



March 10, 2022

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**Notice Concerning Formulation of
New Medium-Term Management Plan (MTMP)
(FY2022-FY2024)**

Nihon Dempa Kogyo Co., Ltd. (the “Company” or “we”) hereby announces that we developed a medium-term management plan for the fiscal year 2022 ending March 2023 through the fiscal year 2024 ending March 2025 (the “New Medium-Term Management Plan”, or the “New MTMP”).

1. Background to the formulation of the New Medium-Term Management Plan

Under the Medium-Term Management Plan (FY2020-FY2022) for the fiscal year 2020 ended March 2021 through the fiscal year 2022 ending March 2023 (the “previous Medium-Term Management Plan”, or the “previous MTMP”), the NDK group companies (the “Group”) have endeavored to build a strong management structure by reducing fixed costs, strengthening profitability, pushing forward the structural reform such as voluntary retirement of the Company’s employees, partial transfer of the SAW filter business, and personnel rationalization of the consolidated subsidiaries.

Consequently, the series of structural reforms, which the Group has been working on since the fiscal year 2018 ended March 2019, are about to be completed. In addition, the business environment surrounding the Company has changed drastically, compared with the time when the previous Medium-Term Management Plan was developed; the business performance has recovered at a faster pace than anticipated, mainly in the automotive and mobile communications applications.

As a result, the business goals set in the previous MTMP are expected to be achieved one year ahead of schedule. We expect a significant increase in demand for high-precision, high-reliability crystal devices, which is one of our strengths, with a prospect of full-scale demand for the next-generation communication standard “5G” and an increase of ADAS (Advanced Driver Assistance System) devices loaded in each car.

Under such circumstances, the Company aims to shift from structural reform to a growth phase. To further improve corporate value, we have moved up the period of the previous MTMP by one year and prepared the New MTMP. Please refer to the “New Medium-Term Management Plan (FY2022 ~ FY2024), Long-Term Management Strategy -*Vision 2030*-” for detail.

2. Overview of the New Medium-Term Management Plan

1) Measures that are of Primary Importance

a. Solidify the structure for the automotive electronics and 5G-related businesses

We will expand sales in automotive electronics and 5G-related (mobile communications and industrial equipment) applications and maintain and strengthen the high-profitability structure.

- Automotive electronics: supply high-quality, high-reliability products and maintain high market share.
- Mobile communications: strengthen compact, high-frequency products for 5G smartphones (utilizing photolithography technologies).
- Industrial equipment: strengthen compact OCXO (oven-controlled crystal oscillators) for 5G base stations.

b. Aggressive investment strategy toward the realization of growth strategy

Investments for production increases based on supply and demand conditions in the automotive and mobile communications applications; investments for the development of cutting-edge products (i.e., photolithography technologies, compact and high-frequency region, etc.); infrastructure renewal and system foundation construction

c. Financial strategy toward higher capital efficiency and healthier financial structure

- Introduce ROIC index to practice the management with capital efficiency in mind
- Improve the efficiency invested capital by optimizing inventory and making adequate decisions and investments.
- Build a more robust financial structure by redeeming all of Class A shares by June 2022 ^(*) and steadily compressing loans and borrowings.

() It is the Group's objective as of today and not a confirmed matter. The Class A shares will be redeemed on the premise that sufficient funding can be achieved through a public offering. In case it turns out to be impracticable to finance in the time and conditions the Group desires due to changes in the market environment and other factors, the redemption date of Class A shares may be postponed to July 2022 or later.*

2) Business Goals

Net Sales:	¥58 billion	(in FY2024)
Operating income ratio (IFRS):	11%	(in FY2024)
ROIC (IFRS):	10%	(in FY2024)
Equity ratio:	40%	(End of FY2024)
D/E ratio:	0.8	(End of FY2024)
Dividend per share:	¥10/semi-annual	(after full redemption of Class A shares)

[Prerequisite] Full redemption of Class A shares

3. ESG (Environmental, Social, and Governance) Strategy

The Company will promote the initiatives to achieve carbon neutrality by 2050.

4. Long-Term Management Strategy -*Vision 2030*-

Looking ahead to 2030, the Company will make the years up to 2030 the period of a giant leap toward sustainable growth as a reborn NDK, clarifying the direction we should proceed in the medium-to-long term and the new businesses to address. In concrete terms, we will aim to enter new markets and build new business models toward upgrading of communication standards (from 5G to 6G) and further expansion and development of IoT society.

End

New Medium-Term Management Plan (FY2022–FY2024) Long-Term Management Strategy—Vision 2030

Nihon Dempa Kogyo Co., Ltd.
March 2022

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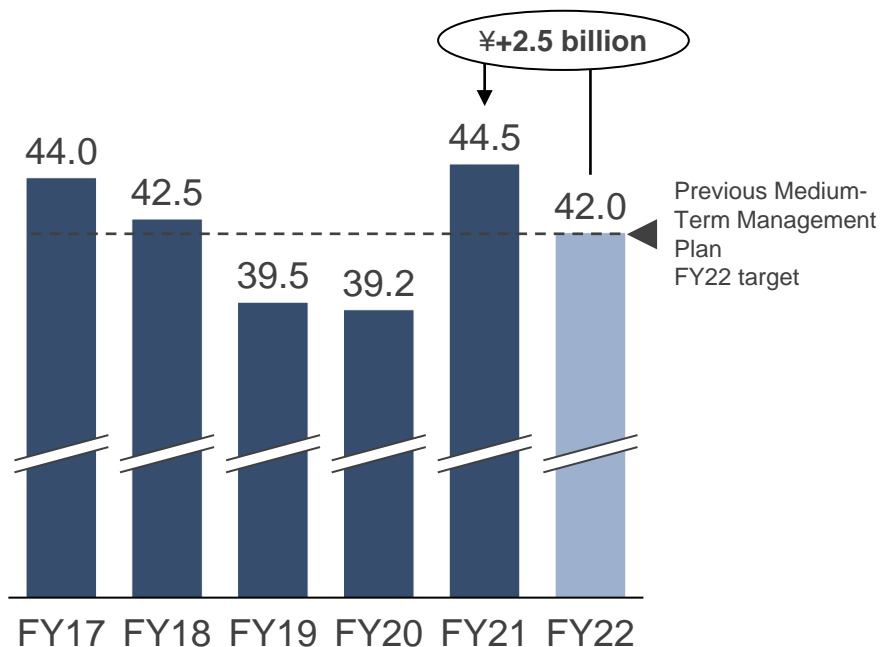
- I. Review of the Previous Medium-Term Management Plan (FY2020–FY2022) and Overall Picture of the New Plan**
- II. New Medium-Term Management Plan (FY2022–FY2024)
 - (1) Overview
 - (2) Business Strategy
- III. ESG Strategy
- IV. Long-Term Management Strategy (Vision 2030)

Review of the Previous Medium-Term Management Plan: Net Sales and Operating Income

- Business performance has improved significantly and we expect to achieve the management targets of the previous Medium-Term Management Plan one year ahead of schedule

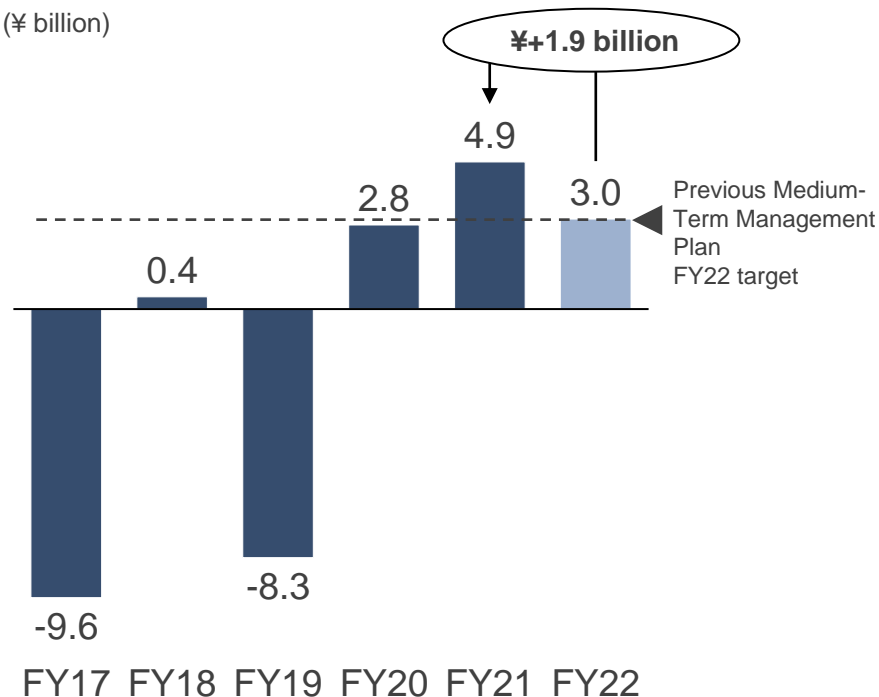
Net Sales (end of March for each fiscal year)

