investors' expectations are growing for technologies and businesses with disruptive innovation and future potential. In fact, biotech companies are still in the incubation stage and not yet generating profits or cash, but some are valued at very high multiples like 16.9 times its net sales, indicating that investors have very strong expectations for these companies with such technologies.

Breaking through External Rigidity

Considering partnerships to realize the value of technologies with high potential





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We will promote measures to ensure that values of these high potential technologies to be realized as quickly as possible.

If we determine that values can be realized at an early stage through collaboration with external parties, we will consider using partners such as companies seeking to expand their businesses in a digitalized field or existing players in that field. As a result, we believe that a variety of value can be captured including data utilization and financial returns.

This is our approach to breakthrough external rigidity.

04

Toshiba Group's Vision for Evolution: DE→DX→QX

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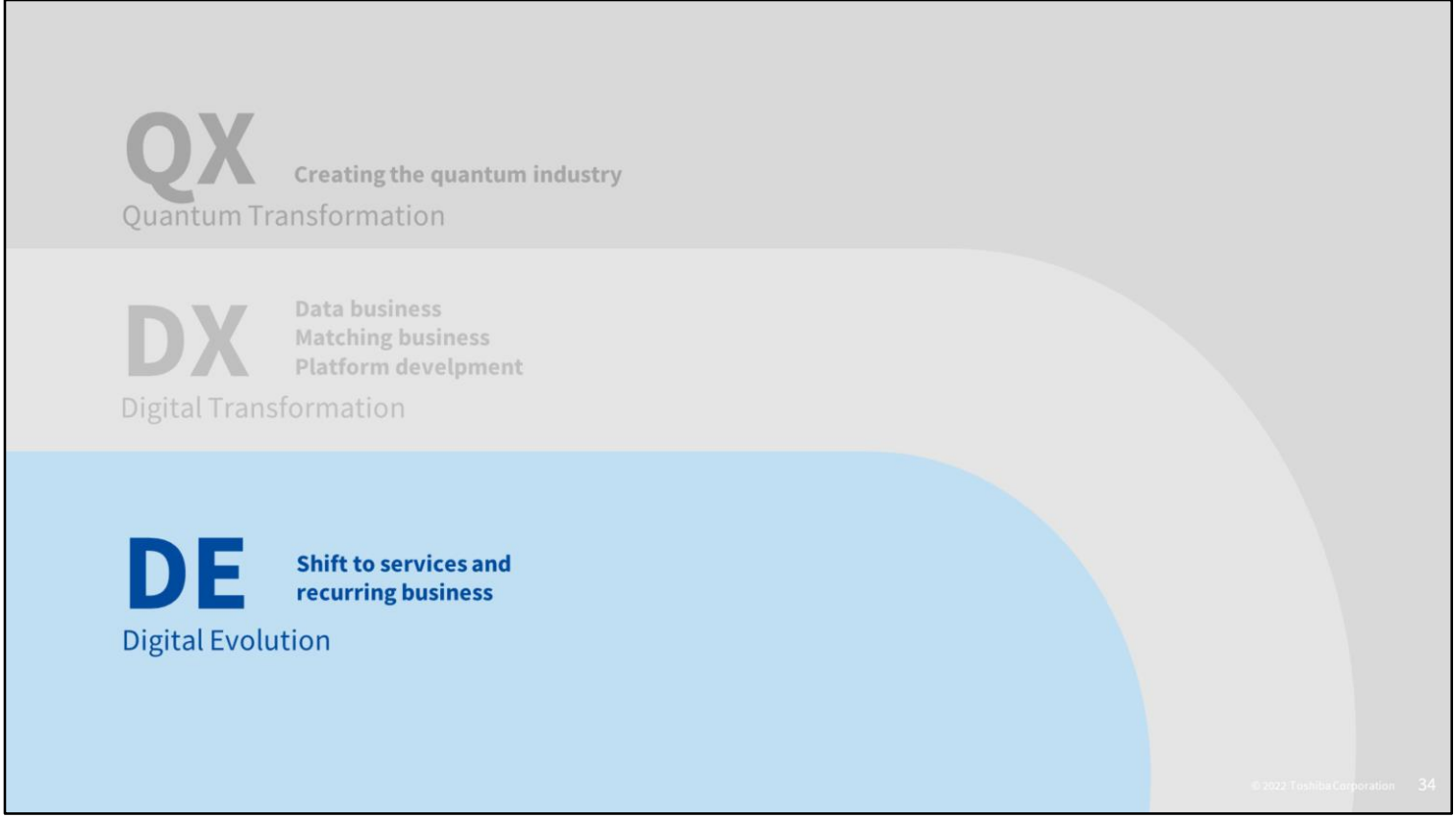
Now, in Chapter 4, I would like to present examples of the DE, DX, QX envisioned by Toshiba Group, some of which have already begun to be implemented.


