2025 Suwon ITS Asia Pacific Forum

Joint Special Session

Suwon Research Institute • Xi'an Jiaotong-Liverpool University

Inclusive Connections Toward Future Cities

: Technology·Innovation, Environment, and People

2025. 5. 28. WED

14:00~15:30

Suwon Convention Center 1F (105+106)

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Moderator **Eunha Kang** Director(Suwon Carbon Neutrality Center)

14:00~14:10 Opening Ceremony

Opening Remarks
Sungjin Kim President(The Suwon Research Institute)

Welcoming
Sophie Sturup Professor(Xi'an Jiaotong-Liverpool University)

14:15~15:00 Session

Future Mobility Scenarios and Its Social Outcomes: A Case of Two Testing Beds in Chinese Cities (in the Context of China)
Juhyun Lee Professor(Xi'an Jiaotong-Liverpool University)

A Project on Urban Surface Street Management for Smart Mobility in Japan
Takashi Oguchi Professor(Tokyo University)

Transit-Oriented Development for All - Gentrification and Social Inclusion -
Hyungun Sung Professor(Hanyang University)

15:00~15:30 Discussion

Chair **Keechoo Choi** President(Ajou University)
Panelists **Sophie Sturup** Professor(Xi'an Jiaotong-Liverpool University)
Seungjae Lee Professor(University of Seoul)
Ilsoo Yun Professor(Ajou University)

Contents

Opening Remarks

Sungjin, Kim
President, Suwon Research Institute

Dear distinguished guests,

It is a great pleasure to welcome all of you today.
I am Sungjin Kim, President of the Suwon Research Institute.
It is a great honor for the Suwon Research Institute to co-host this special session of the 2025 Suwon ITS Asia-Pacific Forum in collaboration with Xi'an Jiaotong-Liverpool University of China.
The theme of today's session is "Inclusive Connectivity towards Future Cities: Technology, Innovation, Environment, and People".
This is not merely a discussion about technological advancement. Rather, it is an earnest search for solutions to the very real social challenges that cities face today.
Today, we continue to see disparities in access to public transportation among different social groups and regions. These inequities in transportation access directly impact the quality of life for our citizens.
For instance, The growing elderly population has led to an increase in citizens with limited mobility.
We also face an urgent need for eco-friendly transportation systems to address the climate crisis.
Additionally, the digital transformation of our cities has often lacked human-centered approach and empathy for urban residents. All of these issues represent urgent policy challenges that we must address.
Against this backdrop, Intelligent Transport Systems (ITS) emerge not merely as tools of innovation, but as critical instruments for upholding citizens'rights and achieving sustainable urban development.
In today's special session, leading experts from Korea, China, and Japan will share insights drawn from their national experiences and engage in discussions.
This will be more than an academic exchange-it will be an opportunity to reflect on how technology can deepen the connection between people and cities, and how sustainable mobility can help shape inclusive urban futures.
The Suwon Research Institute remains committed to advancing citizen-centered urban and transportation policies, strengthening international collaboration, and shaping a future where technology, humanity, and the environment coexist in harmony.
In closing, I extend my deepest gratitude to the distinguished experts presenting and leading today's discussions, and to each and every one of you for your valuable participation.

Thank you.

Welcoming

Sophie Sturup

Professor, Xi'an Jiaotong Liverpool University

Dear distinguished guests,

We are very happy to hold this special session of the '2025 Suwon ITS Asia-Pacific Conference,' jointly organized by the Suwon City Research Institute and Xi'an Jiaotong-Liverpool University, China on behalf of XLTLU.

Our theme today, 'Inclusive Connectivity towards Future Cities: Technology, Innovation, Environment, and People' presents us with an opportunity to consider the future, both the one we are headed for and the one we might wish to get to. After all, 'if you do not change direction, you are likely to end up where you are headed'. It is easy in the pursuit of solving the problems we face today to forget to consider what the likely impacts of our proposed solutions are.

Transport is essential to human flourishing, which is the ultimate purpose of sustainable development. From impacts on life (accidents), our bodily health and bodily integrity through to enabling movement secure or not from the threat of violence, as well as the opportunities they provide for expression of senses, thought, imagination, emotions, political affiliation and play, the transport systems that we use impact all the capabilities necessary for a fully expressed human life. We cannot use a transport system that is not available, we cannot choose one doesn't work for us, and arguably for a lot of people the transport systems we have fall into both those categories. Therefore, we need to innovate, to use our intelligence to drive transport systems in directions that privilege human flourishing.

So, I look forward to the discussion today, I invite those listening and those presenting to take this opportunity to consider the future we are headed for, and whether we want to get there. It is after all from such conversations that we can build a concrete hope for the future, one that builds the sustainable, inclusive, intelligent world that we want to live into.

Thank you.

Session 1

Future Mobility Scenarios and Its Social Outcomes: A Case of Two Testing Beds in Chinese Cities (in the Context of China)

Juhyun Lee
Professor, Xi'an Jiaotong-Liverpool University

2025
Suwon ITS
Asia Pacific Forum

Future mobility scenarios and its social outcomes:
a case of two testing beds in Chinese cities

Juhyun Lee

Xi'an Jiaotong-Liverpool University
China

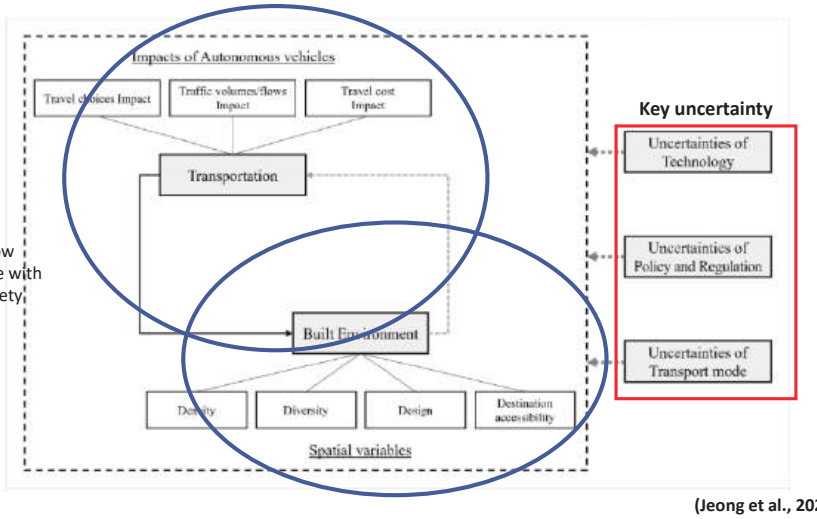
(1) **4 possible urban mobility situations: "AV x Shared Mobility"**

(2) **User segmentations**
Perceived impacts on "quality of daily life" & preferences of Chinese citizens

Lee, J., Lee.E., Lu, Y., Chung, C.(2024) Critical investigation of heterogeneous anticipations of Future urban mobility: Insights from user segmentations in pioneering Chinese cities across four situations.
Lee, J., Lee.E., Lu, Y., Chung, C.(2024) Envisioning Future Mobility through the Lens of Quality of Life: Navigating Individuals' Preferences and Perceptions Across Multiple Possibilities in Chinese Cities
Lee, J., Gim, T. (2023). Reconsidering Socio-spatial effects of AV. *Technology in Society*

Possible futures of cities in the context of "AV x Shared Mobility"

- Predicting the changes in Built Environment in the era of technological advancement

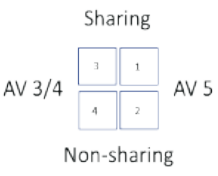


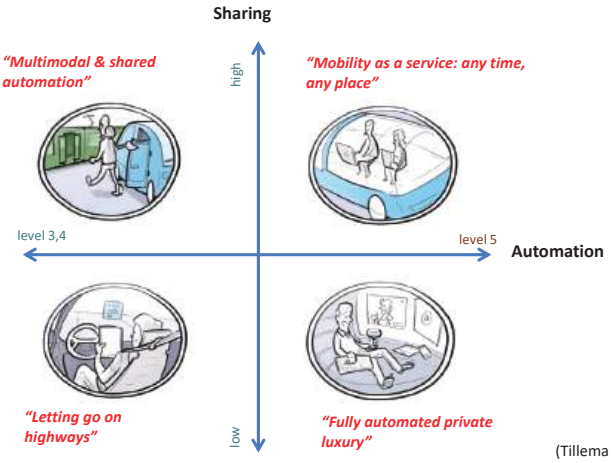
(Jeong et al., 2023)

Possible futures of cities in the context of "AV x Shared Mobility"

- Evolving mobility situations, mapped by two key uncertainty (**Sharing & Automation**)
- Each with change in **transport system <-> cities**

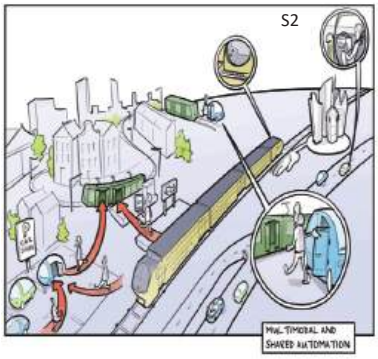
* these scenarios are likely to coexist, reflecting the diverse needs and preferences of users

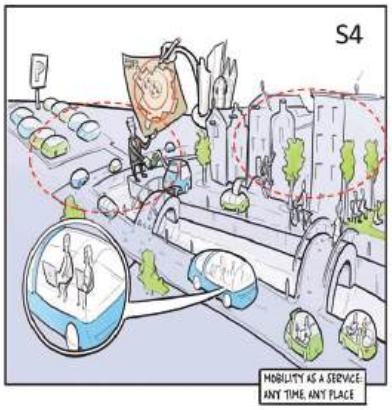




(Tillema et al., 2015)

How will cities change in the future?





	Situation 1 (S1): Low automation &Non sharing	Situation 2 (S2): Low automation &Sharing	Situation 3 (S3) High automation & Non sharing	Situation 4 (S4) *"Mobility as a service: any time, any place"*
Mobility service	- Full automation not yet feasible. Only on highways. - Some public transport travel along separate routes without drivers - Private cars on the road	- **Flushing driverless public transport (train) on a separate route** - **Transfer is effortless** - May need to use **ride-sharing services to reach** to transit hub	- Car equipped with all gadgetry	- Full automation. No driver. - **Car, public transport, and taxi are merged** - Varied choices (e.g. size, number of passengers) - **Trains still exist for longer distance**
Possible changes in daily life	- More cars and traffics on road - Limited changes in cities - In the city, it is difficult to move around. Might be more convenient on highway	- Cheaper and faster trips (less traffic, affordable fare) - **High-density development around transport hubs in a city and suburban areas** -May support **"Inclusive" regional transport connectivity**		- Trip will be cheaper and faster (less traffic, affordable fare) - Parking space and transport infrastructure in cities might be used for other purposes. - Easier to reach a wide range of activities across a city and a region - Everyone can be onboard (handicapped, children, seniors, etc)

Users' anticipation for future cities in two pioneering Chinese Cities

- *4 possible situations* vs. *INDIVIDUAL'S anticipation* of future mobility experiences

complex & heterogeneous in preferences patterns – influenced by

personal values & lifestyles, & distinct socio- technical * characteristics of cities

Shanghai "Global Metropolis, Innovation Hub" & Suzhou "Satellite city, Testing bed"

1,980 participants (1,000 from Shanghai and 980 from Suzhou), A stratified sampling approach (different districts of each city).
Most & Lease preferences; Perceived impacts on Quality of Life; Segments (Heterogeneous motivations and anticipations)

Users' anticipation for future cities in two pioneering Chinese Cities

➢ **Shanghai (Global Metropolis, Innovation Hub) & Suzhou (Satellite city, Testing bed)**

1,980 participants (1,000 from Shanghai and 980 from Suzhou), A stratified sampling approach (different districts of each city).
Most & Lease preferences; Perceived impacts on Quality of Life; Segments (Heterogeneous motivations and anticipations)

(1) A short video clip - 4 possible FUTURE MOBILLITY SITUATION
=> Participants chose "most" & "least preferred" situations and explain WHY

(2) Participants identified Perceptions on (usefulness) & (effects on quality of life) on "most & least preferred" situations they had chosen

(3) Basic demographic information and travel patterns

> Gender, Age, Income, Education Level, Car ownership
> Travel pattern: Location (house – work), Main activity, Main destination, Frequency and duration of trip, main mode, number of transfers, number of public transport use

- Private car
- Bus; Subway/Underground
- Car hailing (not shared)
- Car hailing (shared)
- Taxi
- E-bike/Scooter (not shared)
- E-bike/Scooter (shared)
- Bike (not shared)
- Bike (shared)
- Walk

> Segmentation: Two-step cluster analyses

Perceptions & Preferences for four future mobility situations

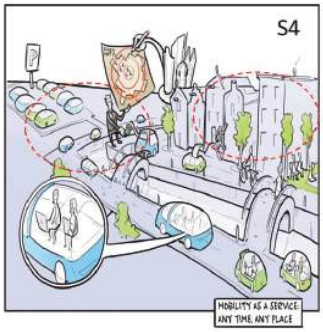
Not simply embedded in prevailing attitudes towards existing modes; more strongly from individuals' anticipations of future cities
-> how technologies might shape their quality of everyday life.

