

NEDO Supply Chain Data Challenge

This prize money competition is in relation to the development and verification of monitoring systems that utilize satellites to contribute to fast and flexible recombination in the supply chain.

Information Regarding Entry

March 18, 2022

**NEDO Supply Chain Data Challenge
Administration Secretariat**

<Time period for entry>

Entries accepted: from Friday, March 18, 2022

Deadline for entries: Noon on Tuesday, May 17, 2022

<Entry method>

Entries for this competition will be accepted via email only.

<Contact for submissions/inquiries>

NEDO Supply Chain Data Challenge Administration Secretariat

Email: info@nedo-supplychain-data-challenge.jp

(for inquiries relating to the competition as a whole)

About this competition

Due to the global spread of COVID-19, there have been delays to the supply of parts and the Japanese manufacturing industry has been seriously affected, for example, by being forced into drastic decreases in production.

The supply chain is a vast network that connects a variety of businesses, and problems in a single location can have the ripple effect of inflicting damage on the various parties involved. In order to monitor the state of the supply chain, the ongoing collection of information from businesses with direct trade links, as well as from a wide range of partner businesses and investigative experts who are linked to them via networks, is essential.

However, the supply chain is expanding globally and there is an incredibly diverse range of incidents that can cause difficulties and inflict damage, from earthquakes and flooding to epidemics. With this in mind, it is very difficult for individual businesses to undertake comprehensive monitoring on an ongoing basis.

In order to deepen the sophisticated analysis of—and fields of utilization for—this kind of information, to make supply chain management more robust, and to strengthen the resilience of industry to an even greater degree, we are now seeking a wide range of ideas and systems that combine various information, such as mobile data that includes satellite imagery, to contribute to more sophisticated supply chain monitoring and management. The most outstanding ideas will receive awards.

Competition themes

Entries for this competition are being sought in the Ideas Category and the System Development Category. In particular, SCM (supply chain management) in the System Development Category is highly significant both technologically and industrially, and two themes have been set that are likely to lead to implementation.

Ideas Category

We are seeking ideas relating to technology and solutions that will accomplish the aims of this competition.

Theme

Ideas relating to technology and solutions that enable the solving of issues in supply chain management through the utilization of satellite data, etc.

System Development Category

We are seeking development relating to technology and solutions that will accomplish the aims of this competition.

Theme 1

Providing impact estimation and visualization services for problems in the supply chain caused by gridlock in container distribution at ports.

Theme 2

Providing impact estimation and visualization services for problems in the supply chain caused by disasters such as large-scale flooding and storm damage.

System Development Category (supplementary material): about Theme 1 (1/2)

[Background]

Maritime distribution supports the global supply chain, and issues such as the COVID-19 pandemic have triggered severe gridlock in container distribution at a number of important ports, which has had a big impact on the supply chain.

[Issues]

- Accurately and as quickly as possible, detecting the occurrence of gridlock at major ports.
- Estimating how the effects of gridlock will spread via the distribution network and the supply chain.
- Suggesting alternative routes, etc. and enabling users (those involved in the supply chain, such as shippers) to make decisions and respond in a timely fashion.

[Prerequisites]

- Data to be provided: satellite imagery of ports; location information showing the movements of container ships, etc.; location information showing the movements of people, vehicles, etc. entering and exiting ports; statistics showing goods entering and exiting ports, and so on.
- Target ports: Los Angeles, Tokyo, Busan, Singapore

System Development Category (supplementary material): about Theme 1 (2/2)

[What is expected of entrants]

To fulfill the kind of user needs described above to a higher level, entrants are expected to provide information services and decision-making support system prototyping, along with the method development to realize those things.

[Assessment concepts]

Theme 1 is comprised of the following three questions. Through an incremental accumulation of technology, it is structured to enable increased business value.

Question 1: It is expected that proposals will feature methods that enable quicker and more precise estimation of the state of port operations. Please consider the necessary cost of data measurement, collection, and estimation, and suggest priorities when comparing with existing technologies and with the cost of acquiring other data. Please also give specific indications of the reliability and speed of estimation.

Question 2: A port is a hub connecting different modes of transport (shipping, trucks, etc.), and it is expected that proposals will feature methods for more accurately and efficiently measuring and assessing connectivity, smoothness of operations, and so on.

Question 3: Please prototype an information visualization system to support the investigation of changes in transport methods, supply chain rearrangement strategy, and so on, based on the needs of users such as shippers. Entrants are expected to produce something that is easy to understand from the user's standpoint, that visualizes information without containing anything unnecessary or lacking anything important, and that possesses functions enabling a unified understanding of that information.

Based on the above, please also indicate the kind of situations in which it will be possible to provide business value.

System Development Category (supplementary material): about Theme 2 (1/2)

[Background]

Because of such things as climate change, it is feared that incidences of large-scale flooding and storm damage will become increasingly frequent.