QX
Creating the quantum industry
Quantum Transformation
DX
Data business
Matching business
Platform develpment
Digital Transformation
DE
Shift to services and
recurring business
Digital Evolution
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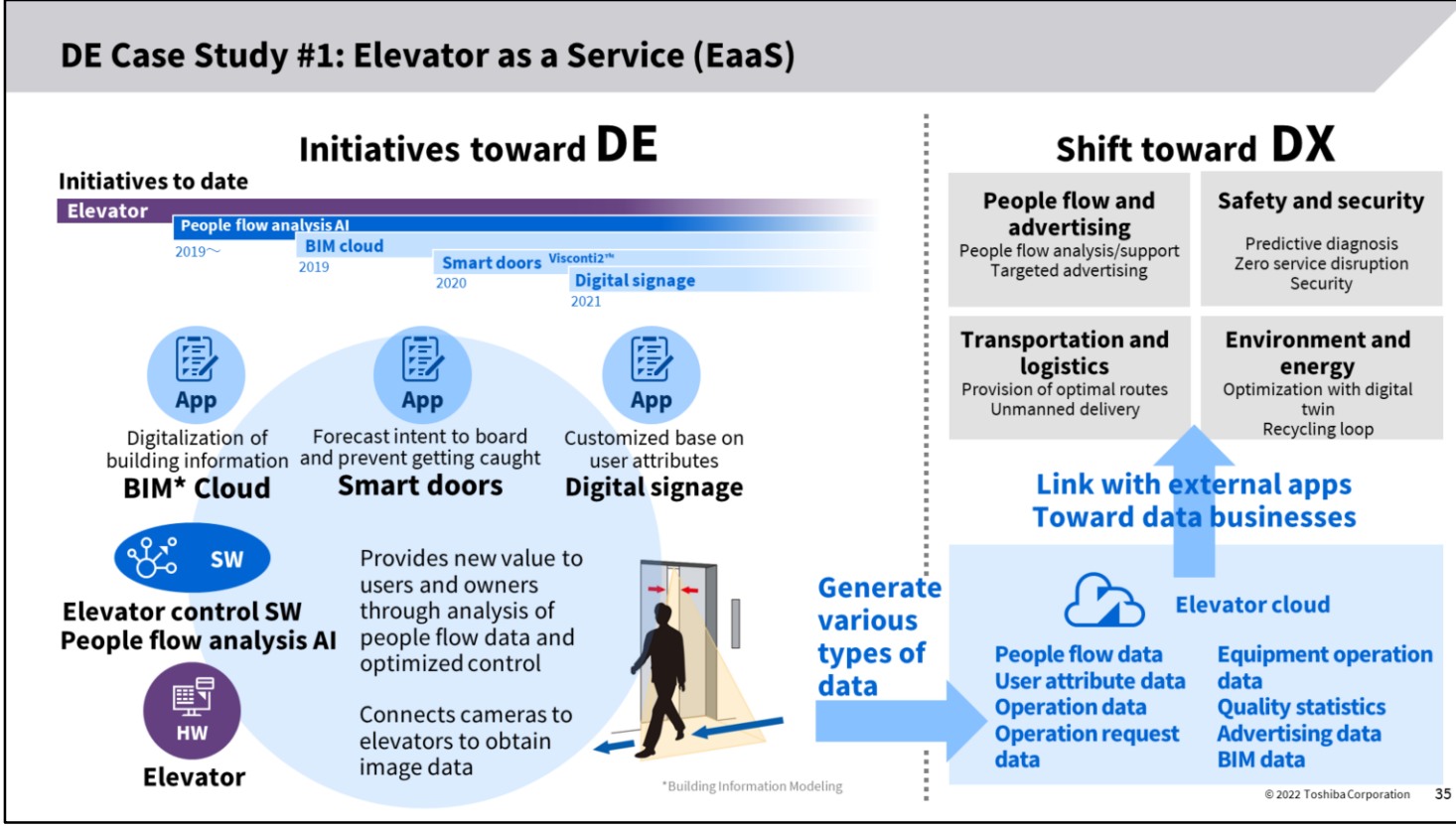
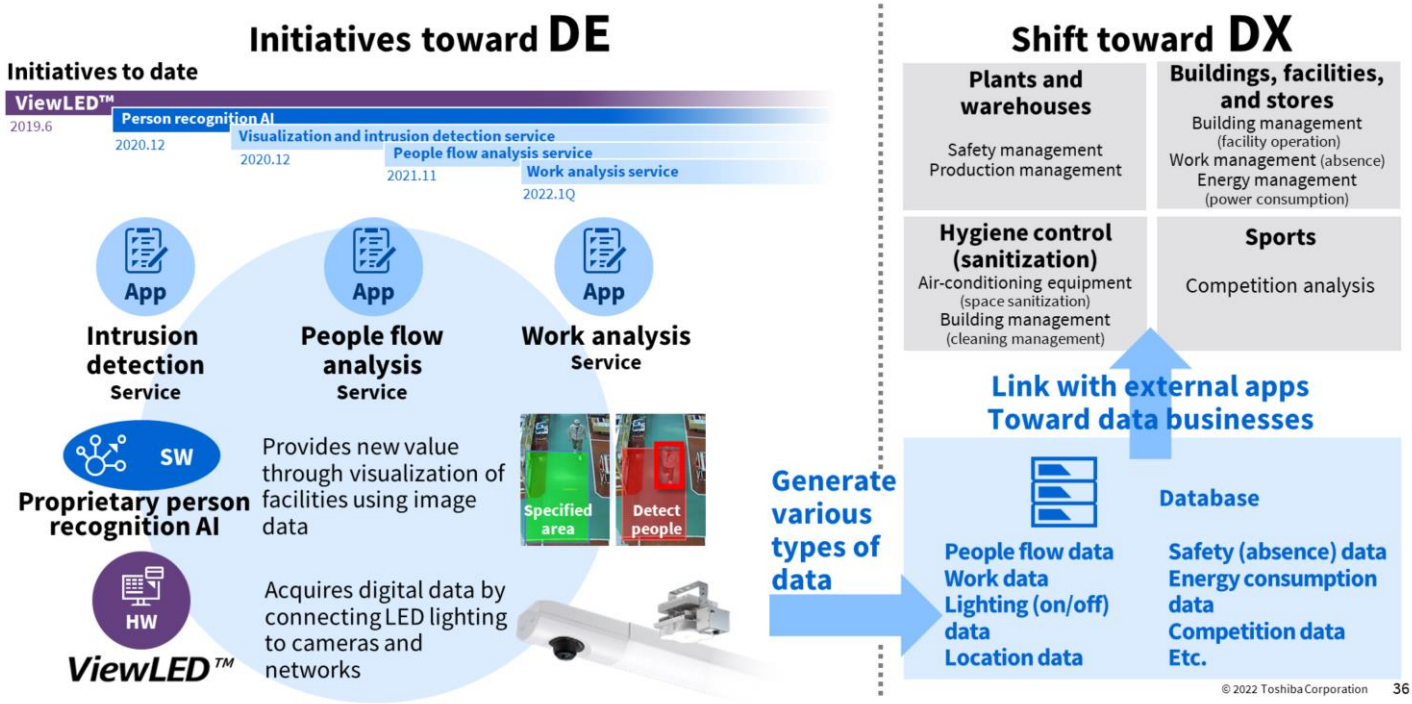
First on DE.



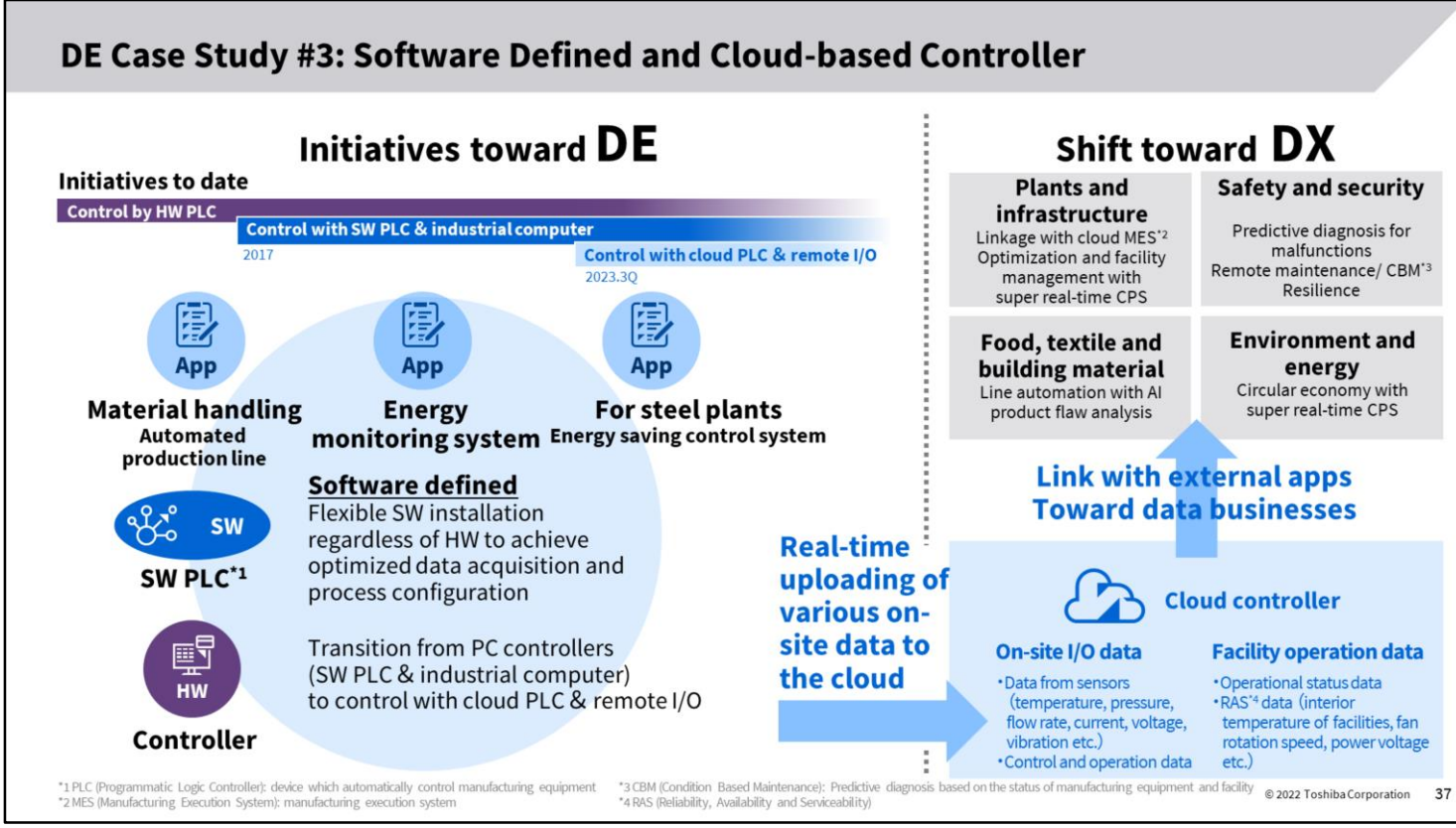
Let me talk about Elevator as a Service (EaaS) as an example. This is a good example of software-defined in action. Over the past several years, we have separated the hardware, the elevator from the software and have provided various services as applications. In the future, we aim to make it a data business by linking it with external applications.

