Call for Applications: MIRAI Global Solutions Olympiad

MIRAI is pleased to announce a call for the **Global Solutions Olympiad** for **Master's and PhD students** from MIRAI member universities, which is designed to work in teams and develop innovative solutions to global challenges. The aim is to strengthen international student collaboration, promote interdisciplinary thinking, and connect student innovation with the **MIRAI Research & Innovation Week 2026** (R&I Week) which will take place between December 8 and 11, 2026, in Fukuoka, Japan.

Eligibility Criteria:

To ensure high-quality collaboration and alignment with the objectives of the Global Solutions Olympiad, applicants must meet the following criteria:

1. Academic Status

- Applicants must be enrolled as **Master's or PhD students** at **one of the MIRAI member universities in Sweden or Japan** at the time of application. For Swedish students in Direct Master programs (i.e. 5 years, civilingenjör) this means that the student needs to be in their 4th or 5th year of study.
- Students who graduate between the application submission deadline and the MIRAI R&I Week remain eligible, provided that they were enrolled at a MIRAI member university at the time of application.
- Students from all disciplines are welcome, provided they can contribute to interdisciplinary problem-solving.

2. Team Composition

- Teams will be **formed by the students** and must consist of:
  - Up to **4 members per team**
  - A mix of Japanese and Swedish participants is allowed (and will receive a bonus in the scoring) but is not mandatory
  - Each team is to have a Group Leader with whom all communication will be conducted (their email will be required)
  - No formal matchmaking support will be provided; teams are therefore expected to be formed independently by the applicants.

3. Commitment & Availability

- Participants must be available to:
  - Attend the **online kick-off workshop (late August/early September 2026)**
  - Actively contribute during the **2-week working phase (mid-September)**
- Teams are expected to manage their own collaboration across time zones and schedules.

4. Language Requirements

- All communication, deliverables, and presentations will be conducted in **English**.
- Participants must have sufficient proficiency in English to collaborate effectively in an international team.

5. Engagement with the Challenge

- Applicants must select one of the **four Global Challenges**
- Participants are expected to engage seriously with the problem and contribute to developing an **innovative and feasible solution**.

6. Deliverables

- Each team must submit:
  - A **Solution Brief (10–12 pages)** or
  - A **Pitch Video (5–7 minutes)**
- All team members are expected to contribute meaningfully to the final submission.
- More detailed submission format guidelines will be shared with all teams at a later stage. Requirements may differ depending on the Challenge selected, so please consult with each Challenge coordinating team during the program.

7. Prize Participation

- Members of the **winning teams** from each track (below) are invited to
  - Travel to Fukuoka, Japan and present their work at the **MIRAI R&I Week** between 8–11 December 2026. (prize: airfare + hotel)

*** Travel Support for Winning Teams**

The prize covers round-trip airfare and accommodation for the duration of the MIRAI R&I Week in Fukuoka. Other expenses (e.g. insurance and local transportation) are to be covered by the participants. Meals during the MIRAI R&I Week, including lunch and dinner, will be provided for all participants. Breakfast arrangements depend on the hotel and are not guaranteed.
Visa-related documentation will be provided upon request; however, participants are responsible for their own visa applications.

Challenge Tracks:

Teams will address one of four challenge areas linked to the MIRAI Global Challenges Teams (GCTs):

- **Challenge 1**: Health and an ageing population (part of SDG 3)
  - Ageing Societies – sustainable health, care systems, social inclusion
- **Challenge 2**: Climate adaptation, disaster and risk management and prevention (part of SDG 13)
  - Sustainable Cities – urban resilience, mobility, green transitions
- **Challenge 3**: Resilient cities and communities - policies, strategies, local governance and urban planning (part of SDG 11)
  - Climate & Disaster Resilience – risk reduction, adaptation, early warning
- **Challenge 4**: Energy conversion and storage materials: renewable energy, solar energy conversion, electrification, sustainable processes and resource use (part of SDG 7)
  - Future Technologies – digital innovation, AI, emerging tech for society

You can find more details about the tracks at the following separate indications.

Application:

Submit your team by **23:45 CEST, 16 August 2026 in Sweden** (06:45 JST, 17 August in Japan) via: MIRAI Global Solutions Olympiad – Fill out form

- Please read carefully the eligibility requirements and the description of the challenges before submitting your team.

- Before submission, all team members are requested to contact the MIRAI contact persons at their home universities and confirm any required internal procedures, such as obtaining prior approval for attending the MIRAI R&I Week, in case the team is selected.

Program Key Timeline:

- Team application deadline: 16 August 2026
- Selection notification: around late August 2026
- Online kick-off workshop: late August / early September 2026
- Team working phase: mid-September 2026 (2 weeks)
- Submission deadline: late September / early October 2026
- Winner announcement: early October 2026
- Final presentation at MIRAI Research & Innovation Week: 8–11 December 2026 (Fukuoka, Japan)

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MIRAI Global Challenges

Challenge 1: Health and an ageing population (part of SDG 3)

Background

Japan and Sweden are among the countries most affected by demographic change. Increasing life expectancy is a major societal success—but it also brings significant challenges. As the proportion of older adults grows, so do demands on healthcare, social services, and long-term care systems, while the available workforce and economic resources are under increasing strain.

