

# Overview of the SMART Customs Initiative 2020

—Working toward the world’s leading customs for sound development of trade, a safe and secure society, and a prosperous future—

June 2020  
Customs and Tariff Bureau  
Ministry of Finance, Japan

September 1 2020 version

# Introduction

Japan Customs works to fulfill three missions: to realize a safe and secure society, to collect appropriate and fair customs duties and domestic consumption taxes, and to promote further trade facilitation, thereby ensuring the sound development of trade and a safe and secure society.

The past 30 years have seen an increase in the volume of trade and the number of foreign visitors to Japan. However, because of factors including the recent novel coronavirus (COVID-19) outbreak, the upcoming Tokyo 2020 Olympics and Paralympic Games, the further expansion of cross-border e-commerce, and shift in the makeup of society, the global context of customs will continue to undergo significant changes in the future.

Given these circumstances, the Customs and Tariff Bureau and Japan Customs must work to improve the sophistication and efficiency of our customs operations, improve convenience for our users, and meet the expectations of the public even 20–30 years from now.

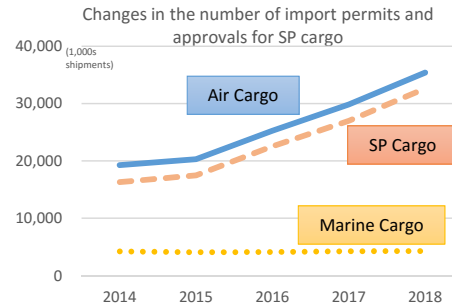
We also believe that to adapt to future changes in the context of our work, it is important to foster a culture wherein each and every staff of the Customs and Tariff Bureau and Japan Customs are encouraged to come up with their own ideas, to consider ways to improve procedures, and to think about the future.

To this end, the Customs and Tariff Bureau has drawn up a medium- to long-term vision of customs administration, the “SMART Customs Initiative 2020.” Through the introduction of AI (Artificial Intelligence) and other cutting-edge technologies, this initiative aims to being the “world's leading customs,” which will bring about the sound development of trade, a safe and secure society, and a prosperous future, through fulfilling our missions as a customs authority, and through initiatives such as improving the convenience of customs procedures with the viewpoint of citizens.

# I. Predicted Changes in the context of our Work in the Medium- to Long-term

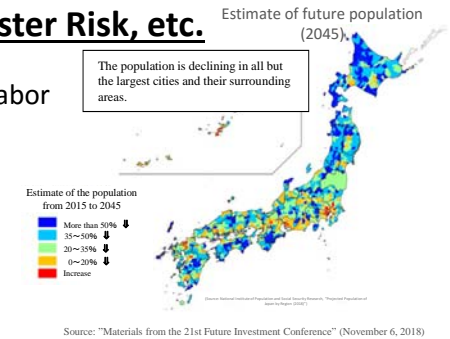
## 1. Flow of Goods

- Expansion of cross-border e-commerce
- Conclusion of EPAs and growth of the FTA ratio
- Increase in the size of ships and the construction of marine transport networks



## 4. Changes in Social Structure/Disaster Risk, etc.

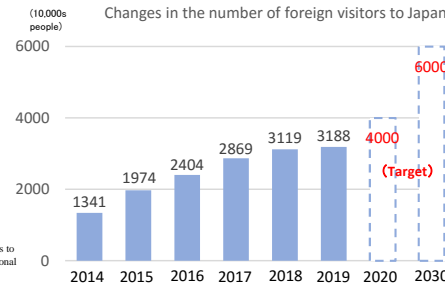
- Change in the total population and the labor force
- Work-style reform
- Preparation for disaster risks, etc.



## 2. Flow of People

- Increases in the number of foreign visitors to Japan  
(Target of 60 million people by 2030)
- Increases in the number of Japanese travelers overseas

Source: Produced based on "Number of Foreign Visitors to Japan" from the Japan Tourism Agency and Japan National Tourism Organization websites



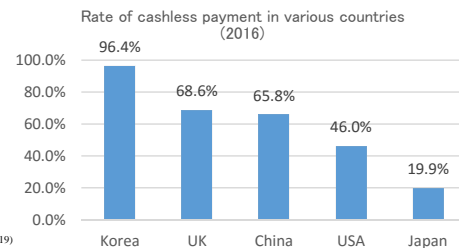
## 5. Progress of Cutting-edge technologies

- Application of AI and other cutting-edge technologies
- Launch of the 5<sup>th</sup>-generation mobile communications system (5G) service
- Application of distributed ledger technology to trade

## 3. Flow of Money

- Emergence of crypto-assets
- Promotion of cashless systems

Source: Produced based on Payments Japan Association, "The Cashless Roadmap 2019" (April 2019)



## 6. Changes in the international Security Situation

- The ongoing threat of international terrorism
- Growing sophistication of smuggling by North Korea
- Increased activity among international criminal organizations and increased sophistication of crimes

# II. Responding to Increased Diversity and Complexity in Customs Operations

### Promotion of Trade Facilitation

- ✓ Ensure trade facilitation in response to changes in the context of our work
- ✓ Improving user convenience in the application of EPA rates
- ✓ Contributing further toward making the country a tourism nation

### Appropriate and Fair Collection of Customs Duties, etc.

- ✓ Handling the confirmation of applicable rates for EPAs
- ✓ Further strengthen measures against tax evasion and fraudulent tax refunds

### Realizing a Safe and Secure Society

- ✓ Ensure the effectiveness of counterterrorism measures and North Korea sanctions
- ✓ Respond to increasingly sophisticated smuggling tactics and international criminal organizations
- ✓ Strengthen controls on exports