DE Case Study #2: ViewLED™



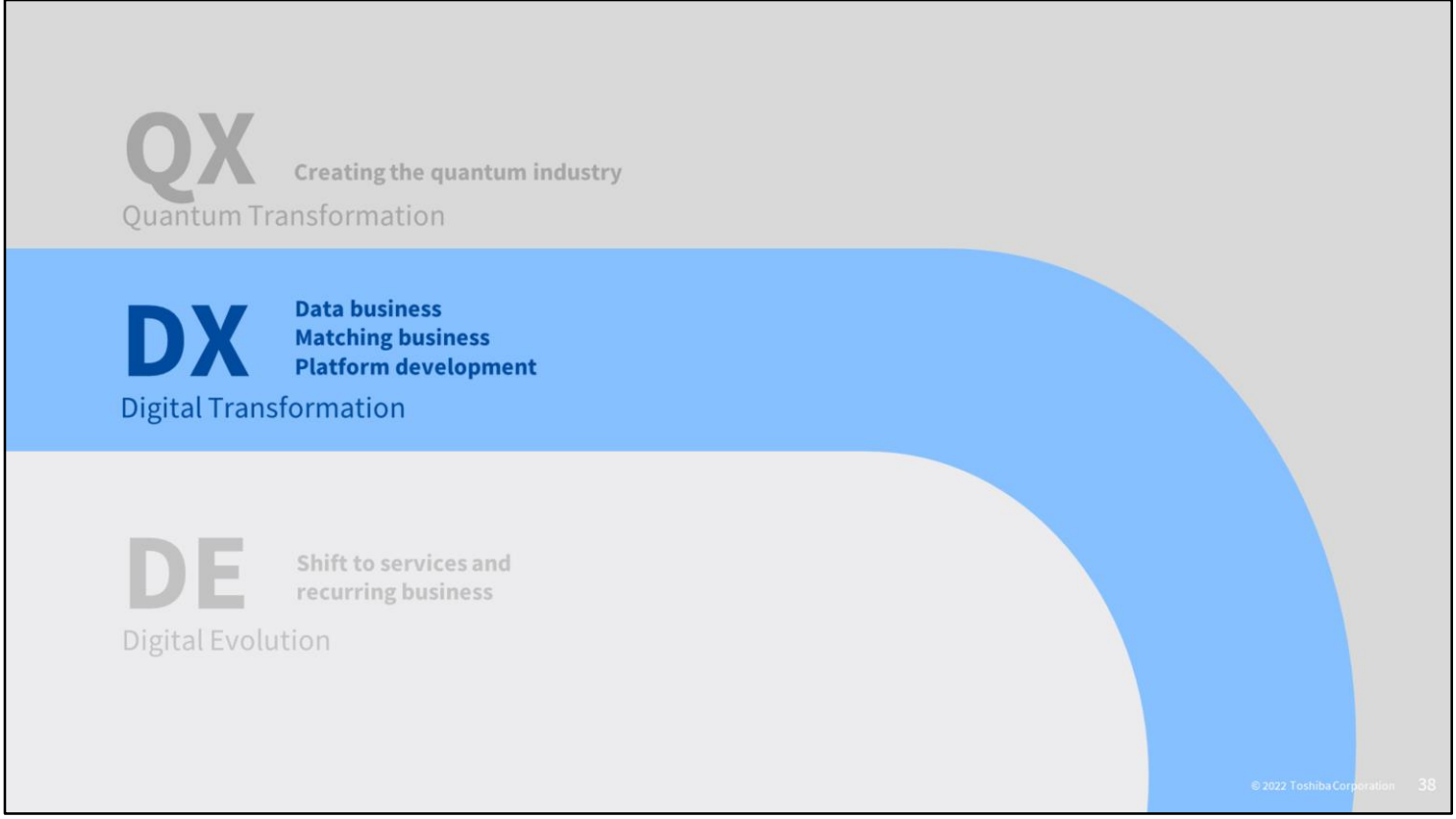
Next is ViewLED™.
ViewLED™ is a camera equipped LED light launched in 2019 not only functions as a conventional light, but can also connects to a network to acquire digital data. We are now offering a variety of applications that utilize image data.

That is to say, business do not end at the time the product was sold, but we are transitioning to a stage where more earnings can be generated in recurring basis.



Lastly, the shift to software and cloud computing for factory and infrastructure control.
Computer control automation started in the 1970s. At that time, dedicated machines were built and systems such as PLCs and DCSs were commercialized, and Toshiba was one of the companies that invented and developed these systems. After 2000, especially since around 2010, the PC versions of these systems were developed, which led to the prototypes of CPS and many companies have entered this market with these technologies.

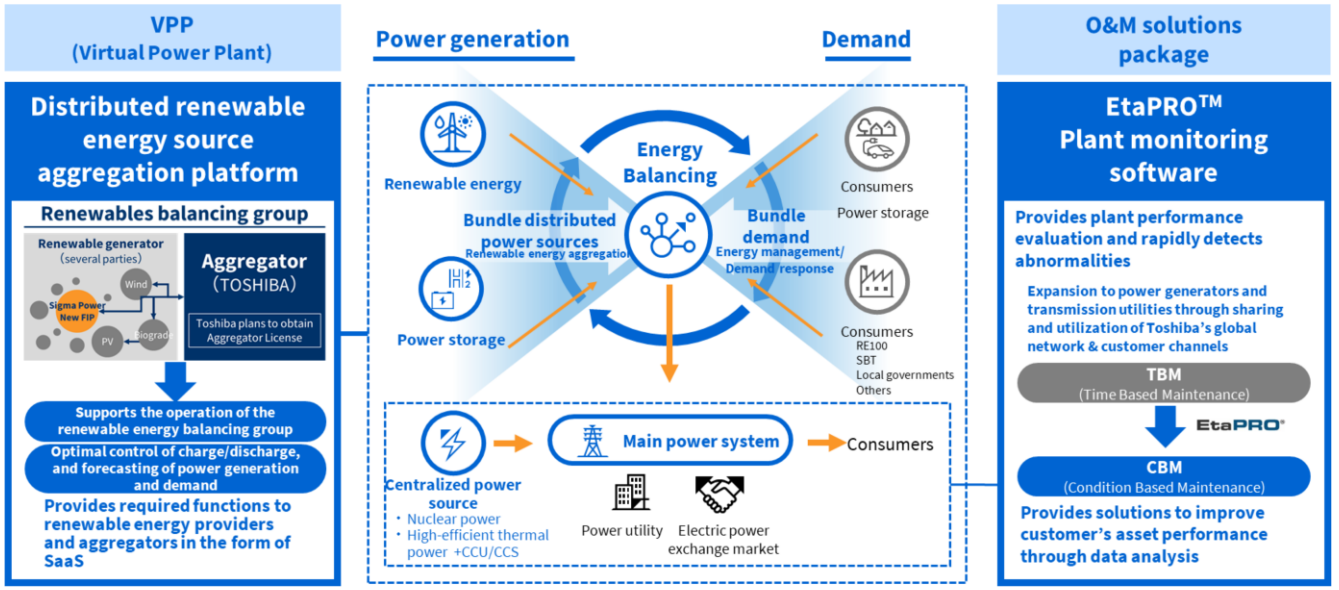
However, it is expected that these systems will be migrating to cloud computing environment from now on. Toshiba has developed and started providing technologies to control these in real time. We believe that this is an opportunity to supplant companies that are ahead of us in control. It will be similar to a situation of a company that succeeded with analog TVs but was late to enter the game with digital TVs. We believe that Toshiba, which lagged behind in the second generation, by utilizing its superb technologies, can greatly succeed in the third generation.



Next is examples of DX.

