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つくば環境スタイル



A town of smiles created by our collective knowledge and technologies:
Eco-Model City, Tsukuba

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Overview of Tsukuba City

- Size: 284.07 km² (east-west: 14.9 km, south-north: 30.4 km)
- Population: 224,755 (as of April 1, 2016)

Changing and advancing city

- Access to central Tokyo and three international airports
- New community planning around areas along Tsukuba Express
- Population of about 230,000: The population in areas along TX is increasing.



Tsukuba Research and Academic City

- The largest research and development base in Japan (about 30 bases of government organizations and hundreds of bases of the private sector)
- Accumulation of human resources and knowledge (more than 15,000 researchers)



Garden City

- Culture and history of Mt. Tsukuba
- One of the best farming areas in Japan

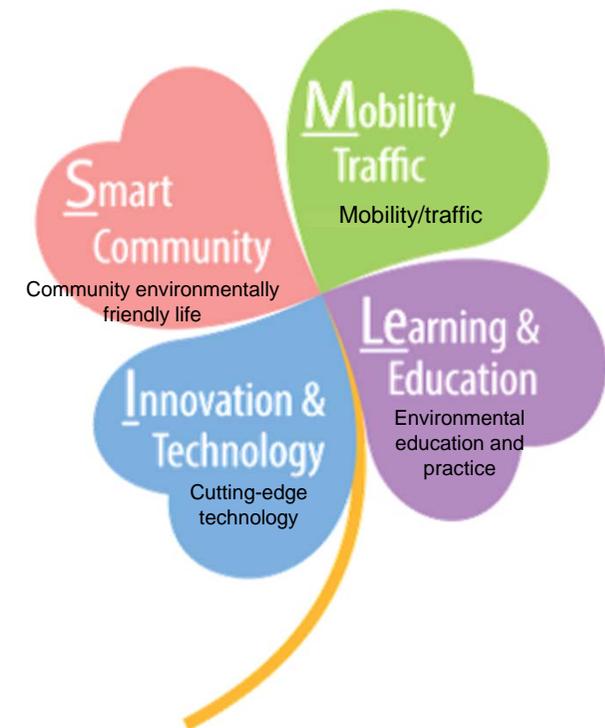


Advanced experimental field

- Special district for international strategy
- Special district for mobility robots
- Eco-Model City
- Next-generation education

Eco-Model City, Tsukuba

- The national government selected Tsukuba as one of the **Eco-Model Cities** among 23 cities around Japan in March 2013.
- **Eco-Model City Action Plan**, with a roadmap for the next five years, was established in April 2014.
- **The focus is on projects related to lives and transportation** based on the characteristics of the area including increased construction due to development along the Tsukuba Express Line in Tsukuba City and a lifestyle in which people depend on vehicles as the main means of transportation.
- **Four integrated approaches** aim to create a city where people of all age groups including the elderly and children can live with smiles on their faces.



Overview of the Effort

Smart Community

コミュニティエコライフ

Approaches to necessary aspects for the expansion of energy-saving houses and low-carbon city planning are promoted using city-planning opportunities. Carbon reduction is accelerated using the development of a model district of integrated approach for CEMS (community energy management system) as a leading project.

- (a) Development of a model district of low-carbon community
- (b) CEMS powered by renewable energy
- (c) Establishment of low-carbon buildings

Mobility Traffic

モビリティ・交通

The objective is community planning so that all types of people can safely move around. This can be achieved by diversifying the means of short-distance transportation using features as a special district for mobility robots. An integrative means of transportation is built to consolidate the functions of the entire city by using low-carbon transportation such as the Tsukuba Express (railway), buses, and EVs as nodes of transportation.

- (a) Construction of comfortable transportation space
- (b) Conversion to low-carbon vehicles
- (c) Shift to low-carbon means of transportation
- (d) Low-carbon transportation sharing system



Innovation & Technology

最先端技術

A new business model is established through practical trials using cutting edge low-carbon technology as Tsukuba Environmental Style “Experimental low-carbon town.” Practical application of the latest technologies of research institutes and leading projects such as open facilities are implemented at the same time.