(¥ billion)



Operating Income (IFRS) (end of March for each fiscal year)*1

(¥ billion)



Review of the Previous Medium-Term Management Plan: Management Targets

- In addition to earnings, we expect to achieve financial targets ahead of schedule

	FY2019 Results	FY2020 Results	FY2021 Forecast	FY2022 Previous Medium- Term Management Plan Targets	Evaluation
Net sales	¥39.5 billion	¥39.2 billion	¥44.5 billion	¥42.0 billion	Achieve ahead of schedule
Operating income (IFRS)	¥-8.3 billion	¥2.8 billion	¥4.9 billion	¥3.0 billion	Achieve ahead of schedule
Operating income ratio (IFRS)	-21.0%	7.3%	11.0%	7%	Achieve ahead of schedule
Fixed costs (% of net sales)	¥20.3 billion (51%)	¥17.6 billion (45%)	Approx. ¥18.7 billion (approx. 42%)	¥18.0 billion (43%)	Achieve fixed cost ratio despite fixed cost increases accompanying Sales increase
Equity ratio	9.8%	21.5%	29.3%*1	Over 20%	Achieve ahead of schedule

*1: Calculated based on BS results at the end of the 3rd quarter and net income forecast for the 4th quarter.

Review of the Previous Medium-Term Management Plan

: Achievements and Challenges

- Structural reforms over the past three years and steady efforts by our manufacturing, sales, and engineering departments contributed to improved performance

Achievements

- **Streamlining of fixed costs through structural reforms**
 - ✓ Drastic reduction of fixed costs through structural reforms
- **Firmly established profitability-oriented sales activities**
 - ✓ Substantial improvement in earnings for automotive electronics and mobile communications
- **Achieved yield improvement through production and engineering collaboration**
 - ✓ In particular, significant results were achieved in products equipped with photolithography blanks, a business expected to grow in the future
- **Strengthened collaboration with other companies; broke away from focus only on in-house efforts**
 - ✓ Realized external alliances such as creating JVs in the SAW business and adopting OEM for building a flexible production system

Challenges

- **Have not been able to expand sales of OCXOs^{*1} for base stations**
 - ✓ Have not been able to compensate for the impact of changes in the external environment such as the US-China trade issue

In order to expand sales of products in the 5G market (which has high potential), we will take measures such as strengthening FAE functions.^{*2}

^{*1}: Oven Controlled Crystal Oscillator

^{*2}: FAE is an abbreviation for Field Application Engineer, a position that supports sales by utilizing specialized technical expertise.

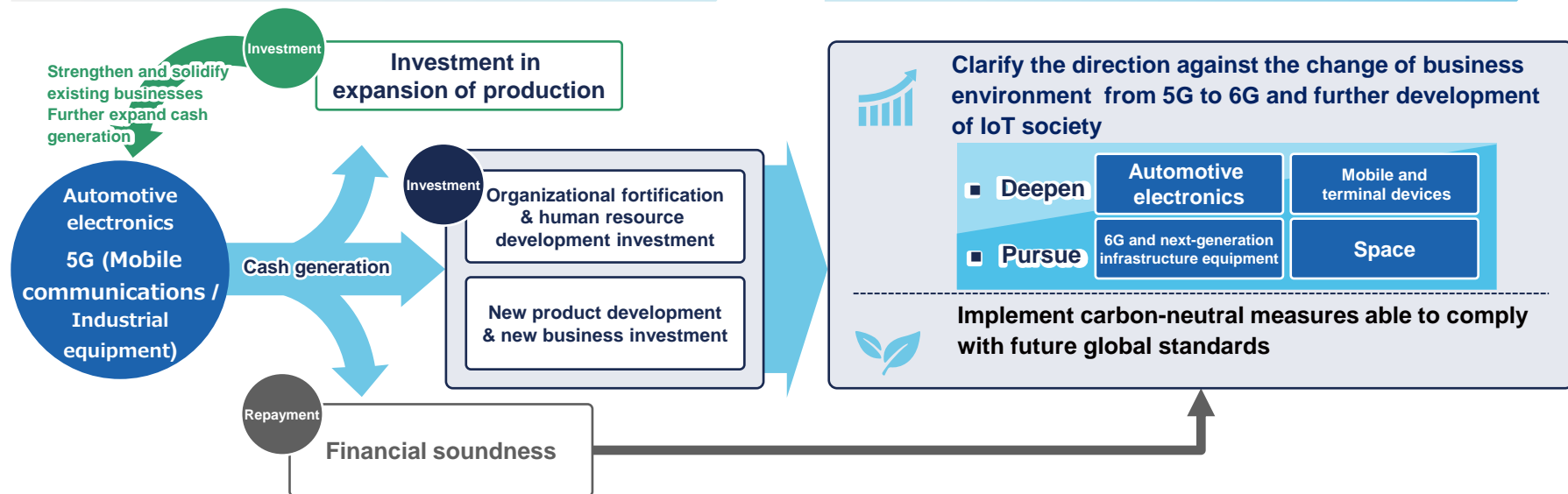
Positioning and Aims of the New Medium-Term Management Plan and Long-Term Management Strategy

- The New Medium-Term Management Plan clarifies our shift from structural reforms to a growth phase
- Long-Term Management Strategy—Vision 2030 looks ahead to the year 2030 and clarifies the direction we should proceed in the medium to long term. The long-term strategies will start during the New Medium-Term Management Plan period

Period of the new Medium-Term Management Plan (FY2022–FY2024)

Achieve a balance between solidifying existing businesses and building a foundation for future growth

Long-Term Management Strategy—Vision 2030 (Elaborate concrete strategies)



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Management Targets during the New Medium-Term Management Plan

Net sales

FY24

¥ **58.0** billion

- Sales will rise mainly in automotive electronics and mobile communications markets

Operating income ratio

FY24

11 % (IFRS)

- Boost profitability by increasing the sales of high-frequency and compact products, as 5G gets into full swing
- The plan reflects the assumed price rise of materials such as IC

ROIC

FY24

10 % (IFRS)

- Introduce as a new indicator as we implement management with an awareness of capital efficiency
- In addition to generating profits, we aim to achieve this target by optimizing inventories and improving the efficiency of invested capital through appropriate investment decisions and execution

Financial & capital strategies

Quickly achieve financial and capital soundness for sustainable growth

- Strengthen financial base and secure funds for growth through a capital increase from a public offering of common shares
- Aim to fully redeem Class A shares by the end of June 2022^{*1}
- Normalize transactions with financial institutions in March 2022 and steadily reduce debt

^{*1}: It is the Group's objective as of today and not a confirmed matter. The redemption of Class A shares will be carried out on the premise that sufficient funding can be achieved through a public offering. In case it turns out to be impracticable to finance in the time and on the terms and conditions the Group desires due to changes in the market environment and other factors, the redemption date may be postponed to July 2022 or later.

