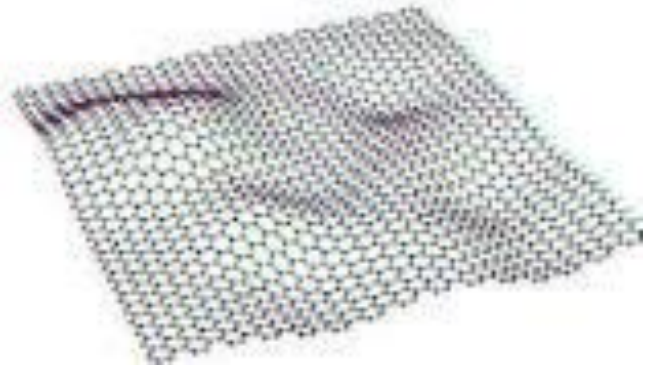
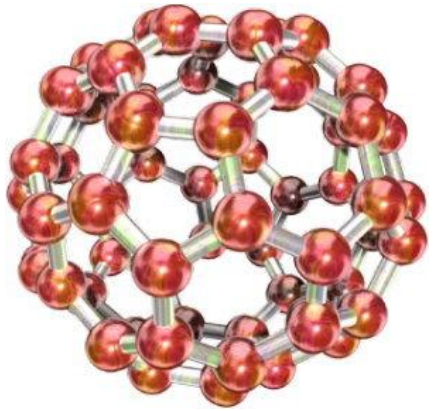
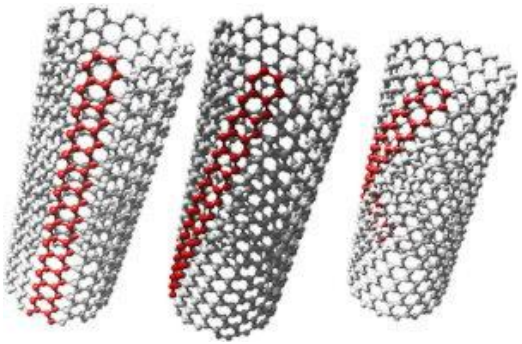
NANOTECHNOLOGY BUSINESS CREATION INITIATIVE



Nanotechnology Business Creation Initiative (NBCI)



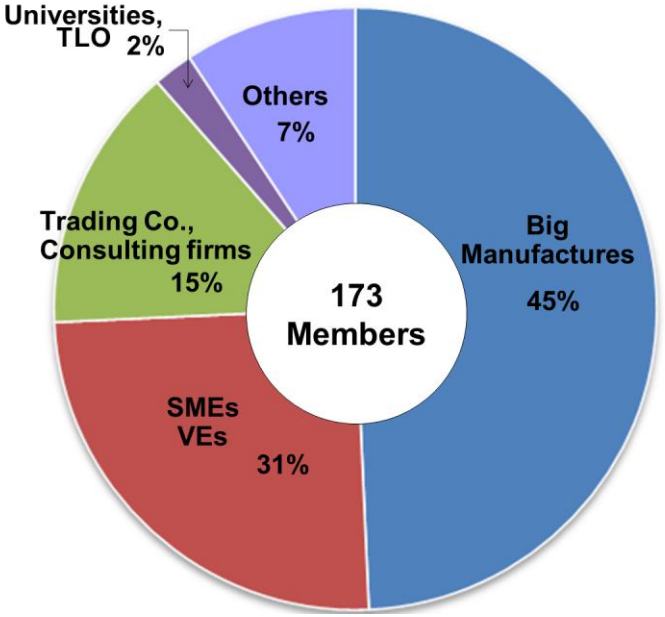
December 2025



Nanotechnology Business Creation Initiative(NBCI)

NANOTECHNOLOGY BUSINESS CREATION INITIATIVE

【Our slogan of 2025】
"Connecting, Innovating, Evolving: Your Platform for Success!"



NBCI is Japanese institution established in 2003 to launch and expand the nanotechnology business.

