COMPENDIUM OF

14th ATRANS ANNUAL CONFERENCE

ON TRANSPORTATION FOR A BETTER LIFE: "FUTURE POTENTIAL OF TRANSPORTATION AND URBAN MODEL POST COVID ERA"

17 DECEMBER 2021
MILLENNIUM HILTON HOTEL, BANGKOK, THAILAND.

ORGANIZED BY
ASIAN TRANSPORTATION RESEARCH SOCIETY (ATRANS) AND
INTERNATIONAL ASSOCIATION OF TRAFFIC AND SAFETY SCIENCES (IATSS)

14TH ATRANS ANNUAL CONFERENCE

TRANSPORTATION FOR A BETTER LIFE: "FUTURE POTENTIAL OF TRANSPORTATION AND URBAN MODEL POST COVID ERA"

18 December 2021

09:00 – 18:00(TST)

Live stream

Asian Transportation Research Society

SCAN ME

For registration

Special Keynote Lecture
H.E. Arkhom Termpittayapaisith
Minister of Finance

GUEST SPEAKERS

Guest speakers for Session 1

Prof.Dr. Haruo Ishida
Emeritus Professor, University of Tsukuba, Japan

Prof.Dr.Sutanto Soehodho
University of Indonesia, Indonesia

Mr. Rene S. Santiago
President, Bellwether Advisory Inc., The Philippines

Assoc. Prof. Dr. Apiwat Ratanawaraha
Dept of Urban and Regional Planning, Chulalongkorn University, Thailand

Moderated by
Prof. Dr. Atsushi Fukuda
ATRANS Honorable Advisor, Nihon University, Japan

Guest speakers for Session 2

Assoc.Prof.Dr. Shunsuke KAMIJO
Interfaculty Initiative in Information Studies, The University of Tokyo, Japan

Dr. Passakon Prathombutr
Senior Executive Vice President, DEPA, Thailand

Prof.Dr. Agachai Sumalee
School of Integrated Innovation (ScII), Chulalongkorn University, Thailand

Moderated by
Assoc.Prof. Dr. Sorawit Narupiti
ATRANS Board , Chulalongkorn University, Thailand

Guest speakers for Session 3

Dr. Madan B. Regmi
Economic Affairs Officer, Transport Research and Policy Section, UNESCAP

Ms. Urda Eichhorst
Project Director, Asia/Pacific, Latin America/Caribbean, GIZ, Germany

Assoc.Prof.Dr. Yossapong Laoonual
King Mongkut's University of Technology Thonburi, Thailand

Moderated by
Dr. Nuwong Chollacoop
ENTEC, Ministry of Higher Education, Science, Research and Innovation Thailand

Guest speakers for Session 4

Prof.Dr. Yuto KITAMURA
The University of Tokyo, Japan

Prof.Dr. Takeshi TANIGAWA, MD.
Chairman, Department of Public Health, Juntendo University, Japan

Dr. Tana TAN
Research & Evaluations Lead, Safe System Solutions Pty Ltd., Australia

Assoc. Prof. Dr. Apiwat Ratanawaraha
Dept of Urban and Regional Planning, Chulalongkorn University, Thailand

Speaker & Moderator
Dr. Witaya Chadbunchachai MD.
Director, WHO Collaborating Centre on Injury Prevention and Safety Promotion, Thailand

Join virtual conference by scanning QR Code
for online registration by 13 December 2021 to receive the link access to Zoom Meeting.

14TH ATRANS ANNUAL CONFERENCE

"Transportation for a Better Life: Future Potential of Transportation and Urban Model Post-COVID Era"

Saturday, 18 December 2021, Duration 09:00 – 18.00

Live Stream on Facebook fanpage : Asian Transportation Research Society : สมาคมวิจัยวิทยาการขนส่งแห่งเอเชีย

At Thonburi Ballroom on Level M Floor, Millennium Hilton Hotel, Bangkok, Thailand

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1. BACKGROUND

It has been nearly two years since the pandemic, large parts of the world are emerging from lockdown and slowly restarting the economy. City centers which have been eerily deserted are starting to show signs of life. Even with offices, restaurants and shops reopening, it is obvious that things are far from being back to normal. The experience of lockdown, with its limitations to urban mobility, has underlined a new important aspect of the issue of proximity applied to urban everyday life.

COVID-19 pandemic has already produced tangible impacts on urban mobility, leading to individuals' adjustment in daily activities, including in-home and out-of-home activities, as well as long-distance travel. So, it is vital important for cities of the need to rethink planning policies moving from city planning to urban life planning, acting on the dynamics of space and time with the imposition of the issue of geographical proximity as a factor on which to calibrate the spatial reorganization of services, businesses and management of social dynamics.

Starting from the new production regimes resulted from social distancing and travel restrictions, 'neighborhood shops', easily accessible and capable of offering consumers something more than the mere economic transaction, are now recognized through manifold aspects: the personalization of the service, an informal and 'trustworthy' dimension between seller and customer, will contribute to sociality outside the domestic sphere. With these characteristics, local commercial activities at the 'neighborhood-scale' (utilizing a 15-minute city approach which is the promote idea launched the mayor of Paris Anne Hidalgo that every citizen can have access to six fundamental functions within a short perimeter and within 15 min of travel-time: living, working, supplying, caring, learning, enjoying.) are able to distinguish themselves from large-scale distribution to standardized digital commerce.

The need to access a reliable digital infrastructure become increasingly important, and certain aspects of Information and Communication Technologies (ICTs) are critical in a period of isolation as it will provide the increased ICT opportunities from telework, telemedicine, food delivery and logistics, online payments, remote learning and entertainment to avoid contact and reduce the risk of COVID-19 infection. While people mobilizing across the globe, and to some extent, of freight transport has enabled spreading the COVID-19, the role of transport connectivity in dealing with the crisis and post-crisis recovery is much more critical. Regional cooperation on transport connectivity would be the key issue in helping to provide effective response in the course of a pandemic and in the subsequent recovery efforts for Sustainable Development, building resilience to future pandemics and crises.

Nevertheless, the questions are for how long the recovery will take, what the next normal will look like, and what this means for our transportation, urban model/design, mobility systems, road safety as well as socio-economic characteristics and environment impacts such as decarbonization remains unclear.

In response to this, Asian Transportation Research Society (ATRANS) in collaboration with International Association for Traffic and Safety Sciences (IATSS) joint organizing 14th ATRANS Annual Conference on "Transportation for a Better Life: Future Potential of Transportation and Urban Model Post COVID Era" in searching for potential policy measures for this uncertain future.

Asian Transportation Research Society (ATRANS)
90 [illegible] Floor, Vasu 1 Building, [illegible] Soi Ramkhamhaeng 25, Khwaeng Hua-mak, Khet Bang Kapi, Bangkok 10240
Tel: +66 (0)2 661 [illegible] Fax: +66 (0)2 66[illegible] Website: www.atransociety.com

2. OBJECTIVE AND GOAL

The objective of the conference is to bring together academia, experts, and those devising better solutions for the increasingly demanding challenge of Future Potential of Transportation and Urban Model Post COVID Era.

3. SPEAKERS FOR CONFERENCE SESSIONS

The reputable well-known speakers who are expert in transportation, urban planning, economics, autonomous vehicles, safety, digital technologies, and environment will be invited from government agencies, academic, and private sectors to deliver some talks in the conference sessions, please see the conference program for more information.

4. METHOD OF CONDUCT

The 14th ATRANS Annual Conference will be conducted in English by hybrid methods:

- View Broadcast Live Streaming on : Asian Transportation Research Society
- View Broadcast Live Streaming on : สมาคมวิจัยวิทยาการขนส่งแห่งเอเชีย
- Participate in Zoom Meeting (register online to receive Zoom Link)
- Join the conference venue at the Millennium Hilton Hotel Bangkok (by direct invitation only)

5. PARTICIPANTS WHO SHOULD ATTEND

- In this conference you will be able to get together with people from a wide range of backgrounds regardless of transportation, logistics, urban planning and other transportation-related fields whom you may not encounter at your home, workplace or institution.
- A limit number of not more than 70-100 participants will be invited from government and private sectors, university, research institutes, and foreign agencies as well as NGOS to join online and offline at the conference event on Saturday 18 December 2021 during 9:00 – 18:00 at the Millennium Hilton Hotel, Bangkok.
- Interested persons who wish to network, to expand your knowledge and find solutions to problems, and to learn beyond your field or interest are welcome to join our 14th ATRANS Annual Conference by scanning QR code for registration.