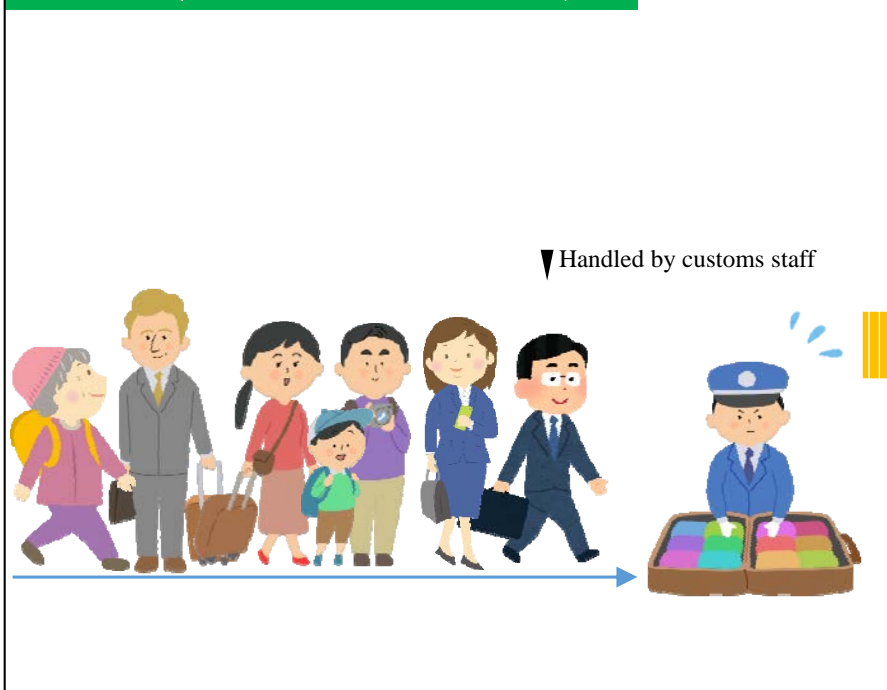
# Goals of the SMART Customs Initiative 2020

## Benefits for overseas travelers

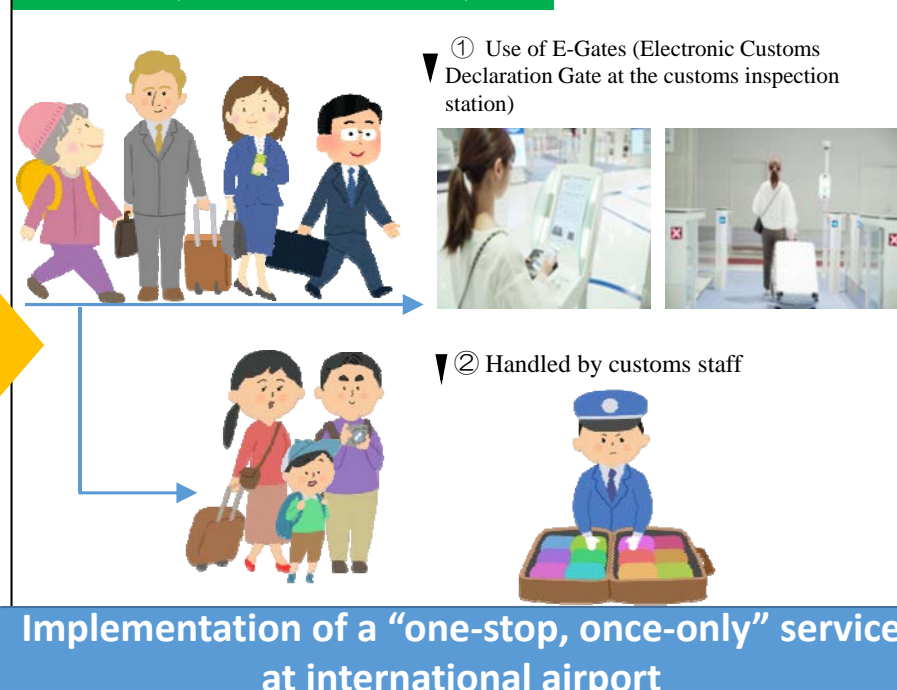
Predicted changes in the context of our work :

Increases in the number of foreign visitors to Japan and Japanese travelers overseas

### As is (current situation):



### To be (future vision):



### Can be (efforts to achieve this goal):

- Strengthen cooperation and information sharing with the Immigration Services Agency and other relevant ministries and agencies
- Improve the E-Gate app and communicate information for improved use
- Implement cashless payment of customs duties

# Goals of the SMART Customs Initiative 2020

## Benefits for trade-related businesses

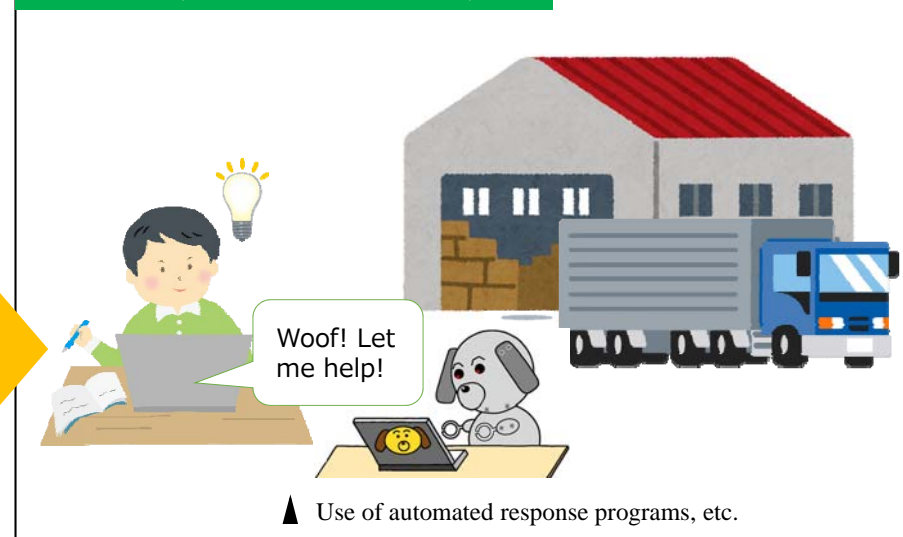
Predicted changes in the context of our work :

Expansion of cross-border e-commerce, Conclusion of EPAs and growth of the FTA ratio, etc.