- One of the most industry driven organizations in Japan run on annual membership fees.
- The membership is provided to organizations registered in Japan

TLO: Technology Licensing Organization

https://www.nbci.jp/en/

Activities of NBCI

NANOTECHNOLOGY BUSINESS CREATION INITIATIVE

- **Business creation by strengthening cross-industry network**
  - Understanding and sharing needs and seeds information through study group activities
  - Support for building a personal network that transcends industry, government, and academia
  - Providing a forum for discussions to create businesses that lead to the solution of social issues

- **Understanding and effective utilization of governmental policies and systems**
  - Understanding social issues and policy information, and providing them in a timely manner
  - Dissemination of business needs to government officials through frequent exchange of opinions

- **Expansion of nanotechnology business / establishment of infrastructure for industrialization**
  - Extracting and responding to common issues such as standardization related to nanomaterials
  - Industry-government-academia collaborative activities related to ensuring safety and responding to concerns about nanomaterials

NBCI Organization

NANOTECHNOLOGY BUSINESS CREATION INITIATIVE

General Assembly

Auditors

Advisory Board

Board of Directors

Planning & Steering Council

Secretariat

NBCI members List

https://www.nbci.jp/aboutnbci/member_e.pdf

Collaboration

Cabinet office, MEXT,MHLW,METI, and MOE etc.

AIST, JST, NEDO, NIMS, KEK, Keidanren, and Other Related Organizations

Technology Committee

Sub-committee
- Material
- Measurement & Evaluation Equipment
- Life
- 3D printer
- Biomimetics
- Environmental & Fuel Cell
- IoT sensor
- Nano Material and Process

Social Acceptance and Standardization Committee

Sub-committee
- CNT
- Nano Material Safety

Business Committee

Sub-committee
- Nano Carbon Commercialization

Working Group
- Open Innovation
- Nano Carbon Commercialization

Innovation Promotion Committee

Taskforce
- Domestic & International Collaboration
- Policy Recommendation

METI: Ministry of Economy, Trade, and Industry
MEXT: Ministry of Education, Culture, Sports, Science and Technology
AIST: National Institute of Advanced Industrial Science and Technology
JST: Japan Science and Technology Agency
NEDO: New Energy and Industrial Technology Development Organization
NIMS: National Institute of Materials Science

Board of Directors Companies

NANOTECHNOLOGY BUSINESS CREATION INITIATIVE

◆ **Chair company of the board of directors:**

TOPPAN Holdings Inc.

◆ **Vice-chair companies of the board of directors:**

JEOL Ltd.

Mitsubishi Corporation

Resonac Holdings Corporation

RICOH Company, Limited.

ZEON CORPORATION

Advisory Board

Kazuhiko Ishimura	President, National Institute of Advanced Industrial Science and Technology (AIST)
Kazuhiro Hono	President, National Institute for Materials Science (NIMS)
Kazuhito Hashimoto	President, Japan Science and Technology Agency (JST)
Tomoji Kawai	Emeritus Fellow, Technology Strategy Center, New Energy and Industrial Technology Development Organization (NEDO) Professor, Osaka University
Sumio Iijima	Professor, Meijo University
Masayoshi Esashi	Senior Research fellow, Micro System Integration Center, Tohoku University
Toshiki Niino	Professor, Tokyo University
Masatsugu Shimomura	Professor Emeritus, Chitose Institute of Science and Technology
Akira Ono	Emeritus Researcher, National Institute of Advanced Industrial Science and Technology (AIST)
Akihiko Hirose	Science Advisor, Chemicals Assessment and Research Center, Chemicals Evaluation and Research Institute, Japan
Yoshinobu Baba	Director General Institute for Quantum Life Science, National Institutes for Quantum Science and Technology (QST) Designated Professor, Research Institute for Quantum and Chemical Innovation, Nagoya University

NBCI Activity Policy

- **"Nanotechnology"** has become a technology that is used on a daily basis in the manufacturing industry due to the progress of analytical technology, manufacturing and processing technology over the last 20 years, and **be fundamental technology for promoting innovation in the fields of AI, biotechnology, quantum, and materials that are rapidly advancing**.