DX Case Study #1: Energy Solution Platform

Providing a platform that organically combines various energy solutions



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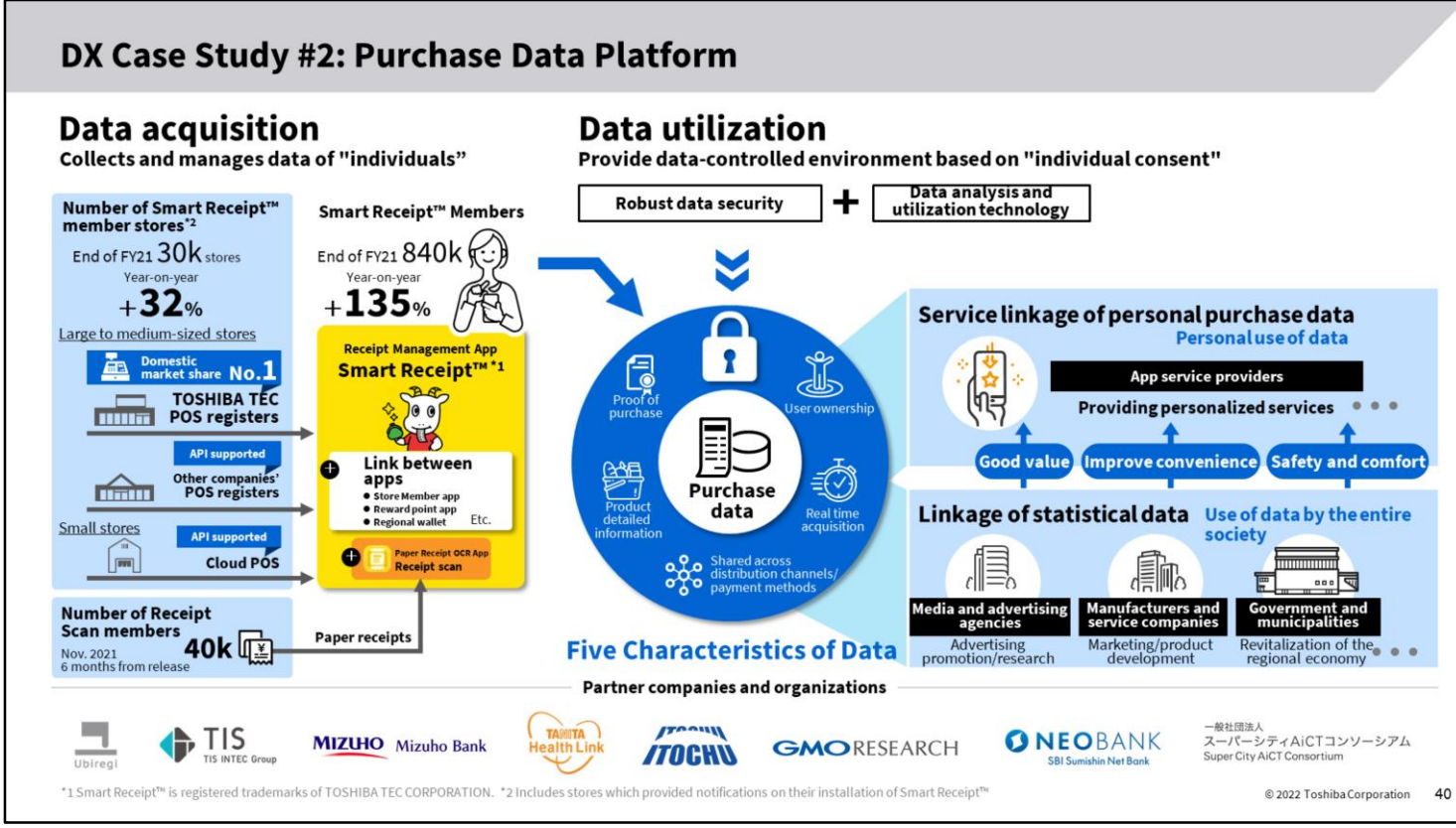
First, let me talk about our energy solution platform.
Through the use of large power plant monitoring software, we monitor facilities and equipment, and provide a full-fledged maintenance and inspection services.

But more importantly, as we expect to see increased use of renewable energy generation in the future, it is necessary to bundle and balance the generation side and the user side respectively, and then to coordinate with the main power grid.
In fact, market needs are high, and we have conducted studies with nearly 50 client companies regarding energy management and matching. In addition, Toshiba Group is a company with a customer base and technology not only on the supply side but also on the demand side, therefore, we are able to make big differentiation in this industry.

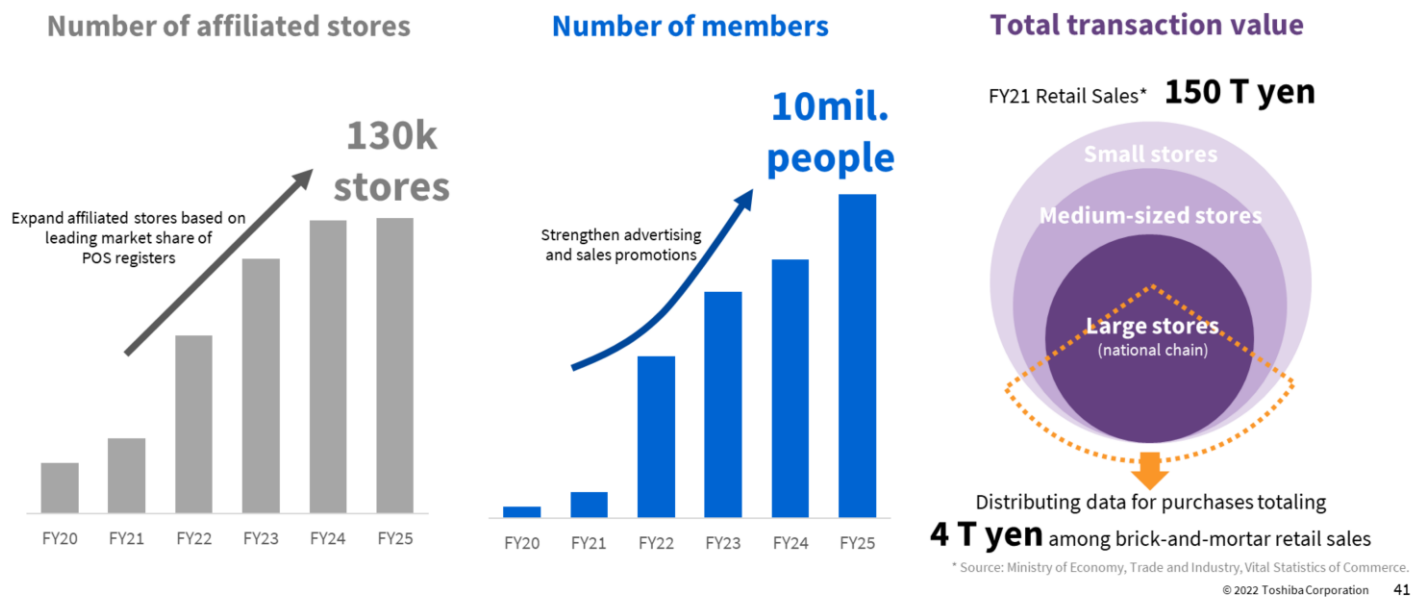


Next is a purchase data platform.
Backed by Toshiba Tec's overwhelming POS market share, we have begun Smart Receipt™, a service that provides consumers with electronic data instead of paper receipts.
This service does not obtain data from the stores. Rather, utilizes data from the Smart Receipt™ service provided to individuals with their consent.

We believe that the consumer purchase data belongs to each individual, and therefore we are committed to creating an information service that can be used with confidence. To this end, we aim to become a data social infrastructure through visualization of data and naturally-linked data based on user experiences.