### As is (current situation):



### To be (future vision):



- Further increased convenience in customs procedures
- Further prompt customs clearance procedures

### Can be (efforts to achieve this goal):

- Further digitization of customs procedures
- Consultation support using automated response programs, improvement of the Japan customs website, improvement of convenience for users by supporting EPA users, etc.
- Automation of customs inspections

# Goals of the SMART Customs Initiative 2020

## Benefits for customs staff

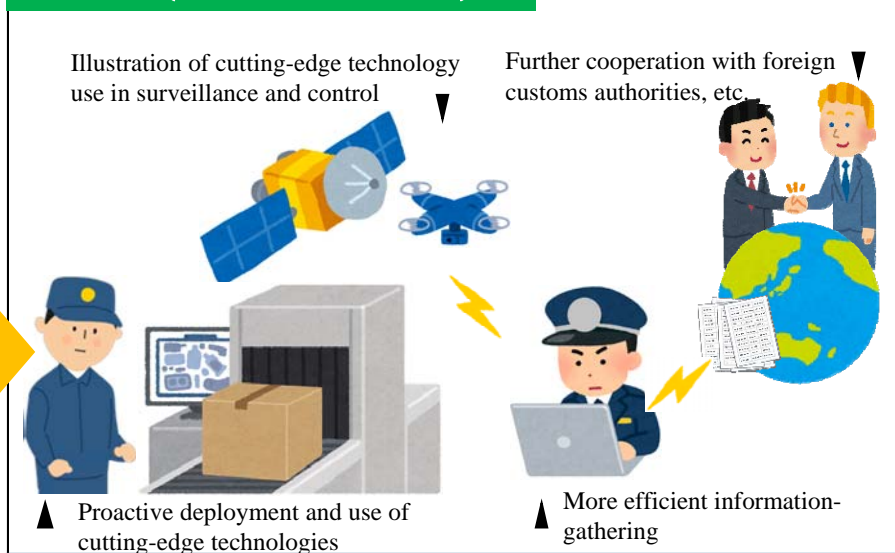
Predicted changes in the context of our work :

Increased diversity and complexity in customs operations due to changes in the flow of goods, people, and money, changes in social structure, progress of cutting-edge technologies, and changes in the international security situation

### As is (current situation):



### To be (future vision):



Use of cutting-edge technologies to increase operational sophistication, develop personnel, and improve the working environment

### Can be (efforts to achieve this goal):

- Expansion and strengthening of information sharing with relevant agencies, trade-related businesses, foreign customs authorities, etc.
- Introduction of a system resistant to disasters and other emergencies
- Promotion of investigation and testing of cutting-edge technologies such as AI, enhanced training, reform of working styles
- Investigation of the use of cutting-edge technology (unmanned aerial vehicles, satellite information, etc.) for monitoring and control

### III. Medium- to Long-Term Vision and Measures (1)

# Solution

Aim to ensure more appropriate and prompter customs clearance by providing solutions to improve compliance and convenience in customs procedures for trade-related businesses, travelers, and others.

## Principal measures

- **Promote the digitization of customs procedures** by digitizing declaration of personnel effects, etc.

▼ E-Gates (Electronic Customs Declaration gates at the customs inspection station)



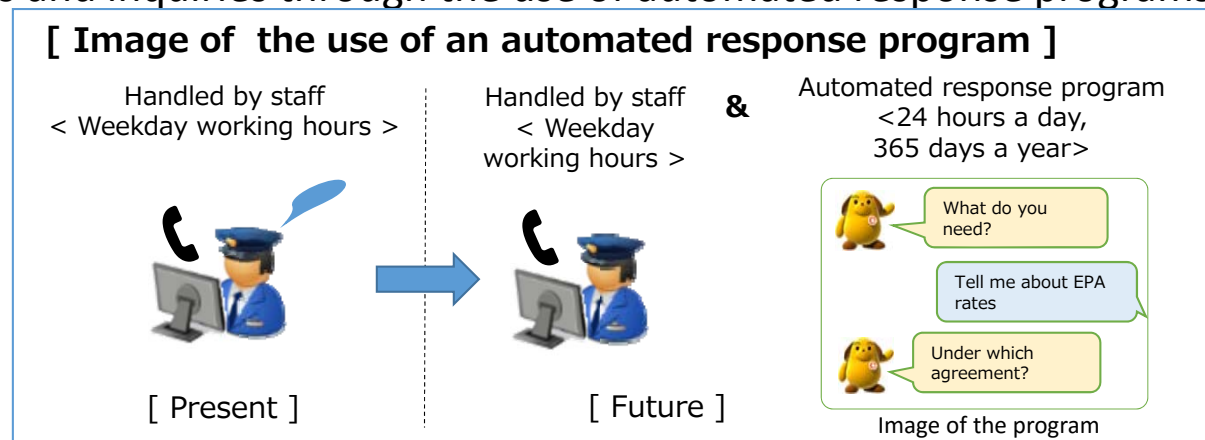
Left: Declaration using two-dimensional codes