Overall carbon reduction measures are supported and implemented while applying the knowledge, technologies, and resources of Tsukuba to local communities.

- (a) Practical application of algae biomass energy
- (b) TIA-nano, the establishment of a global nano-technology base
- (c) Cooperation with carbon reduction programs of research institutions
- (d) Establishment of Environmental Business

Learning & Education

環境教育、実践

Focused efforts are made for cultivating human resources including environmental education for children who will lead the next generation. The aim is to realize a new style of cooperation implemented by the team of All Tsukuba and a low-carbon society in which effective efforts continue through cooperation. Measures related to the innovation of knowledge, awareness, and lifestyle of humans are thereby implemented.

- (a) Education for children (Tsukuba Style Department)
- (b) Citizens education and implementation (supporters program)
- (c) (Temporary name) Tsukuba Environmental Style Center

Eco-Model City, Tsukuba

Mobility Traffic

モビリティ・交通

Shift to low-carbon means of transportation and introduction of social systems



▲ Shift to low-carbon vehicles (expansion of EVs and infrastructure development)



▲ Portable hydrogen stations



▲ Tsukuba the city of bicycles



▲ Ultra-compact mobility trial



▲ Personal mobility sharing



▲ Segway city tour

(Social experiment of personal mobility as a means of short-distance transportation)

Ultra-Compact Mobility Trial



Small and *kawaii* (cute) vehicles which change lifestyles



Ultra-compact mobility project



Vehicle to be introduced in Tsukuba City



Five vehicles

NISSAN New Mobility Concept

Manufacturer	Nissan
Capacity	Two
Length*width*height	2,340×1,230×1,450mm
Vehicle weight	500kg
Maximum speed	About 80 km/h
Cruising range	About 100 km
Energy	Electricity
Output	8kw
Charging method	200 V regular charging

TOYOTA AUTO BODY COMS



P-COM type



Deck type

Manufacturer	Toyota Body
Capacity	One
Length*width*height	2,395×1,095×1,500mm
Vehicle weight	410kg
Maximum speed	About 60 km/h
Cruising range	About 50 km
Energy	Electricity
Output	0.59kw
Charging method	100 V outlet for household



Delivery type

Five vehicles

Scenes of use

-  Security patrol
-  Use of official vehicles
-  Commuter trial
-  Events and PR
-  Use in tourism around Mt. Tsukuba
-  Business application trial
-  Agricultural and commercial uses
-  Application trial in environmental model districts
-  Trial use by students
-  Station-front sharing trial

Result of the Ultra-Compact Mobility Trial



- Suitable method of uses for Tsukuba City

Sharing

Uses in
agriculture

Uses in tourism

- Vehicles will be used as official transportation and projects will be implemented to increase their usage while checking the activities of the national government.

Challenges

Vehicle category and licensing system (lecture), etc.