6. REGISTRATION & CONTACT

ATRANS Annual Conference is totally free of charge event. Those who are interested in joining the 14th ATRANS Annual Conference can do online registration by scanning QR Code provided or copy and paste the link below to directly connect to registration page.
https://14th-atrans-annual.netlify.app/registration-memmbers.html
The deadline of registration is on 13 December 2021.
For inquiries, please contact Ms. Suwishada or Ms. Narisara our ATRANS Secretariat at +66-(0)2-661-6248, +66-(0)81-371-6255, +66-(0)81-257-9070 or send e-mail to atran.s.ecretariat@gmail.com, iammaisri@gmail.com, secretariat@atransociety.com

SCAN ME

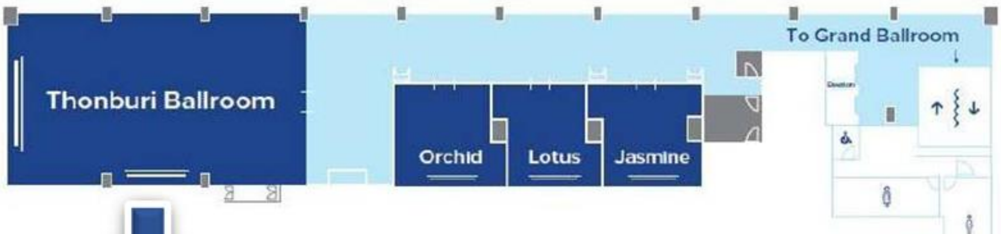
For registration

Asian Transportation Research Society (ATRANS)
90 [illegible] Floor, Vasu 1 Building, Soi Thonglor 25, Klongtan-nuea, Wattana, Bangkok, Thailand
Tel: +66 (0)2 661 [illegible] Fax: +66 (0)2 66[illegible] www.atransociety.com

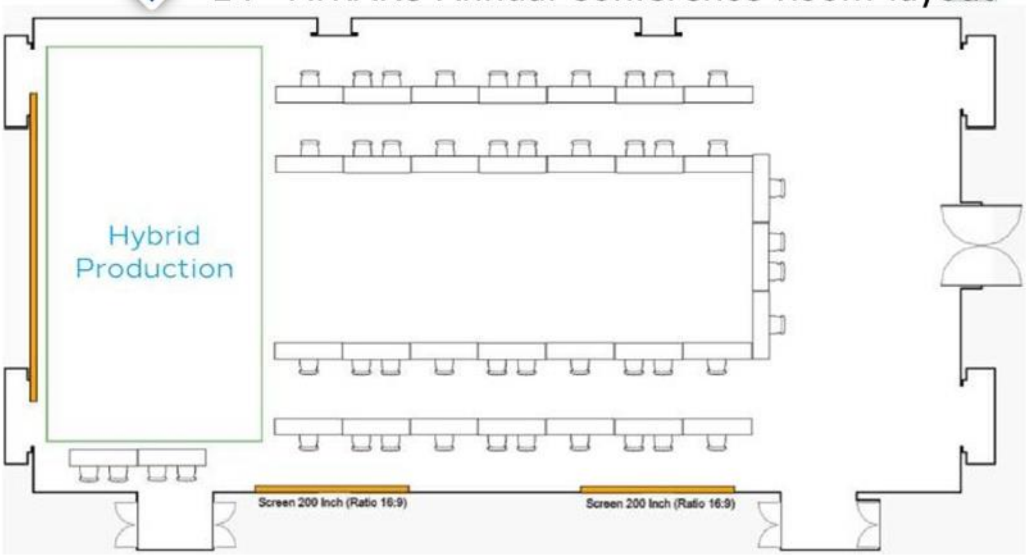
THE MILLENNIUM HILTON HOTEL FLOOR PLAN

The conference room is on M Floor

The conference will conduct as a plenary session at The Thonburi Ballroom for both morning and afternoon sessions



14th ATRANS Annual Conference Room layout



||Coffee break area||

FOYER AT THONBURI BALLROOM

FOYER M FLOOR

Asian Transportation Research Society (ATRANS)
902/1 9th Floor, Vasu 1 Building (Glas Haus Building), Soi Sukhumvit 25, Klongtoey-nua, Wattana, Bangkok 10110, Thailand
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Year – End Dinner provided to ATRANS members and the invited guests
at Three-Sixty Rooftop Bar on 31st Floor

Three-Sixty Rooftop Bar

Visit our rooftop outdoor bar on the Level 31 – the perfect setting to relax, unwind and take in unbeatable 360° panoramic vistas where you can enjoy watching the sun setting.

THE MILLENNIUM HILTON HOTEL ACCESS MAP

https://www.hilton.com/en/hotels/bkkhitw-millennium-hilton-bangkok/hotel-location/

HOTEL ADDRESS

THE MILLENNIUM HILTON HOTEL, 123 Charoennakorn Road, Klongsan, Bangkok, 10600, Thailand

HOTEL MAP

Millennium Hilton BANGKOK

123 Charoennakorn Road, Klongsan, Bangkok 10600, Thailand
Tel: +66 2 442 2000 Fax: +66 2 442 2020
bangkok.hilton.com

Live stream

สมาคมวิจัยวิทยาการขนส่งแห่งเอเชีย
Asian Transportation Research Society

SCAN ME
For registration

14TH ATRANS ANNUAL CONFERENCE

TRANSPORTATION FOR A BETTER LIFE: "FUTURE POTENTIAL OF TRANSPORTATION AND URBAN MODEL POST COVID ERA"

18 DECEMBER 2021 DURING 9:00 – 18:00 AT THONBURI CONFERENCE ROOM ON M FLOOR, MILLENNIUM HILTON HOTEL BANGKOK

Conference Program

9:00 – 9:30 Opening Session				
9:00 – 9:10 Introducing and welcoming Message By Dr. Chula Sukmanop, Chairperson, ATRANS		**9:10 – 9:20 Welcome Message** By Mr. Satoshi Kamada, Executive Director, IATSS		**9:20 – 9:30 Opening Remark** By H. E. Arkhom Termpittayapaisith Minister of Finance, Thailand
9:30 – 10:00 Special Keynote Lecture: "The Present and Post-Pandemic Recovery of Economic Activities in Thailand" **By H. E. Arkhom Termpittayapaisith,** Minister of Finance, Thailand				
10:00 – 10:20 Coffee break				
10:20 – 12:00 Morning Session				
Session 1: "Transportation for a Better Life: Future Potential of Transportation and Urban Model Post Covid Era" moderated by Prof. Dr. Atsushi Fukuda, ATRANS Honorable Advisor, Nihon University, Japan				
10:20 – 10:40	10:40 – 11:00	11:00 – 11:20	11:20 – 11:40	11:40 – 12:00
Speaker 1: "Future Potential of Transportation and Urban Model Post Covid Era: Japan Perspective" **By Prof.Dr. Haruo Ishida** Chairman of RIRS and Emeritus Professor, University of Tsukuba and visiting professor at Nihon University, Japan	**Speaker 2:** "Future Potential of Transportation and Urban Model Post Covid Era: Indonesia Perspective" **By Prof.Dr.Sutanto Soehodho** University of Indonesia Former Deputy Governor of DKI Jakarta for Trade, Industry and Transportation, Indonesia	**Speaker 3:** "Public Transport Reforms: A Journey on Three Axes of Competition, Ownership, and Regulation" **By Engr. Rene S. Santiago,** President, Bellwether Advisory Inc., The Philippines	**Speaker 4:** "Urban development and mobility in Thailand post-Covid: Whither are we bound?" **By Assoc. Prof. Dr. Apiwat Ratanawaraha** Department of Urban and Regional Planning, Faculty of Architecture, Chulalongkorn University, Thailand	**Discussion, Q&A**
12:00 – 13:00 Luncheon provided at Maya Room on M Floor				
13:10 – 17:50 Afternoon Sessions				
13:10 – 14:30 **Session 2: "Digitization in Transportation and Logistics"** Moderated by Assoc.Prof.Dr. Sorawit Narupiti, Chulalongkorn University				
13:10 – 13:30	13:30 – 13:50	13:50 – 14:10	14:10 – 14:30	
Speaker 1: "Benefits and Problems in Digital map for Autonomous Driving: From Our Research Experiences" **By Assoc.Prof.Dr. Shunsuke KAMIJO** Interfaculty Initiative in Information Studies, The University of Tokyo, Japan	**Speaker 2:** "Digital Transformation in Smart Mobility' **By Dr. Passakon Prathombutr** Senior Executive Vice President, Digital Economy Promotion Agency (DEPA) Ministry of Digital Economy and Society, Thailand	**Speaker 3:** "Case studies and challenges in real-world deployment of digitization platform in Smart Mobility" **By Prof.Dr. Agachai Sumalee** School of Integrated Innovation (ScII), Chulalongkorn University, Thailand	**Discussion, Q&A**	
14:35 – 15:50 Session 3: "Environmental related Transportation on Decarbonization Issues" Moderated by Dr.Nuwong Chollacoop, ENTEC				
14:35 – 14:55	14:55 – 15:15	15:15 – 15:35	15:35 – 15:50	
Speaker 1: "Transportation and Climate Action through Decarbonization" **By Dr. Madan B. Regmi,** Economic Affairs Officer Transport Research and Policy Section, UNESCAP	**Speaker 2:** "Decarbonization: Road to Net Zero Emission" **By Ms. Urda Eichhorst** Project Director 'NDC Transport Initiative for Asia' Climate Coordination (2410) Asia/Pacific, Latin America/Caribbean, GIZ, Germany	**Speaker 3:** "Decarbonizing road transport to Zero-emission pathways for electric vehicles (EV)" **By Assoc.Prof.Dr. Yossapong Laoonual** Assistant to the President for Sustainability King Mongkut's University of Technology Thonburi, Thailand	**Discussion, Q&A**	
15:50 – 16:00 Coffee break				

Continued on next page.