Right: A dedicated gate opens and closes automatically

- **Establish an environment for paying taxes through credit cards**

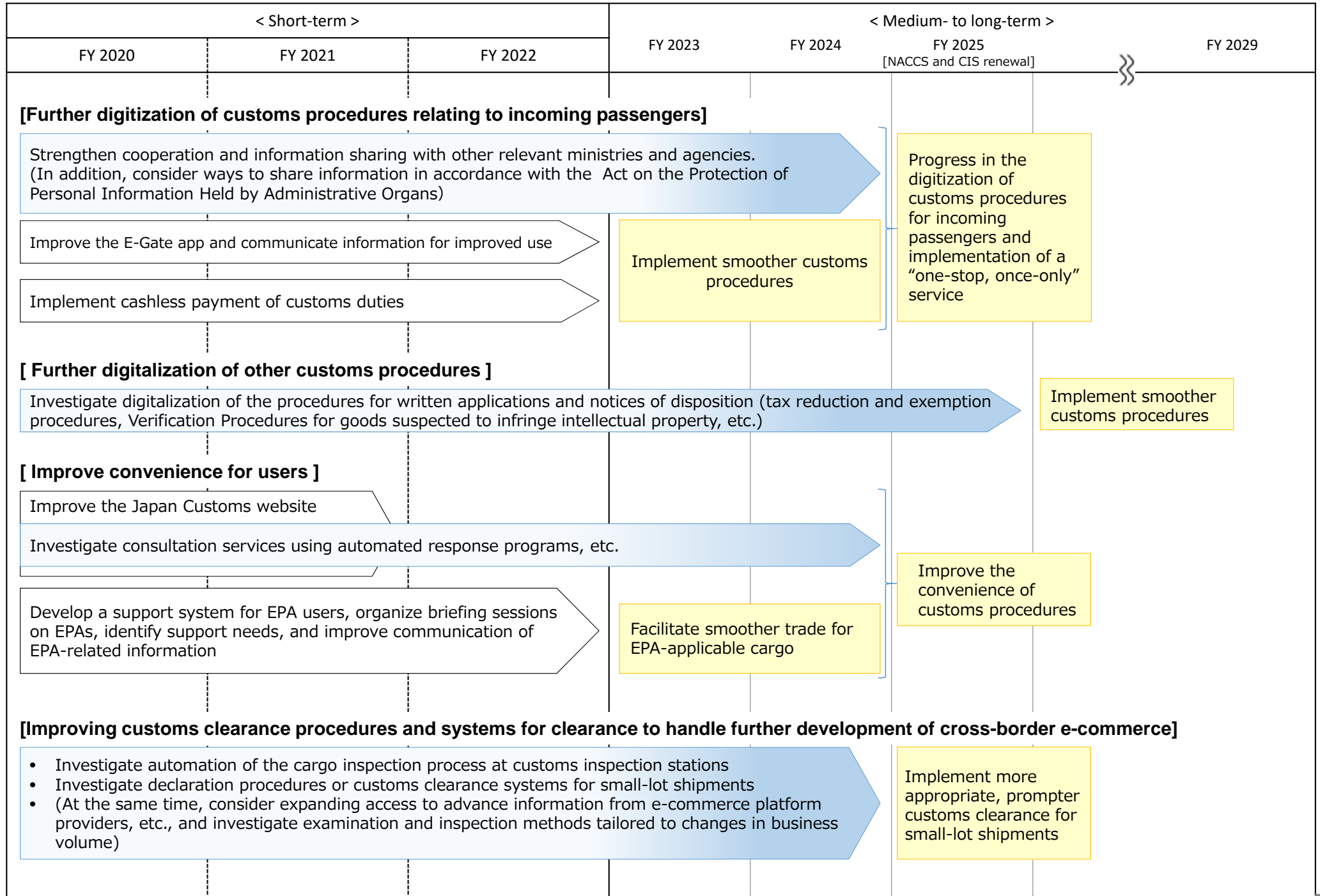
supporting cashless payment of customs duties, consumption tax, etc.

- Deal with questions and inquiries through the use of automated response programs, etc.



- **Automate customs inspections to further speed up customs clearances**

# Process Chart for measures of **S**olution





# Multiple-Access

Aim to expand and strengthen information-sharing with relevant agencies and trade-related businesses to further implement both facilitating trade and strengthened border control.