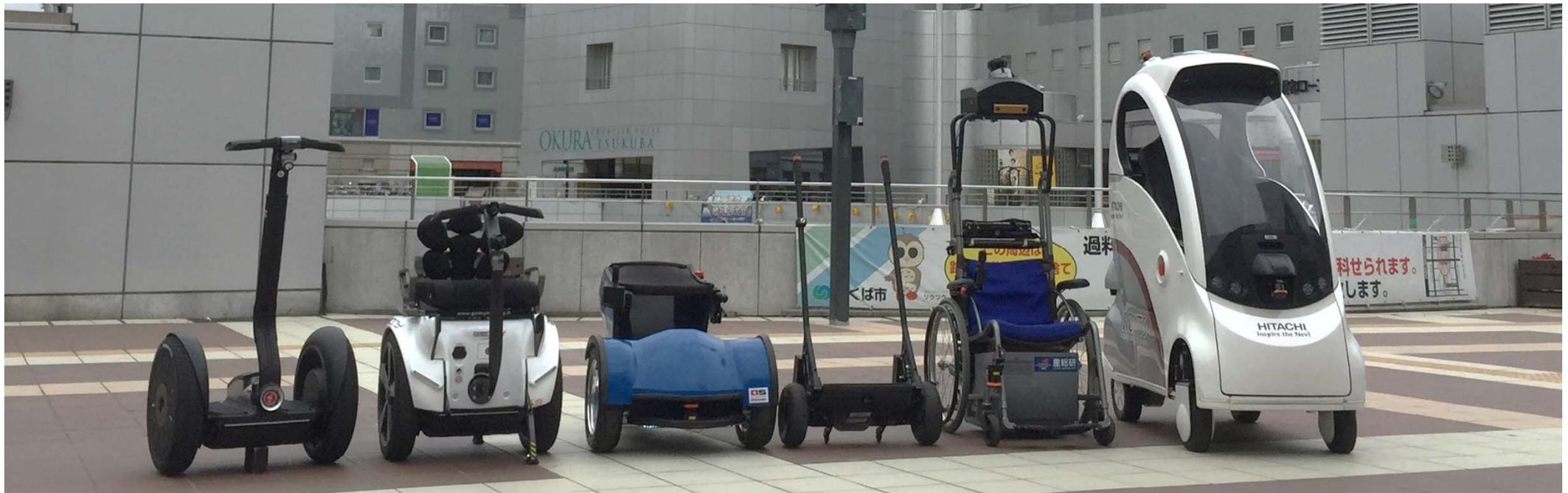
Personal Mobility

The experiment of personal mobility on actual roads started in 2011 using the special district of structural reform.

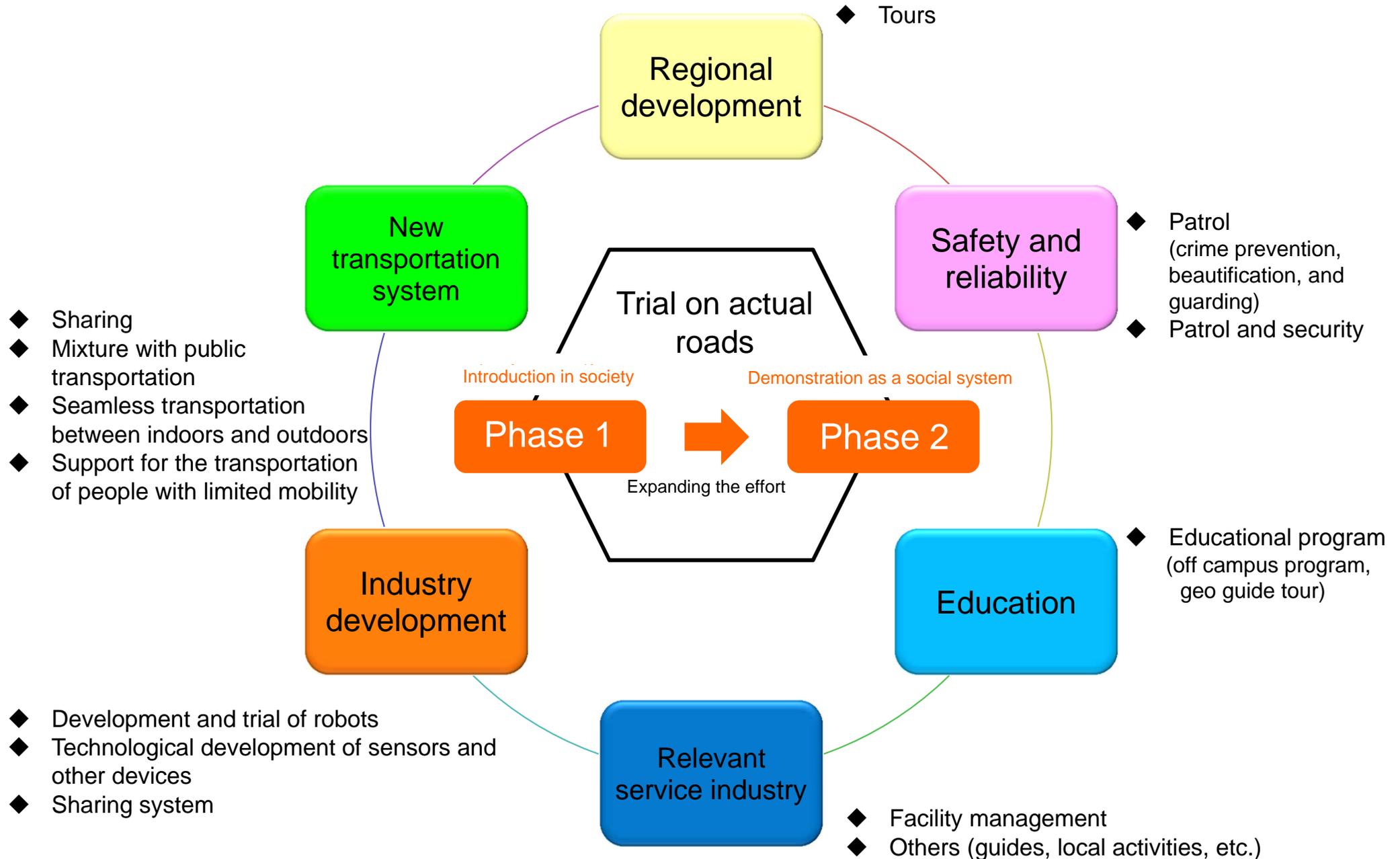
Road trials were conducted to evaluate the safety and performance of personal mobility. In addition, social trials were conducted such as giving transportation support for tours and people with limited access to transportation to verify their social effectiveness.