- **NBCI is made up of highly diverse companies** with the keyword "nanotechnology".
  Utilizing this feature, we will support members to develop activities that contribute to solving social issues such as SDGs in collaboration with other members, government agencies, incorporated administrative agencies, and universities.

- For this purpose, **NBCI is promoting the collection and sharing of the latest technical and environmental safety information, and networking** with industry, academia and government. Furthermore, **we are making recommendations on R&D strategies, environmental safety regulations, and standardization activities in the field of nanotechnology.**

Mission of Committees

(1) Technology Committee

- Sub-committees have been set up for each target technology field selected from the perspective of promoting the practical application of nanotechnology (currently **8 sub-committees**). **Through the holding of the sub-committees and lectures, information on technology, products, and markets will be shared among member companies, and related databases are maintained and made public**.
- Through this sub-committee activity, we support the creation of a wide range of personal networks among participating members, which is the basis of cooperation/open-innovation between member companies.

(2) Social Acceptance and Standardization Committee

- **In order to promote the use of nanomaterials and their products, we cooperate with related ministries and research institutes to develop and share basic knowledge about nanomaterials, safety information, handling management guidelines as well as regulations**, etc. We make recommendations from the standpoint of the nanomaterials industry.
- From the perspective of improving the international market and distribution environment, **we also participate in standardization activities such as ISO / TC229 and OECD / WPMN**.

Mission of Committees

(3) Business Committee

- **We create an environment in which members can easily carry out collaboration and open innovation between member companies, governments, independent administrative agencies, universities, etc., and promote the creation of new businesses that lead to social issues**.

  In the nanocarbon field, In addition by holding lectures and sharing technology and market information, we promote commercialization through holding “Nanocarbon Open Solution Fairs” at “nano tech” (nanotechnology exhibition).

(4) Innovation Promotion Committee

- By holding lectures by key people such as the government and incorporated administrative agencies, **we motivate the sensitivity of members to social and policy issues, provide information on government projects and support systems, and support their utilization by member companies.**

  In addition, **regarding the utilization of government projects and support systems, policy proposals are made from the standpoint of the utilization side.**

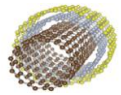
Nanocarbon Industry Landscape map 2025

NANOTECHNOLOGY BUSINESS CREATION INITIATIVE

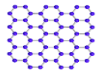
Materials

Single- or/and Double- walled CNT
ZEON
New Metals and Chemicals
Honjo Chemical
Meijo Nano Carbon

Multi-walled C(N)T、C(N)F
GSI Creos
RESONAC
Hamamatsu Carbonics
Hohsen
KOATSU GAS KOGYO
Honjo Chemical
New Metals and Chemicals
Carbonfly
TPR
LG Chem
TODA KOGYO



Graphene
Jikantechno
New Metals and Chemicals
NiSiNa materials
NSC
OSAKA GAS



Fullerene
Frontier Carbon
New Metals and Chemicals
Honjo Chemical
IDEA INTERNATIONAL

Intermediate materials

Rubber-, Plastics- Master bach
GSI Creos
Dainichiseika
TOYOCOLOR
TPR
Sunarrow
Carbonfly
Nakatani
ZEON

CNT-CFRP Prepreg
Carbonfly

Dispersant • Dispersion
<Dispersant for CNT, CB or/and Graphene) >
Kao
<Dispersion>
Mitsubishi Paper Mills
KOATSU GAS KOGYO
New Metals and Chemicals
ZEON
Nippon Shizai
Hohsen
Meijo Nano Carbon
Sunarrow
Carbonfly
NiSiNa materials
TPR
Nihon Tokushu Toryo
GSI Creos

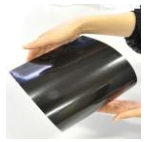
Coating Liquid
Mitsubishi Paper Mills

CNT separation technique into Semiconducting and metallic CNTs
Meijo Nano Carbon

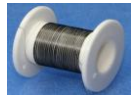
Final products

Moulded article
GSI Creos
DAIKIN FINETECH
Sunarrow
NITTA
Nippon Shizai

Film
GSI Creos
Hamamatsu Carbonics
Hokuetsu Corporation
Carbonfly



Fiber • Electric wire
Hamamatsu Carbonics
Ishizue Magnet Wire Works
Carbonfly
Tokai Rika