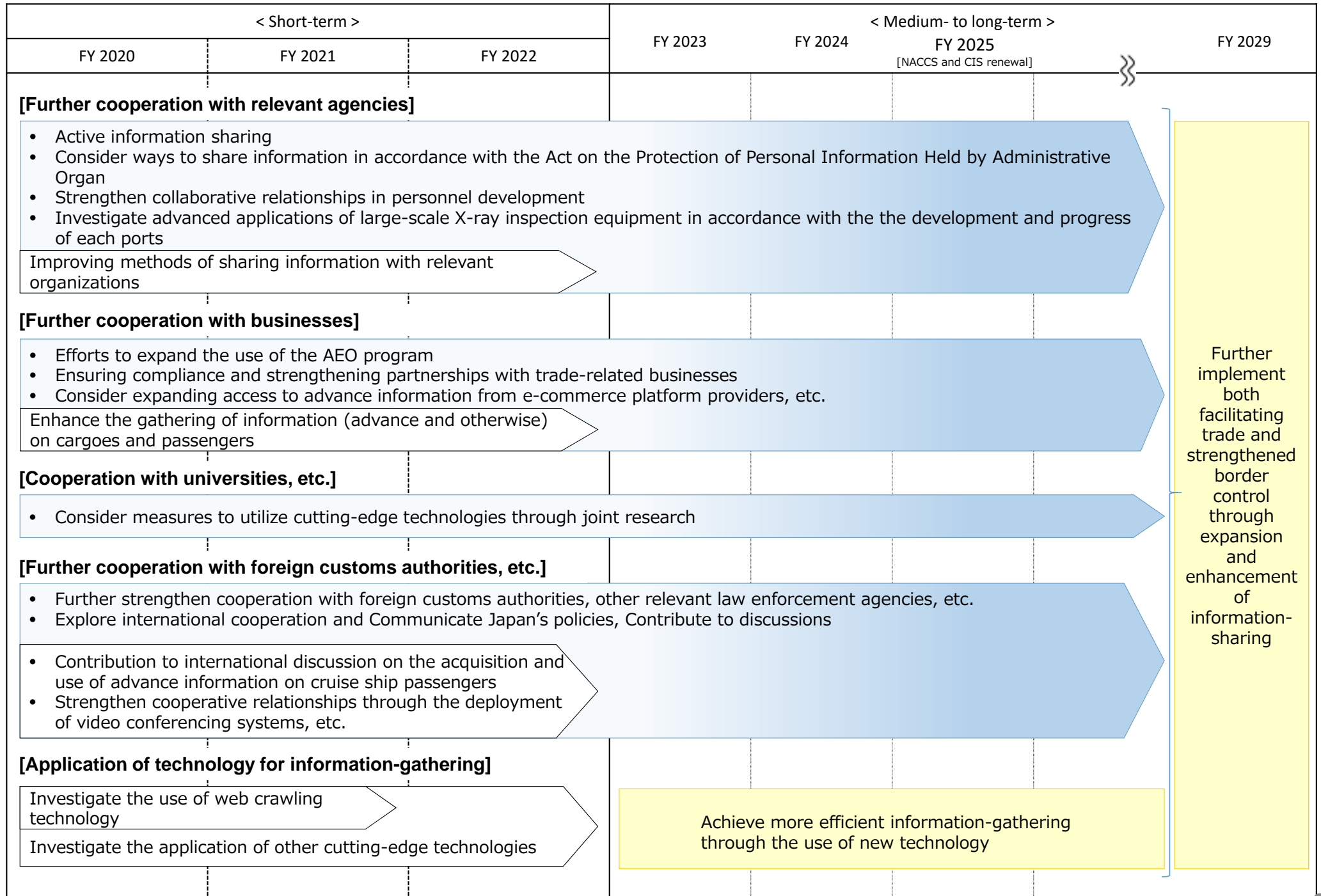
## Principal measures

- **Further expand cooperation** and deepen cooperative links with relevant agencies, trade-related businesses and other private companies, universities and other research institutes, and foreign customs authorities.
- **Enhance information-gathering** for counter-terrorism and **obtain/use advance information on cargo and passengers more efficiently and quickly**
- **Investigate the use of web crawling technology that automatically collects information on the Internet** to further improve the efficiency of information-gathering



### III. Medium- to Long-Term Vision and Measures (2)

## Process chart for measures of **Multiple-Access**



### III. Medium- to Long-Term Vision and Measures (3)

# Resilience

Aim to maintain and develop customs administration while ensuring the convenience of customs procedures in preparation for changes in social structure and disaster risks

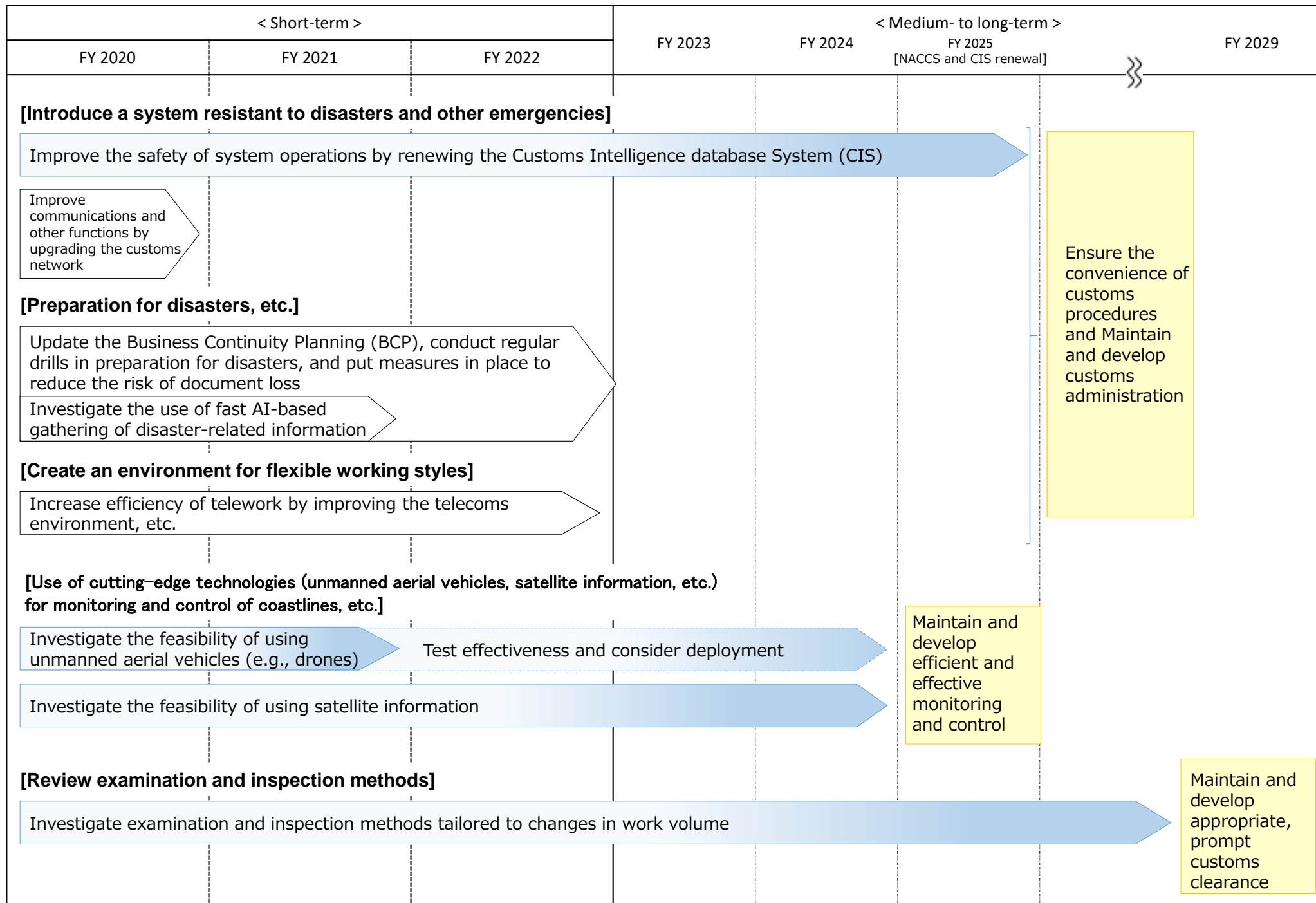
## Principal measures

- Prepare for disasters and other emergencies by closely monitoring trends in new technologies and **Investigate ways to further improve the resilience of our systems**
- **Continue to share experiences from past disasters** and **Update the business continuity planning (BCP) in a timely manner** to prepare for disasters, etc.
- **Investigate the use of unmanned aerial vehicles (e.g., drones) and satellite information** to ensure efficient and effective monitoring and control of coastlines, etc.
- **Investigate examination and inspection methods** to ensure uniform operation and proper and prompt customs clearance, even in the event of a disaster affecting logistics