[Issues]

- Quickly and accurately understanding the effects of large-scale flooding and storm damage on social infrastructure such as roads, on major business locations such as factories, and on local economic activity.
- Estimating the spread of those effects via the distribution network, the supply chain, and trade partnerships.
- As the damage and risks from large-scale flooding and storms increase, realizing the visualization of unified information based on user needs, so that users (companies doing business with the region in question, those involved in the supply chain, etc.) can investigate and determine countermeasures in a timely fashion.

[Prerequisites]

- Data to be provided: centered around the Kanto and South Tohoku regions, which were subject to serious damage during Typhoons 15 (Faxai) and 19 (Hagibis) in 2019, satellite imagery, location information showing the movements of people and vehicles, business-to-business data, etc.

System Development Category (supplementary material): about Theme 2 (2/2)

[What is expected of entrants]

To fulfill the kind of user needs described above to a higher level, entrants are expected to provide information services and decision-making support system prototyping, along with the method development to realize those things.

Theme 2 is comprised of the following three questions. Through an incremental accumulation of technology, it is structured to enable increased business value.

[Assessment concepts]

Question 1: As objectively as possible, please indicate direct damage (reduced operational efficiency in factories, suspension of business in retail facilities, etc., incidences of evacuees, damage to homes, and so on) from such things as large-scale flooding and storms (typhoon and flood damage), to enable an understanding of the situation that is quick and as accurate as possible.

Question 2: In addition to indicating direct damage, it is expected that proposals will feature the development of technology to estimate and visualize the influence of that direct damage on other areas and businesses, via the effects of such things as changes to transactions between businesses, to people's commutes to work and school, and to their consumer behavior, as well as evacuation from their homes, etc.

Question 3: Based on the various needs of a diverse range of users, it is expected that proposals will prototype systems and services that support both the visualization of information about the seriousness and spread of direct and indirect damage both inside and outside regions that have suffered damage, and the investigation of maintenance and rearrangement in the supply chain. That information should not be restricted to regions that have suffered damage.

Based on the above, please also indicate the kind of situations in which it will be possible to provide business value.

Development platform and data to be provided

Entrants will be provided with a development platform (computing resource) on the satellite data platform (Tellus), related data including satellite data, and technological development support. Additional data will be provided if necessary.

Development platform

- SAKURA Cloud GPU V100, SSD 100 GB/SSD 2 TB
 - SAKURA Cloud 4 core 8 GB/SSD 100 GB
 - Satellite Data Master 3 + QGIS
- *The Satellite Data Master 3 platform is as follows.
- CPU: virtual 8 core
 - Memory: 16 GB/SSD 800 GB

Data provided

[Related to Theme 1]

- ASNARO-1
- Pleiades
- ALOS-2
- ASNARO-2
- GRUS
- AIS data
- Cell phone location information data
- Business-to-business information databases
- Various types of statistical data, etc.

[Related to Theme 2]

<Satellite-related data>

- Sentinel-1
- Landsat-8
- MODIS
- SPOT
- GRUS, etc.

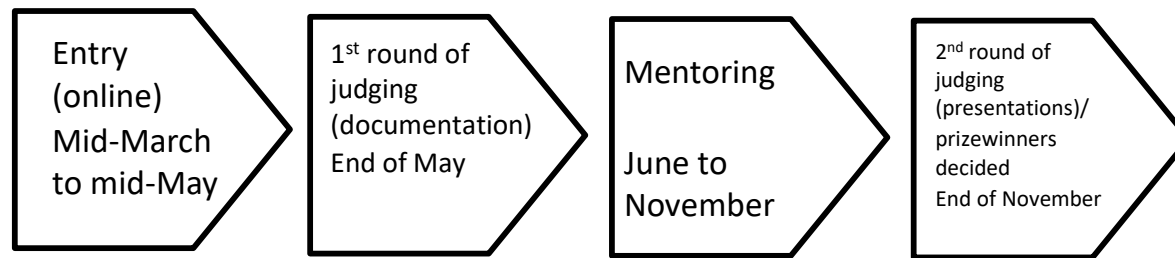
<Other data>

- Social media data relating to information about damage at times of natural disaster
- Business-to-business information databases
- Cell phone location information data
- Aerial photography/drones
- Oblique aerial photography/video, etc.

Entry method and schedule

It is possible for corporate entities, individuals, and groups to enter this competition, and no distinction will be made between so-called big business, start-ups, listed or unlisted companies.

For ideas entered in both the Ideas and System Development Categories, the first round of judging will be based on the selection of documentation, while the second round of judging will be in the form of presentations (pitches).



Important points

- Entries for ideas that are clearly not intended to be commercialized will not be eligible for selection.
- Ideas or systems that have already been commercialized or made available as products will not be eligible for selection.
- It is possible for start-ups, etc. to enter, even in the case of fundraising from institutional investors being undertaken.
- Entries will not be accepted from criminal groups and individuals; from anyone with any kind of connection or interaction with criminal groups or individuals in the past, at present, either directly or indirectly; or from anyone who has had business dealings with, paid money to, or benefited from contributing to criminal groups or individuals. Furthermore, entries will not be accepted from anyone who is affiliated with criminal groups or individuals, or from any group or organization in which anyone who has interacted with criminal groups or individuals has been appointed to a position of responsibility, is an employee, or is involved in management.
- Regardless of the aforementioned, for cases in which the secretariat has recognized something as inappropriate, or for cases in which the requirements of this competition have been disobeyed, or that involve wrongdoing in relation to this competition, depending on the secretariat's decision, entitlement to enter may be withdrawn, or all or part of the judging results may be revoked.