Goal for Purchase Data Collection

Expand Smart Receipt™ by 2025 to establish a foundation for collecting purchase data



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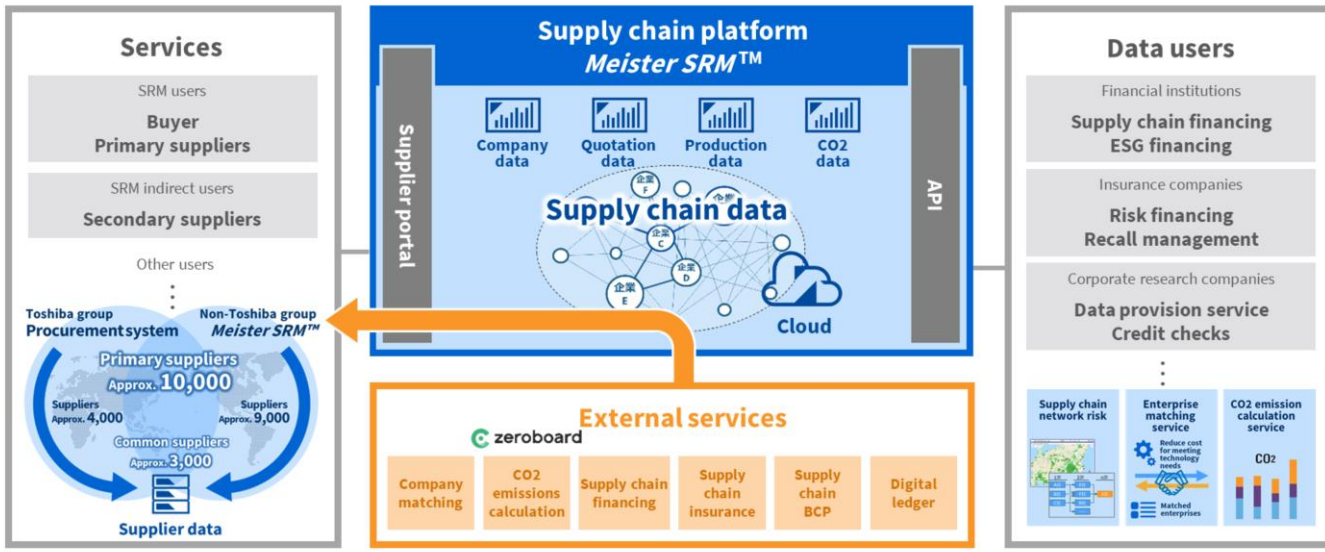
This service is currently showing a steady growth, and we aim to have 130,000 member stores and 10 million consumer members by FY25. And to penetrate Smart Receipt™ in the market and establish a foundation for collecting purchasing data.

DX Case Study #3: Supply Chain Platform

Expand an open ecosystem from a supply chain network connecting with *Meister SRM™**



* *Meister SRM™* is cloud service provided by Toshiba Digital Solutions which provides a supplier communication platform

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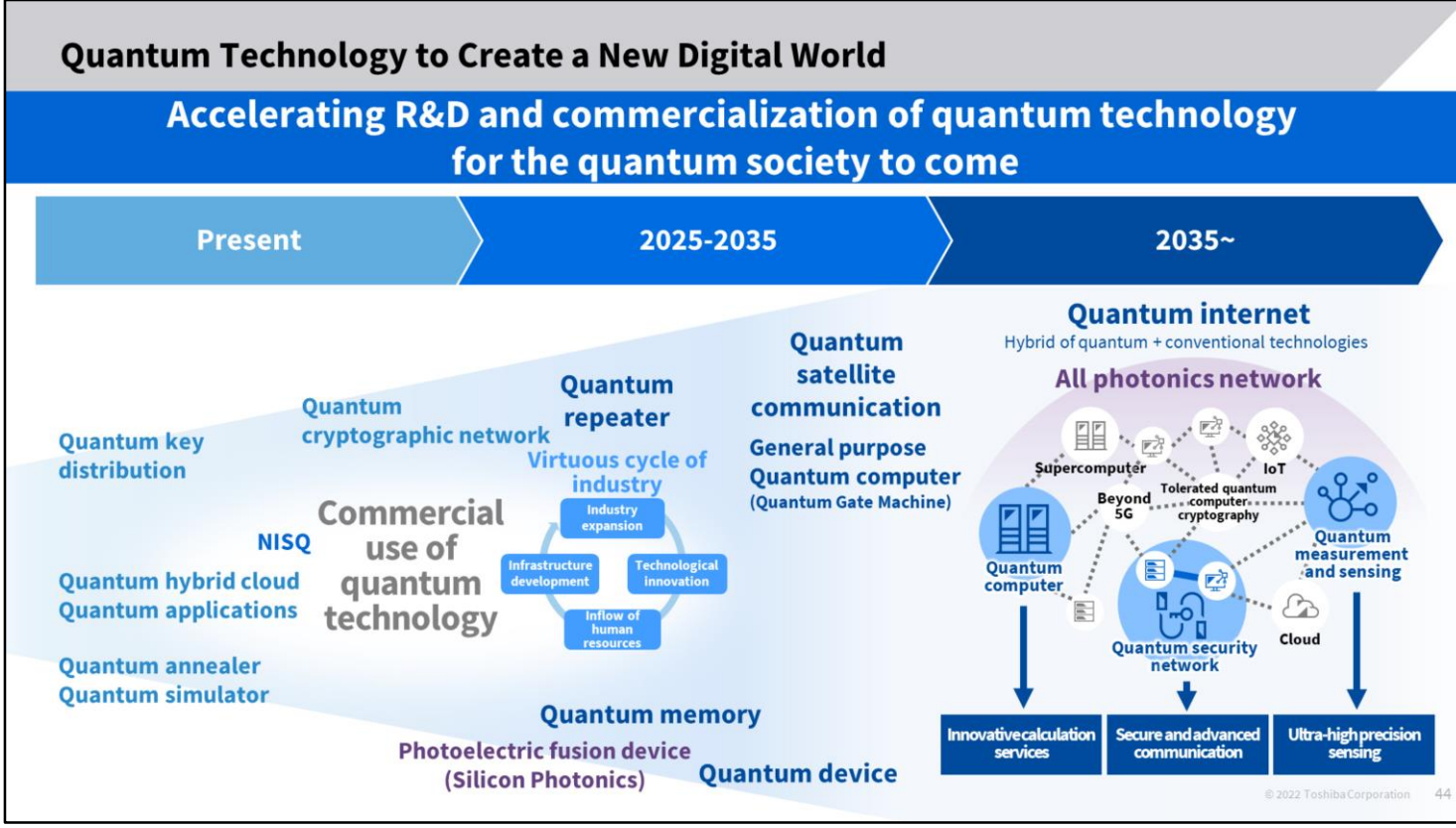
Now, in B2B, we provide a supply chain platform and it has already been adopted by many companies.

Currently, this data is stored in the cloud and is effectively used by each manufacturer for supplier evaluation and BCP response. We are trying to utilize this data by breaking down the barriers across or between the manufacturers.
This will create new data service across the supply chain such as CO2 emission calculation, company matching, and various types of financing; in collaboration with external service providers, we utilize accumulated intercompany transactions and production related data.

In particular, with regards to CO2 emissions, we aggregate the CO2 emission data and finally, using Smart Receipt™, consumer will be able to see how much CO2 had been emitted until the time of their purchase. We would like to make CO2 emission visible for consumers so that it will allow the consumers to start a behavioral change on their own.

Now, finally, in regard to QX.