### III. Medium- to Long-Term Vision and Measures (3)

## Process chart for measures of Resilience



### III. Medium- to Long-Term Vision and Measures (4)

# T Technology & Talent

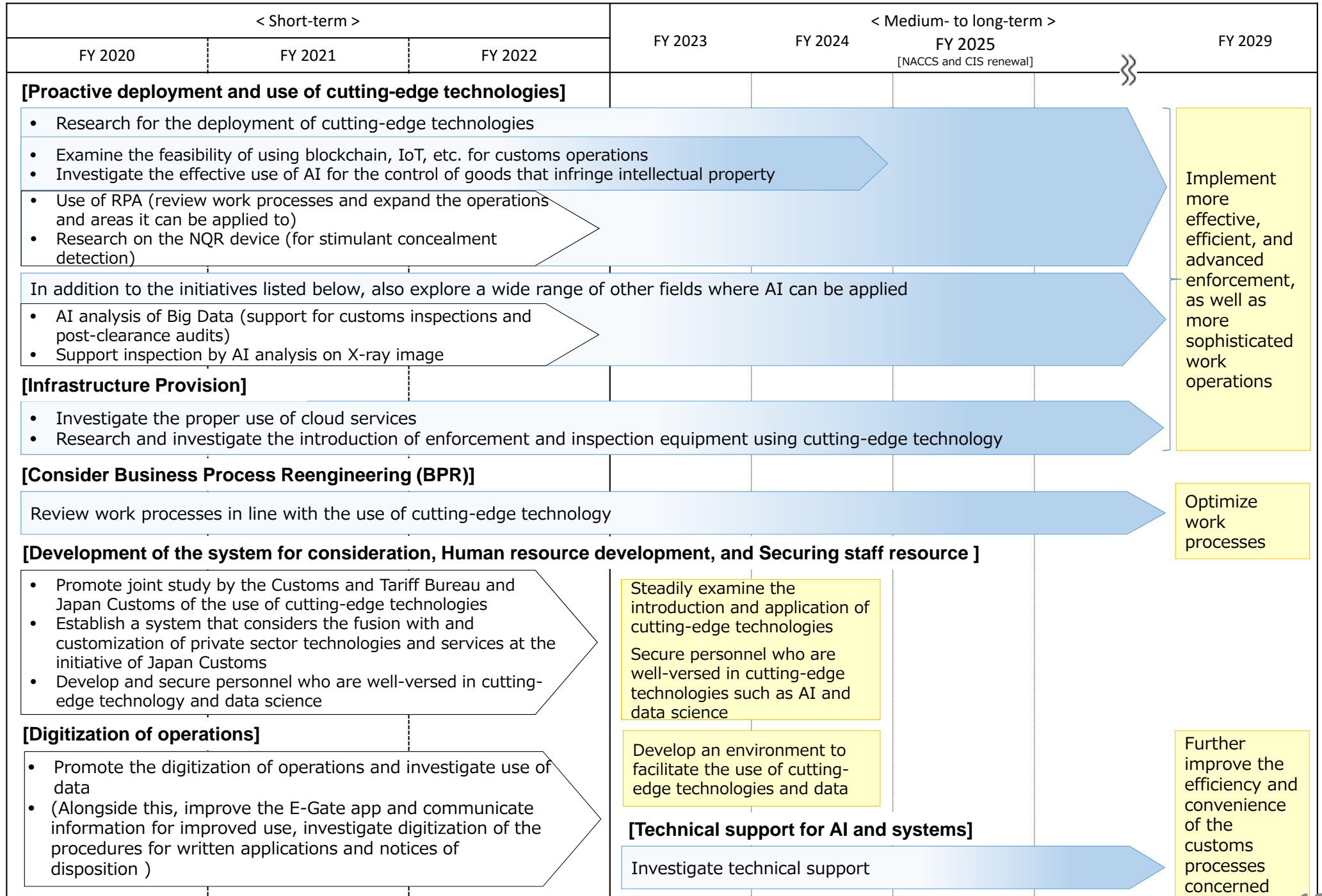
Actively incorporate AI and other cutting-edge technologies into our customs operations and aim to enhance operations by finding new ways to make customs procedures convenient and implementing more effective, efficient, and sophisticated enforcement. Alongside the use of cutting-edge technologies, we aim to train personnel, review our operations, and improve the work environment.

## Principal measures

- **Promote research on the proactive introduction and use of AI and other cutting-edge technologies** to conduct customs operations effectively and efficiently, while also considering the scope of application of these technologies in operations and ensuring of privacy
  - [Current initiatives]: Support for customs inspections and post-clearance audit by AI analysis of Big Data, Support for inspection by AI analysis on X-ray image, Consider using RPA, and Research on Nuclear Quadrupole Resonance (NQR) device (for stimulant concealment detection)
  - [Customs initiatives in various countries]: Application and study of cutting-edge technologies such as distributed ledger technology (blockchain) and IoT
  - [Private sector initiatives]: Use of AI to judge authenticity of trademarks
- **Develop personnel who are well-versed in cutting-edge technologies such as AI and data science, while building systems to study** the proactive use of cutting technologies such as AI

### III. Medium- to Long-Term Vision and Measures (4)

## Process chart for measures of **T** Technology & Talent



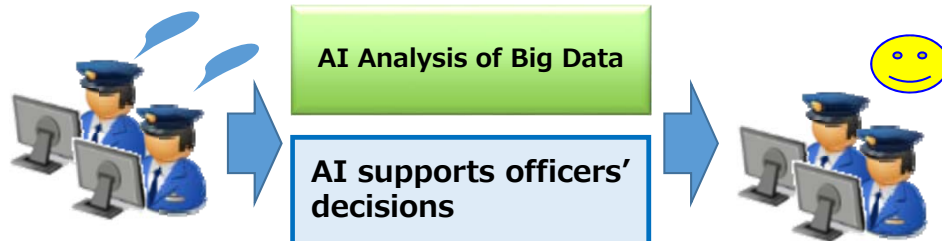
# Examples of Applications of Cutting-edge Technology in Customs (1)

## 1. Japan Customs' main initiatives

Proactive promotion of trials and testing for further application of AI and other cutting-edge technologies to enhance the sophistication and efficiency of customs operations.