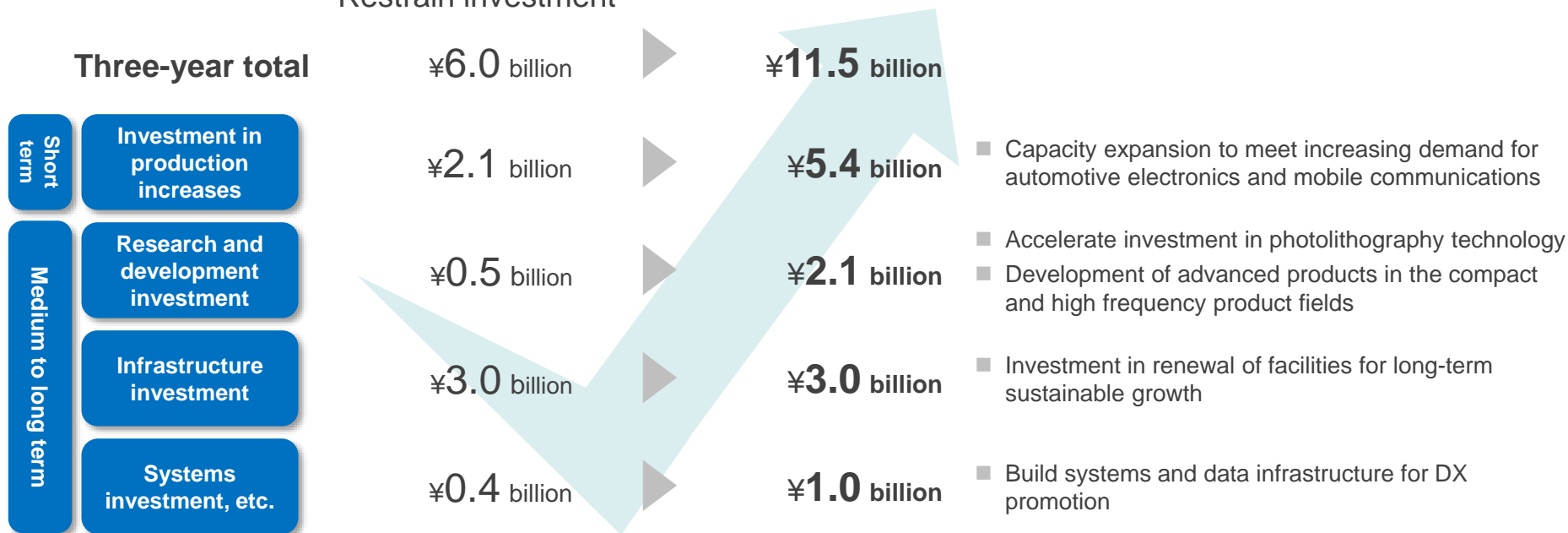
Investment Strategy

Most recent three years
(FY19–FY21)

New Medium-Term Management Plan
(FY22–FY24)

Prioritize improvement
of financial structure;
Restrain investment

Growth investment phase



Financial Strategy

Expand capital

- Aim to fully redeem Class A shares by the end of June 2022^{*1}
- Capital increase through public offering of new shares during the period of the New Medium-Term Management Plan
- Steady build-up through increased profits

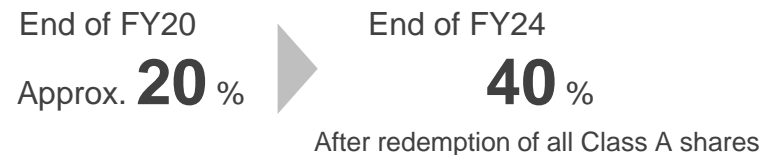
Reduce borrowing balance (improve D/E ratio)

- Reduce the balance of borrowings to an appropriate level

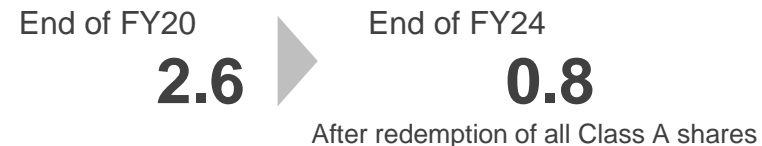
Increase the dividend

- Dividend increase planned after fully redeeming Class A shares
- After the capital increase through public offering, we plan to transfer the funds to surplus in order to maintain stable dividends

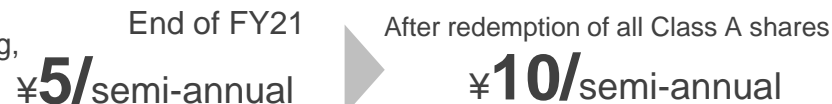
Equity ratio



D/E ratio (Interest-bearing debt ÷ shareholders' equity)



Dividend per share



^{*1}: It is the Group's objective as of today and not a confirmed matter. The redemption of Class A shares will be carried out on the premise that sufficient funding can be achieved through a public offering. In case it turns out to be impracticable to finance in the time and on the terms and conditions the Group desires due to changes in the market environment and other factors, the redemption date may be postponed to July 2022 or later.

Overview and Purpose of the Shelf Registration for New Share Issuance*¹



Overview

Shelf registration for the issuance of new shares by public offering and the disposition of treasury shares

- Class of Securities to be offered:
Shares of common stock of NDK
- Scheduled Issue (Disposal) Period:
For the period from the scheduled effective date of the shelf registration to the date that is 1 year after such scheduled effective date.
(From March 18, 2022 to March 17, 2023)
- Scheduled issue (Disposal) Amount: Up to ¥5 billion
- Offering method: To be determined

In conjunction with the shelf registration, it was also resolved to transfer the entire amount of the increase in capital stock and legal capital surplus from the expected increase in capital to other capital surplus on the same day as the payment date of share issues, in order to ensure flexibility and mobility in capital policies, etc. after the redemption of Class A shares.*¹

Purpose of the Shelf Registration

To establish a system for flexible capital procurement in light of the following points

- Securing the necessary funds for achieving the future growth strategies set forth in the new Medium-Term Management Plan
- Further strengthening our financial base after the redemption of Class A shares

*1: For details, please refer to the March 10, 2022 press release "Shelf Registration Statement regarding Issuance of New Shares and Disposal of Treasury Stock and Reduction of Amounts of Capital Stock and Legal Capital Surplus Concurrently with Issuance of New Shares."

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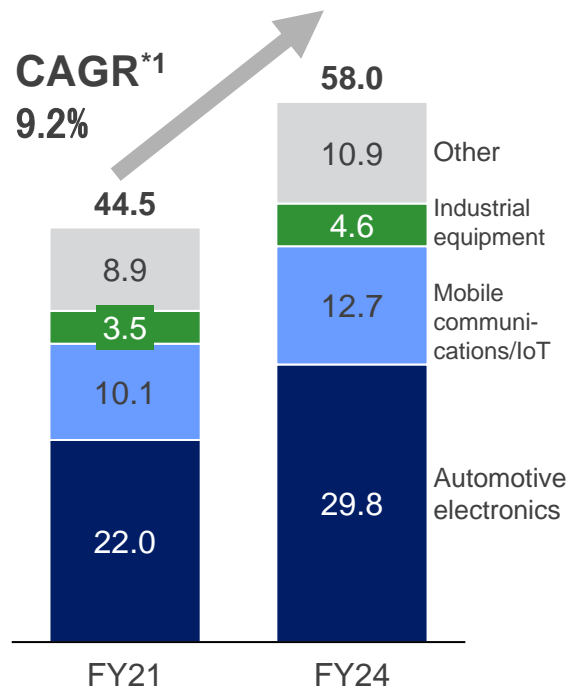
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Business Overview and Strategy

- We plan for revenue to increase, mainly for automotive electronics and mobile communications applications
FY24 net sales of ¥58 billion

Medium-term sales target

(¥ billion)



	Environmental awareness	Direction of growth
5G-related	Automotive electronics <ul style="list-style-type: none"> Recovery in the number of completed vehicles & increase in the number of vehicles with advanced driver assistance systems (ADAS) 	<ul style="list-style-type: none"> Maintaining a high market share by supplying high-quality, highly reliable products
	Mobile communications/IoT <ul style="list-style-type: none"> Smartphone shipments leveling off, but the percentage of 5G-compatible smartphones is increasing 	<ul style="list-style-type: none"> Leveraging the advantages of miniaturization and high-frequency technology (photolithography blanks) to capture 5G demand
	Industrial equipment <ul style="list-style-type: none"> Expansion of 5G communication network and large increase in small base stations (RU) 	<ul style="list-style-type: none"> For 5G base stations (RU), aiming to expand sales by introducing compact OCXO
	Other*2 <ul style="list-style-type: none"> Consumer: expansion in camera market for professionals Medical equipment, synthesizers/sensors: gradually increasing 	<ul style="list-style-type: none"> Consumer (cameras): offset the decline in mass market consumer sales with growth in professional sales Medical equipment: expand sales to new customers Synthesizers/sensors: continue contract development and secure new orders