Manufacturing Equipment
KYODO INTERNATIONAL
PRC
Fuchita Nanotechnology
Hiroshima Metal & Machinery
Sugino Machine
Beryu
IDEA INTERNATIONAL
THINKY

Analysis and Assessment
Equipment
SHIMADZU
Mageleka Japan
HORIBA
Sanyo Trading
TOKYO DYLEC
Bethel
JEOL

Contract analysis
IDEA INTERNATIONAL
Mageleka Japan
HORIBA
Sumica Chemical Analysis Service
SEIKO FUTURE CREATION
UBE Scientific Analysis Laboratory
JEOL

Others
Trend Survey
IDEA INTERNATIONAL
Mizuho Research & Technologies
NIPPON STEEL Chemical & Material
Nomura Research & Advisory
Yano Research Institute

Business Investment
Mitsubishi Corporation

Research Institution
AIST / Nano Carbon Device Research Center

Protective equipment
SHIGEMATSU WORKS

nano tech 2025 the world's largest event of nanotechnology

2025. 1. 29 - 1. 31 , @ Tokyo Big Sight

- NBCI participates every year to introduce nanotechnology market
- Held an international nanotechnology association conference

- Nanocarbon Open Solution Faire (Joint Event of NBCI and JCD)
  - to promote efficient business matching for expanding the use of nanocarbon by holding this fair that aggregates exhibitions related to the production and use of nanocarbon

The 17th International Nanotechnology Association Conference

NANOTECHNOLOGY BUSINESS CREATION INITIATIVE

Date : January 30th 2025, at 9:30-12:00

Venue : Meeting Room 609, Conference Tower, Tokyo Big Sight

■**Objective** :

To exchange information in each Country and Region on Governmental policy/ direction for Nanotechnology

■**Participants : 13 associations from 7 countries**

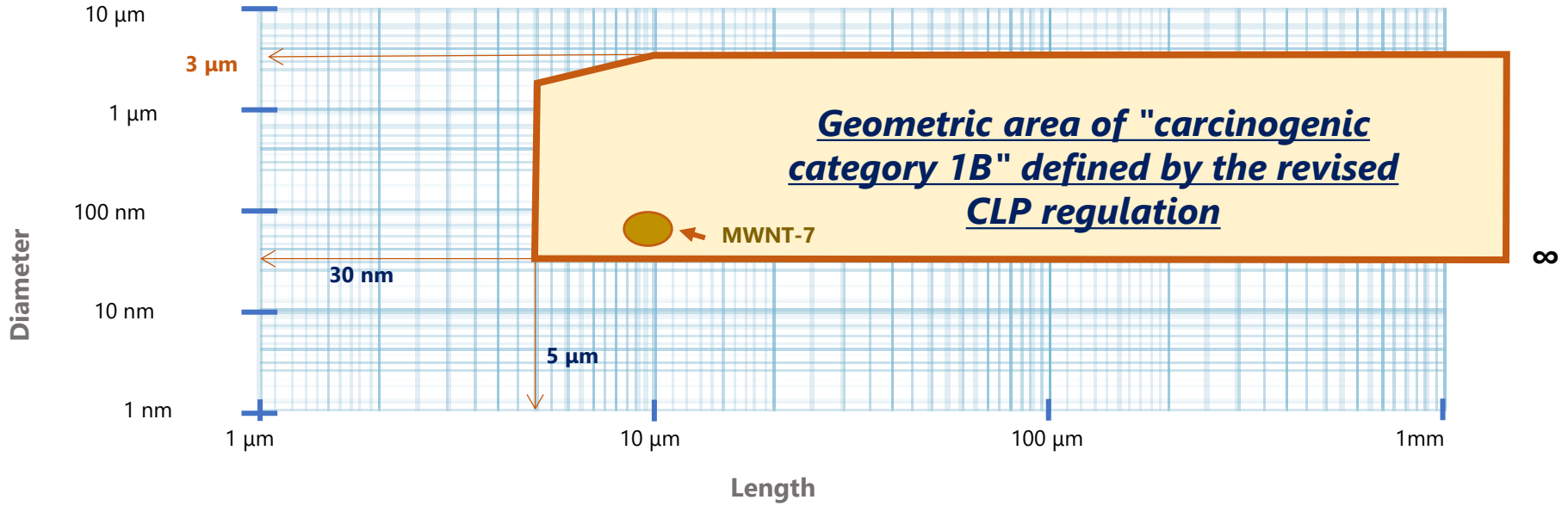
Deep Tech Canada, Waterloo Institute of nanotechnology(CANADA), Silicon Austria Labs (Austria), TANIDA(Taiwan), ANF(Asia Nano Forum: THAILAND,MALAYSIA), Research and Innovation(PMU-B, Thailand), Nano Technology Research Association(Korea)