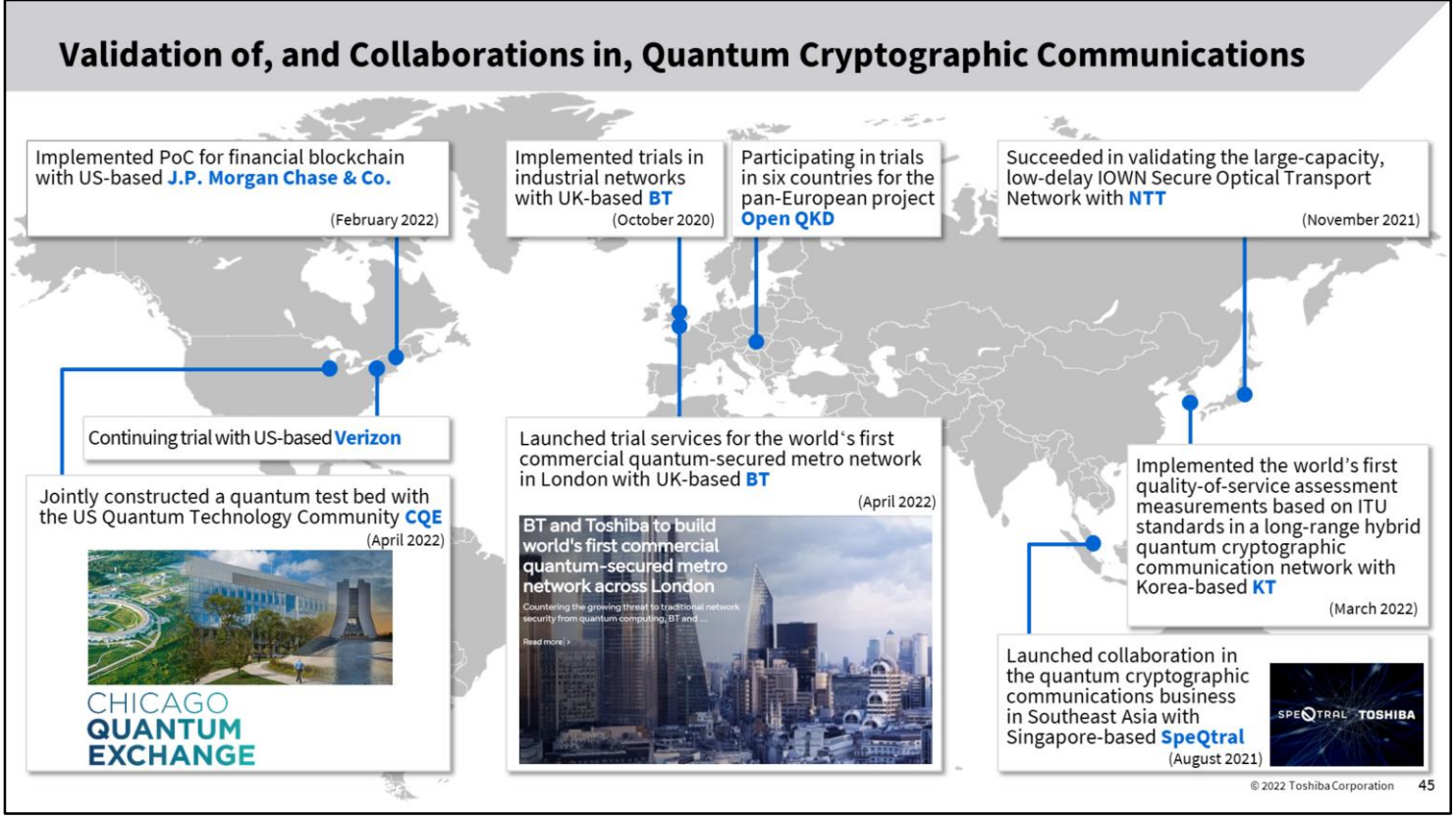


Now, quantum technology is developing at an alarming rate. Toshiba has been conducting research and development in this area for nearly 30 years. It is said that when the quantum computer is fully developed and become available, then the current mathematical type of encryption technology will easily be breached and broken.

We are the leading manufacturer of quantum cryptography, a communication method that prevents theft from conventional type of encryption. We are convinced that a time will soon come when our communications will be protected by the quantum.

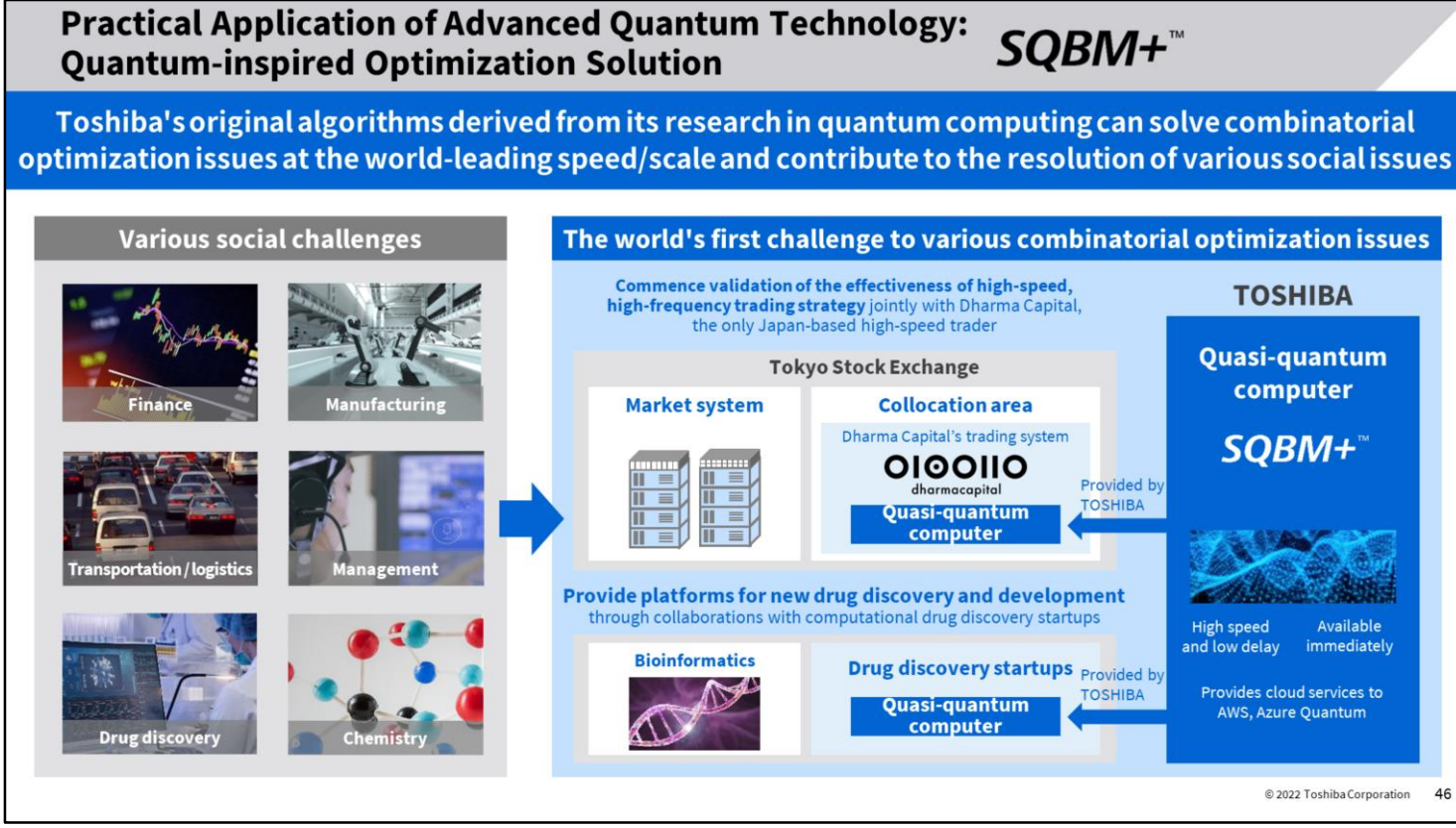
But the technology of quantum communication does not stop here. Quantum has the mysterious dynamics of superposition as well as entanglement.
This makes us possible to simultaneously update information in the memory of quantum computers hundreds of kilometers away. We believe that by connecting these quantum computers to the internet, it is possible to develop a quantum-internet world. Toshiba has the most advanced technology in this area.

In addition, a photoelectric fusion device is essential to realize an all photonics network, and Toshiba's semiconductor technologies are expected to make a significant contribution to this.