At the same time, many older adults live alone or far from family members, reducing access to informal support networks. Loneliness, reduced mobility, and unmanaged health conditions can lead to declining well-being and increased reliance on formal care systems.

The goal of ageing is not only longevity, but the ability to live well: maintaining autonomy, dignity, meaningful engagement, and a high quality of life for as long as possible.

Your Challenge

You are part of an interdisciplinary task force commissioned by public authorities in Japan and Sweden. Your mission is to design a **scalable and sustainable solution** that can:

- Support older adults in living independently while maintaining safety and well-being
- Reduce pressure on healthcare and care systems, particularly in the context of workforce shortages
- Strengthen social connection and meaningful engagement, especially for those living alone or far from family
- Enable coordination between formal and informal care systems, including families, communities, and service providers

Requirements

Your solution should:

- Integrate multiple perspectives (e.g., health, social sciences, engineering, economics, law, AI)
- Be adaptable to both urban and rural contexts in Japan and Sweden
- Consider ethical, legal, and privacy implications, especially regarding autonomy and data use
- Be feasible to implement using realistic stakeholders (e.g., municipalities, healthcare providers, community organizations, private sector actors)

Challenge 2: Climate adaptation, disaster and risk management and prevention (part of SDG 13)

Background
In recent years, both Japan and Sweden have experienced increasingly severe climate-related disasters—ranging from typhoons, floods, and landslides to wildfires and extreme cold events. During these crises, **emergency response systems** often fail to effectively reach the most vulnerable populations, including elderly individuals, people with disabilities, migrants with limited language proficiency, and those experiencing homelessness or social isolation.
In many cases, critical information does not reach these groups in time, is not accessible in usable formats, or is not trusted. As a result, preventable injuries, health complications, and fatalities continue to occur.

Your Challenge
You are part of an interdisciplinary task force commissioned by public authorities in Japan and Sweden. Your mission is to design a resilient, inclusive system that can:
- Identify and locate vulnerable individuals or groups before and during a disaster
- Communicate timely, clear, and actionable information across language, cognitive, and physical accessibility barriers
- Ensure that warnings lead to real action, including evacuation or access to support services
- Function under disrupted conditions, such as power outages, limited internet connectivity, or infrastructure failure

Requirements
Your solution should:
- Integrate technical, social, and/or health care-related perspectives
- Be adaptable to both urban and rural contexts in Japan and Sweden
- Consider trust, privacy, and ethical implications
- Be feasible to implement using realistic resources and stakeholders (e.g., municipalities, NGOs, healthcare systems, community networks)

Important clarification of difference between Challenge 2 and Challenge 3:

Challenge 2: Focuses on the response phase of disasters (before, during, and immediately after events), not long-term urban planning or structural adaptation.

Challenge 3: The focus is on long-term planning and governance (years to decades), rather than real-time disaster response systems.

Challenge 3: Resilient cities and communities - policies, strategies, local governance and urban planning (part of SDG 11)

Background

Cities and communities in Japan and Sweden are under growing pressure to adapt to long-term demographic and economic change, while at the same time, both countries face accelerating climate-related risks, including heatwaves, floods, and other extreme events. While climate and demographic trends provide important context, the core challenge lies in what solutions are identified and how decisions are made over time about land use, technological advances, infrastructure, mobility, and public space under conditions of uncertainty and limited resources. These decisions shape not only physical development, but also who benefits from adaptation efforts, how burdens are distributed, and whose priorities guide the future of communities.

Your Challenge

You are part of an interdisciplinary task force advising regional and municipal authorities in Japan and Sweden.

Your mission is to design a long-term governance and planning approach that can:

- Enable communities to remain liveable, resilient, and socially sustainable under conditions of e.g., ageing, population decline, uneven population distribution, and increasing climate risks
- Support long-term and holistic decision-making in planning across housing, infrastructure, mobility, and public space despite financial and institutional constraints
- Improve coordination between actors, including government agencies, private actors, and local communities
- Align policies, regulations, and incentives to support adaptive, flexible technological and community development over time

Requirements

Your solution should:

- Integrate scientific reasoning and reflect on how Sweden and Japan could help address these challenges in a holistic manner
- Integrate perspectives from various disciplines, which can include urban planning, political science, economics, law, material sciences, engineering, etc.
- Be applicable to both Japan and Sweden, clearly explaining how differences in institutional arrangements, demographic trends, and cultural contexts shape your approach
- Reflect on how priorities may need to shift, be transformed, or reduced under conditions of limited resources and uncertainty

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Challenge 4: Energy conversion and storage materials: renewable energy, solar energy conversion, electrification, sustainable processes and resource use (part of SDG 7)

"The next energy revolution. Which material will lead it?"

Description
Coal defined the industrial age. Silicon enabled the solar revolution. What material class could define the next transformation of the global energy system?
Identify one overlooked material class and argue why it could disrupt or outperform today's dominant solutions within the next 20-30 years. Your case should integrate scientific reasoning, scalability, sustainability, and global impact, and reflect on how Sweden and Japan could help accelerate its development and deployment.

Core Design Principles
- Single material class (no combinations)
- Bold but evidence-based argument
- Strategic foresight exercise
- Global impact focus
- Sweden/Japan relevance
- Surprise is welcome, but must be justified