Remarks: Please be informed that as required by the Thai Government, ATRANS will provide all necessary equipment and medical expert for COVID antigen test to ensure safety prior to allowing the participating guests to join the conference.

Live stream

สมาคมวิจัยวิทยาการขนส่งแห่งเอเชีย

Asian Transportation Research Society

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18 DECEMBER 2021 DURING 9:00 – 18:00 AT THONBURI CONFERENCE ROOM ON M FLOOR, MILLENNIUM HILTON HOTEL BANGKOK

Conference program continued -

16:00 – 17:50 IATSS Session 4: "Road Safety" Moderated by Dr.Witaya Chadbunchachai, Head of WHO Collaborating Centre on Trauma and Critical Care, Thailand					
16:00 – 16:20	16:20 – 16:40	16:40 – 17:00	17:00 – 17:20	17:20 – 17:30	17:30 – 17:50
Speaker 1: "Traffic Safety Education for Young Road Users: Implications from the IATSS Project in Cambodia" **By Prof.Dr. Yuto KITAMURA** Graduate School of Education, The University of Tokyo, Japan	**Speaker 2:** **By Prof.Dr. Takeshi TANIGAWA, MD.** Chairman, Department of Public Health, Graduate School of Medicine, Juntendo University, Japan	**Speaker 3:** "Road Safety Leading & Management: Transferring Learnings from Australia" **By Dr. Tana TAN** Research & Evaluations Lead, Safe System Solutions Pty Ltd., Australia	**Speaker 4:** "Understanding Traffic Safety Culture of Thai Youngsters" **By Asst.Prof.Dr. Sittha JAENSIRISAK** Ubonratchathani University, Thailand	**Speaker 5:** "Thailand Road Safety Related to Global Road Safety Plan" **By Dr. Witaya Chadbunchachai** Director, World Health Organization Collaborating Centre on Injury Prevention and Safety Promotion, Thailand	**Discussion, Q&A**
Closing Session					
17:50 – 18:00 Closing Remark by Dr.Chula Sukmanop, ATRANS Chairperson					
18:30 – 21:00 Year-End Dinner (invitation only)					

Remarks: Please be informed that as required by the Thai Government, ATRANS will provide all necessary equipment and medical expert for COVID antigen test to ensure safety prior to allowing the participating guests to join the conference.

ATRANS
Asian Transportation Research Society
สมาคมวิจัยวิทยาการขนส่งแห่งเอเชีย

Introducing and Welcoming Messages

By Dr. Chula Sukmanop, ATRANS Chairperson

At 14th ATRANS Annual Conference:
"Transportation for a Better Life: Future Potential of Transportation and Urban Model Post COVID Era"
18 December 2021, 09.00 – 18:00 Millennium Hilton Hotel, Bangkok

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Good morning, a very warm welcome to all of you to the fourteenth (14th) ATRANS Annual Conference:

- His Excellency, Arkhom Termpittayapaisith, Minister of Finance;
- Mr. Satoshi Kamada, Executive Director of International Association of Traffic and Safety Sciences (IATSS), Japan;

As well as Delegates, Distinguished Guest Speakers, Ladies and gentlemen, we, at ATRANS, are delighted to host this gathering today.

Let me briefly look back at the history of ATRANS activities:

On forth (4th) of May 2007, a group of the very keen academics, researchers and Transport Practitioners joined hands to discuss seriously in forming a non-profitable and pure academic research activity benefiting society at large, which has become ATRANS Society nowadays.

This year, ATRANS has entered the fourteenth (14th) years of operation since its establishment in 2007. Our vision is to pursue "Transportation for a Better Life." One of ATRANS missions is to turn research outcomes to actual implementation to our dynamic society.

In addition to this gathering event, we initiated ATRANS Young Researcher's Forum to provide a broader opportunity to not only young researchers but also students at large to present their research outputs and to share their knowledge and ideas through paper presentations which was taken place via online meeting yesterday.

His Excellency, Distinguished guests, ladies and gentlemen:

Every aspect of our lives has been affected by the pandemic of COVID-19. And it has been nearly two years since the pandemic, large parts of the world are emerging from lockdown and slowly restarting the economy. It is obvious that things are far from being back to normal. The experience of lockdown has brought the limitations to urban mobility which has underlined a new important aspect of the issue of proximity applied to urban everyday life.

So, it is vital important for cities of the need to rethink planning policies moving from city planning to urban life planning, acting on the dynamics of space and time with the imposition of the issue of geographical proximity as a factor on which to calibrate the spatial reorganization of services, businesses and management of social dynamics.

Nevertheless, the questions are for how long the recovery will take, what the next normal will look like, and what this means for our transportation, urban model or urban design, mobility systems, road safety as well as socio-economic characteristics and environment impacts such as decarbonization remains unclear.

In response to this, Asian Transportation Research Society (ATRANS) in collaboration with International Association for Traffic and Safety Sciences (IATSS) joint organizing 14th ATRANS Annual Conference on "Transportation for a Better Life: Future Potential of Transportation and Urban Model Post COVID Era" in searching for potential policy measures for this uncertain future.

Today, I am sure that we will learn a lot from our distinguished guest speakers regardless of benefit of transportation and urban model, and digitization platform, decarbonization, and road safety.

Distinguished guests, delegates, ladies and gentlemen:

Our members and staffs here have worked enthusiastically and relentlessly in preparing and making this annual conference possible. We wish to ensure that all the distinguished guests and the participants gain many diverse ideas related to transportation. We hope you may use this opportunity for network building and as a cross-cultural exchange with one another.

ATRANS will always step forward little by little to contribute to our dynamic society through accumulating research and knowledge on transportation and innovation technology, traffic safety, energy and environment and through providing opportunities to share the outcomes with all of you.

And Last but not least, ATRANS is greatly in debt of International Association of Traffic and Safety Sciences for funding ATRANS academic activity. Without their consecutive contribution, ATRANS would not have come to this far.

I hope you will join in the discussion today, making it fruitful and beneficial for everyone.

Thank you very much.

END

Greetings from IATSS

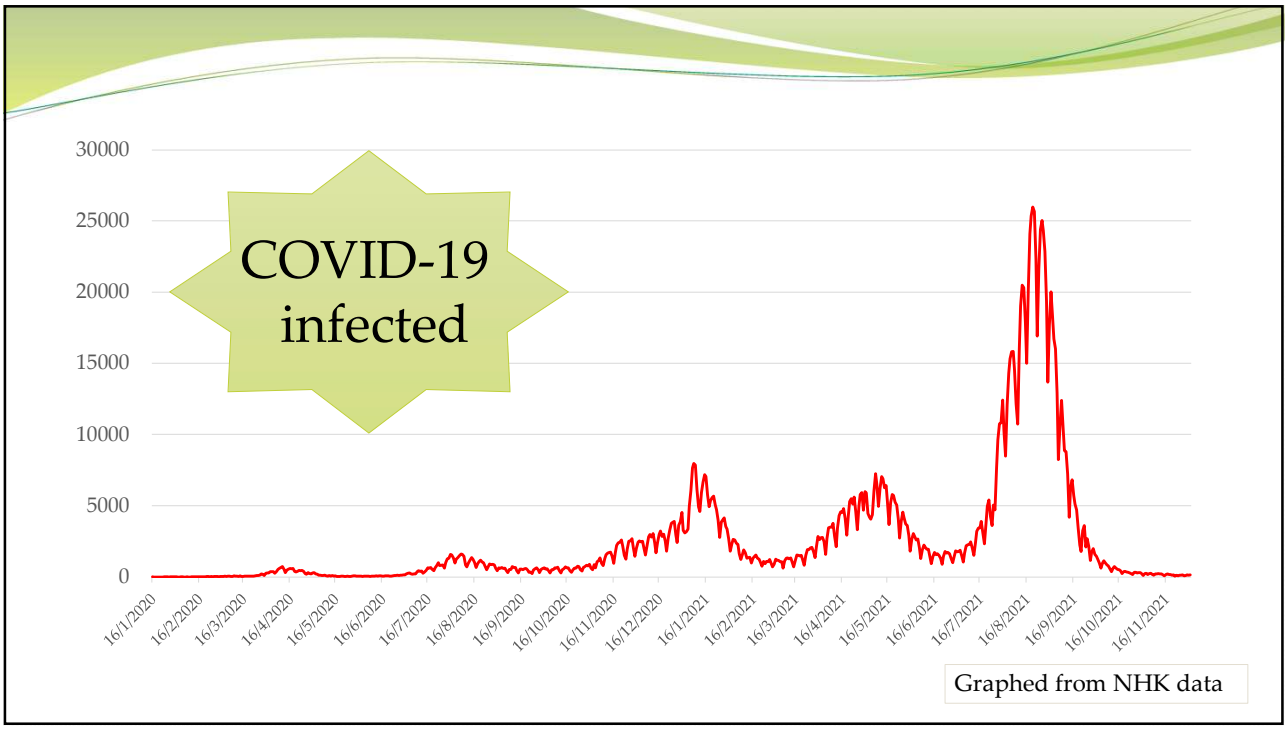
Executive Director,

Satoshi Kamada

IATSS

Congratulations on holding this wonderful Conference under difficult circumstances！