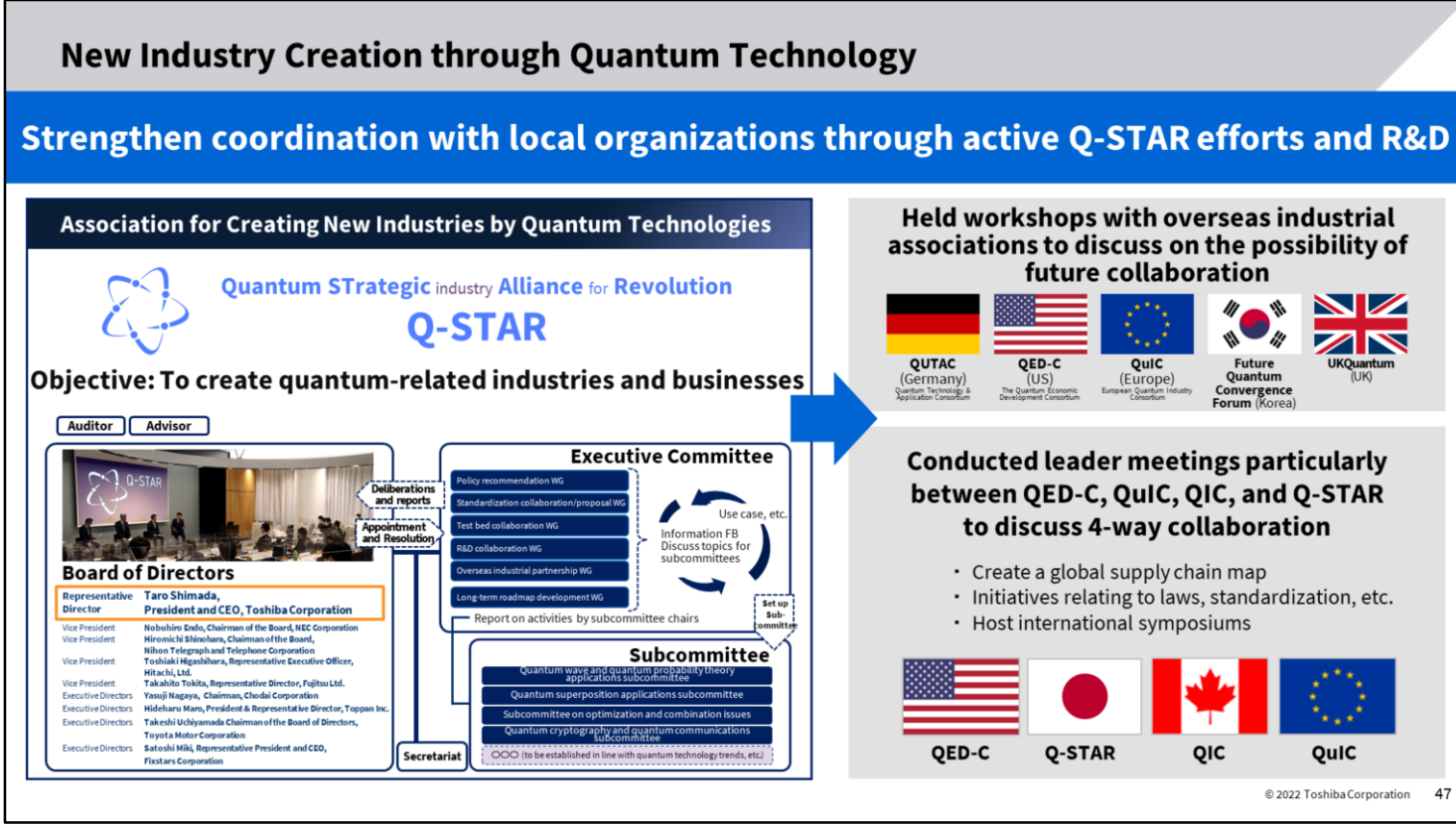
In regard to quantum cryptography communications, commercial demonstrations are underway around the world.

Toshiba Digital Solutions is currently undertaking it and participating to these projects. Even while making these investments, Toshiba Digital Solutions is still generating over 10% of profit margin.



Toshiba’s quantum computer research has already led to the development of quantum inspired solver that is said to be very close to the practical application. This solver resolves the problem of simulating quantum motion with an ordinary computer by combining it with a classical theory, and has shown the world’s fastest and largest computational performance in combinatorial optimization problems.
We are already conducting demonstration in the field of finance, and are achieving significant results in the field of drug discovery as well.

These are not just the results of research in quantum technology, but also the results of semiconductors, materials, and cooling technology, which is originated from the nuclear technology that is essential for the gated computer development. We believe that the next world breakthroughs will be realized through these and many other adjacent technologies.

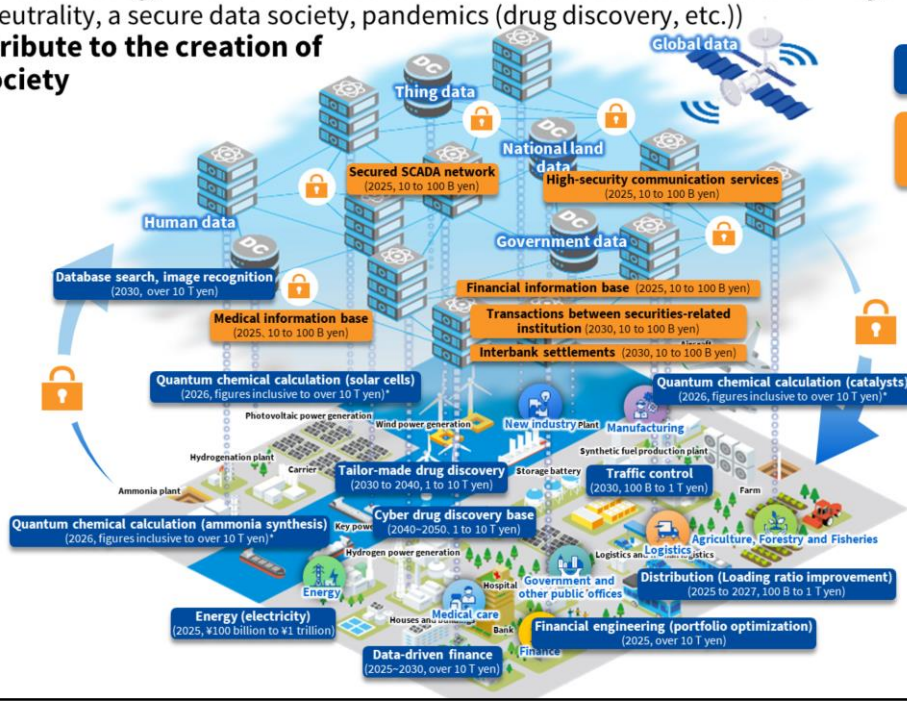


The quantum world cannot be realized by a single standalone company. Moreover, the use cases of what it can be used for and which areas are the most promising for business have yet to be determined. In other words, there exists a huge opportunity.

In order to seize this opportunity, Toshiba has been actively leading the launch of Q-STAR in Japan through industry-government-academia collaboration. Currently, I, myself, am serving as the Representative Director of general incorporated association established on May 23rd this year. Toshiba is actively promoting overseas collaboration, and we are exploring joint global business development opportunities.

Toward the Future Society that Quantum Technology will Create

Quantum technology will have social value in the resolution of future mega-issues
(carbon neutrality, a secure data society, pandemics (drug discovery, etc.))
and contribute to the creation of future society



Quantum computer technology
(Year achieved, market size (both forecasts))

Quantum cryptography and quantum communication-related technologies
(Year achieved, market size (both forecasts))

Photoelectric fusion devices (silicon photonics) are expected to be used in both "quantum computers" and "quantum cryptography and quantum communication" (figures inclusive)

* The earliest year for implemented use case of quantum science calculation and the overall size of the product are provided.
(solar cells/ammonia synthesis/catalysts constitute portions of overall market size)

Reference: Q-STAR, Quantum STrategic industry Alliance for Revolution
"Industrial Image of Carbon Neutral" (Ministry of Economy, Trade and Industry)
https://www.meti.go.jp/press/2020/12/20201225012/20201225012-4.pdf
Modified to accommodate Q-STAR use cases