Efforts and outcomes in Tsukuba City and Toyota City were recognized. This recognition led to [the nation-wide implementation of driving on actual roads in regions around Japan which satisfied certain conditions in July 2015.](#)

The national government is paying attention to these activities, by for example adding a description of personal mobility in government documents such as Japan Revitalization Strategy, revised in 2016.



Personal Mobility



Personal Mobility

Social effectiveness



- *Environmentally and city friendly (energy and space conservation)*

Compatibility with pedestrians



- *Energize people, energize cities (making people want to go out and interact with each other)*

Safety



- *Communication tool (connection among people)*

- *People friendly (slow mobility)*

Personal Mobility

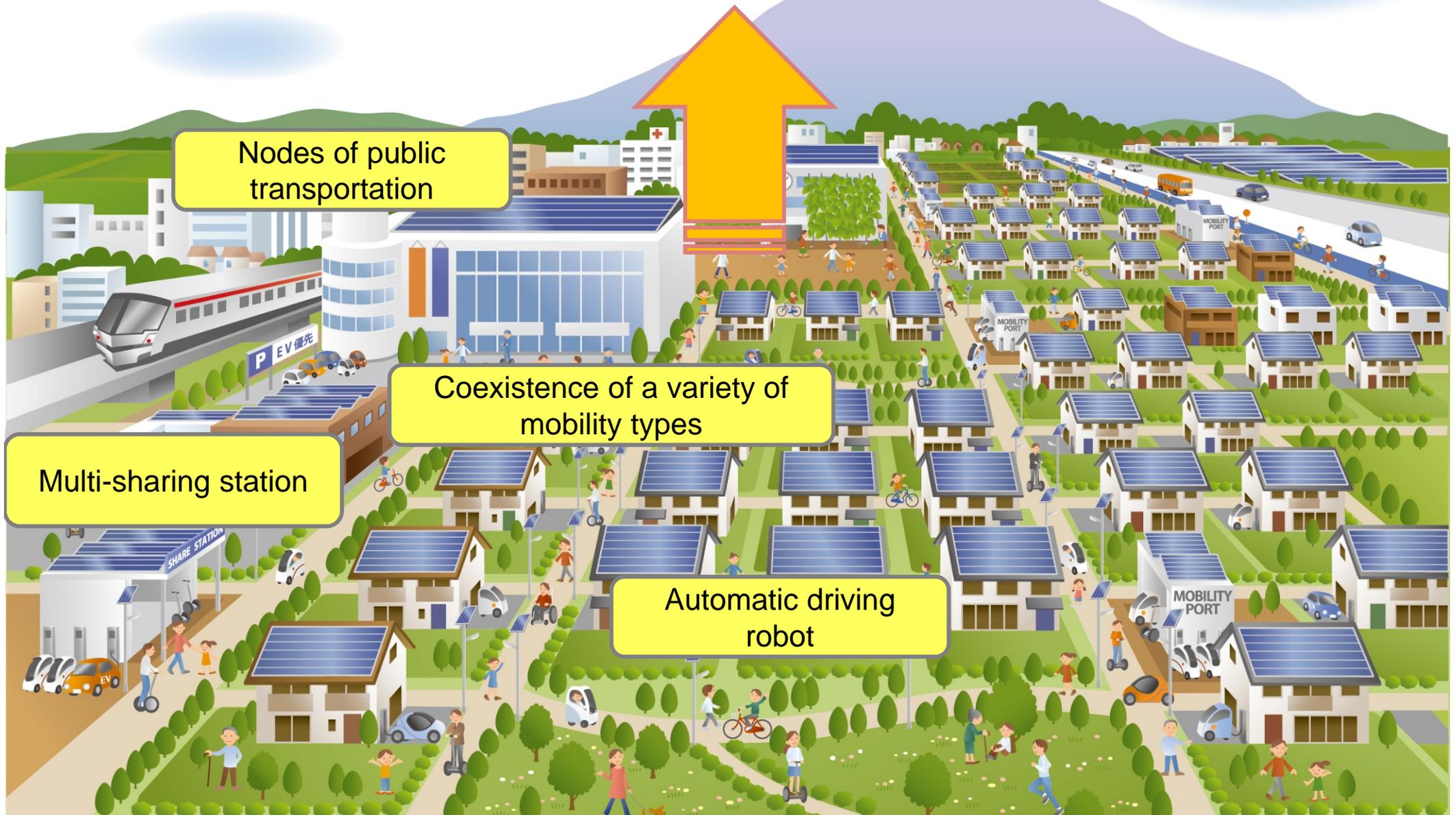


People and Personal Mobility and City



Multi-Sharing

A city in which all types of people can safely move around



Commonly Heard Opinions

Can it be driven outside of Tsukuba City?



Do I have to take a class when I drive it in other locations?

Do I need a regular driver's license?

It is convenient, but there are few places where I can drive it.