Business Overview and Strategy: Priority Focus Fields

- Focus on automotive electronics and 5G-related areas



- Supplying products for automotive applications since the early 1970s
- Holding 50% or higher market share*1 for many years

*1: NDK estimates based on data from research companies

- Began development of photolithography blanks around 2008
- Began mass production of high-precision products required for 5G products ahead of competitors

Automotive Electronics Market (NDK's Strength)

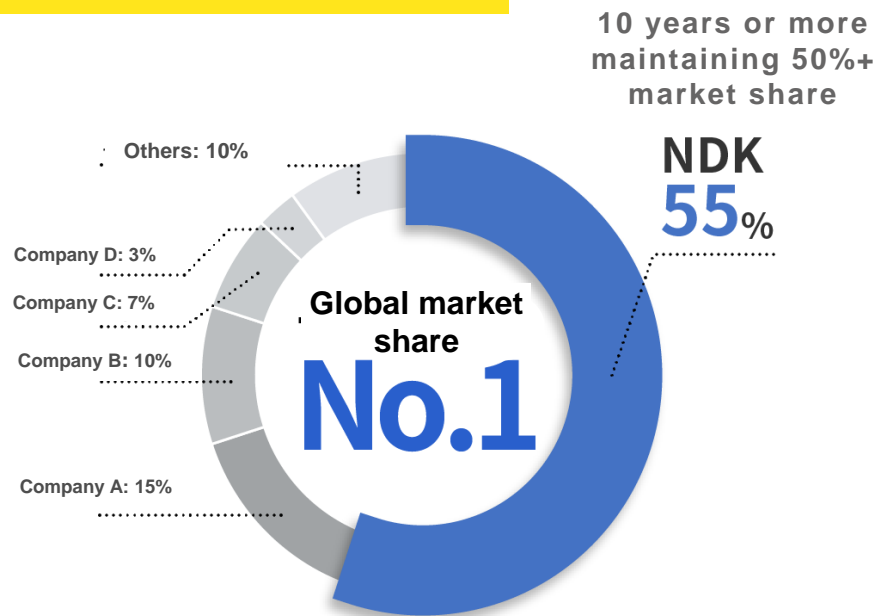


NDK's uncompromising approach to high quality required to automotive product

NDK receives steady trust from tier 1 customers

■ NDK's comprehensive support capabilities

Planning	Ability to propose high quality products that anticipate needs
Development	Design technology to meet required specifications
Prototypes	Verification capability to prevent defects before they occur
Mass production	Ability to supply high quality and highly reliable products
Shipping	Full-fledged support in the unlikely event of a defective product

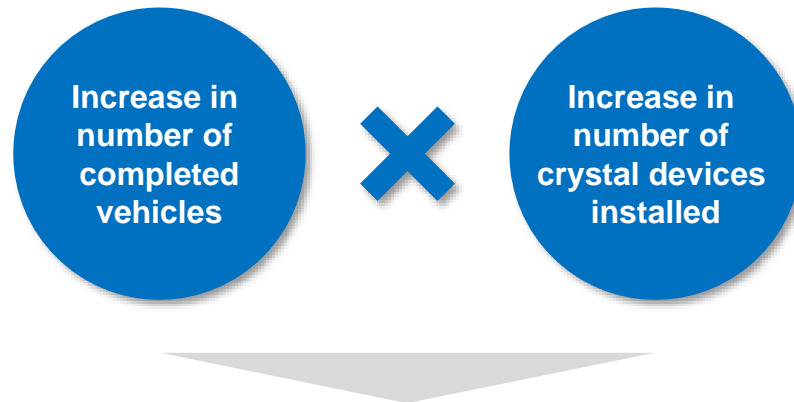
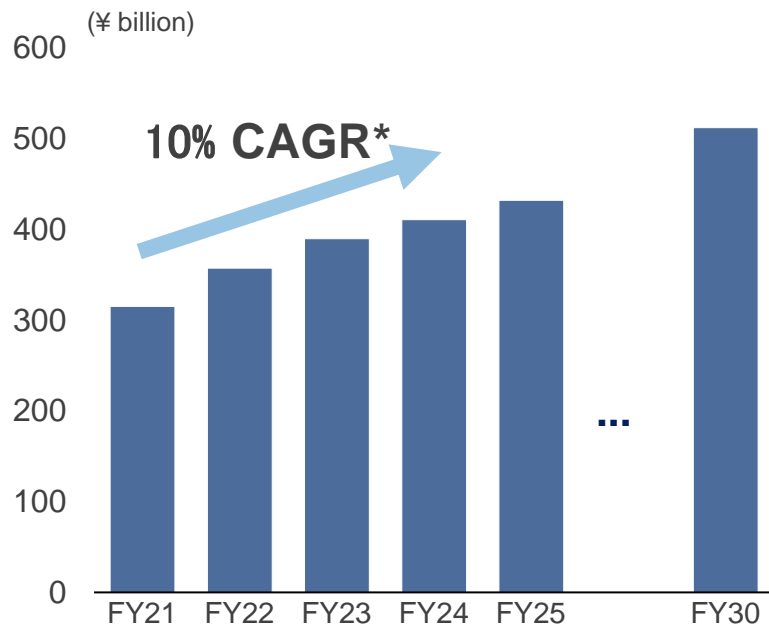


Source: NDK estimates based on data from research companies
(Market share as of CY20 forecast)

Automotive Electronics (Market Environment (1))

- Market potential for crystal products is expected to increase due to an increase in the number of completed vehicles and the number of crystal units installed

Crystal Product Potential for Automotive Electronics Applications



Market size is expected to increase significantly during the new Medium-Term Management Plan

Source: NDK estimates from FY21 are based on forecast data from research companies

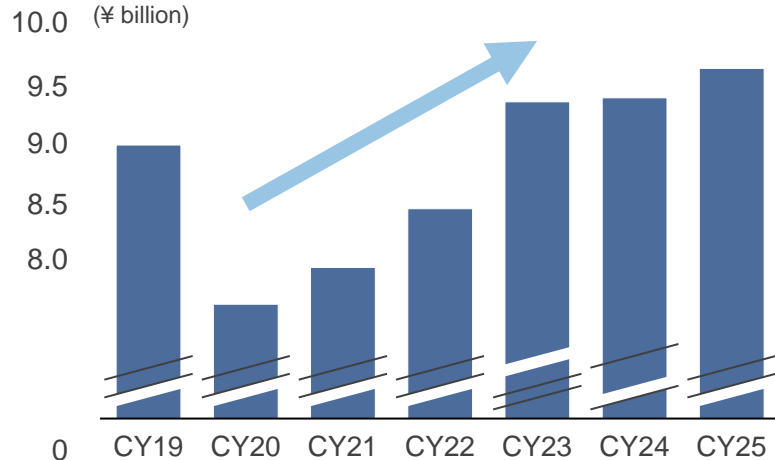
*Abbreviation for compound annual growth rate

Automotive Electronics (Market Environment (2))

- The growth of ADAS installed into automotives will raise the crystal device demands
- The trend of standardization and mandatory of ADAS installation is expected to accelerate according to the development of automated driving technologies

Forecast of global sales volume of completed vehicles

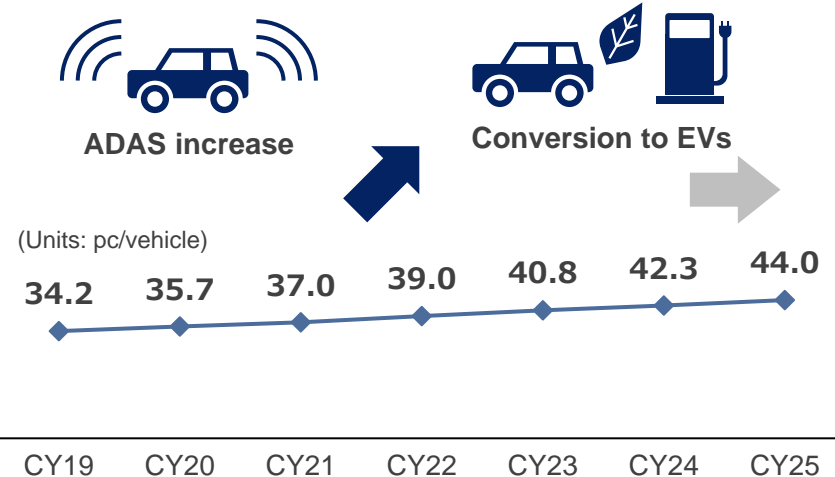
- The number of completed vehicles is expected to recover to the 94 million unit level in CY24