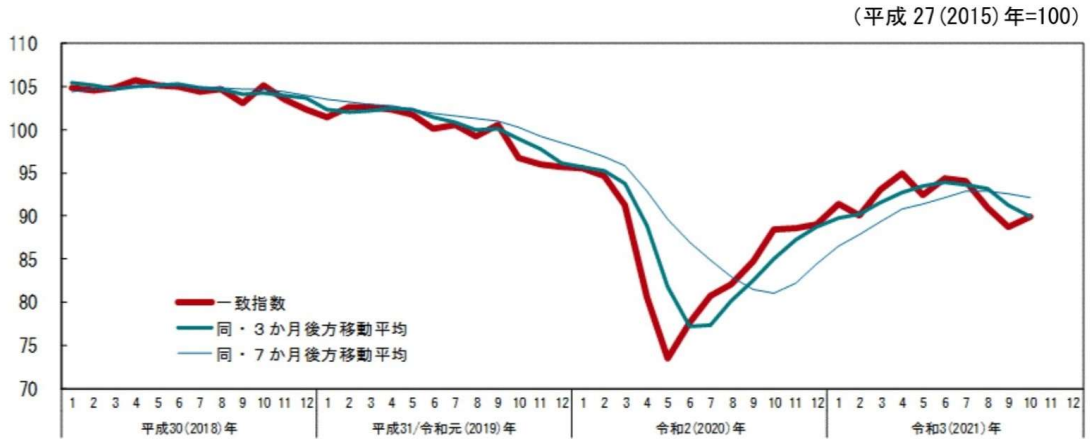
How is the situations in JAPAN?