From Japan:

Cabinet Office's Cross-ministerial Strategic Innovation Program, Advanced Research Infrastructure for Materials and Nanotechnology(ARIM), Zeon Corporation, NBCI.

NANOTECHNOLOGY BUSINESS CREATION INITIATIVE

Revised CLP Regulation ((EU) 2024/2564) will Enter into Force in 2026



Regulated geometric area
- ✓ **Length 5µm or more**
- ✓ **Diameter 30nm to 3µm**
- ✓ **Aspect ratio 3:1 or more**

Commission Delegated Regulation (EU) 2024/2564 amending Regulation (EC) No 1272/2008

Legal obligations for MWCNTs due to CLP revision

- ◆ **Manufacturers and importers of substance and mixture contain ≥ 0.1 wt% within above geometric area obliged to label carcinogenic category 1B of CLP regulation as "substance of carcinogenic possibility by animal test and other study"**
- ◆ **Categorized as STOT RE1**
- ◆ **Obliged to label hazard pictogram "GHS 08 Danger"** ☞

https://eur-lex.europa.eu/eli/reg_del/2024/2564/oj

NANOTECHNOLOGY BUSINESS CREATION INITIATIVE

ECHA advances regulations under the new policy “One Substance, One Assessment Package”

BAuA’s basic strategies for RMOA published in May 2023

- ◆ Incorporate fiber pathogenicity paradigm into EU regulations ⇒ **It’s not just about CNTs！**
- ◆ Regulate fibrous nanomaterials as article

ECHA strengthen regulations using the risk-based management framework “REACH”；

- ◆REACH has a mechanism to implement hazard-based management as a precautionary approach in place
  - Art.68(2) “Generic Risk Management Approach (GRA)”

EU’s new strategic framework initiative “Advanced Materials Act” will get rolling!

Major Events Related to CNT Regulation, Future Plans, and NBCI's Response

Date	Regulatory Action	NBCI’s reaction
2021 July – September	Public consultation on proposed changes to the CLP regulation	Submitted 1 comment
2022 June	- RAC（Risk Assessment Committee）opinion published - Submitted to EC without change to the Opinion	Submitted2 comments
2023 January	- CARACAL meeting - Discussion on reflection of RAC opinion to CLP regulation	- Participate CARACAL meeting - Scientific comments via JBCE
2024 January	- Finished the discussion in CARACAL - WTO/TBT notification	Collect and organize research data on safety and appropriate risk management methods and share them with European regulatory authorities.
2024 September - October	Published in Official Journal, included in CLP Regulation and took effect	
2026 May	**Application start**（end of 18 months transition period）	
2026（Scheduled）	Registry of Intentions, Call for Evidence	
2027（Scheduled）	Document submission, Consultations	

NANOTECHNOLOGY BUSINESS CREATION INITIATIVE

Goal: Achieving Both Innovation and Safety

NBCI takes action to amend or repeal the CLP Regulation so that the revised CLP Regulation does not lead to the designation of MWCNTs as a substance of very high concerns or restricted substance of the REACH Regulation.

- The hazard of CNTs is not determined solely by the geometric parameters of length and thickness. Other parameters should also be considered.
- Identifying the mechanism factors that may affect the hazard of CNTs and applying them to risk management
- Strengthen cooperation with nanotechnology organizations in countries around world and increase ability to convey science base opinions to Europe.
  - Mutual links with organizations in various countries.
  - Communication with European institutions by publishing position papers.