➢ **"S4" High AV x High Sharing is MOST preferred** >S3>S2>S1
(72.10% in Shanghai; 72.00% in Suzhou) over **private options**

➢ **WHY S4?**
Car is NOT considered as mere service, BUT
"Transformation in Daily Life of Cities"

Faster, cost-effective, barrier-free travel, diverse service options)
+ chance to make a better space + fun <-> **previous studies**

➢ **WHY S3?**
LESS opportunities for **social connection**,
MUCH for **security & autonomy & mental wellness.**



Perceptions & Preferences for four future mobility situations

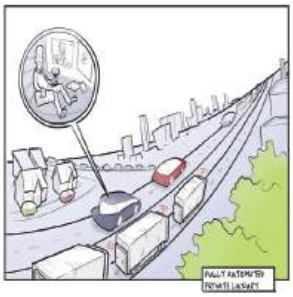
❖ **PREFERENCE reflecting critical factors to individual wellbeing which vary among individuals**
(Personal values & socio-demographic factors)

➢ **Perception on QoL benefits: S4 vs. S3; S2**

S4 supporter as top preference show highest perceptions
vs. S3 gave relatively low scores> recognition of **S3's drawbacks**
– (POU) traffic congestion and limited parking space in urban areas

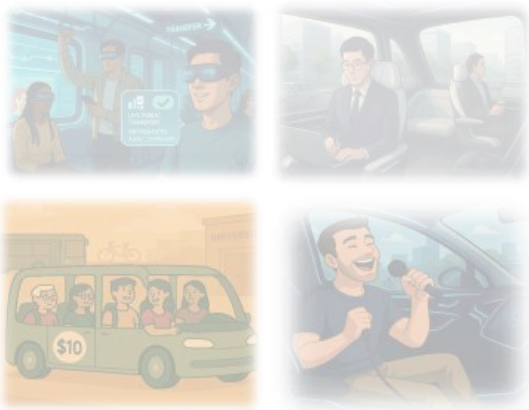
* Individual wellbeing in "Dense City"
a preference for "non-sharing" features **outweighing time-saving disadvantages**

vs. S2: Attracted by "fully automated transit system"
positive perceptions in several areas:
social engagement and sense of belonging;
safety; practicality



User segmentations

every one want S4 / S3 but……..



10

Table1: Shanghai

Total = 994		*Segment 1 (259, 26.1%) Privacy Seekers*	*Segment 2 (363, 36.5%) Suburban Economic Travellers*	*Segment 3 (372, 37.4%) Urban Affluent Elites*	Segment Differences
Most Preferred Situation[†]					$\chi^2(6)=834.238$, p<.001, V=.65
	S1	19.3%[a]	0.3%[b]	0.0%[b]	
	S2	4.6%[a]	14.3%[b]	0.0%[c]	
	S3	62.9%[a]	0.0%[b]	0.0%[b]	
	S4	13.1%[a]	85.4%[b]	100.0%[c]	
Least Preferred Situation[†]					$\chi^2(6)=1080.301$, p<.001, V=.74
	S1	14.3%[a]	55.9%[b]	100.0%[c]	
	S2	62.2%[a]	0.0%[b]	0.0%[b]	
	S3	0.8%[a]	44.1%[b]	0.0%[a]	
	S4	22.8%[a]	0.0%[b]	0.0%[b]	
Transportation Mode[††]					$\chi^2(6)=214.524$, p<.001, V=.34
	Private	47.9%[a]	15.4%[b]	51.9%[a]	
	Active Transportation	16.2%[a]	34.2%[b]	0.0%[c]	
	Public	35.1%[a]	49.6%[b]	48.1%[b]	
	Other	0.8%[a]	0.8%[a]	0.0%[a]	
Car Ownership					$\chi^2(2)=272.228$, p<.001, V=.52
	Yes	79.9%[a]	48.2%[b]	100.0%[c]	
	No	20.1%[a]	51.8%[b]	0.0%[c]	
Commuting Pattern[†††]					$\chi^2(6)=12.878$, p=.045, V=.08
	City-Center:City-Center	35.9%[a,b]	28.7%[b]	39.0%[a]	
	Non-City-Center:City-Center	14.3%[a]	15.7%[a]	14.2%[a]	
	City-Center:Non-City-Center	5.0%[a]	6.1%[a]	7.8%[a]	
	Non-City-Center:Non-City-Center	44.8%[a,b]	49.6%[b]	39.0%[a]	
# of Transfer/Trip		0.90[a]	1.10[a]	0.88[a,b]	F(2,991)=4.129, p=.016, $\eta p2$=.01

11

Table1: profile

Total = 994		*Segment 1 (259, 26.1%) Privacy Seekers*	*Segment 2 (363, 36.5%) Suburban Economic Travellers*	*Segment 3 (372, 37.4%) Urban Affluent Elites*	Segment Differences
Gender					$\chi^2(2)=5.787$, p=.055, V=.08
	Male	42.1%[a]	50.4%[a]	51.1%[a]	
	Female	57.9%[a]	49.6%[a]	48.9%[a]	
Age					$\chi^2(12)=48.144$, p<.001, V=.16
	Under 19	11.2%[a,b]	18.2%[b]	7.5%[a]	
	20-24 years old	5.0%[a]	7.4%[a]	5.4%[a]	
	25-34 years old	18.1%[a,b]	15.2%[b]	26.1%[a]	
	35-44 years old	18.9%[a]	11.3%[b]	20.7%[a]	
	45-54 years old	15.8%[a]	15.4%[a]	12.1%[a]	
	55-64 years old	17.0%[a]	13.8%[a]	12.1%[a]	
	above 65	13.9%[a]	18.7%[a]	16.1%[a]	
Income					$\chi^2(16)=49.837$, p<.001, V=.16
	Below CNY 24,000	0.0%[a]	0.0%[a]	0.0%[a]	
	CNY 24,000 ~ 36,000	13.1%[a]	20.7%[b]	11.3%[a]	
	CNY 36,000 ~ 54,000	14.3%[a,b]	19.6%[b]	10.8%[a]	
	CNY 54,000 ~ 72,000	15.4%[a]	19.6%[a]	18.5%[a]	
	CNY 72,000 ~ 96,000	18.1%[a]	14.6%[a]	14.5%[a]	
	CNY 96,000 ~ 120,000	9.7%[a,b]	7.4%[b]	13.2%[a]	
	CNY 120,000 ~ 180,000	12.0%[a]	9.1%[a]	14.5%[a]	
	CNY 180,000 ~ 240,000	8.1%[a]	3.6%[b]	5.4%[a,b]	
	CNY 240,000 ~ 360,000	6.2%[a,b]	3.0%[b]	8.1%[a]	
	Above CNY 360,000	3.1%[a]	2.5%[a]	3.8%[a]	
Education					$\chi^2(10)=20.172$, p=.028, V=.10
	Lower than primary school	0.0%[a]	0.0%[a]	0.0%[a]	
	Middle school	1.2%[a]	0.0%[a]	0.3%[a]	
	High school/Technical school	2.7%[a]	3.0%[a]	4.0%[a]	
	Junior college	10.8%[a]	9.4%[a]	6.7%[a]	
	Undergraduate/Bachelor	66.8%[a]	71.1%[a]	64.2%[a]	
	Postgraduate/Master	15.8%[a]	15.7%[a]	21.5%[a]	
	Ph.D.	2.7%[a]	0.8%[a]	3.2%[a]	
Travel Frequency/Week		4.00[a]	4.03[a]	4.35[b]	F(2,991)=3.942, p=.020, $\eta p2$=.01
# of Public Transportation Usage /Week		2.92[a]	3.63[b]	3.27[a]	F(2,991)=9.447, p<.001, $\eta p2$=.02
Perception[†, ††]					
	MPEOU	5.64[a]	5.80[b]	5.92[b]	F(2,991)=9.110, p<.001, $\eta p2$=.02

12

Table2: Suzhou Segmentation

Total = 974	*Segment 1 (N=201, 20.6%) Privacy and Convenience Seekers*	*Segment 2 (N=237, 24.3%) Pragmatic Economic Travellers*	*Segment 3 (N=211, 21.7%) Tech-Aspiring Public Transit-Riders*	*Segment 4 (N=325, 33.4%) White Collar Daily Commuters*	Segment Differences
Most Preferred Situation†					$\chi^2(3)=1058.674$, p<.001, V=.60
S1	3.5%[a]	20.3%[b]	0.0%[c]	0.0%[c]	
S2	0.0%[a]	25.7%[b]	0.0%[a]	0.0%[a]	
S3	77.6%[a]	0.0%[b]	0.0%[b]	0.0%[b]	
S4	18.9%[a]	54.0%[b]	100.0%[c]	100.0%[c]	
Least Preferred Situation†					$\chi^2(3)=1462.932$, p<.001, V=.71
S1	29.4%[a]	6.3%[b]	100.0%[c]	100.0%[c]	
S2	67.7%[a]	0.0%[b]	0.0%[b]	0.0%[b]	
S3	0.0%[a]	70.0%[b]	0.0%[a]	0.0%[a]	
S4	3.0%[a]	23.6%[b]	0.0%[a,c]	0.0%[c]	
Transportation Mode††					$\chi^2(9)=607.311$, p<.001, V=.46
Private	52.2%[a]	36.7%[b]	0.0%[c]	69.8%[d]	
Active Transportation	14.9%[a]	21.5%[a,b]	0.0%[c]	30.2%[b]	
Public	26.4%[a]	41.4%[b]	99.5%[c]	0.0%[d]	
Other	6.5%[a]	0.4%[b]	0.5%[b]	0.0%[b]	
Car Ownership					$\chi^2(3)=39.421$, p<.001, V=.20
Yes	79.1%[a]	76.4%[a,b]	65.4%[b]	88.0%[c]	
No	20.9%[a]	23.6%[a,b]	34.6%[b]	12.0%[c]	
Travel Frequency/Week	4.19[a]	4.22[a]	3.67[b]	4.76[c]	F(3,970)=16.954, p<.001, $\eta p2$=.05
# of Transfer/Trip	0.95[a]	0.94[a]	1.57[b]	0.32[c]	F(3,970)=48.643, p<.001, $\eta p2$=.13
# of Public Transportation Usage /Week	3.17[a]	3.40[a]	4.27[b]	2.16[c]	F(3,970)=35.896, p<.001, $\eta p2$=.10

13

User Segmentation (Shanghai)

underlying needs and anticipated benefits, transport behavior, and demographic characteristics.