Indexes of business conditions

Recovering, but uncertain…

一致指数の推移



ESRI, CAO

Visitor arrivals

Still restricted

10/2019
2,496,568

10/2020
27,386

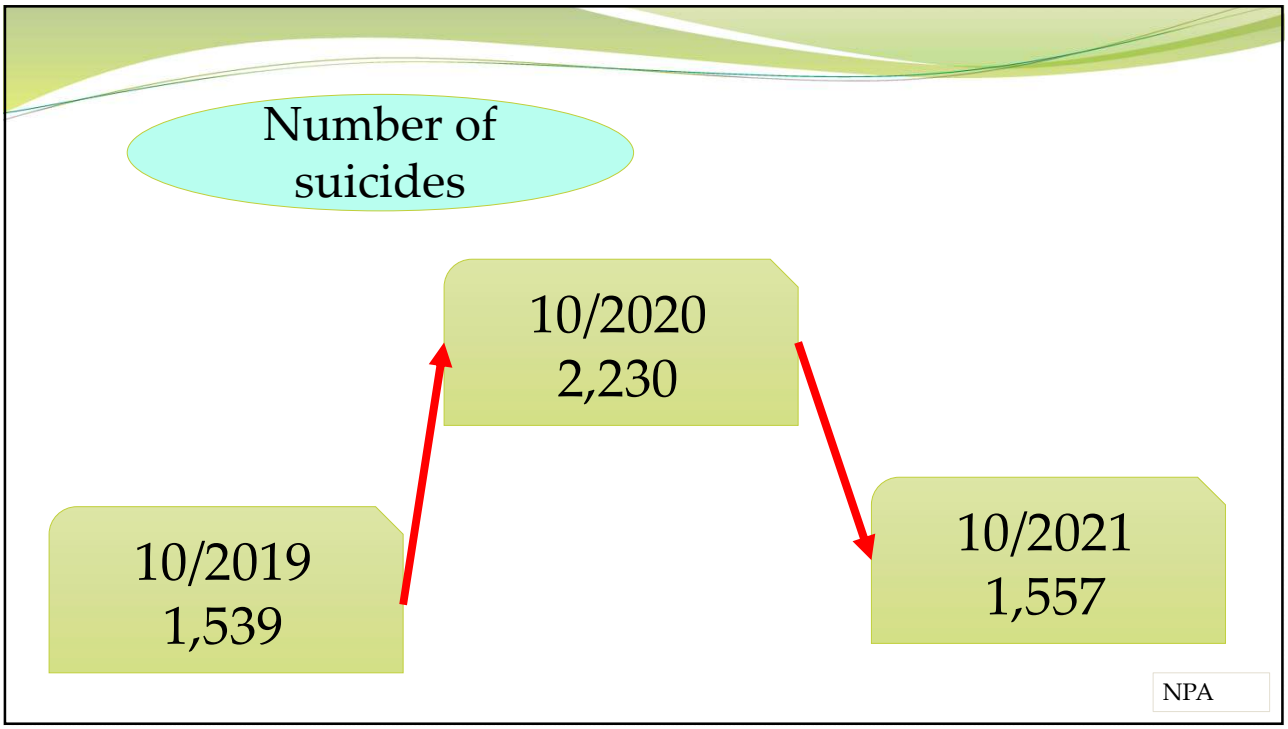
10/2021
22,100

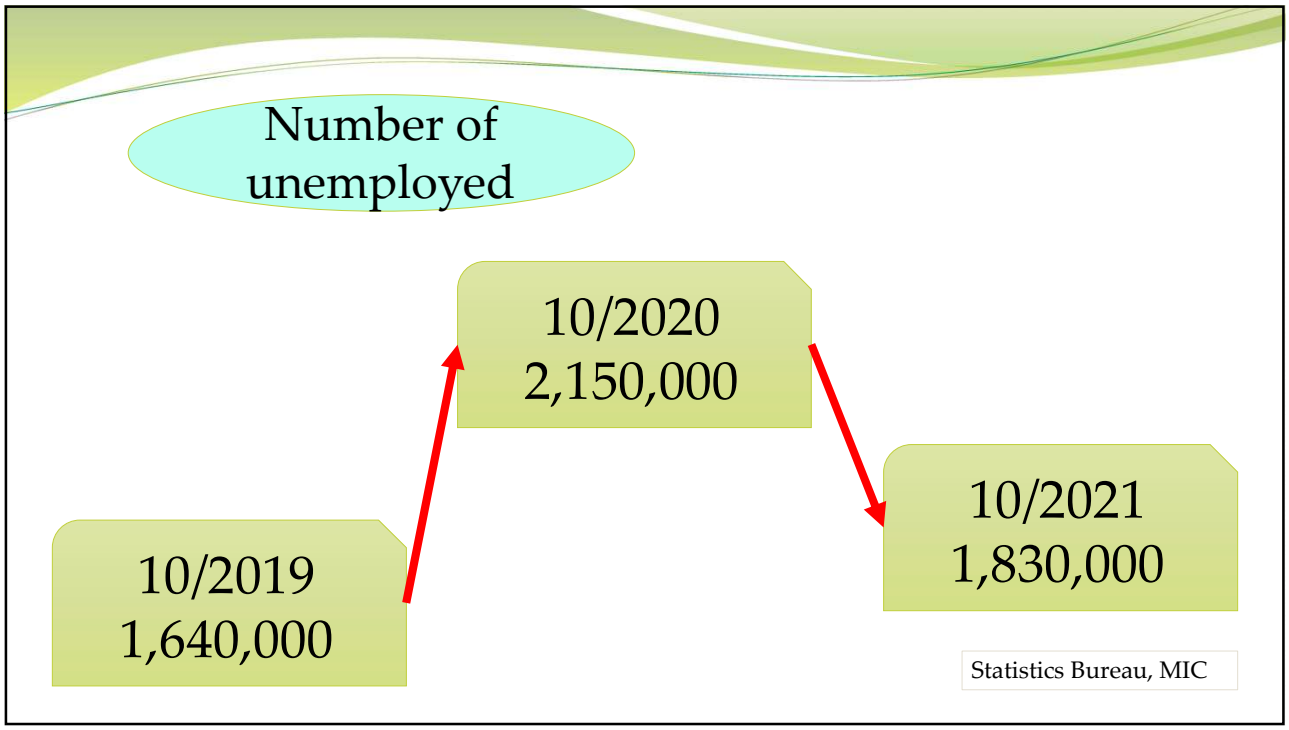
JNTO

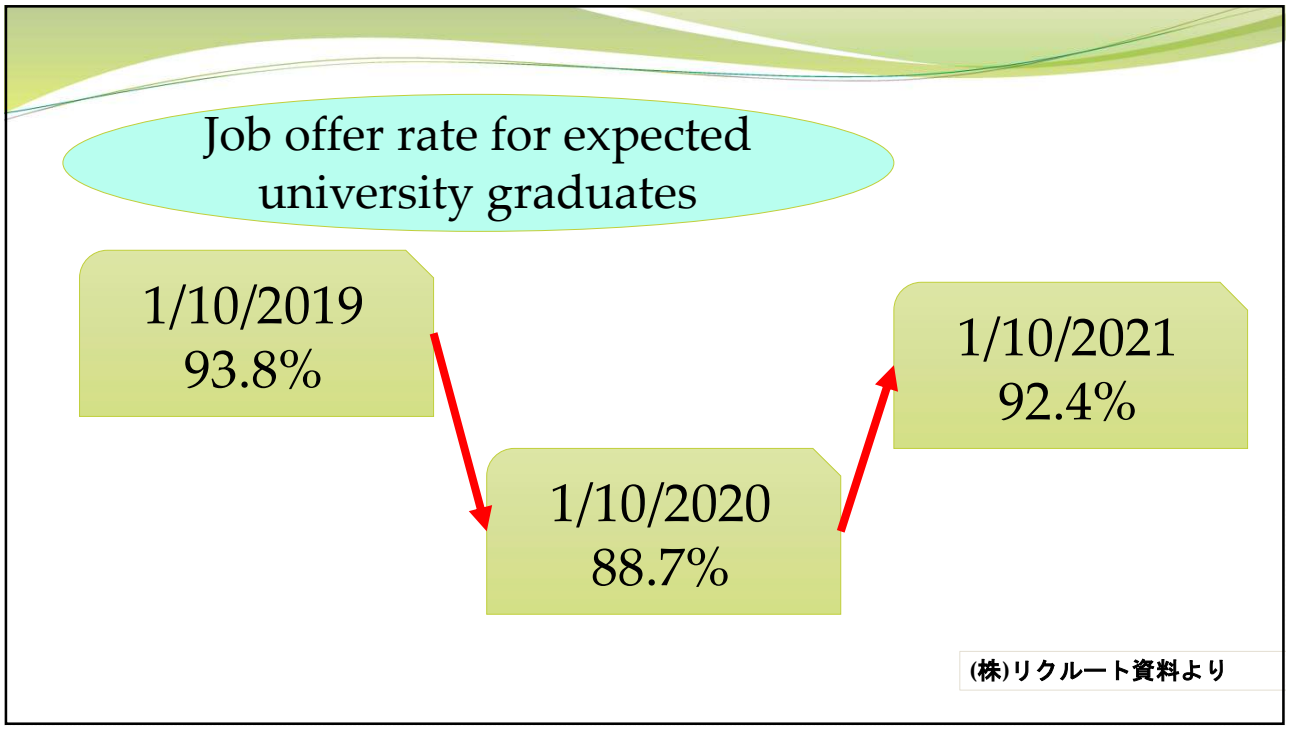
Tokyo 2020
Olympic and Paralympic Games

We managed to get through!

Successful, at least in terms of traffic management and security.




Number of unemployed
10/2020
2,150,000
10/2019
1,640,000
10/2021
1,830,000
Statistics Bureau, MIC


Job offer rate for expected university graduates
1/10/2019
93.8%
1/10/2020
88.7%
1/10/2021
92.4%
(株)リクルート資料より

Road fatalities

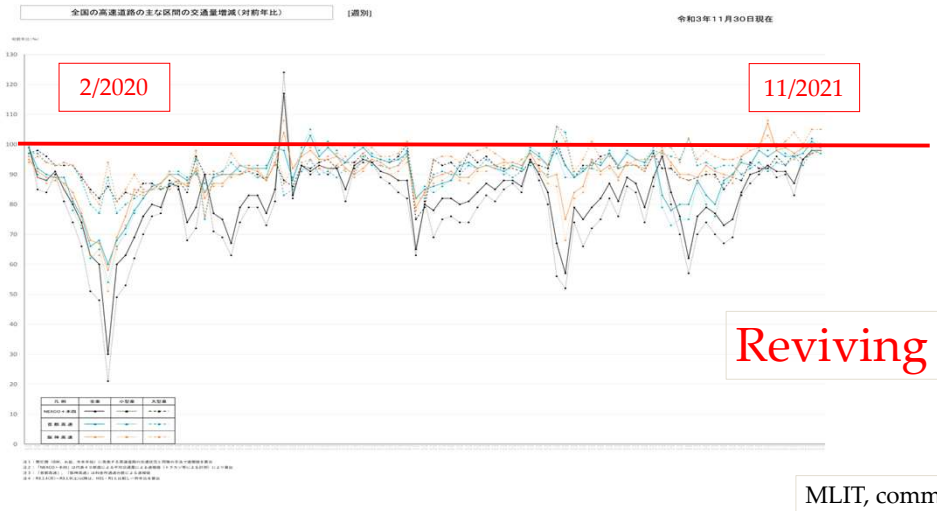
11/2019　328

11/2020　280

11/2021　251

NPA,ITARDA

Highway traffic volume



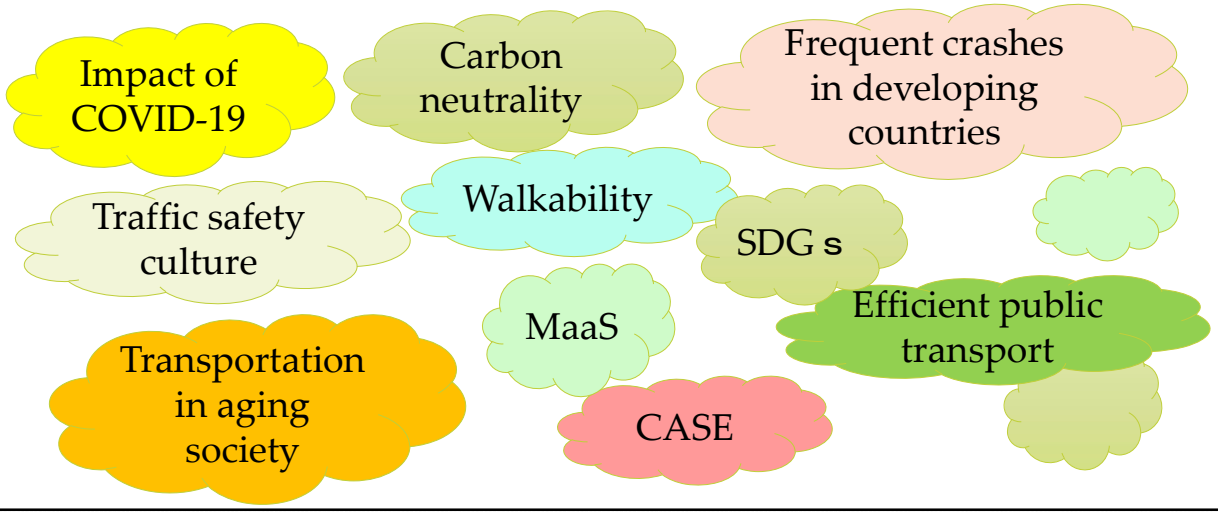
Reviving recently

MLIT, comments in red by Kamada

- Carbon neutrality by 2050
- Automated driving Level 3 and Level 4 under restricted conditions
- Pedestrian-friendly traffic environment
- Expanding small electric mobility

etc. etc.

Many tasks for us…



IATSS Research Projects in FY2021

Research at IATSS is definitely moving forward.