NIA Nanotechnology Industries Association

Japan Business Council in Europe

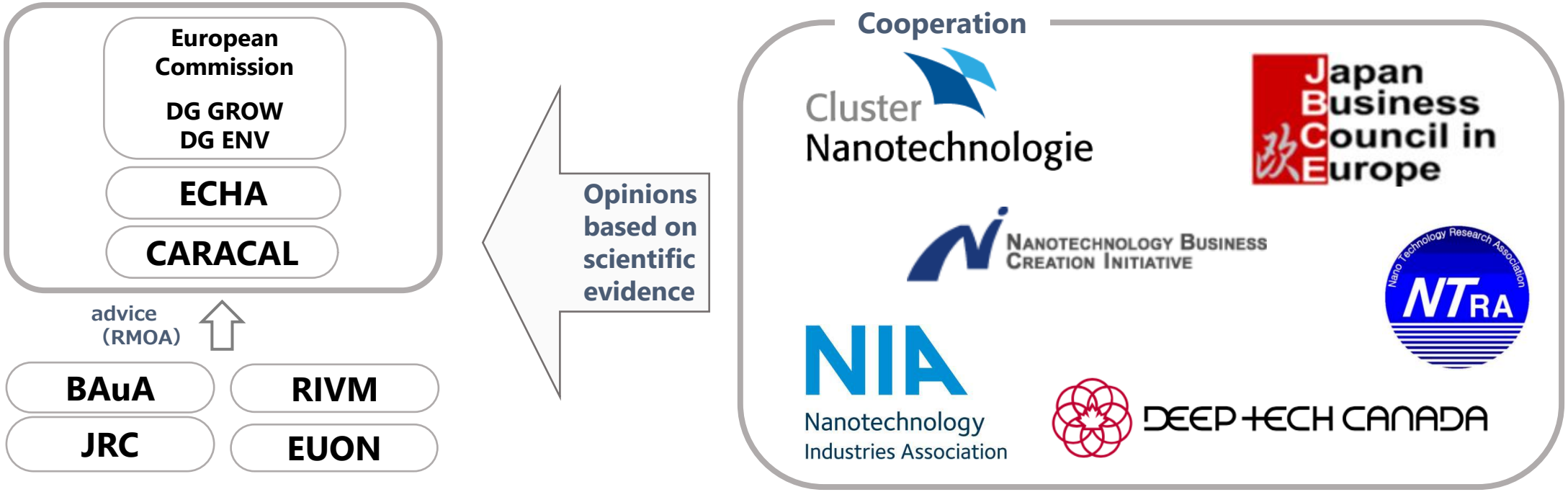
NETZWERK NANOCARBON

Be a Voice of Industry

- Development of methods to reduce risks from CNTs by exposure management
- Develop risk management guidelines for business users and support rule making
- Shed light on reliable mechanisms of CNT toxicity
- Organize system for evaluating and analyzing short-term exposure carcinogenicity

NBCI works as the voice of industry and cooperates with international nanotechnology organizations around the world.

Develop a system to convey the voices of both CNT manufacturers and users as an industry group



Glossary

RAC	Risk Assessment Committee makes recommendations to ECHA
CLP	EU regulation on classification, labelling and packaging of substances and mixtures
CARACAL	Expert group advising EC and ECHA on REACH and CLP regulations
SVHC	Substances that are candidates for authorization as specified in the Annex to the REACH Regulation
JRC	Joint Research Center

JBCE	Japan Business Council in Europe
ECHA	European Chemical Agency
NTRA	Nanotechnology Research Association of Korea
BAuA	Federal Institute for Occupational Safety and Health
RIVM	National Institute for Public Health and the Environment
EUON	European Observatory for Nanomaterials

NANOTECHNOLOGY BUSINESS CREATION INITIATIVE

https://www.nbci.jp/en/

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Inquiry: https://www.nbci.jp/cgi-bin/inquiry.cgi