Source: NDK estimates from CY21 are based on forecast data from research companies

Estimated number of crystal devices installed

- The number of crystal devices installed is increasing significantly as ADAS are becoming more common
- No impact on the number of crystal devices installed is expected accompanying the shift to EVs



Our Business Domain in 5G

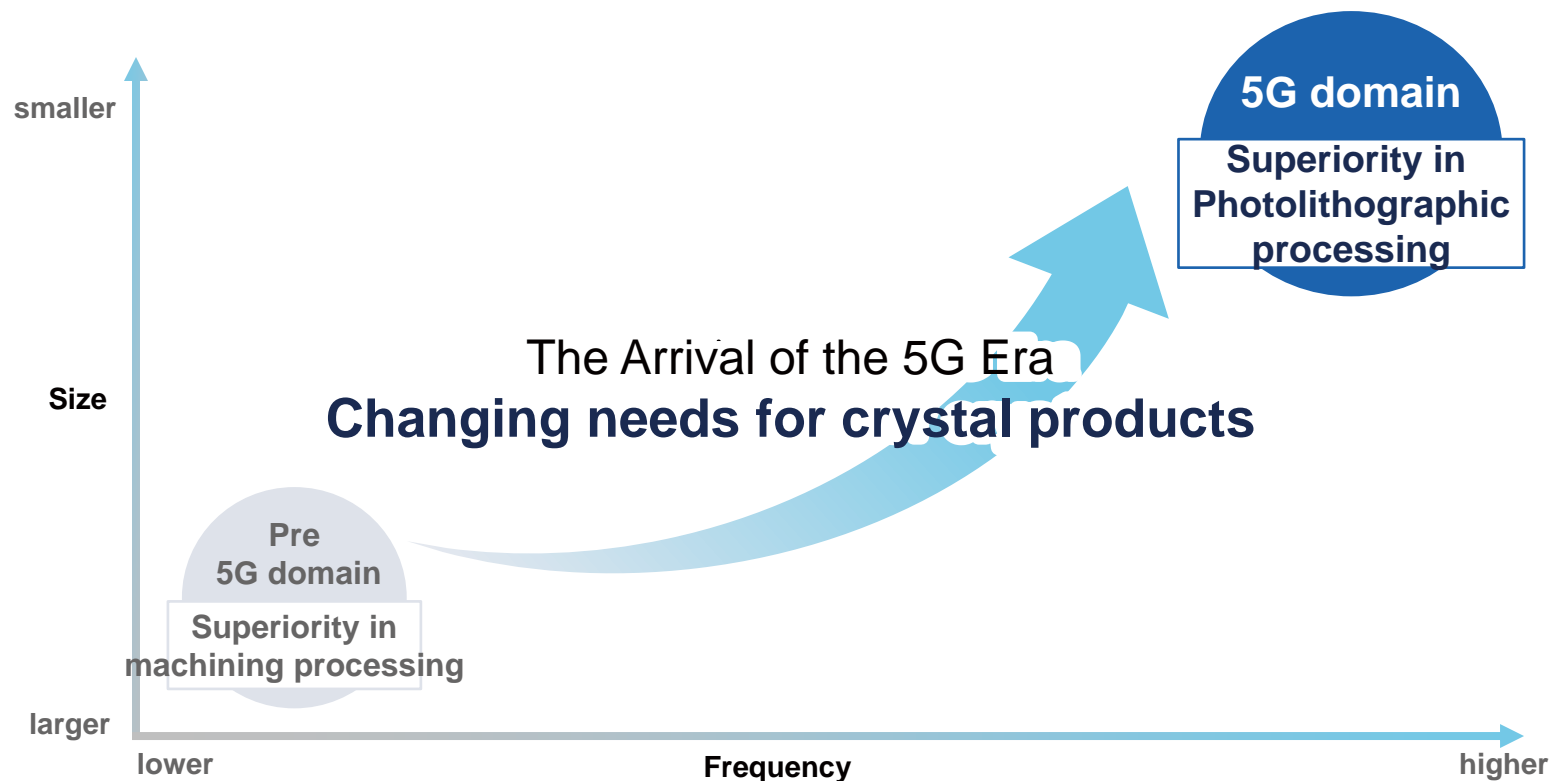
- 5G has two main markets: the devices market and the network market, and NDK can approach both markets
- The 5G market is expected to have high growth potential and a wide range of business opportunities exist



Mobile Communications Market

(NDK's Strength: Photolithography Processing Technology (1))

- With the advent of the 5G era, the need for compact, high-frequency crystal devices will increase, and the advantages of photolithographic processing technology will become even more pronounced



Mobile Communications Market

(NDK's Strength: Photolithography Processing Technology (2))

- The technological know-how we have accumulated over many years has become the cornerstone of our integrated production of high-quality, high-performance photolithography blanks, giving us a competitive edge in 5G applications

Initiatives and Results to Date

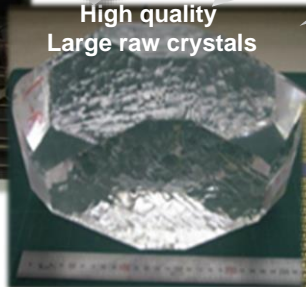
- We have been accumulating production know-how through repeated trial and error since around 2008
- Realization of high quality and high performance (compact size and high frequency) photolithography blanks with high productivity
- Successfully developed products for 5G ahead of other companies
 - ✓ Acquired first certification of crystal unit (76.8 MHz) with a built-in thermistor from Qualcomm (mass production began in June 2020)

Raw crystal growth

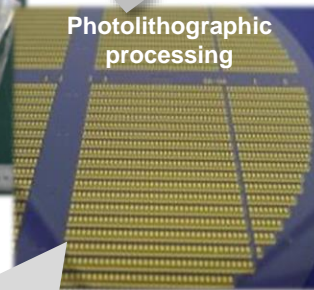


- Success in growing large, high-purity raw crystals

High quality
Large raw crystals



Photolithographic
processing



- Mass production using 4-inch wafers started ahead of competitors

76.8 MHz
crystal units with built-in
thermistor

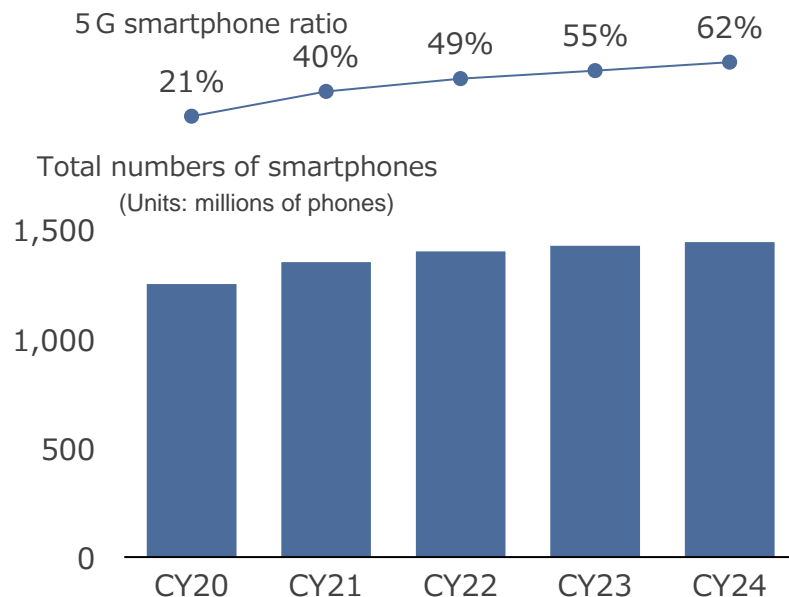


Mobile Communications (Market Environment)

- Shift towards 76.8MHz band will move forward along with the growth in demand for 5G-compatible smartphones
- NDK will expand sales of ultra-compact crystal units(include 76.8MHz products) with photolithography blanks for 5G-compatible smartphones and wearable devices