- **No single ideal future mobility; heterogeneity in needs and anticipation**

(1) Privacy Seekers

"Privacy-focused, independent, and drawn to personal space over "practical benefits"

Like: S3 (62.9%)
Least: S2/S4 - Sharing

* Currently great reliance on private car

(2) *Suburban Economic Travelers*
Pragmatic Economic Travelers

"young (<24), budget-conscious, socially engaged, and open to innovation as long as it improves access and reduces cost"

Like: S4 "AV x Sharing" (85.4%)
Dislike: non-sharing (S1 & S3)

*** Live in Suburban areas**

(3) Affluent tech-savvy daily commuters *Urban Affluent Elites"*

Seeking mobility solutions - "high-tech" & "functional" for everyday use

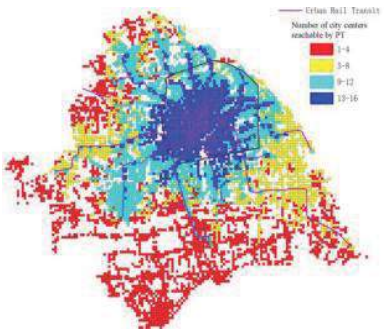
Like: S4 (100%) "AV x Sharing"
Dislike: S1 (100%)

*** Higher income; Working age (24-44)**
Daily commuter to city center
50% PT no transfer (100% car owner)

Shanghai vs. Suzhou

Shanghai
Global metropolis leading in S&T innovation

Relatively older population/ Higher household incomes
Greater commuting to city centers
Higher Density, centralized structured;
Greater public transit connectivity in urban cores



-> Urban Affluent Elites:
High-income groups benefit from easy access
Favor "High-tech, shared mobility"

Suzhou's
Innovation led Satellite City, Testing Bed

a younger workforce, emerging talent
a more dispersed, mixed urban form (SIP)
along with **a less extensive public transit**

Segment 3 (N=211, 21.7%)	Segment 4 (N=325, 33.4%)
Tech-Aspiring Public Transit-Riders	White Collar Daily Commuters

Key Insights

- **Hominization of** products, technology (what) vs.
  Heterogeneous Anticipation for future mobility in cities (who & why)
  – personal value x lifestyle x demographic factors
- **Patterns of Least Preferences matter – All wants S4 but…**
- **Preference vs. Perception**
- **The contexts of cities – their urban characteristics and socio-technical conditions – reflected in anticipations of potential future mobility groups**
- **People envisions "Transformation" of "City"**
  - improvements in public transit reliability and service quality &
  - the potential transition from personal space to shared mobility options.

What is DRT ?

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Session 2

A Project on Urban Surface Street Management for Smart Mobility in Japan

Takashi Oguchi
Professor, Tokyo University

2025
Suwon ITS
Asia Pacific Forum

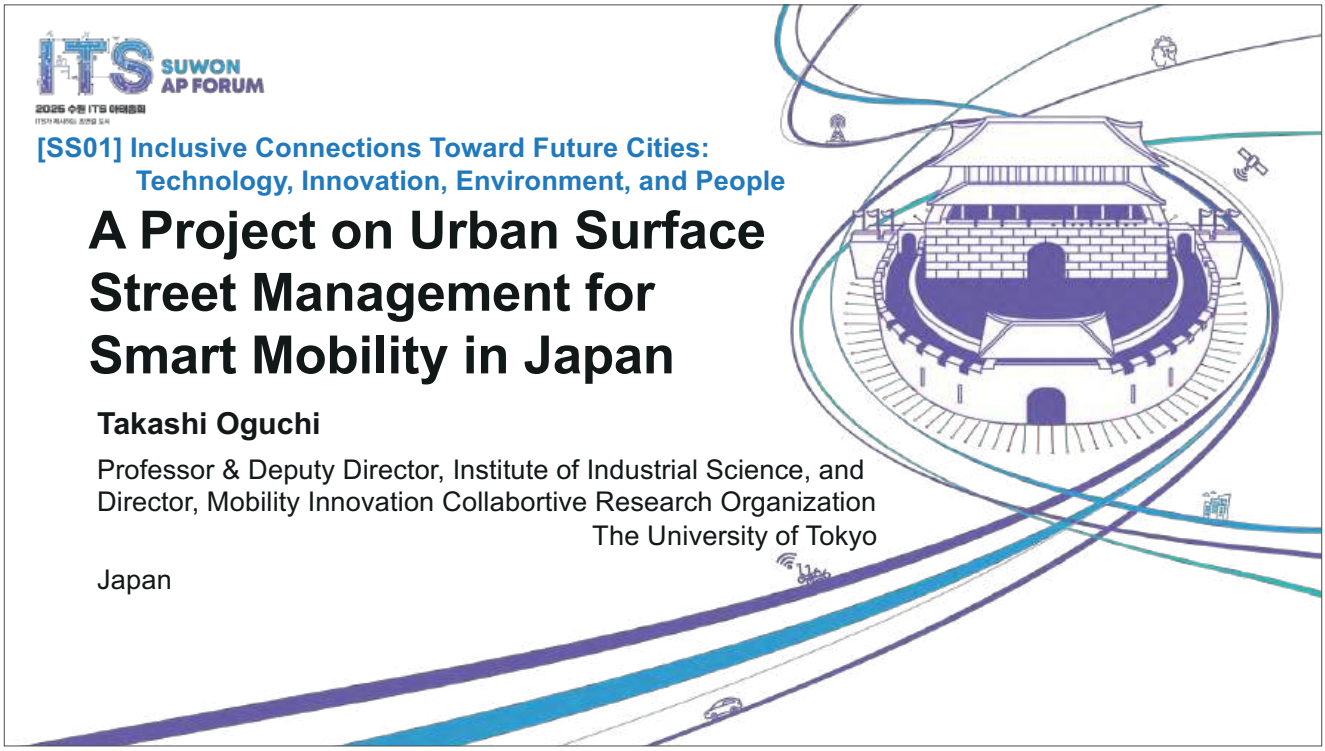
[SS01] Inclusive Connections Toward Future Cities:
Technology, Innovation, Environment, and People

A Project on Urban Surface Street Management for Smart Mobility in Japan

Takashi Oguchi

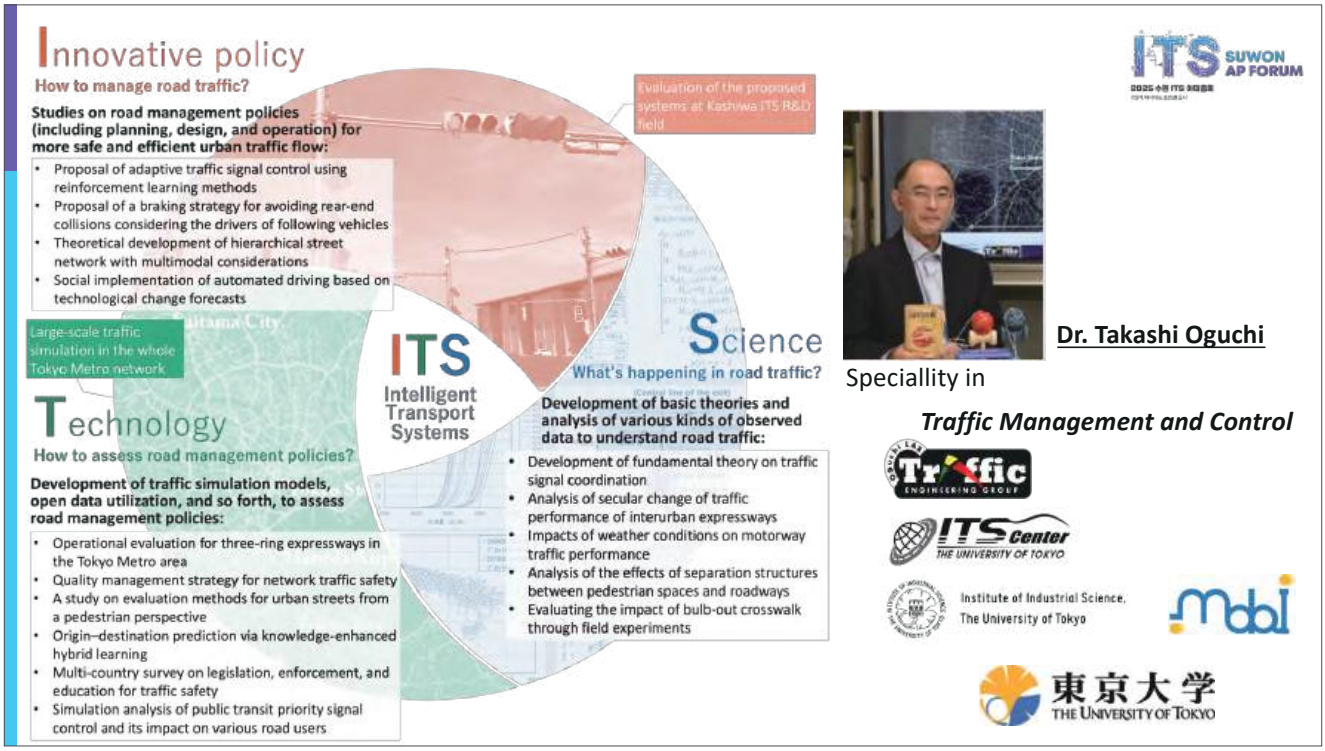
Professor & Deputy Director, Institute of Industrial Science, and
Director, Mobility Innovation Collabortive Research Organization
The University of Tokyo

Japan



Contents

1. Introduction of myself & institution
2. Japanese Government Project **SIP**
   - the 1st phase **SIP-adus**
   - the 2nd phase **SIP-adus**
   - Overview of SIP-adus
   - the **3rd phase SIP** for Smart mobility platform establishment
3. Urban Street Management [**USM**], a social Cooperation Program in IIS, UTokyo



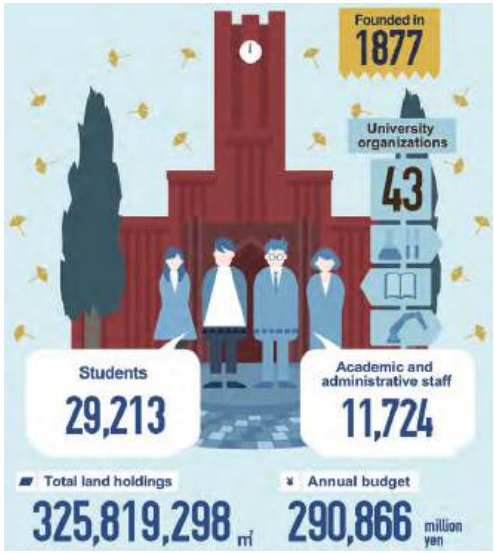
Institution: the University of Tokyo (UTokyo)

https://www.u-tokyo.ac.jp/

- 10 Faculties
- 15 Graduate Schools (incl. Graduate School of Engineering; SOE)
- 11 Affiliated Institutes (incl. Institute of Industrial Science; IIS)
- 15 University-wide Centers (incl. Center for Spatial Information Science; CSIS)
- 20 Integrated Research Systems (incl. Mobility Innovation Collaborative Research Organization; UTMobI)
- ...