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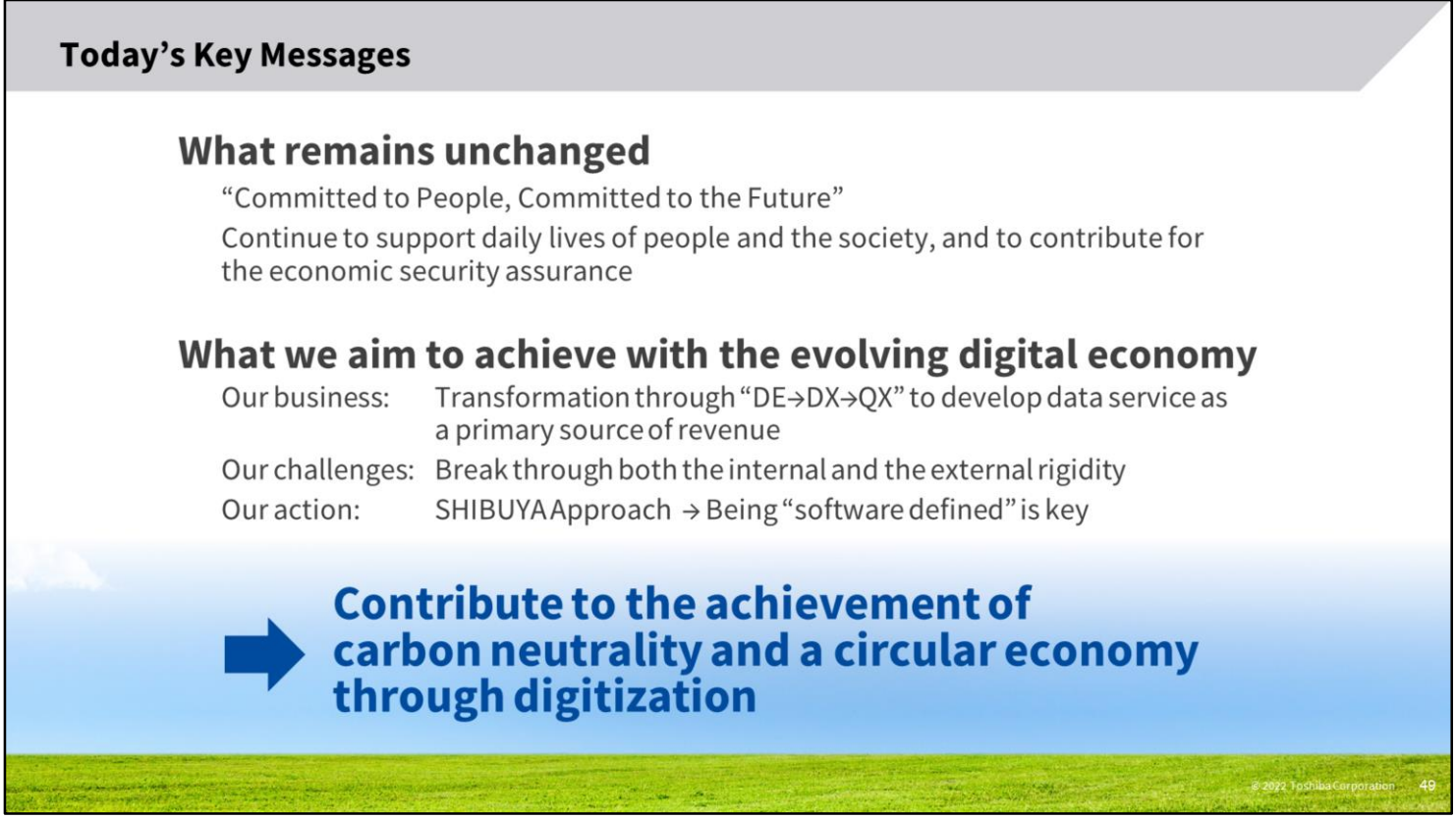
Toshiba wants to become a leading company in the quantum area, where a huge market opportunity expected to emerge.

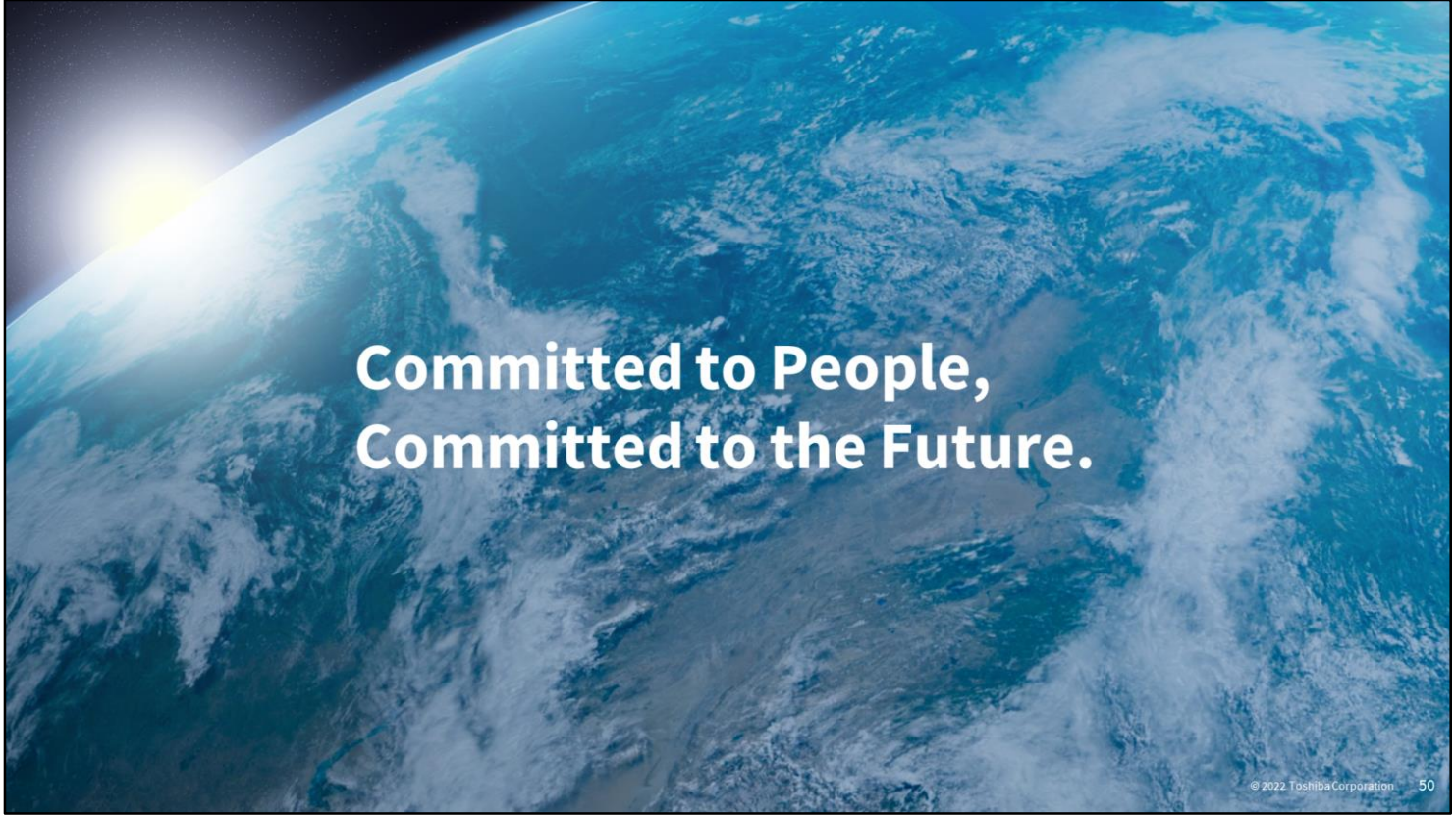


In closing, I would like to summarize the key points for today.

Toshiba group has been providing products and services that supports people's lives and society under our basic commitment of "Committed to People, Committed to the Future." We believe this is a mission that will not change in the future.

However, in response to the development of the digital economy and the age of ecosystems and platforms, the company must also change through the transformation as DE, DX and QX. We intend to transform Toshiba into a company that makes data services a pillar of its earnings.
To achieve this goal, we need to break through the two rigidities of internal and external rigidity to maximize the potential that Toshiba Group possesses. We are promoting software defined transformation through SHIBUYA steps to separate software from hardware. And we show you the concrete steps that we are taking going forward.
I am confident that through these transformations, we will become a company that harnesses the power of digital and data to contribute to the realization of carbon neutrality and circular economy.

Thank you very much for your attention.



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