Potential number of smartphones

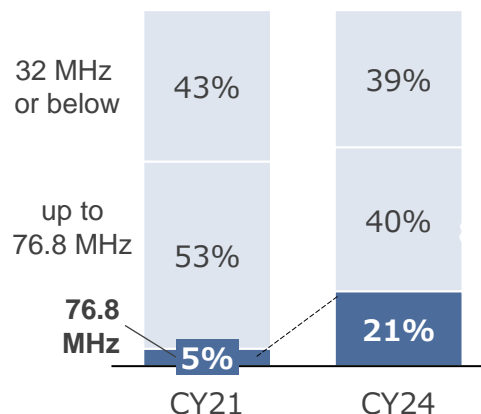
5G smartphone market: 18% CAGR



Crystal devices potential for smartphone applications

- Requirement for higher frequency in crystal units due to the spread of 5G-compatible smartphones
- Shift toward 76.8MHz band is moving forward

Forecast by Frequency Band

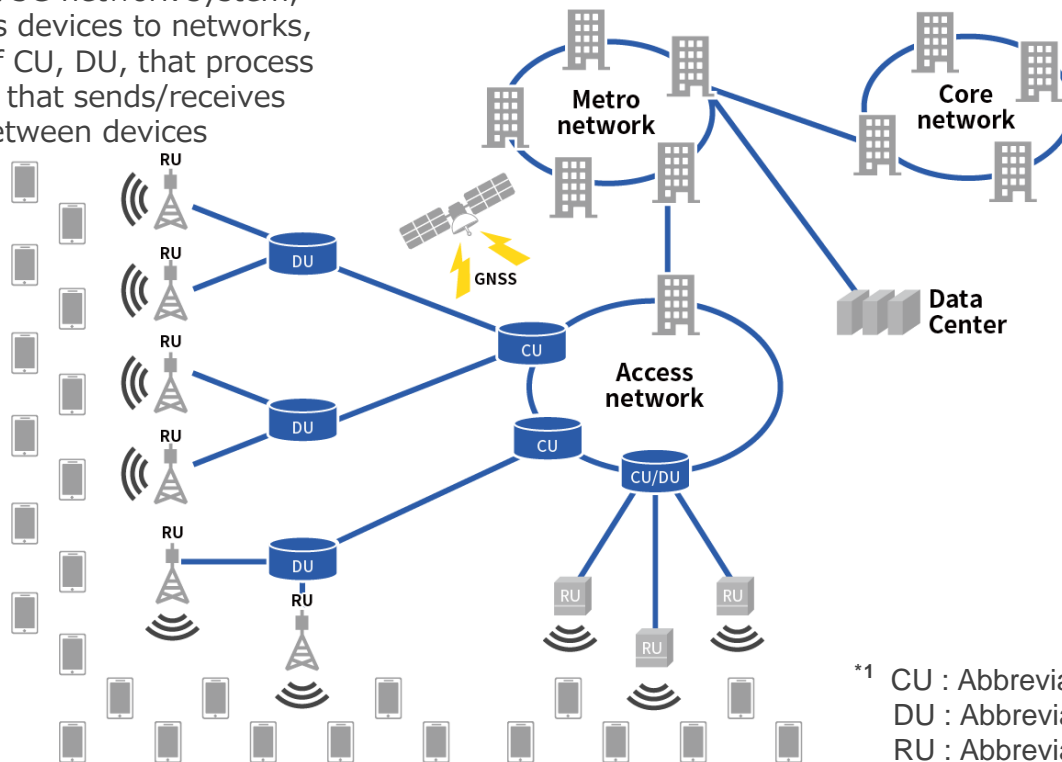


Industrial Equipment: Base Stations (NDK's Strengths)

- NDK is the sole Japanese mass producer of OCXO for 5G base station

【5G Network system】*1

Base station at 5G network system, which connects devices to networks, is composed of CU, DU, that process data, and RU, that sends/receives radio waves between devices



NDK provides high-stable OCXOs using our own high-purity and high-quality raw crystal



■ OCXO (25×22mm)

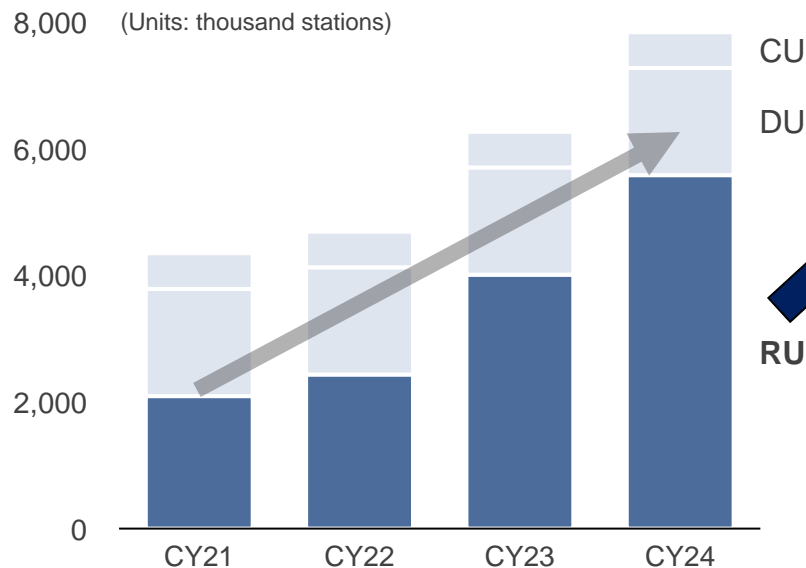
*1 CU : Abbreviation for Central Unit
DU : Abbreviation for Distributed Unit
RU : Abbreviation for Radio Unit

Industrial Equipment: Base Stations (Market Environment)

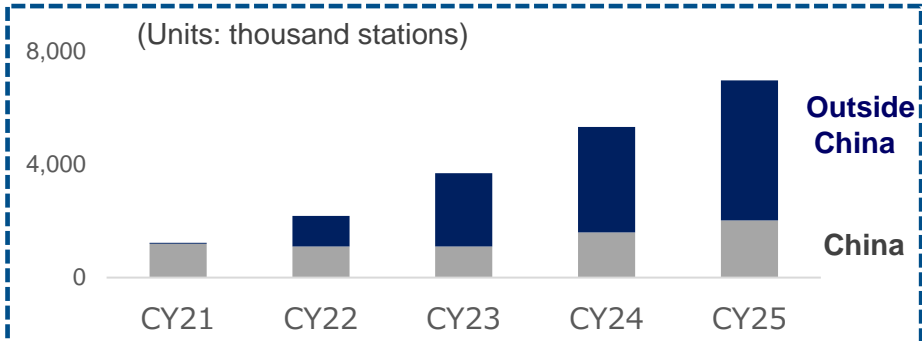
- 5G base stations are expected to need a large number of small wireless base stations called radio units (RU)
- NDK will aim to expand sales of compact OCXO

Base Station Market Potential

RU market: 38% CAGR



Forecast of RU Demand by Region



■ **World's smallest (7×5 mm) compact OCXO**

Aim to provide compact OCXO that maintain stable performance even in harsh environments

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Overall Picture of ESG Strategies



E
Environment

Accelerating Efforts to Achieve Carbon Neutrality by 2050

Scope 1 and 2

- Improvement in power consumption efficiency through energy saving strategies
- Greening of energy through procurement of electricity from renewable energy sources

Reduce electricity usage

Greener power

Scope 3

- Visualizing GHG emissions throughout the supply chain
- Visualizing the risks and opportunities of climate change and the responses to them

Scope 1: Direct emissions of greenhouse gases by the business itself; Scope 2: Indirect emissions from the use of electricity, heat, and steam; Scope 3: Indirect emissions other than those in Scope 1 & 2

As a social institution, we will further strengthen our internal infrastructure and governance in order to achieve both social responsibility and sustainable growth.