Institute of Industrial Science, The University of Tokyo
ITS SUWON AP FORUM

as of December 2024



Institute of Industrial Science (IIS)

http://www.iis.u-tokyo.ac.jp/en/

70 Full Professors

37 Assoc. Professors

9 Lecturers

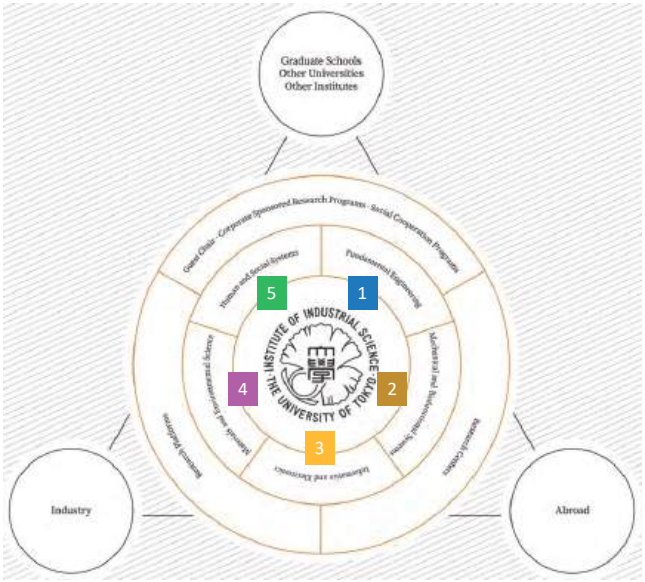
28 Visiting or Project Profs./APs./Ls.

2 Platforms (LEAP & DLX)

2 Coperate Sponsored Res. Progs.
6 Social Cooperation Progs. =(USM)

2 UTokyo IIS Research Centers, and
11 IIS Research Center = (ITS Center)

(as of April, 2025)

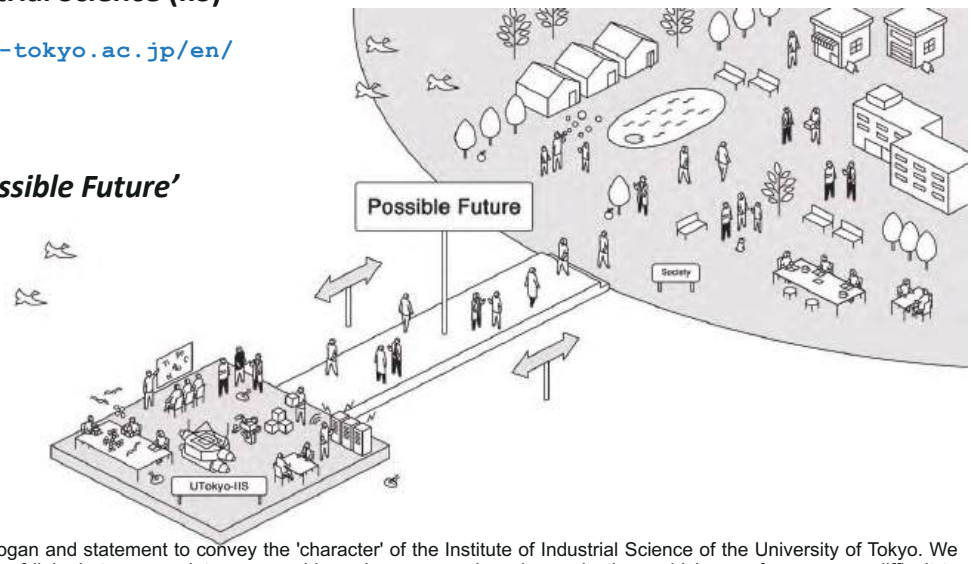


Institute of Industrial Science (IIS)

http://www.iis.u-tokyo.ac.jp/en/

Slogan / Statement

'Institute for a Possible Future'



In 2021, we formulated a slogan and statement to convey the 'character' of the Institute of Industrial Science of the University of Tokyo. We aim to increase the number of links between society on one side and our research and organization—which are often seen as difficult to understand—on the other. We want to make our slogan and statement function and circulate like communication tools. From a place that 'looks kind of rigid' to a research institute where 'something exciting is going to happen!'

Institute of Industrial Science, The University of Tokyo

Harmonic Mobility Research Center (ITS Center)

Harmonic Mobility Research Center aims to realise a sustainable future society by promoting the 'harmony' of diverse technologies and systems related to advanced mobility, such as automated driving, cooperative systems, traffic control, data linkage and electrification technologies. The center will not only integrate diverse modes of transport, infrastructures and technologies, but also lead the next generation of mobility society by promoting innovative research that integrates a wide range of academic fields, including data utilisation, AI and consideration of social and ethical perspectives.

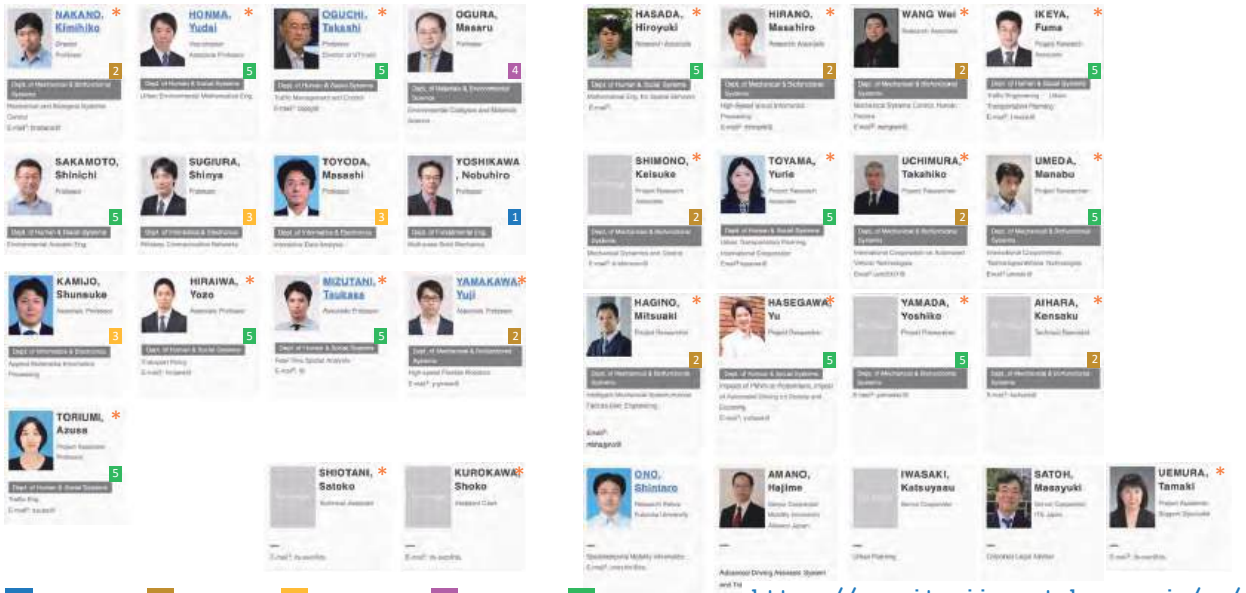
Director: Kimihiko Nakano (Dep. of Mechanical and Biofunctional Systems)
In April 2025, ITS center was reformed and rather slack research group with 13 members (Profs, Assoc. Profs, Project Lecturer) among all the five Dep. in IIS. The center also forms nucleus of the **"Mobility Innovation Collaborative Research Organization in UTokyo (UTmobI) "** started in Jul. 2018.

History
Apr. 2003: "Sustainable ITS", Industry-Academia cooperative project starts
Mar. 2005: "Cooperative Research Center for Advanced Mobility (ITS center)"
Apr. 2009: Upgrade to "Advanced Mobility Research Center (ITS center)" (2nd stage from 2014)
Apr. 2014 Next-generation Mobility Center (ITS center)"
Apr. 2025 Harmonic Mobility Center (ITS center)"

https://www.its.iis.u-tokyo.ac.jp/en/

Institute of Industrial Science, The University of Tokyo

Harmonic Mobility Research Center (ITS Center)



https://www.its.iis.u-tokyo.ac.jp/en/

UTokyo-IIS Kashiwa Campus

Chiba Experimental Station of IIS

- in Nishi-Chiba Campus (~Mar., 2017)
- moved to Kashiwa Campus (Apr. 2017~)

- starts "**Large-scale Experiment and Advanced-analysis Platform (LEAP)**" from Apr. 2020 in spite of abolition of **Chiba Experimental Station.**

https://www.iis.u-tokyo.ac.jp/publication/IIS-Kashiwa-Leaflet2024.pdf

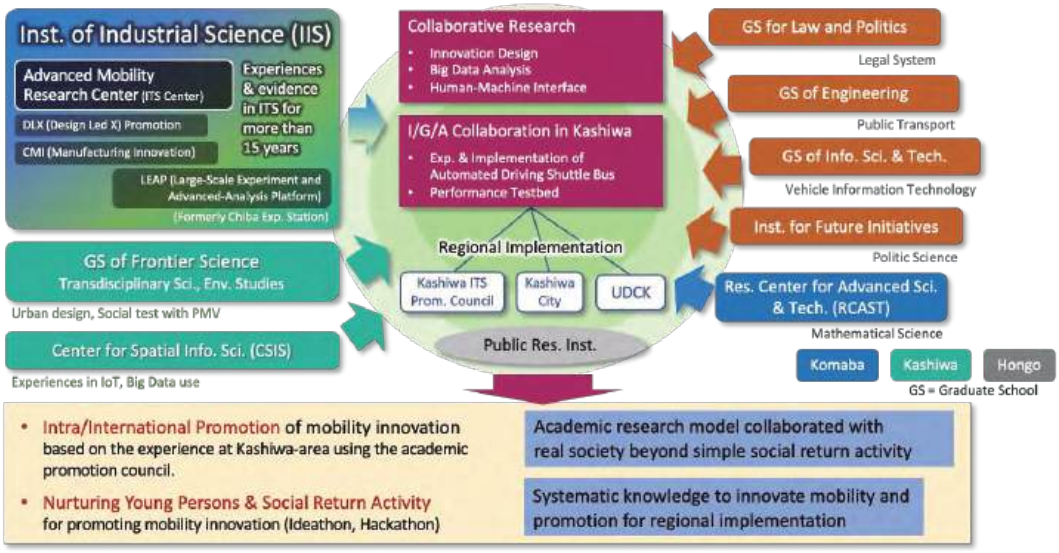
ITS R&R Experimenta Field (in IIS of Kashiwa Campus)

https://www.its.iis.u-tokyo.ac.jp/en/

University level cross-faculty organization UTmobI in UTokyo

Establish the "**Mobility Innovation Collaborative Research Organization**", the University of Tokyo (**UTmobI**) in July 2018, reformed in July 2019.

https://utmobi.u-tokyo.ac.jp/en/home-en/



Establishment of Mobility Innovation Alliance Japan

https://mobilityinnovationalliance.org

Considering after the **termination of SIP-adus from Apr. 2023**;
Established in July 2022

→ Indipendent organization

Towards mobility innovation, the Alliance addresses to;

- **Formulate cross-sectoral** academic activities for mobility innovation
- Study & make **proposal** on **cross-ministerial** policy & social infrastructure
- Create **collaboration opportunities** bridging diverse **researchers, industries & public sectors**
- Promote international joint research **through *international workshop in Japan***
- **Integrate technologies & societal changes** for mobility innovation
- **Foster young researchers & start ups**

10-14 November, 2025, Tokyo

SIP (Cross-Ministerial Strategic Innovation Promotion Program)

- **Intensive R&D program**
  - promote 5-years R&D (FY2014-2018: 1st stage)
  - enhancing cross-ministerial cooperation
  - 11 themes are selected

Issues	Themes
Energy	Innovative combustion technology
	Next-generation power electronics
	Innovative structural materials
	Energy carrier
	Next-generation ocean resources development tech.
Next-Generation Infra-structures	***Automated Driving System***
	Maintenance/upgrading/management of infra.
	Preventing and mitigating disasters
	Cyber-Security for Critical Infrastructure
Local Resources	Creating next-gen. agriculture, forestry and fisheries
	Innovative design/manufacturing technologies

➔ Followed by 2nd stage SIP-adus FY2018-2022

内閣府 Cabinet Office, Government of Japan

Cross-ministerial Strategic Innovation Promotion Program

SIP-adus (Automated Driving for Universal Services)

https://en.sip-adus.go.jp

Program Director(PD)

From FY2016

Seigo KUZUMAKI
Toyota Motor Corp.
CSTO(Chief Safety Technology Officer)
Secretary