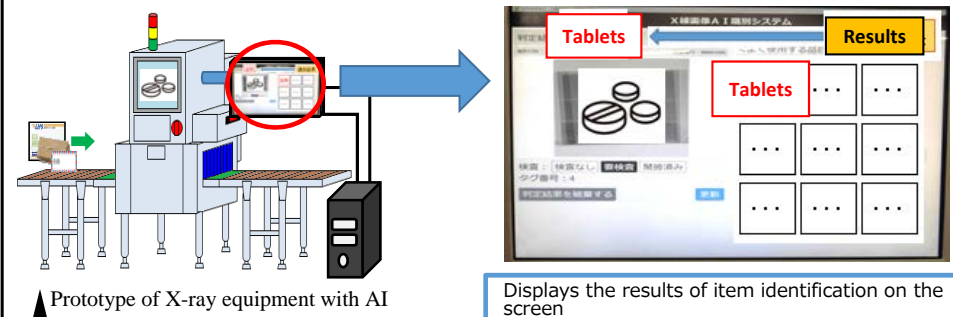
### AI Analysis of Big Data

- Analysis of huge amounts of data (big data) such as import declarations accumulated by Japan Customs
- Considering its application in the examination and inspection selection process and the selection of sites for post clearance audit



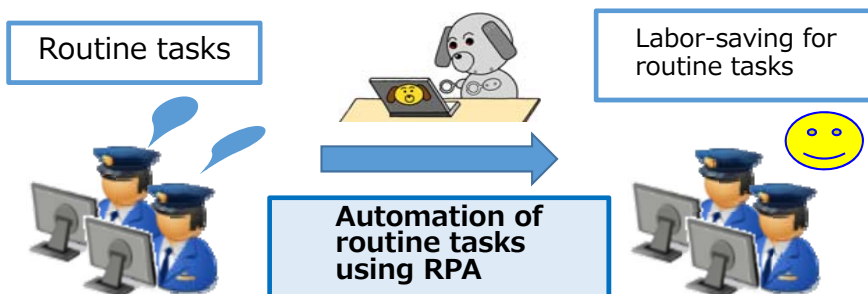
### AI Analysis on X-ray images

- AI automatically identifies cargo items based on x-ray images of the cargo and makes risk assessments



### RPA (Robotic Process Automation)

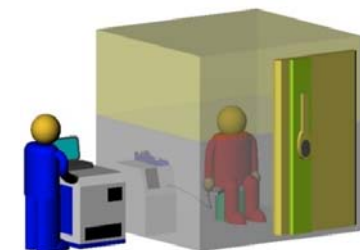
- Automate routine tasks using RPA



### NQR device (for stimulant concealment detection)

- A device that uses radio waves to detect stimulants concealed in or around a smuggler's body

▼ Illustration of the device




\*NQR (Nuclear Quadrupole Resonance) device:  
A device that emits radio waves and measures the electric waves that resonate with and are reflected back

## Examples of Applications of Cutting-edge Technology in Customs (2)

### 2. Examples from foreign customs authorities


#### Analysis of X-ray inspection images


AI automatically analyzes X-ray images of the cargo to assess its risk without having to open it.

 **Netherlands:** Participates in the EU's ACXIS project (a project that uses AI for automatic detection of cargo in X-ray inspections). This project developed the world's first AI-based container X-ray image analysis algorithm. It is currently undergoing trial testing.

#### Facial recognition technology

By using facial recognition technology on airport passengers, it is possible to automate processes such as passenger customs clearance.

 **Australia:** Deployed Smart Gates that automate entry and exit procedures for passengers at airports using facial recognition (introduced at eight major airports). On entry, these gates can be used by passengers who are 16 years of age or older with passports from countries such as Japan, Australia, and the United States. On exit, all passengers can use the gates.

 **China:** Introduced facial recognition-capable surveillance cameras at various customs areas in an airport. It identifies and flags blacklisted passengers and high-risk passengers. It is currently undergoing trial testing.

#### AI Analysis of Big Data


By analyzing huge amounts of accumulated data such as customs declarations, it can assess the risk of the declaration contents. It is being implemented in places such as Brazil and Hong Kong.

#### Chat bots

Chat bots are automated conversation programs based on cutting-edge technology.

They can be used to automatically respond to questions at customs 24 hours a day, 365 days a year.

Chat bot on the Indonesian Customs website ▼

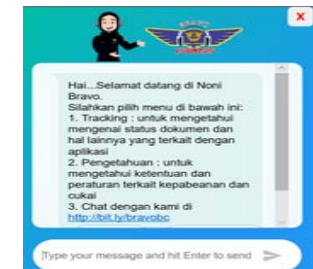
 **Indonesia:** A chat bot has been introduced to respond to inquiries to the customs department.

When users ask the chat bot questions on the Indonesian Customs website, they are automatically answered.