Society

- Strengthen and maintain occupational health and safety initiatives that enable employees to work with vitality
- Continuously strengthen supply chain CSR with consideration for social responsibilities such as environmental conservation and human rights
- Review human resource strategies in anticipation of social trends
- Increase the ratio of female managers and promote female executives

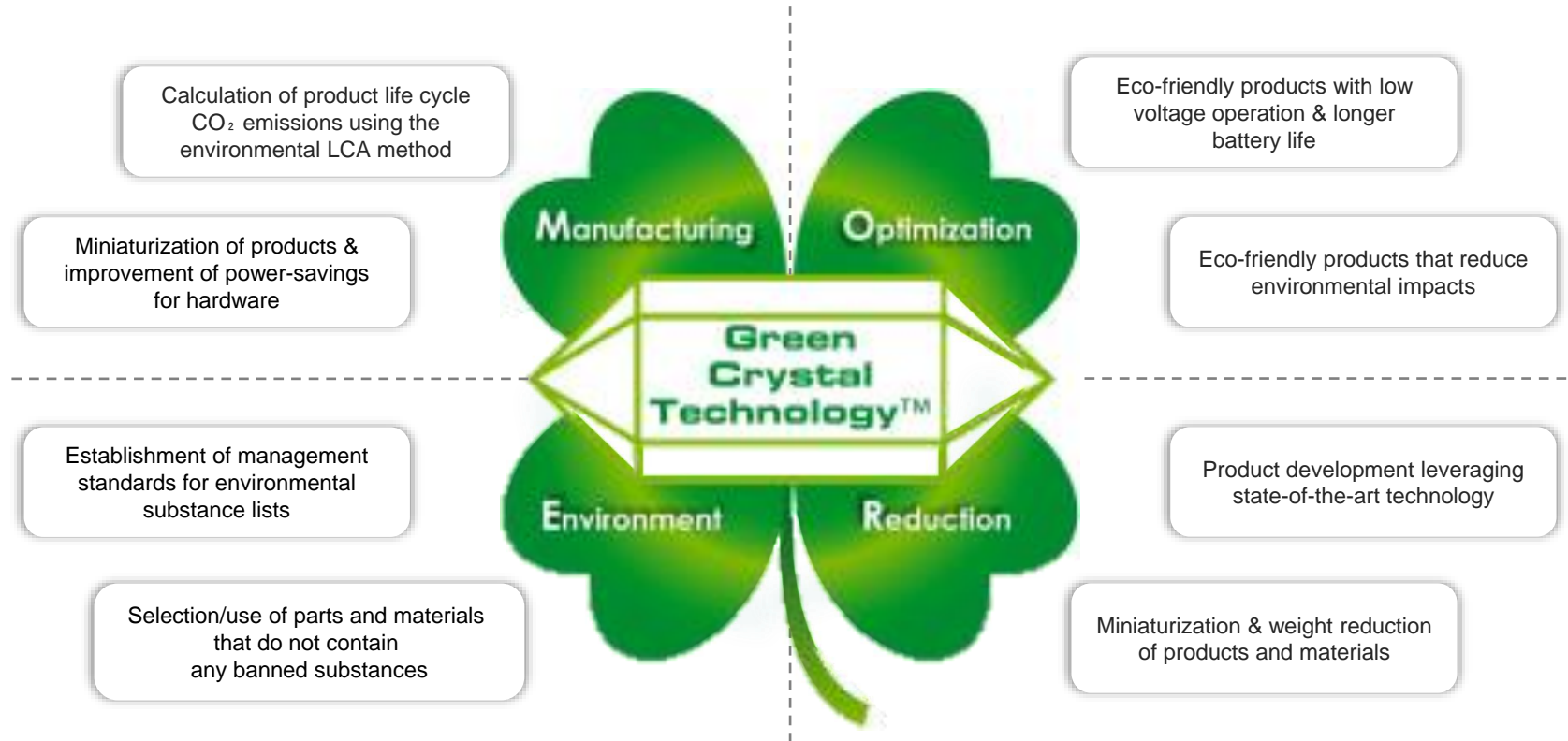
Governance

- Examine the nature of the Board of Directors and individual directors who contribute to the enhancement of corporate value
- Strengthen our risk management system
- Strengthen our responses to sustainability issues



S/G
Social/Governance

NDK Concept for environment



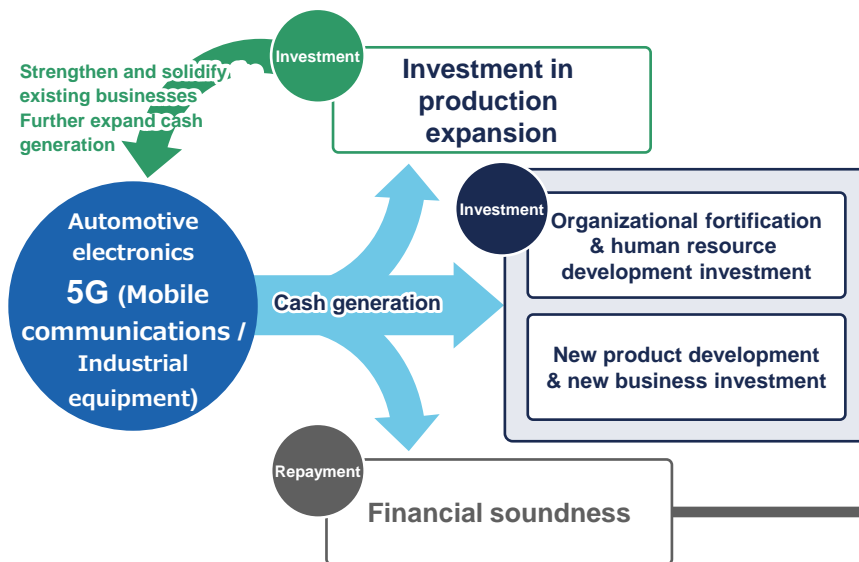
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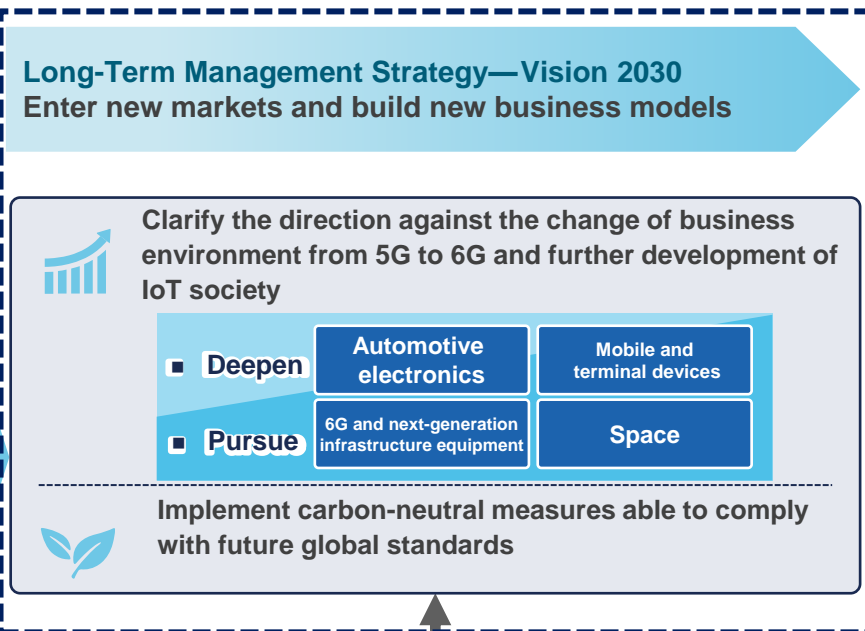
Positioning of Vision 2030

- Looking ahead to 2030, NDK will clarify the medium-to-long-term direction in the Long-Term Management Strategy
-Vision 2030-

Period of the new Medium-Term Management Plan (FY2022–FY2024)
Achieve a balance between solidifying existing businesses and building a foundation for future growth



Make a concrete strategy



NDK's Core Competences and Business Development

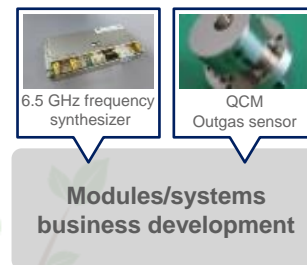


Business Development

An established position in the industry through accumulated technologies from integrated production