プログラムディレクター
渡邉 浩之
Hiroyuki Watanabe

Target: 1) Reduction of Traffic Accident
2) Realization and diffusion of automated driving
3) ART relization at TOKYO 2020 Olympic games

SIP-adus

Implementation Structure

Council for Science, Technology and Innovation (CSTI)

Governing Board

Establish structure below for each theme

Program Director (PD)
(assigned to Cabinet Office for each policy issue)

SIP

Promoting Committee
PD (Chair)
Related ministries, Management agencies
Experts from academia and public sector

Relevant ministries and management corporations and other researchers

➢ **SIP-adus**
Cross-Ministerial Strategic Innovation Promotion Program
Innovation of Automated Driving for Universal Services

➢ **Budget for SIP-adus**
Fiscal 2014: approx. ¥2.5 billion
Fiscal 2015: approx. ¥2.3 billion
Fiscal 2016: approx. ¥2.7 billion
Fiscal 2017: approx. ¥3.3 billion
Fiscal 2018: approx. ¥2.8 billion
Led by the PD, and cooperatively promoted by relevant ministries/agencies (National Police Agency/ Ministry of Internal Affairs and Communications/Ministry of Economy, Trade and Industry/ Ministry of Land, Infrastructure, Transport and Tourism)

Organization Structure

SIP-adus Promoting Committee
Chair: PD Kuzumaki (Toyota)
Members: ITS related ministries/ agencies, automakers, experienced academics, automotive organizations

System Implementation WG
[1] Development and verification of automated driving system
[2] Basic technologies to reduce traffic fatalities and congestion

Map Structuring TF
Investigate and examine more sophisticated map information

International Cooperation WG
[3] Establish international coordination

FOT Planning TF
Examine details, location and scale of FOT

Next-Generation Urban Transport WG※
[4] Deployment in next-generation urban transport

DI&E cocept by T. Oguchi

From FY2016

FY2014-2018: 1st phase

Features;
- promoted by OEM
- set non-competitive area
- Technology Oriented
  ➔ DMP Co. Ltd.

Related Ministries:
CAO, CAS, NPA, MIC, METI, MLIT(RB, RTB)

プログラムディレクター
渡邉 浩之
Hiroyuki Watanabe

Levels of Driving Automation [SAE J3016]

	SAE LEVEL 0™	SAE LEVEL 1™	SAE LEVEL 2™	SAE LEVEL 3™	SAE LEVEL 4™	SAE LEVEL 5™
What does the human in the driver's seat have to do?	You are driving whenever these driver support features are engaged – even if your feet are off the pedals and you are not steering			You are not driving when these automated driving features are engaged – even if you are seated in "the driver's seat"		
	You must constantly supervise these support features; you must steer, brake or accelerate as needed to maintain safety			When the feature requests, you must drive	These automated driving features will not require you to take over driving	
	These are driver support features			These are automated driving features		
What do these features do?	These features are limited to providing warnings and momentary assistance	These features provide steering OR brake/ acceleration support to the driver	These features provide steering AND brake/ acceleration support to the driver	These features can drive the vehicle under limited conditions and will not operate unless all required conditions are met	This feature can drive the vehicle under all conditions	

Once a 100 year's revolution (in 2010's): Automated Driving

Driving Automation / Vehicle Automation: innovation for once a century

au·ton·o·mous | ôˈtänəməs |
ORIGIN
early 19th century: from Greek *autonomos* 'having its own laws' + -ous.
New Oxford American Dictionary

Technology Develpment (from 1950's)

Automated Vehicles (AV)/ Autoamted Driving (AD) ← X **Autonomous Car**

- **1994:** Dawn of ITS ... **AHS** (Automated Highway Systems)[**AHSRA**], California **PATH**...
- **2005:** Stanford Univ. awarded in DARPA grand-challenge → google car

http://www.itmedia.co.jp/news/articles/1208/08/news027.html

- **2013:** 20th World Congress on ITS in Tokyo, Japan
  - **AD** technology development in car manufacturers in earnest

→ **Expected to reduce the "three evils" of Road Transport plus to introduce new transport service/business**

CV: Connected Vehicle

→ (approx.) 2016: **CAD**: **Connected & Automated Driving**

CASE (Connected/Autonomous/Shared/Electric) · **MaaS** (Mobility as a Service)

→ in Europe; **CCAM** (Connected, Cooperative Automated Mobility) 2021~

DI&E cocept 2022~

SIP-adus

Two paths for technology progress of CADs (report in 2016)

List of study team's members [FY2016-2017 Project under SIP-adus 1st Stage]

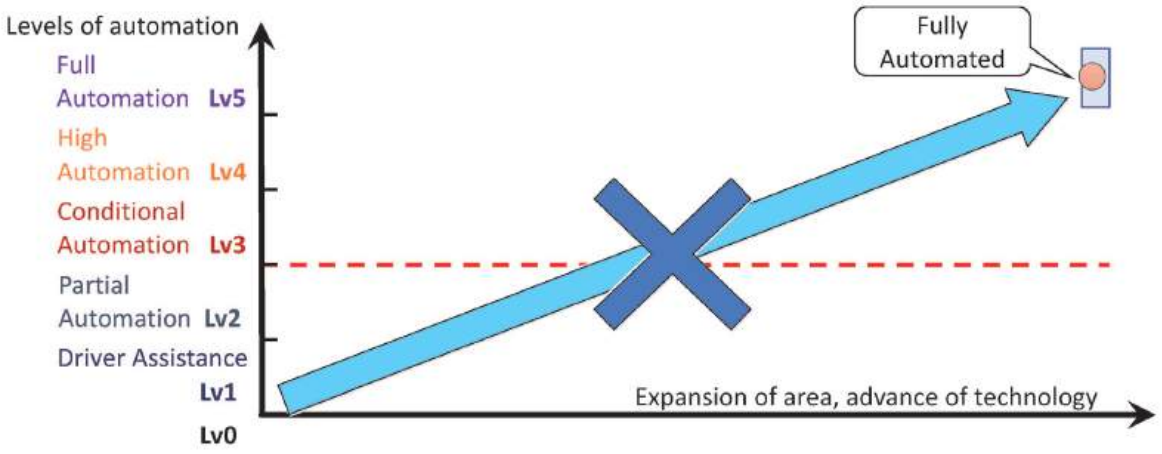
Name	Affiliation	Specialty
Masato Itohisa	Associate Professor, Faculty of Sociology, Hosei University	Technology management
Takeyoshi Imai	Professor, Graduate School of Law, Hosei University	Criminal law
Keisuke Uehara	Associate Professor, Faculty of Environment and Information Studies, Keio University	Information and communications
○ Takashi Oguchi	Professor and Deputy Director, Advanced Mobility Research Center, Institute of Industrial Science, The University of Tokyo	Traffic control engineering
Shusuke Kakiuchi	Faculty of Law, Graduate Schools of Law and Politics, The University of Tokyo	Civil procedure
Yuto Kitamura	Associate Professor, Graduate School of Education, The University of Tokyo	Education
Ryo Kurachi	Specially Appointed Associate Professor, Center for Embedded Computing Systems, Graduate School of Informatics, Nagoya University	Cybersecurity
Yasuhiro Shiomi	Associate Professor, Department of Environmental Systems Engineering, College of Science and Engineering, Ritsumeikan University	Traffic engineering
Naoki Suganuma	Associate Professor, Automated Driving Unit, Future Society Research Creation Core, Institute for Frontier Science Initiative, Kanazawa University	Robotics engineering
Akihiro Nakamura	Professor, Graduate School of International Management, Yokohama City University	Public economics
Pongsathorn Raksincharoensak	Associate Professor, Department of Mechanical Systems Engineering, Tokyo University of Agriculture and Technology	Mechanical dynamics control
Hiroaki Miyoshi	Professor, Graduate School of Policy and Management and Director, Institute for Technology, Enterprise and Competitiveness, Doshisha University	Technology and public policy
Akinori Morimoto	Professor, Department of Civil and Environmental Engineering, Faculty of Science and Engineering, Waseda University	Urban planning
Goro Yamazaki	Associate Professor, CO Design Center, Osaka University	Cultural anthropology

Modified based on Section II, chapter 6 in SIP-adus the 1st stage Report https://www.sip-adus.go.jp/file/Chapter2_s.pdf

SIP-adus

Two paths for technology progress of CADs (report in 2016)