Project number	Project theme	Project leader
GRATS	Global Research Alliance on Traffic and Safety	Akinori Morimoto (Waseda University)
2102C	A Study on Improving Safety by Observing and Controlling Crowd Behavior in Plazas and Walking Spaces	Nagahiro Yoshida (Osaka City University)
2103B	Development of Walkable City Assessment Methods	Tomohiro Ichinose (Keio University)
2104A	A cross-cultural study on health-related accidents in Asian countries	Takeshi Tanigawa (Juntendo University)
2105A	Solving Transportation Problems and Measuring Educational Effects for High School Commuters in A Mountainous Area	Yuto Kitamura (The University of Tokyo)
2107B	Development of Roundabout Database and Case Studies in Japan	Hideki Nakamura (Nagoya University)
2108B	Research on the Development of a Safe and Comfortable Road Environment with Electric Mobility	Koji Suzuki (Nagoya Institute of technology)
2120	Recommendations on How Public Transportation Should Support the Cultural and Creative Functions of Cities	Fumihiko Nakamura (The University of Tokyo)
2121	Activities to Promote Effective Traffic Safety Education for Youth	Kazuhisa Ogawa (Tohoku Institute of Technology)
2122	Development of Risk Prediction Education Program for Motorcycle Drivers focusing on Speed Perception in the ASEAN Region	Kenji Doi (Osaka University

2024 marks 50th anniversary of IATSS. As the mobility landscape changes dramatically, IATSS will continue to serve as a forum for pioneering discussion.

We respect ATRANS's significant role in Thailand and we expect more synergy than ever between ATRANS and IATSS.

Thank you for your attention!
I wish you the success of today's sessions.

Opening Remarks

H. E. Arkhom TERMPITTAYAPAISITH, Minister of Finance

At 14th ATRANS Annual Conference:
"Transportation for a Better Life: Future Potential of Transportation and Urban Model Post COVID Era"
18 December 2021, 09.00 – 18:00 Millennium Hilton Hotel, Bangkok

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Mr. Chula Sukmanop, Ph.D., Chairperson of ATRANS,
Mr. Satoshi Kamada, Executive Director of International Association of Traffic and Safety Sciences (IATSS),
ATRANS Honorable Advisors, ATRANS Board, and members,
Distinguished Guest Speakers, Ladies and Gentlemen,

First of all, A very good morning. Let me express my sincere gratitude for the honor and the opportunity, I have been given to officiate the opening remarks for the 14th ATRANS Annual Conference on "Transportation for a Better Life: Future Potential of Transportation and Urban Model Post COVID Era" today.

It is a pleasure to welcome all of you to this important gathering. Many of you may have joined ATRANS Annual Conference several times. And some of you may be the first time. So, please spare some time out of the academic discussion to enjoy sightseeing of cityscape along Chao Praya River right outside of this hotel.

Ladies and Gentlemen:

Cities are struggling with the pandemic of COVID-19. Transportation and Urban mobility struggle even more unpredictable uncertain future affecting economy at large throughout the world.

By optimistic thinking, COVID-19 pandemic has already produced tangible impacts on urban mobility, leading to individuals' adjustment in daily activities, including teleworking, in-home and out-of-home activities, as well as long-distance travel. We may have to think about how to reshape the urban living model together with sustainable transport development in line with minimum impact on climate change.

Ladies and Gentlemen:

The global pandemic has significant adverse impact on the world economy. As a result, Thai economy contracted by 6.1 percent in 2020, the largest contraction since the Asian financial crisis. In this regard, the government responded promptly to mitigate the crisis with urgent measures after initial Covid19 spreading in Thailand including No One Will Be Left Behind Scheme or Rao Mai Ting Gun which offered cash-handout of 5,000 Baht to 15.3 million people, affected by the virus pandemic, for 3 months.

Starting in 2021, the Thai economy started to show signs of economic recovery, growing by 7.6 percent in Q2. The latest GDP growth rate of Thailand in the third quarter of 2021 slightly contracted 0.3 percent, due to the third wave of the pandemic, however, better than market expectations. The Thai economy has been supported by significant growth of merchandise exports and government measures that aim to support domestic economy, boosting people's purchasing power and reducing people's living costs. These government measures are for example (1) Half-Half Co-payment to stimulate economy and consumption (2) Job retention program, which aims to maintain and promote the employment level and support the liquidity for SMEs (3) Cash handouts scheme for State Welfare Card Holders and vulnerable population groups, (4) Reduction of electricity and water bills measures, and (5) We travel together domestic tourism stimulus campaign.

Our covid-19 strategy is trying to balance public health safety and economic growth. The government is ready to continuously implement fiscal, financial and tax measures to support the Thai economy in conjunction with continued vaccination program. The Covid-19 situation in Thailand has been improving along with significant progress of vaccine rollout. This has allowed Thailand to be among the first countries in Asia to reopen the country, starting from the 1st of November 2021 onwards, leading to economic rebound, especially in tourism, wholesale and retail, transportation, and entertainment.

The Ministry of Finance has recently forecasted the Thai economic growth would expand by 1.0 percent this year and accelerate to 4.0 percent next year, supported by the recovery in foreign tourist arrivals. Furthermore, the strong merchandise exports and ongoing government policy implementation would likely remain to be the key driver of Thailand's economic growth next year.

Despite the improving economic sentiments around the world, some risks remain and are needed to be closely monitored such as

(1) The risk of new variant of COVID-19. In Global Health Security (GHS) Index 2021 compiled by Johns Hopkins University released 8th December 2021, out of 195 countries, Thailand was ranked fifth in the world – and first in Asia – this year. Thailand has provided remedy to those affected by the COVID-19 pandemic, as well as to support the Thai economy.
(2) High energy prices and global inflation, oil price increases from global economic recovery. Therefore, Thailand also affected but is moving towards green energy and away from fossil fuel, thereby reducing risks on energy price volatility.
(3) Debt hangover and household debt servicing capacity. The pandemic affected to workers' income in all economic sectors, including industrial, agricultural, and services. As a result, people's spendings are restricted. However, workers' income will gradually increase following an improvement of the pandemic situation.

Ladies and Gentlemen,
The future of Thai economy in post-COVID-19: Intermediate Term Strategies

Our priority for next year will be balancing the level of covid-infection and allowing the resumption of economic activities, close to pre-pandemic level. The government will continue

to implement appropriate infection prevention and control measures according to the severity and spread of the disease in each area, increase vaccine access and allocation for everyone, and prepare the action plan to cope with any severe outbreak that might be happened. At the same time, the government will also continue to support the recovery of businesses affected by the pandemic.

In addition, we will continue government spending to strengthen the economy. In 2022, there will be more than 3.6 trillion Baht directed toward the economy. The amount consists of the FY2022 budget framework at 3.1 trillion Baht, State-owned Enterprises (SOEs) budget of 307 billion Baht, and the remaining of loan projects under the additional Emergency Loan Decree of 500 billion Baht which worth around 226 billion Baht to be disbursed in 2022 to reduce impacts of people affected by COVID-19, and stimulate the economy. It is expected to help a recovery in labor market and increase the potential of domestic manufacturing and service sectors. Along with investing in infrastructure to develop the country's competitiveness to be ready for the world economy after the recovery from Covid-19.

Medium-Term Development Strategies

Going forward, the COVID-19 is expected to become an endemic. Once the economy has recovered to the pre-covid level, the government will shift our priority and resources towards enhancing our global competitiveness and achieving the goal of becoming a high-income country by 2037 according to the Thailand's 20-Years National Strategy (2018-2037). It is noteworthy that sustainable and inclusive growth will be the core of our economic development.

To achieve such goals, it requires the right strategies implemented at the right time. The followings are the government’s plans to transform Thailand’s economic structure.

First, promoting high valued targeted industries and building a conducive industrial environment. The government has been investing in necessary infrastructure and developing the Eastern Economic Corridor (EEC) as a cluster-based advanced industrial hub that covers 3 industrial provinces which are Chonburi, Rayong, and Chachoengsao. EEC is considered as one of Thailand’s most anticipated large-scale projects. Such eco-system consists of supportive infrastructure that encompass High-Speed Rail Linking 3 Airports, U-Tapao International Airport, Intercity Motorway, Double-Track Railway, Laem Chabang Port Phase 3, and Map Ta Phut Industrial Port Phase 3.

Second, the acceleration of investments in transport and logistical infrastructures as these infrastructures will enhance the connectivity, economic opportunity and expand the investment domestically and regionally. Recently, Laos and China have opened the first Laos-China Railway which connects Vientiane and Kunming. In order to seize this opportunity, the government will accelerate the construction of a rail network linking Thailand's rail system with the Laos-China Railway. It would establish a seamless linkage between Thailand's rail system and the Laos-China Railway. Additionally, this connectivity would enhance cross-border trade, investment, and tourism.

Third, shifting the Thai economy towards digitalization. Digitalization is another key area to increase Thailand's competitiveness. Digital transformation must be prioritized by both the private and public sectors. The Ministry of Finance is improving public service by introducing e-tax filing as well as offering social welfare through National e-Payment platform. Successful digital public service programs include Half-Half co-payment scheme, Rao Chana cash transfer scheme and Shop More, Get More scheme.