#### Other

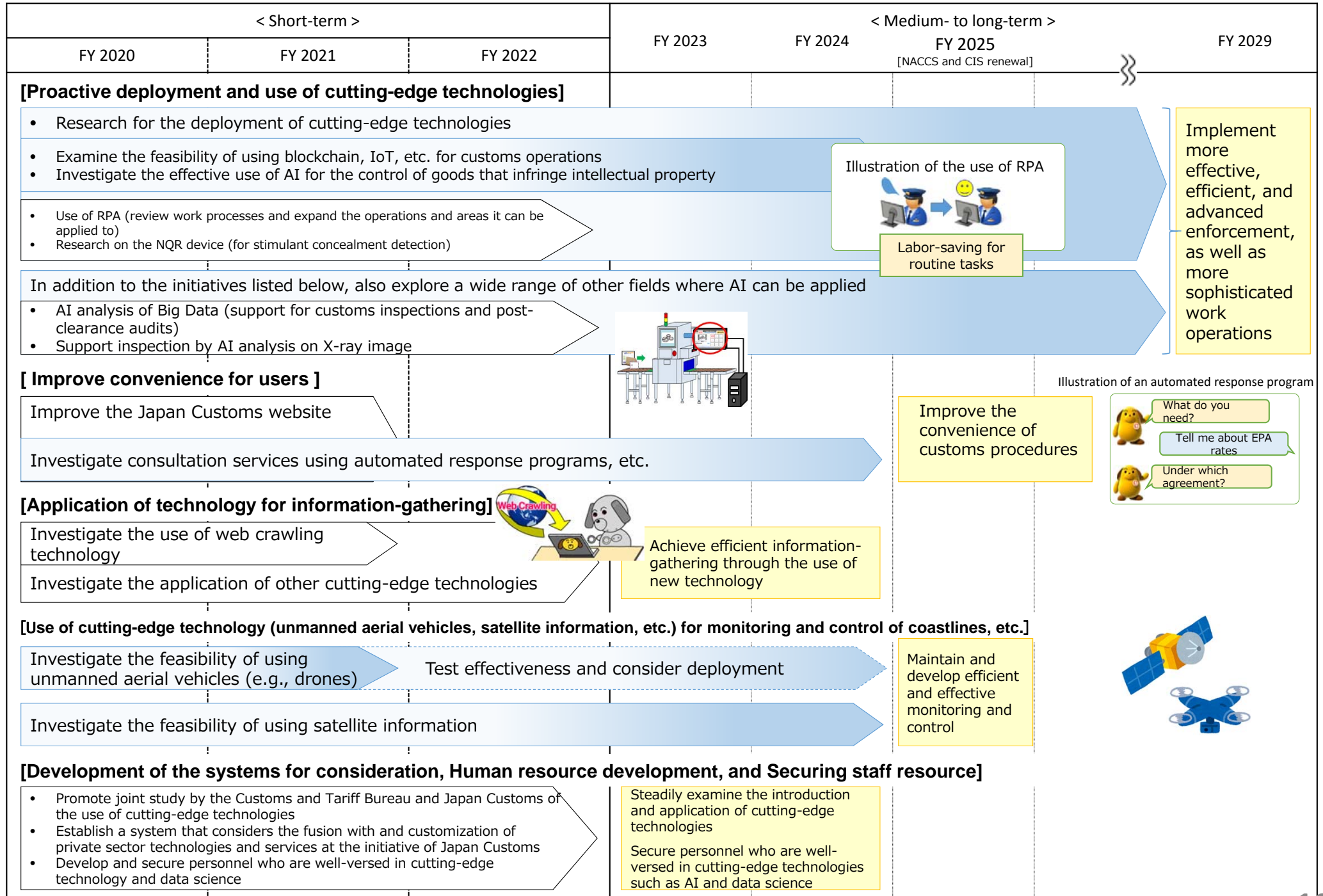
Various cutting-edge technologies are being considered by overseas customs authorities including the use of blockchain technology for trade procedures and the use of drones for port control.

Source: WCO, WCO Study Report on Disruptive Technologies (June 2019), Indonesian Customs Website (URL: <http://www.beacukai.go.id/>)





# Process chart for the application of AI and other cutting-edge technologies



## — For Japan's future —

We have drawn up the “SMART Customs Initiative 2020” as a medium- to long-term vision for customs administration, considering the ever-changing context of international trade.

Factors such as expansion of trade, changes in the structure of society, and the development of cutting-edge technologies are expected to bring significant changes to the global context facing Japan Customs. Therefore, we will assess any changes in the context of our work and conduct reviews as necessary. In doing so, we will keep in mind new perspectives that take into account changes caused by the novel coronavirus (COVID-19) outbreak.

In the future, as the use of cutting-edge technologies makes customs operations more sophisticated and efficient, we will explore developing human resources that will enable us to focus on the planning and development of business operation methods, and also planning, maintaining, and managing the application of these technology appropriately.

As we work on the measures listed here, we will do so with an organizational mindset of the “three Is” (\*).

\* (The three Is are (1) ***Innovative***, (2) ***Inclusive***, and (3) ***International***)

In doing so, the Customs and Tariff Bureau and Japan Customs will strive to achieve a safer and more prosperous society and to ensure a happy future for each and every citizen.



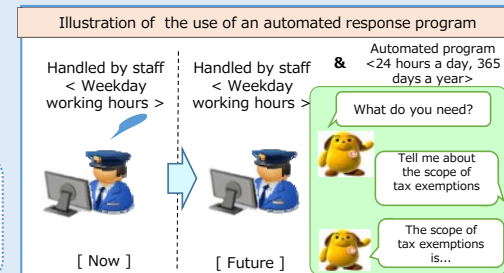
- Working toward being the **world's leading customs**,  
for sound development of trade, a safe and secure society, and a prosperous future -



## Solution

Aim to ensure more appropriate and prompter customs clearance by providing solutions to improve compliance and convenience in customs procedures for trade-related businesses, travelers, and others.

- 1 **Deal with questions and inquiries 24 hours a day, 365 days a year through using automated response programs, etc.**
- 2 **Automate customs inspections to further speed up customs clearance**



## Multiple-Access

Aim to expand and strengthen information-sharing with relevant agencies and trade-related businesses to further implement both facilitating trade and strengthened border control.

- 1 **Enhance information-gathering** for counter-terrorism and **obtain/use advance information (PNR, etc.) on cargo and passengers more efficiently and quickly**
- 2 **Investigate the use of web crawling technology that automatically collects information on the Internet** to further improve the efficiency of information-gathering

Illustration of web crawling technology



## Resilience

Aim to maintain and develop customs administration while ensuring the convenience of customs procedures in preparation for changes in social structure and disaster risks.

- 1 **Consider the use of unmanned aerial vehicles (e.g., drones) and satellite technology** to ensure efficient and effective monitoring and control of coastlines, etc.
- 2 **Create an environment for flexible working styles** by improving the environment for telework, etc.

Illustration of drone use



## Technology & Talent

Actively incorporate AI and other cutting-edge technologies into customs operations and aim to enhance operations by improving convenience and implementing more effective, efficient, and sophisticated enforcement. In addition, we also aim to train personnel, review operations, and improve the work environment.

- 1 **Initiate AI analysis of big data** to support customs inspections and post-clearance audits
- 2 **Support inspection by AI analysis on X-ray images**
- 3 **Introduce RPA and expand the operations to which it can be applied**, thereby automating and improving the efficiency of routine tasks
- 4 **Carry out research on NQR device (for stimulant concealment detection)** and aim for early deployment
- 5 **Develop a the system for consideration and Human resource, and Secure staff resource** for introducing AI and other cutting-edge technologies

Support inspection by AI analysis on X-ray images