- Need oriented, social problem solving, dedicated & focused introduction



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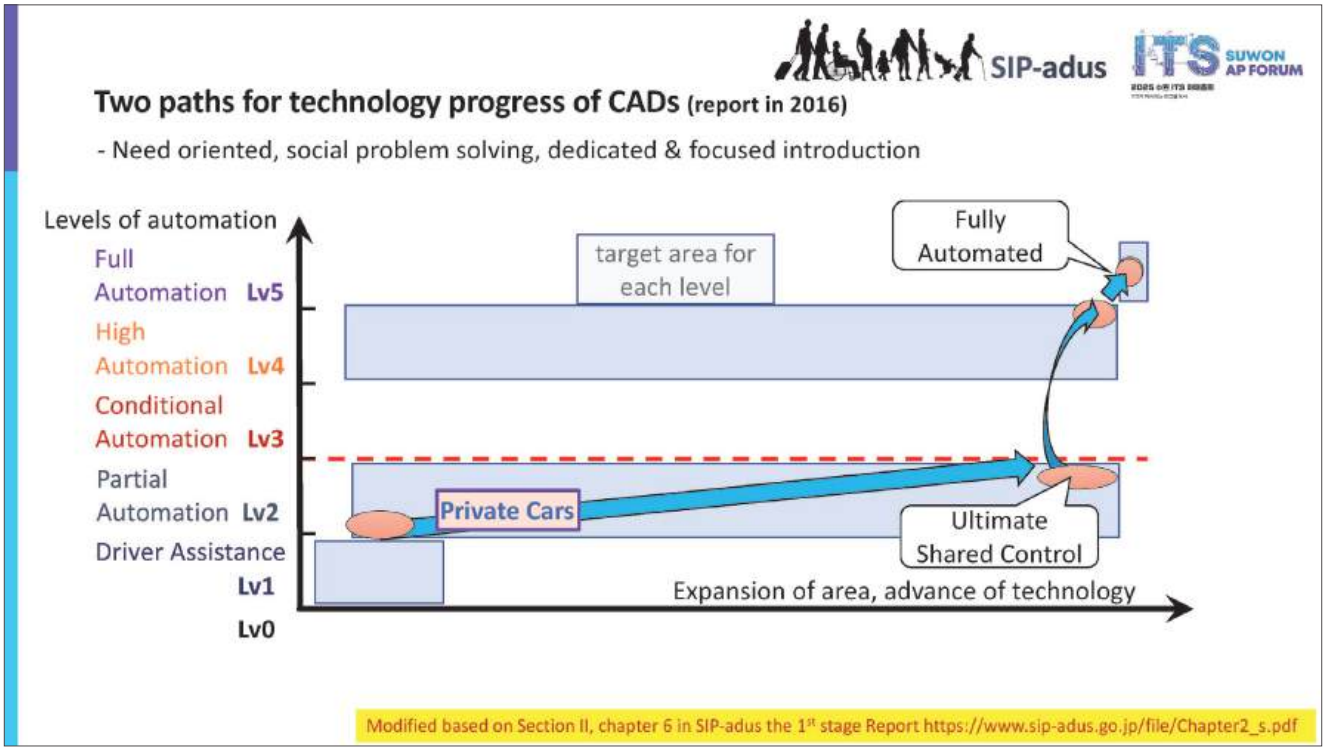
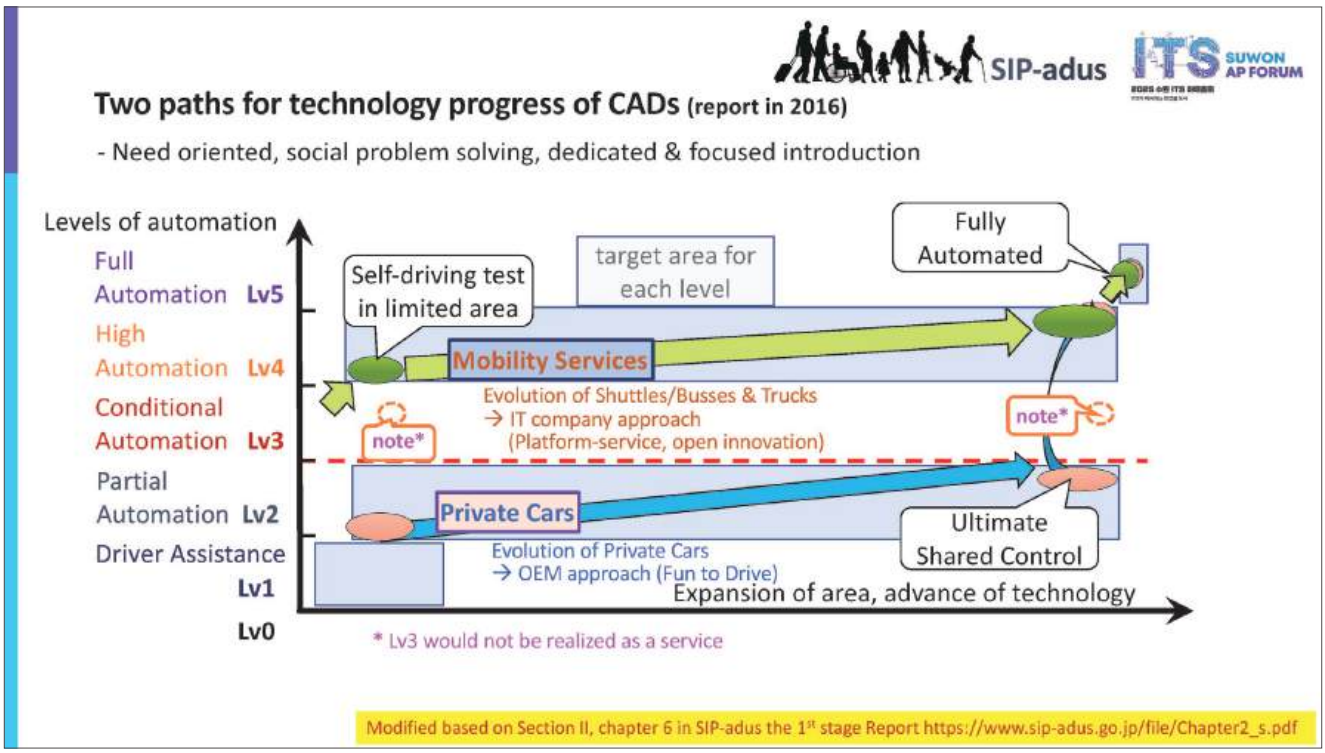
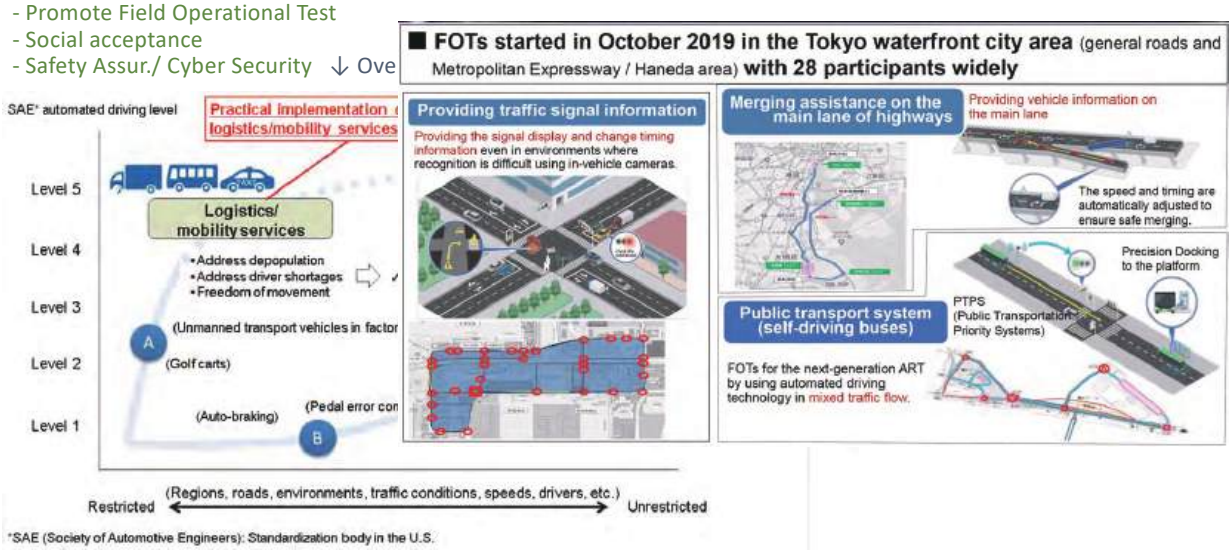

SIP-adus
SUWON AP FORUM
Two paths for technology progress of CADs (report in 2016)
- Need oriented, social problem solving, dedicated & focused introduction
Levels of automation
Full Automation Lv5
High Automation Lv4
Conditional Automation Lv3
Partial Automation Lv2
Driver Assistance Lv1
Lv0
target area for each level
Fully Automated
Private Cars
Ultimate Shared Control
Expansion of area, advance of technology
Modified based on Section II, chapter 6 in SIP-adus the 1st stage Report https://www.sip-adus.go.jp/file/Chapter2_s.pdf


SIP-adus
SUWON AP FORUM
Two paths for technology progress of CADs (report in 2016)
- Need oriented, social problem solving, dedicated & focused introduction
Levels of automation
Full Automation Lv5
High Automation Lv4
Conditional Automation Lv3
Partial Automation Lv2
Driver Assistance Lv1
Lv0
Self-driving test in limited area
target area for each level
Fully Automated
Mobility Services
Evolution of Shuttles/Busses & Trucks
→ IT company approach
(Platform-service, open innovation)
note*
note*
Private Cars
Evolution of Private Cars
→ OEM approach (Fun to Drive)
Ultimate Shared Control
Expansion of area, advance of technology
* Lv3 would not be realized as a service
Modified based on Section II, chapter 6 in SIP-adus the 1st stage Report https://www.sip-adus.go.jp/file/Chapter2_s.pdf

2nd Phase SIP-adus (Automated Driving for Universal Services)

FY2018-2022: 2nd Phase SIP-adus (terminates in Mar. 2023)

Features;
- Promote Field Operational Test
- Social acceptance
- Safety Assur./ Cyber Security ↓ Ove



Brief summary of SIP-adus (Automated Driving for Universal Services)

SIP-adus 1st phase: FY2014-2018

annual SIP-adus intn'l Workshop

- Promoted by car manufactureres (OEM); reduce traffic accidents
- Technology oriented (non-competitive area) ➔ Dynamic Map Platform **DMP Co., Ltd.**
- (Next-gen. urban transport: ART realization at TOKYO 2020)

SIP-adus 2nd phase: FY2018-2022 (until Mar. 2023)

- Public road environement for FOT: Tokyo Bay area & "Michi-no-Eki" (rural, local)
- Development & Standardization: V-Drive Technologies (**DIVP** R), Cyber Security, …
- Social Acceptance increase (e.g.: **M-BIC** (business competition among students)
- International cooperation: Safety Assurance, Cyber Security, Human Factors, Impact Assessment

annual Monility Innovation Week

SIP 3rd phase: FY2023-2027 → no program explicitly forcused on Automated Driving

- (Related Program) "**S**mart **M**obility **P**latform establishment"

Social Cooperation Program in IIS, UTokyo

"Urban surface streets management for smart mobility" [USM]

https://www.usm.iis.u-tokyo.ac.jp/

Period: 16th October, 2024 – 31st March 2028

Goal:
- Society with **no mobility divide** DI&E cocept
  - Safe, comport, and friendly for environment, people, and communities
  - All people, goods, and service can transport

Targets:
- **Comprehensive and systematic studies on theory and technologies for urban surface street management for smart mobility**.

Budget: about 110 million JPY (in total)

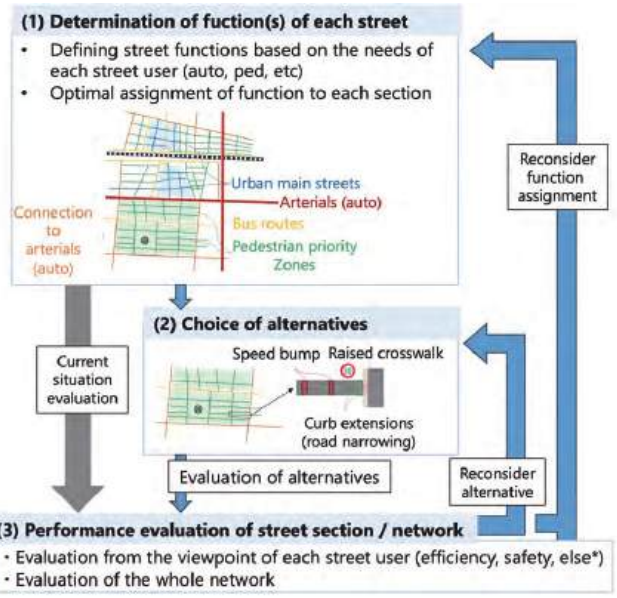
Institute of Industrial Science, The University of Tokyo

ORIENTAL CONSULTANTS

R&D activity led by Oriental Consultants (under SIP 3rd phase) will be reported in SS02 (after this session, Today)

Research for Urban Street Management (USM)

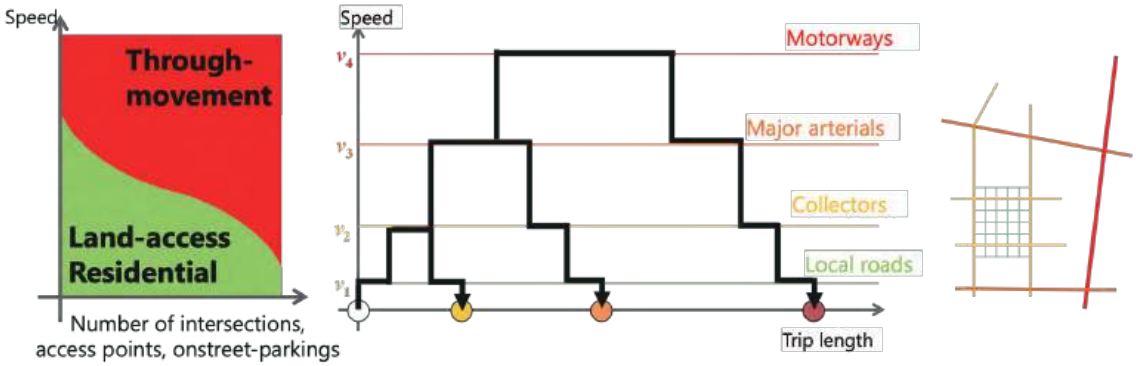
- Redefine **functions of streets** considering various street users (such as private cars, pedestrians, public transport, bicycles)
- **Optimal assignment of street function**(s) to each street section in a network
- Choices of **geometric design and operational methods** that realize the assigned function of each section
- **Performance evaluation** of each street section and the whole network from a viewpoint of each different street user



Research for Urban Street Management (USM)

Functionally Hierarchical Road Network Concept

- Fundamental of road network planning since 1960s (e.g., Buchanan report)
- Road function is divided into Through-movement, Land-access, and Residential (stopping)
- Roads of a network are hierarchically classified based on the trade-off between functions
- By separating different needs (functions) into different road sections, each road can be operated efficiently and safely.