Fourth, the promotion of Bio-Circular-Green Economy model or BCG model could help sustain the future of Thai economic growth. This economic model will emphasize the creation of high value products from biological resources, considering reusing various of materials as much as possible and environmentally friendly economic development. The government has taken some measures to promote BCG economy model such as (1) the issuance of green, social and sustainability bond (2) Green Tax Expense which is giving 1.25 time tax reduction for biodegradable plastics and (3) the promotion of investment in electric vehicles through BOI incentives. Recently, on 25th of November 2021, the Ministry of Finance has joined with EGAT to open EleX by EGAT, the first pilot project of commercial electric vehicle (EV) charging station installed at the Ministry of Finance, promoting the transition to widespread electric vehicle adoption and driving Thailand towards carbon neutrality.

Fifth, the promotion of SMEs and startups, as these businesses play a vital role in driving the Thai economy. In order to provide a comprehensive mechanism to raise funds for SMEs and startups, the Ministry of Finance has supported the establishment of venture capital fund in SMEs businesses through 3 government banks including (1) Small and Medium Enterprise Development Bank of Thailand (SME bank), (2) Krungthai Bank with the National Science and Technology Development Agency (NSTDA) and the Stock Exchange of Thailand, (3) Government Savings Bank together with the Stock Exchange of Thailand. In addition, the Ministry of Finance with the Bank of Thailand and related agencies have launched Digital Supply Chain Finance project. This project considers as an important starting point in helping SMEs to participate in driving the Thai economy next year as the platform will facilitate SMEs' access to funding more conveniently.

Ladies and Gentlemen,
Thailand's strong fiscal position

Thanks to our exceptionally strong fiscal position, the Government has been able to manage financing for government spending to support the people and businesses who affected by the COVID-19 as well as to support economic recovery.

As we continue to pursue measures to support necessary infrastructure and investment, we have to ensure that we do not sacrifice our fiscal integrity. The Ministry of Finance would ensure long term fiscal sustainability, and maintain the fiscal discipline.

In the implementation of any policies, I would like to assure that the Ministry of Finance would strictly comply the Fiscal Responsibility Act B.E. 2561 (2018) (FRA) and related fiscal rules to keep our fiscal sustainability.

In particular, the public debt to GDP ratio as of October 2021 remained relatively low at 58.8 percent of GDP which is still under the Fiscal Responsibility Act threshold (not more than 70 percent). Prudence in debt management will further help ensure that the interest payments to revenue remains low at around 6-7 percent, enabling budget to be allocated for stimulus and investment.

To unleash our potentials towards more sustainable recovery, both Ministry of Finance and the Bank of Thailand will work closely to ensure that policy coordination between monetary and fiscal policies would create favorable environment for economic recovery. Importantly, monetary, and fiscal policies must be implemented based on the condition and stage of the Thai economy. Accommodative economic policies are necessary to ensure a robust recovery.

Ladies and Gentlemen,

To this end, it is essential to make a global linkage by regularly organizing this international gathering to exchange information and share experiences in transportation amongst countries across the globe.

This will benefit to strengthen the cooperation and exploit transport infrastructure and urban developments for mobilization of people in safe, efficient, and friendly manners for the benefit of our dynamic society.

I am certain that we will have more to discuss in the conference.

I hope you will all join in the discussion of the conference today make it successful event for all.

Now, it is time for me to declare the conference opens.

Thank you very much.

14TH ATRANS ANNUAL CONFERENCE

"TRANSPORTATION FOR A BETTER LIFE: FUTURE POTENTIAL OF TRANSPORTATION AND URBAN MODEL POST COVID ERA"

Saturday, 18 December 2021 during 09:00 – 18:00
Meeting Room: Thonburi Ballroom on M Floor, Millennium Hilton Hotel Bangkok

10:20 – 12:00 Session 1: "Transportation for a Better Life: Future Potential of Transportation and Urban Model Post Covid Era"	
	**10:20 – 10:40 Speaker 1:** "Smart Cities in Japan: Achievements and Challenges" **By Prof.Dr. Haruo Ishida** Chairman of RIRS and Emeritus Professor, University of Tsukuba and visiting professor at Nihon University, Japan
	**10:40 – 11:00 Speaker 2:** "Thriving with Transport and Urban Systems in Post Covid Era: Indonesia Perspectives" **By Prof.Dr.Sutanto Soehodho** University of Indonesia, Former Deputy Governor of DKI Jakarta for Trade, Industry and Transportation, Indonesia
	**11:00 – 11:20 Speaker 3:** "Public Transport Reforms: A Journey on Three Axes of Competition, Ownership, and Regulation" **By Mr. Rene S. Santiago, Engr.** President, Bellwether Advisory Inc., The Philippines
	**11:20 – 11:40 Speaker 4:** "Urban development and mobility in Thailand post-Covid: Whither are we bound?" **By Assoc. Prof. Dr. Apiwat Ratanawaraha** Department of Urban and Regional Planning, Faculty of Architecture, Chulalongkorn University, Thailand
Remarks	**11:40 – 12:00 Discussion, Q & A**
	**Moderator of Session 1:** **Prof. Dr. Atsushi Fukuda** ATRANS Honorable Advisor, Nihon University, Japan

14th ATRANS Annual Conference on “Transportation for a Better Life”

Smart Cities in Japan
～ Achievements and Challenges ～

2021.12.18
ISHIDA Haruo, Dr. Eng.
Professor Emeritus, The University of Tsukuba
Chair, Japan Research Institute of Roads and Streets

筑波大学 University of Tsukuba

Self Introduction

- ISHIDA Haruo Dr. of Engineering
  - Prof. Emeritus, the University of Tsukuba
  - Chair of the Board, Japan Research Institute of Roads and Streets

- Profile
  - 1951 Born in Osaka
  - 1974 Graduated at the Dept. of Civil Engineering, Tokyo Univ.
  - 1978 Assistant Prof. at Dept. of Civil Engineering, Tokyo Institute of Technology
  - 1982 Prof. at Institute of Social Systems and Management, the University of Tsukuba

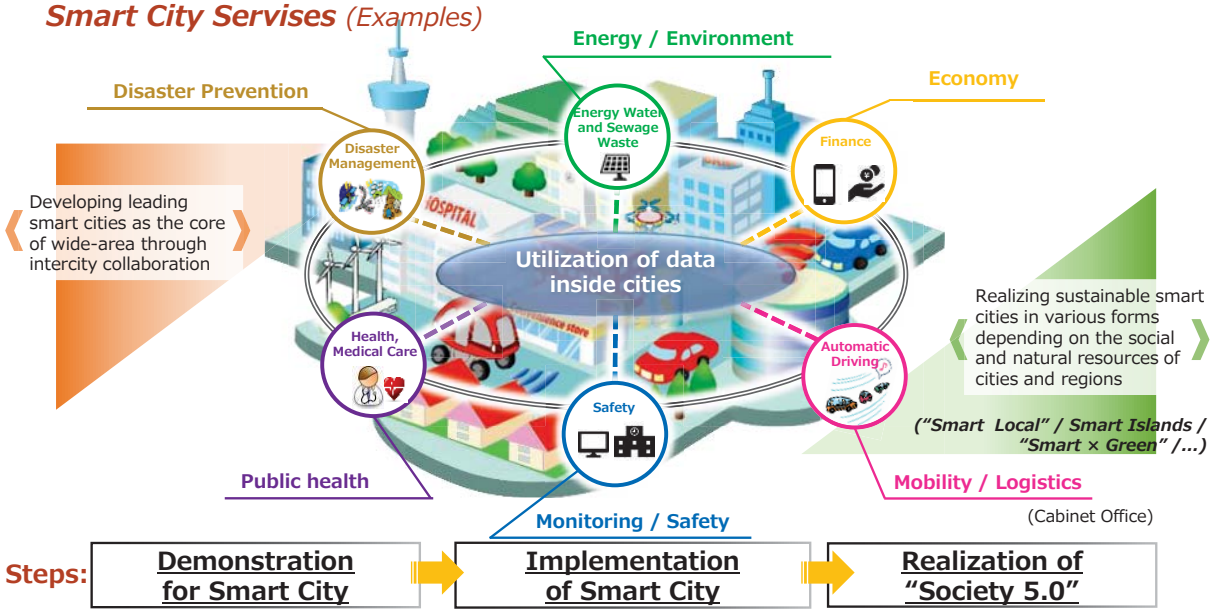
- Public services
  - Cabinet Office
    - Member of Committee on Green Innovation Strategy Development and Driving
    - Chair of Committee on Smart City Guide Book
  - Ministry of Land, Infrastructure, Transport and Tourism
    - Chair of Advisory committee on SMART JAMP
    - Chair of Committee on Road Policy , Infrastructure Policy Council
  - Ministry of Economy, Industry and Trade
    - Member of Council on Industry Policy
    - Member of Committee on Autonomous Driving Business

What's "Smart City"?