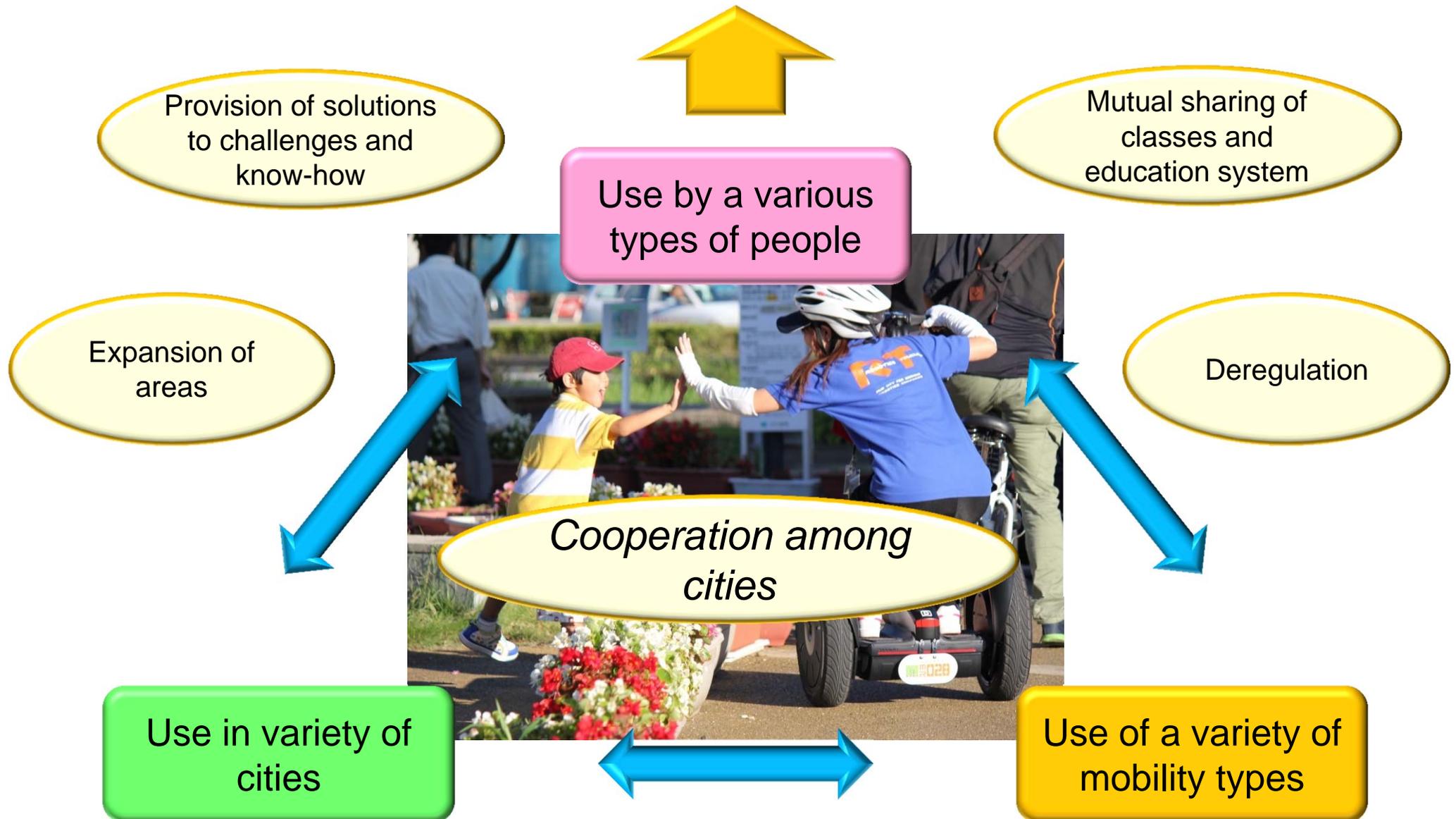


It seems dangerous unless the driver has completed a good class.

More opportunity to drive the sit-on type would be nice.

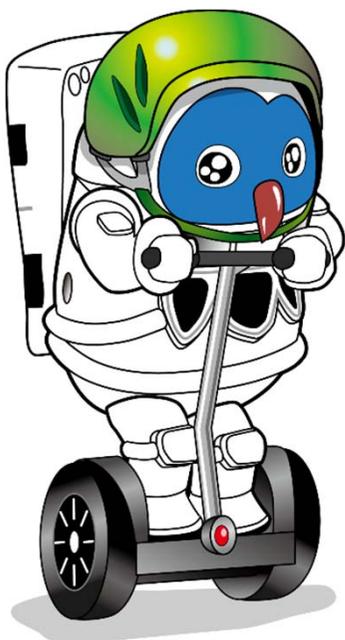
I am not sure what kind of measures are necessary to ensure it is used safely in my town.

Spread of near-future lifestyle





Thank you.
Eco-Model City, Tsukuba



Captain Fukkun, a mascot of Tsukuba City