Research for Urban Street Management (USM)

Development of Urban Street Planning Theory

- Redefine street functions based on pedestrian's activities on the streets
- Check the **interactions between functions of pedestrians and those of automobiles**.
- Determine possible combinations of functions in one street segment, defining street class.

Choice improving/ deteriorating the function (example)

User	Function	Current needs	Current satisfaction level
Automobile	Through-movement	M	Low
	Land-access	M	Low
	Stopping	L	Low
Pedestrian	Through-movement	L	Moderate
	Promenade	S	Low
	Stopping for through-m	M	Low
	Land-access	L	Moderate
	Stopping for land-access	L	Low
	Boarding and alighting	L	Moderate
	Stopping for boarding	L	Low
	Non-mobility activities	S	Low

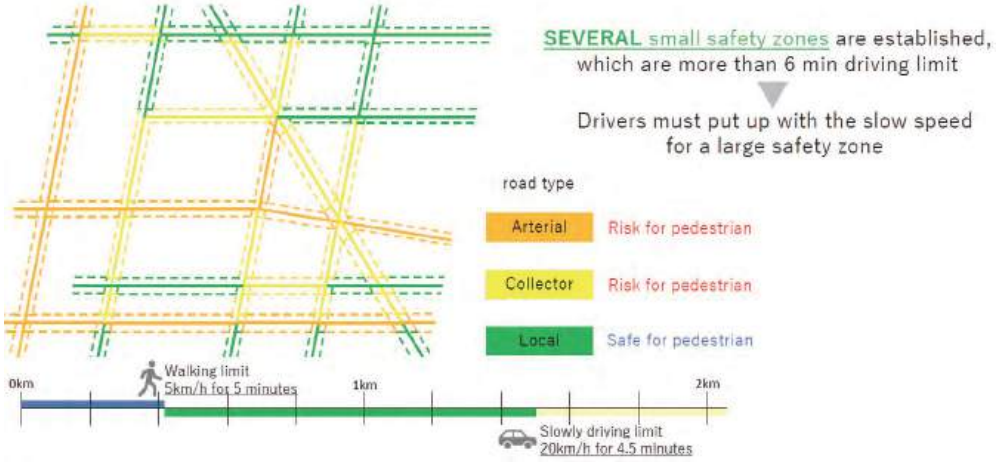
Simultaneously

Interaction deteriorates functions

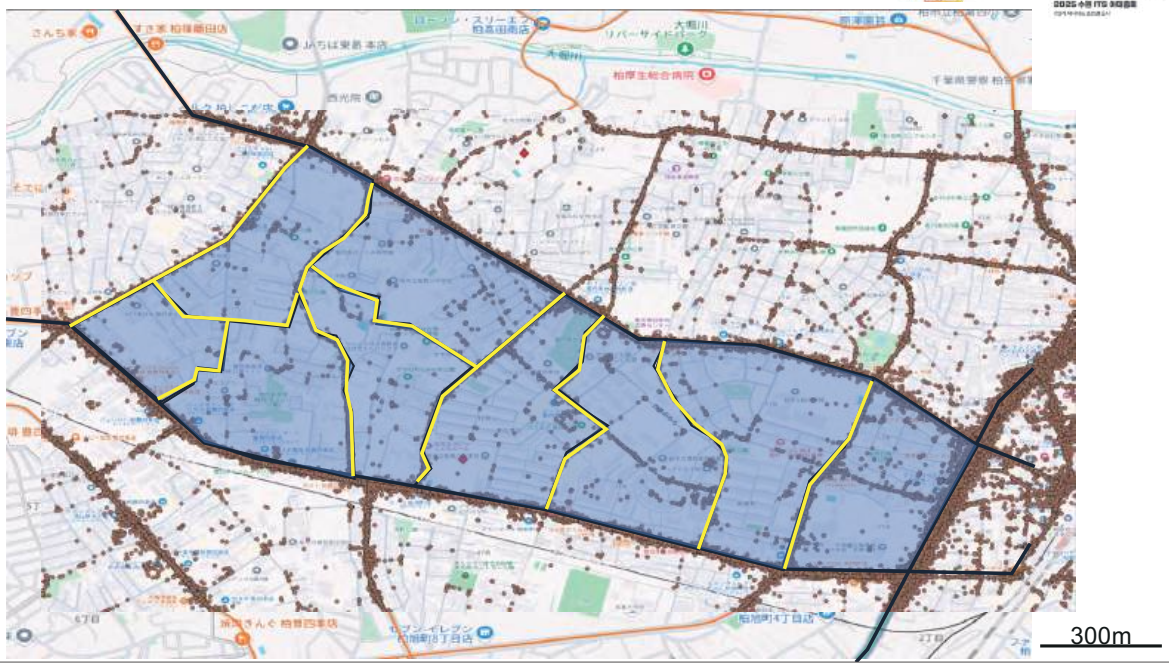
Research for Urban Street Management (USM)

Street Hierarchy for Both Pedestrians and Automobiles

We develop the methodology using the Inverse Shortest Paths Problem to allocate street types that prioritize either pedestrians or automobiles within a network. This would support zoning to identify areas suitable for implementing pedestrian-priority policies, such as “Zone 30 Plus”.



Appication Trial Example: digital map, probe info



Takashi Oguchi (大口 敬)
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Work

Thank you for your listening !

Session 3

Transit-Oriented Development for All - Gentrification and Social Inclusion -

Hyungun Sung
Professor, Hanyang University

2025
Suwon ITS
Asia Pacific Forum

Transit-Oriented Development for All
- Gentrification and Social Inclusion -

Hyungun Sung

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Hanyang University in Seoul, South Korea

hgsung80@hanyang.ac.kr

Contents

- Introduction: Background and Purpose
- Definition and Potential Benefits of TOD
- TOD, Gentrification, and Social Inclusion
- Case Studies
  - Bangkok, Thailand
  - Portland, Oregon, U.S.
  - Austin, Texas, U.S.
- TOD with Social Inclusion
- Conclusion & Further Research

Introduction

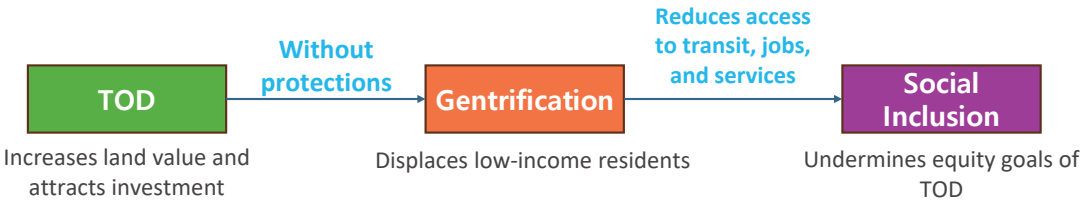
- **Background**
  - **Economic benefits** on the connection public transit and urban development
    - Transit accessibility and its induced development boost surrounding property values
      - The value uplift effect can justify transit investments
      - It also supports infrastructure funding via value capture tools
    - **Transit-oriented development(TOD)** can boost social equity and environmental justice as well as economic efficiency as sustainable development of cities in the world
  - **Downsides** of the value uplift by **TOD without social inclusion**
    - Rising property values → reduced housing and business affordability
    - Threatens access to transit for those who need it most
    - Risk of displacement for vulnerable groups (e.g., low-income households, small businesses)
  - **Gentrification** concerns
    - TOD-induced gentrification undermines the equity (social inclusion) goals of TOD
- **Purpose**
  - Explore case studies and strategies to ensure TOD promotes social inclusion.

Definition and Potential Benefits of TOD

- **Transit-oriented development (TOD)**
  - Since the 1990s, it has emerged as a prominent response to
    - urban sprawl, automobile dependence, traffic congestion, and the pressing need for planning innovation
    - Therefore, to facilitate sustainable development
  - TOD refers to **compact, walkable, mixed-use development centered around high-quality public transit systems**.
    - Planning elements: **7Ds**(Density, Diversity, Design, Distance to transit, Destination accessibility, Demand management, and Demographic)
- TOD can be **a powerful tool** to
  - increase transit use and reducing car use
  - trigger local development and quality of life improvements in otherwise declining communities
  - Improve public health through active transport behavior
  - and get better air quality and less energy consumption

TOD, Gentrification, and Social Inclusion

- **Gentrification**: The Unintended consequence of TOD projects
  - As public transit and infrastructure improve, **property values rise**.
  - **Wealthier residents move in** to take advantage of improved amenities.
  - Long-term, lower-income residents often face **displacement** due to rising rents and living costs
- **Social Inclusion**: The Missing Link of TOD
  - TOD without social inclusion leads to exclusion and displacement
- **Interconnected dynamics of TOD without social equity**

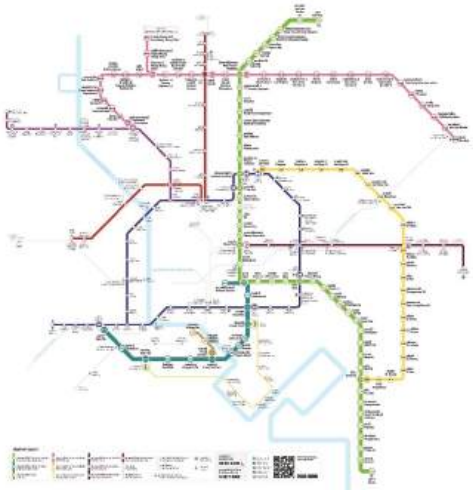


TOD, Gentrification, and Social Inclusion

- **Evidence on Gentrification in TOD Areas**
  - **Global North (U.S.) Context**
    - Padeiro et al. (2021): Review of 35 studies (31 U.S.-based)
      - ⅓ of the papers confirmed that TOD leads to gentrification
      - But mostly inconclusive or no support for the hypothesis
    - Not closely inter-connected to TOD, but maybe social equity programs in the country
    - Or methodological limitations noted; call for broader, rigorous research
  - **Global South Context**
    - Wang et al. (2021): Overview of the 53 empirical studies about outcomes of TOD in Global South
      - **In Global South, stronger TOD-gentrification link** than in Global North

Case Study 1: Bangkok, Thailand – transit-induced gentrification

- **Background:**
  - Bangkok launched the BTS(Bangkok Transit System) Skytrain in 1999 as a privately operated elevated mass transit system intended to reduce traffic congestion and provide efficient urban mobility.
  - The Skytrain runs primarily along major commercial corridors such as Sukhumvit and Silom, where high land values and real estate potential are concentrated.
- TOD Characteristics:
  - Although **not formally framed as a government-led Transit-Oriented Development (TOD) initiative**, the BTS Skytrain has generated dense, vertical development along its corridors:
    - High-rise condominiums, shopping malls, and office buildings have proliferated near stations.
    - Developers often market "walking distance to BTS" as a premium amenity.
    - Land prices within 500 meters of stations have risen significantly since the early 2000s.



Source: https://www.bts.co.th/eng/routemap.html (accessed at 2025-05-07)

Bangkok Transit System

Case Study 1: Bangkok, Thailand – transit-induced gentrification

- **Social Impacts** Bangkok**:**
  - The expansion of the BTS network has highlighted and **reinforced urban inequality**:
    - **Gentrification pressure**:
      - Traditional communities near central BTS stations have seen land use shifts from local housing to upscale commercial and residential developments.
      - Small tenants, informal businesses, and rental households are increasingly displaced.
    - **Transit access disparities**:
      - Fares are relatively expensive by local standards (often 40–60 THB per trip), limiting use among low-income workers.
      - Informal and paratransit services (e.g., songthaews, motorcycle taxis) still serve the urban poor but lack integration with formal transit networks.
    - **The impact of gentrification on travel behavior**
      - A higher ratio of condominium residents use the train than original residents.
      - However, more condominium residents use a car than original residents.
      - Original residents use a variety of travel modes, such as motorbikes and walking.