Judging

For ideas (entrants) that pass the first round of judging, there will be an opportunity for mentoring by experts (mentors). The second round of judging will be in the form of presentations (pitches) given in a location open to the public, and it is here that the prizewinners will be selected.

Judging results of the first and second rounds will be published on the NEDO homepage and on a dedicated website, and all entrants will be notified of the results via email.

In addition, please be aware in advance that we will be unable to respond to any inquiries relating to the judging results.

- First round of judging results published: beginning of June 2022 (planned)
- Second round of judging results published: beginning of December 2022 (planned)

About judging items (supplementary materials)

When completing the proposal form, please do so in accordance with the evaluation criteria in the items described below. Regardless of the assessment of other items, projects that do not fulfill the judging items will not be selected.

Judging item	Judging outline
Innovation	<p>Content that generates new services for activating outer space as a resource, based on new ideas that have not existed before.</p> <ul style="list-style-type: none"> ▪ Generating new markets. ▪ Contributing to added value, etc. in existing businesses. ▪ Whether the project's logic model and KPI are planned appropriately. ▪ Content regarding whether a coordinated structure can be formed with the necessary stakeholders, etc. with a view to generating results, etc.
Validity of development technology (System Development Category only)	<p>When realizing the system that is being proposed, the realizable level for the technology upon which the development is based.</p> <ul style="list-style-type: none"> ▪ Whether there is a clear scientific basis for the fundamental technological development and whether development implementation is valid. ▪ Whether sufficient and fundamental consideration has been given to the development implementation solutions being proposed, etc.
Potential for realization	<p>Multifaceted consideration is being given from various viewpoints as to whether it appears possible for the system being developed and for business that utilizes that system to be implemented according to plan.</p> <ul style="list-style-type: none"> ▪ Increases in sales and revenue based on a specific business plan. ▪ Durability of competitive advantage. ▪ Response to related legislation. ▪ The necessary management resources and their degree of sufficiency (people, money, things). ▪ Predicted losses, risks, etc. ▪ Period of time before the service commences.
Social potential	<p>Whether a ripple effect across society as a whole and development overseas and in other regions can be expected from commercialization.</p> <ul style="list-style-type: none"> ▪ Whether a transformation in the awareness and behavior of those people in and around partner companies, industries, etc. is also included in the outlook. ▪ Whether it is a model that can be adapted to foreign countries, other regions, or other organizations.

Mentoring

For entrants to the competition who pass the first round of judging in both the Ideas and System Development Categories, mentoring will be undertaken with an appropriate expert (mentor) in aspects of either technology or business development.

Type	Content (planned)	Implementation method
Individual mentoring (appropriate implementation)	The secretariat will undertake matching based on the wishes of both the mentor and the selected entrant being mentored.	In principle, this will take place online.
Combined mentoring (planned to be undertaken regularly)	<p>It is planned to implement combined mentoring in the form of workshops.</p> <ul style="list-style-type: none"> ▪ Opportunities for participants to interact with each other. ▪ Networking with user businesses, investors, etc. ▪ Guidance for presentations (pitches), including rehearsals for the second round of judging. 	
Other (planned by the secretariat when necessary)	<p>Opportunities will be provided to enable discussion with NEDO, related ministries and government offices, etc. regarding proposal content items.</p> <p>It is also planned to provide opportunities for interaction and simple exchanges of opinion with businesses, etc. that are anticipated as being users of the ideas and systems proposed in this competition.</p>	

Prize money

Category	Theme	Type of prize money
Ideas	Ideas relating to the utilization of satellite data in supply chain management.	1st: ¥1 million 2nd: ¥500,000 3rd: ¥300,000
System Development	Theme 1: Providing impact estimation and visualization services for problems in the supply chain caused by gridlock in container distribution at ports.	1st: ¥10 million 2nd: ¥5 million 3rd: ¥3 million
	Theme 2: Providing impact estimation and visualization services for problems in the supply chain caused by disasters such as large-scale flooding and storm damage.	1st: ¥10 million 2nd: ¥5 million 3rd: ¥3 million

Queries

For information other than that contained in this document, please refer to content on the below website.

<Receipt of queries>

Please submit queries via email to the secretariat at the below address.

When sending emails, please be sure to use “Query (NEDO Supply Chain Data Challenge)” in the subject line and specify the name of the organization affiliated to, a contact name, and an email address in the main body of the email.

NEDO Supply Chain Data Challenge Administration Secretariat

Email: info@nedo-supplychain-data-challenge.jp

Deadline for queries: 12 noon on Friday, May 13, 2022

<Responses to queries>

In principle, any queries submitted will be answered via a return email from the secretariat within three working days.

Frequently asked questions will be published at fixed times on the website for entry documentation (<https://www.nedo-supplychain-data-challenge.jp>).