Endeavor toward a new business model



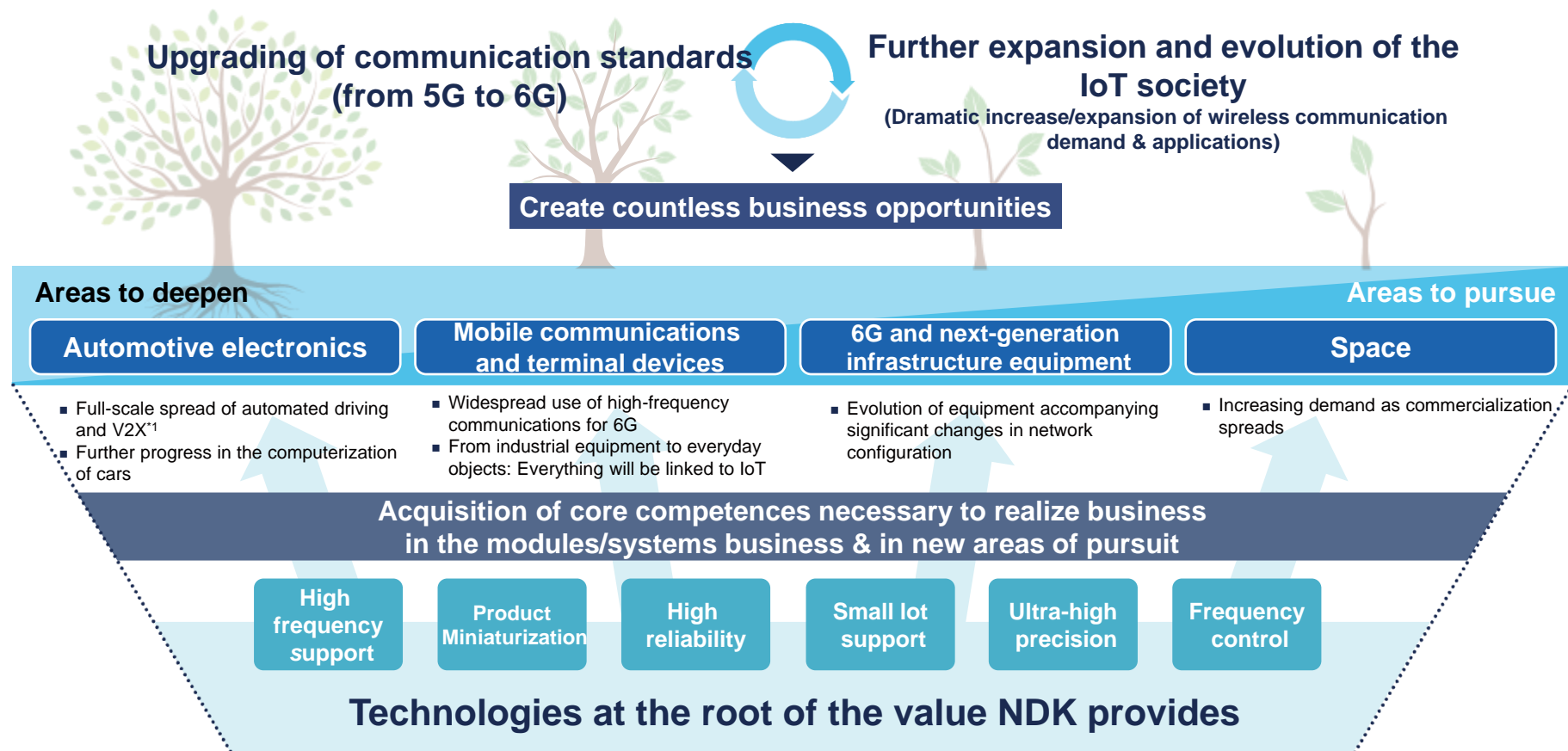
The value NDK provides



NDK's Core Competences



Business Opportunities and Technology Deployment toward Vision 2030



^{*1}: Vehicle to everything(V2X) is a wireless communication technology between vehicle and, things, other vehicles, pedestrian, infrastructure, network, etc

Initiatives for the Post-5G Era

Post-5G: Enhancing 5G's ultra-low latency, multiple simultaneous connections, and other features to address "Beyond-5G" expected to start in 2030

Expected to be used in a variety of applications, including automated driving, smart manufacturing, and industrial IoT

NDK participates in a project^{*2} commissioned by the Ministry of Economy, Trade and Industry and NEDO^{*1}

Research and development are currently underway (in collaboration with the National Institute of Information and Communications Technology, the University of Tokyo, Tohoku University, and Hiroshima University) on **"time synchronization technology," which will become increasingly important in the post-5G era.**

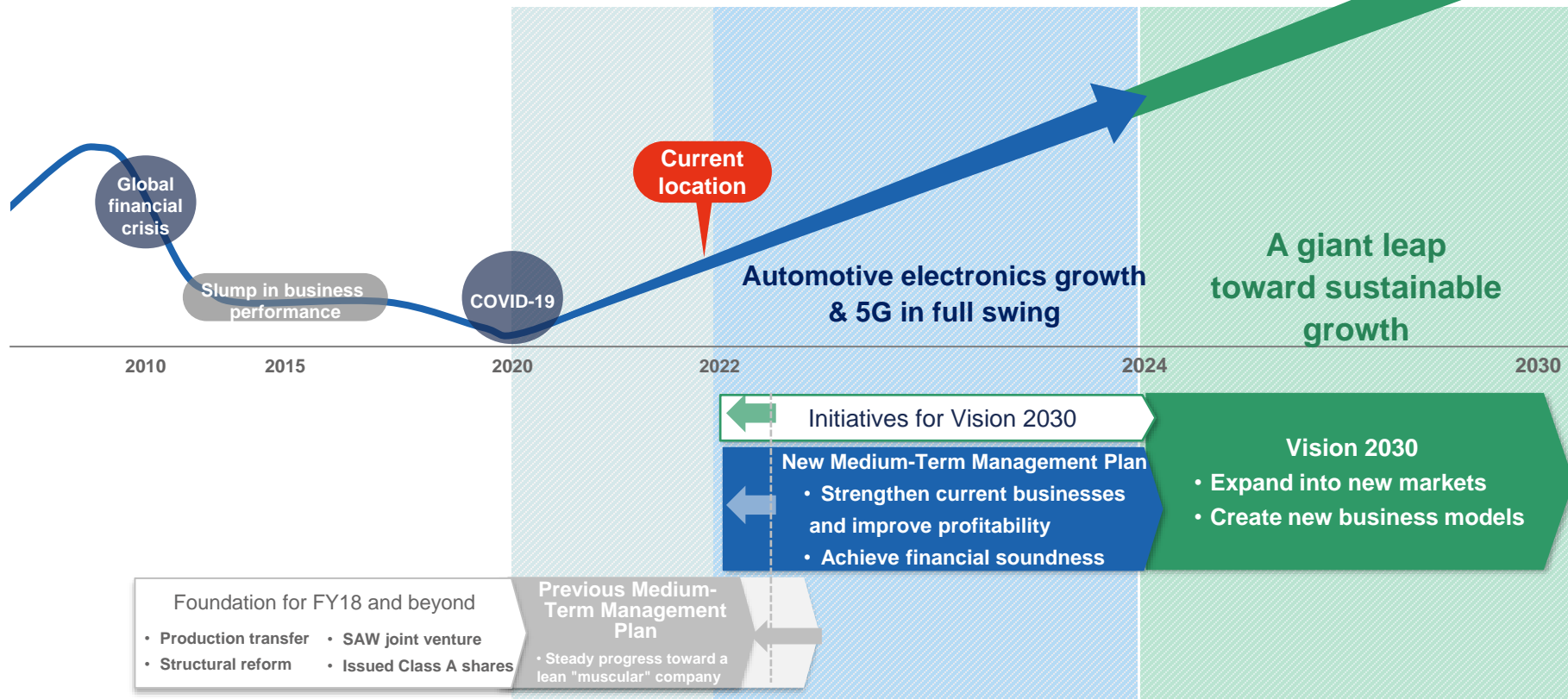
- We have developed a **digitally-controlled crystal oscillator** and are planning to develop a device in FY22 for **time-synchronized wireless communication** jointly with the National Institute of Information and Communications Technology (NICT).
- Plans call for more progress with **experiments and verification of wireless connectivity using the device**, with the aim of **commercializing it in 2026.**

^{*1}: New Energy and Industrial Technology Development Organization

^{*2}: Ministry of Economy, Trade and Industry (METI) and NEDO's "Research and Development Project for Enhancement of the Bases for Post-5G Information and Communication Systems" (commissioned project)

Final Comments

- NDK will launch the New Medium-Term Management Plan one year ahead of schedule. Aiming for continuous growth by solidifying current business and taking medium- to- long-term initiatives.





<https://www.ndk.com/en/ad/2021/index.html>

Thank you everyone for your time

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