Source: Matsuyuki, M., Aizu, N., Nakamura, F., & Leeruttanawisut, K. (2020). Impact of gentrification on travel behavior in transit-oriented development areas in Bangkok, Thailand. *Case studies on transport policy*, *8*(4), 1341-1351.

Source: Margono, R. B., Zuraida, S., & Abadi, A. A. (2020, July). Transit-induced gentrification in Bangkok, Thailand: A review. In *IOP Conference Series: Earth and Environmental Science* (Vol. 532, No. 1, p. 012013). IOP Publishing.

Development of condominium around BTS Skytrain line in Ratchadamri Road (two water towers)

Case Study 2: Portland, Oregon - TOD and Gentrification

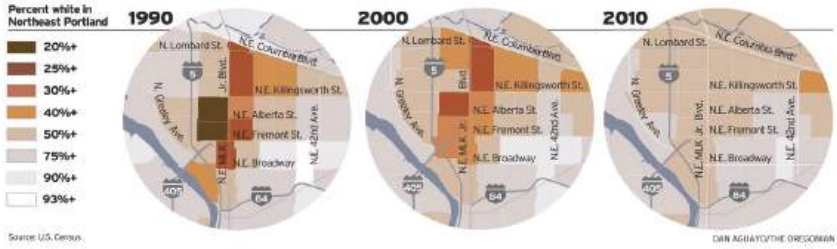
- Background:
  - Portland, Oregon, has been recognized for its progressive urban planning, notably the development of the **MAX Light Rail** system.
  - The **MAX Yellow Line**, inaugurated in 2004, was part of an initiative to promote **Transit-Oriented Development (TOD)**.

Source: Wikipedia (accessed at 2025-05-07)

MAX Yellow Line in Portland

Case Study 2: Portland, Oregon - TOD and Gentrification

- Impacts on **Albina District Transformation:**
  - In the **Albina district**, the introduction of the MAX Yellow Line and subsequent urban renewal efforts led to increased property values and attracted new investments.
    - **Displacement of Long-Term Residents:** Many African-American families were priced out of their neighborhoods due to rising rents and property taxes.
    - **Cultural Erosion:** The exodus of long-standing residents led to the closure of community institutions, such as churches and local businesses, that once served as cultural anchors.



Source: https://www.oregonlive.com/pacific-northwest-news/2011/04/in_portlands_heart_diversity_dwindles.html (accessed at 2025-05-12)

Diversity Dwindling in the Albina District

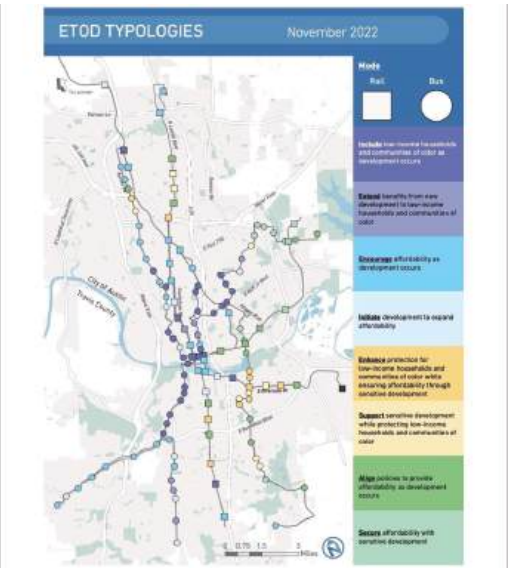
Case Study 2: Portland, Oregon TOD and Gentrification

- **Policy Responses:**
  - Recognizing **the unintended consequences** of TOD, Portland implemented measures to address displacement:
    - **Affordable Housing Initiatives:** In 2006, the city mandated that 30% of urban renewal funds be allocated to affordable housing projects.
    - **Preference Policy:** A housing priority allocation policy that enables residents who have suffered historical disadvantages and are evicted from the area to return to their original area
      - Introduced in 2016, this policy aimed to **prioritize displaced residents** for new affordable housing opportunities in their original neighborhoods.
- **Lessons Learned from TOD planning without social inclusion:**
  - **Proactive planning is crucial:** Integrating anti-displacement strategies from the outset can mitigate the adverse effects of TOD.
  - **Community engagement matters:** Involving local residents in planning processes ensures that development aligns with the needs and desires of existing communities.

Case Study 3: Equitable TOD in Austin, Texas

- Connect future development to future LRT projects in Austin, Texas
  - A **strategic initiative** aimed at ensuring that the city's transit expansion—particularly through **the Project Connect** light rail system—benefits all residents, especially those from historically marginalized communities.
- **Equitable TOD** in Austin
  - Integrates transport planning with housing, economic development, and community preservation to create inclusive, sustainable neighborhoods.
    - Specifically addresses equity by prioritizing the needs of low-income and People of Color(BIPOC) communities, aiming to **prevent displacement and promote shared prosperity.**
  - A **collaboration** between CapMetro (Austin's transit authority), the City of Austin, the Austin Transit Partnership (ATP), and community stakeholders

Source: **Equitable Transit-Oriented Development (ETOD)** https://www.capmetro.org/plans-development/etod



Source: https://communityimpact.com/austin/south-central-austin/government/2024/02/06/new-regulations-around-austin-transit-routes-fast-tracked-in-support-of-project-connect-plans/

Case Study 3: Equitable TOD in Austin, Texas

- **ETOD Policy Plan(2023)** by the Austin City Council
  - Aim to align transit and housing strategies across multiple agencies, focusing on preserving existing communities and enhancing their access to economic opportunities
  - Includes 46 actionable policies categorized under:

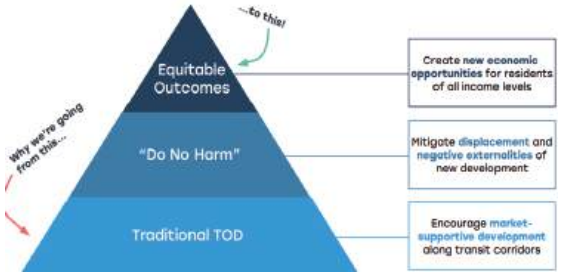
Category	Focus Areas
Small Business & Workforce Development	Support for BIPOC-owned businesses, job training, and local hiring initiatives.
Housing Affordability	Preservation and creation of affordable housing, anti-displacement measures.
Mobility	Enhancements to public transit, pedestrian, and bicycle infrastructure.
Land Use & Urban Design	Zoning reforms, mixed-use development, and community-centered design.
Real Estate & Finance Strategies	Innovative financing tools, land acquisition for public benefit, and investment strategies.

- **ETOD Zoning Overlays (2024)** by the City of Austin
  - To translate the policy plan into action
  - **ETOD Overlay District**: Restricts certain non-transit supportive uses to promote transit-oriented development.
  - **ETOD Density Bonus District (DBETOD)**: Offers incentives for developers to include affordable housing and community benefits in their projects.

Source1: Equitable Transit Oriented Development Strategy Study (Perkins & Will) https://awards.ctbuh.org/winners/2024-aoe-edi-equitable-transit-oriented-development-strategy-study/?utm_source=chatgpt.com
Source2: C20-2023-004 Equitable Transit-Oriented Development (ETOD) Overlay Phase 1
https://speakupaustin.org/ETODOverlay?utm_source=chatgpt.com

TOD with Social Inclusion

- Transforming to Equitable TOD



Source: City of Austin(2023, p.12)

TOD Planning Stage	Traditional TOD	Equitable TOD
Community Engagement	Presents conceptual designs at community meetings **once developed** by the planning team.	Engages impacted communities **prior to design** to **identify priorities** that directly shape ETOD vision.
Demographic Analysis	Identifies the **socioeconomic characteristics** of **residents and businesses** within the station area.	Disaggregates demographic data to identify **communities most likely impacted** by new transit.
Market Analysis	Quantifies the **market demand** for new residential and commercial development in station areas.	Establishes opportunities for **public and private investment** in housing options and small businesses.
Land Use Strategy	**Maximizes density** and encourages mix of uses **to boost walkability and ridership**.	Translates **public goals** for **affordable housing and community facilities** into land use policies.
Joint Development	Partners with developers that **maximize long-term revenues** for the transit agency.	Prioritizes partners that **maximize social benefits** in line with **community goals** with community oversight.
Value Capture Financing	Supports investments in **transit infrastructure** and **private development** around stations.	Requires **community benefits** for new development that receives funding, **driven by community input**.

Source: City of Austin(2023, p.13)

TOD with Social Inclusion

- **Policy Strategies for Transit-Oriented Development (TOD)** with **social inclusion** and **gentrification prevention**

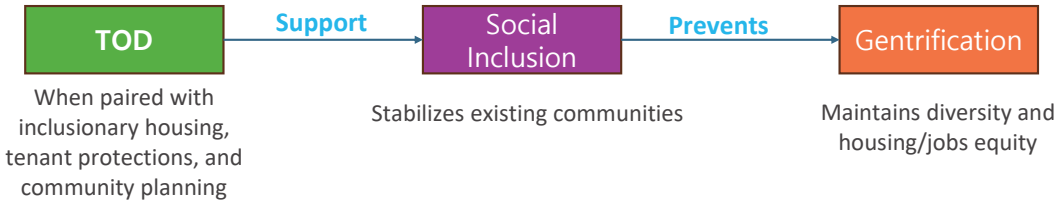
Policy Area	Strategy	Description
Affordable Housing	Inclusionary Zoning	Require a portion (e.g., 20–30%) of new TOD housing to be affordable for low/moderate incomes.
	Deep Affordability Targets	Ensure housing is affordable for very low and extremely low-income residents.
	Preservation Funds	Fund public/non-profit acquisition to protect existing affordable housing near transit.
Anti-Displacement	Tenant Protections	Implement rent stabilization, just-cause eviction, and legal assistance for tenants.
	Community Land Trusts (CLTs)	Promote community ownership of land to ensure permanent housing affordability.
	No Net Loss Policy	Require one-for-one replacement of affordable units lost to development.
Community Inclusion	Participatory Planning	Actively involve marginalized communities in TOD planning and decisions.
	Equity Impact Assessments	Conduct audits on race, income, and access impacts of proposed TOD projects.
	Local Business Support	Protect small/local businesses through rent caps or priority access to commercial spaces.
Transit Access Equity	Fare Reductions/Subsidies	Provide discounted or free transit passes for low-income, senior, or disabled riders.
	First/Last Mile Solutions	Ensure safe, accessible connections (walking, biking, micro-mobility) to transit hubs.
	Equitable Service Design	Maintain frequent, reliable transit in underserved or gentrification-prone neighborhoods.
Value Capture for Equity	Land Value Capture (e.g., TIF, fees)	Redirect increased land value to fund affordable housing, social services, and infrastructure.
	Community Benefit Agreements (CBAs)	Require developers to provide benefits like jobs, amenities, or housing in exchange for density.

Conclusion & Further Research

- Conclusions
  - TOD can increase the risk of gentrification in even Global North as well as Global South
  - Lessons from the case studies
    - Case study 1: Transit development without affordability and equity strategies can exacerbate socio-spatial polarization.
      - Transit investments that serve primarily affluent areas or private development interests risk excluding marginalized populations from urban benefits.
      - Balance economic gains with social equity in transit planning
    - Case study 2: Proactive planning and community engagement matters with TOD
    - Case study 3: Equitable TOD (ETOD) Initiatives to promote social equity, reduce displacement risks
  - **TOD should be implemented for all** with social inclusion by preventing gentrification

Conclusion & Further Research

- Conclusions: **Transforming to TOD with social inclusion w/o gentrification**



When paired with inclusionary housing, tenant protections, and community planning

Stabilizes existing communities

Maintains diversity and housing/jobs equity

- Need for ongoing empirical studies on:
  - Call for broader, rigorous research on TOD with social inclusion
  - Develop more implementation strategies and examine their effectiveness

Q & D

- **References**

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