Smart City is:

- **An initiative to solve urban & regional problems and create new value by utilizing advanced technology & management**
- **A comprehensive showcase of Society 5.0**

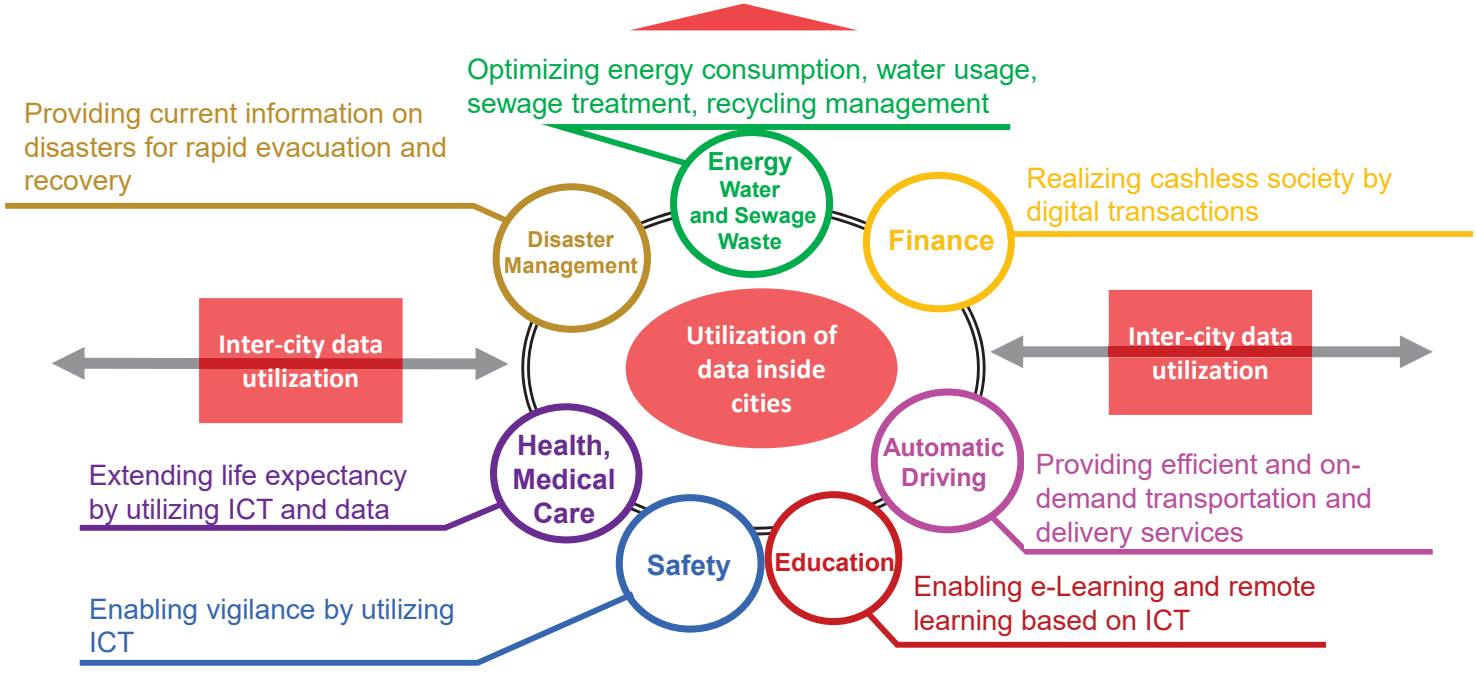
Smart City Servises *(Examples)*



Steps: Demonstration for Smart City → Implementation of Smart City → Realization of "Society 5.0"

Significance of Smart City Development – Why Is It Necessary?

Enhancing well-being of citizens



Basic Concepts and Principles of Smart City in JAPAN

Three Basic Concepts

Oriented to Citizen and User Demands
Enhancing well-being of citizens for their benefit through their conduct

Focusing on Issues and Visions
Concentrating on resolving actual problems in order to realize visions, not on creating new technologies

Co-operation across Sectors and Cities
Collaborating among different sectors and cities in order to resolve complicated problems beyond boundaries, including data linkage

Five Basic Principles

Fairness and Inclusiveness
All citizens are able to equally benefit from smart city services and all entities are able to participate in developing smart city

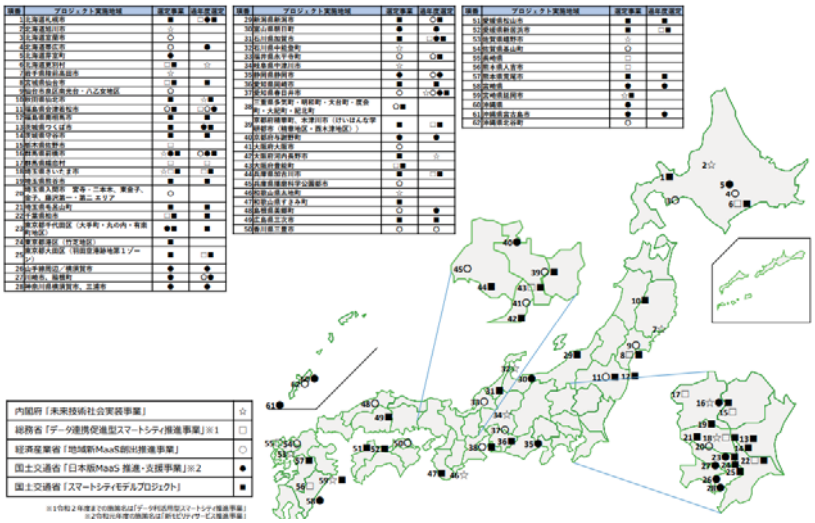
Privacy
It is required to ensure privacy of citizens when utilizing personal data

Sustainability in Terms of Operation and Funding
It is necessary to ensure sustainability in operation and funding for sound and feasible smart city suitable for local community

Interoperability, Openness and Transparency
It is essential to ensure interoperability functions in urban OS, open data distribution environment, and transparency in decision-making process

Security and Resiliency
It is vital to ensure security and resiliency, i.e., protect privacy and prepare for disasters and other emergencies

Smart City Projects in 2021



FACTS

Assistance are given to 62 projects in 42 cities

Project Category

METI: MaaS, MLIT: MaaS, MLIT: Smart City,
MCI: Smart City, CO: Future Technology

Achievements

Good cooperation/collaboration between Local gov. and National gov.

Local Needs, Problems based

National Financial, Technical and Human resource assistance

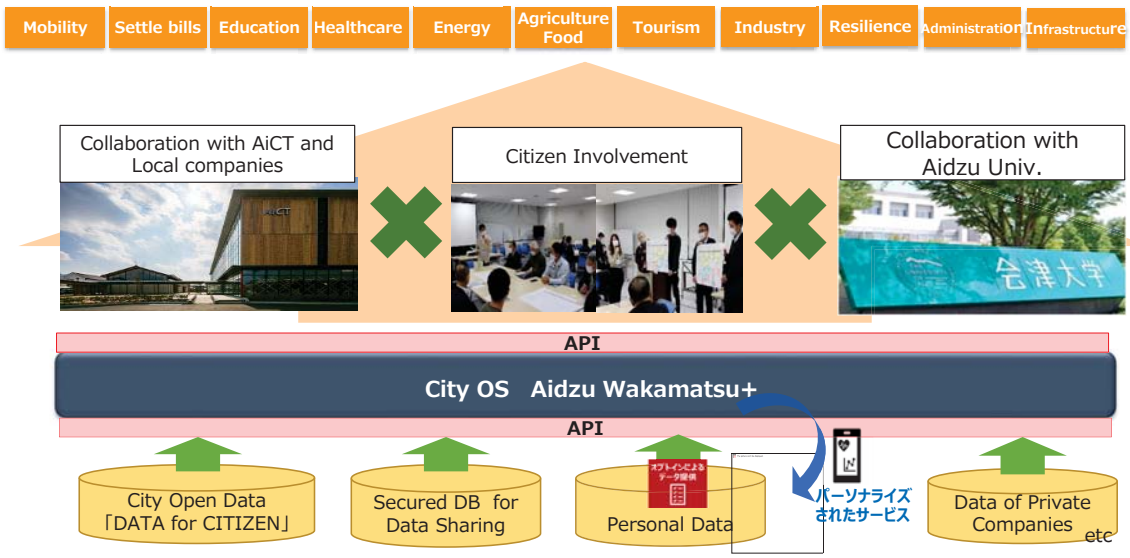
Platform for sharing needs, problems and results

300+ consortiums to discuss, plan and implement Smart City Projects across Japan

Comprehensive Smart City　Aidzu Wakamatsu

Wide varieties of Services
Collaboration among various Stakeholders
City OS

Pop. 121,000
Area 383km2



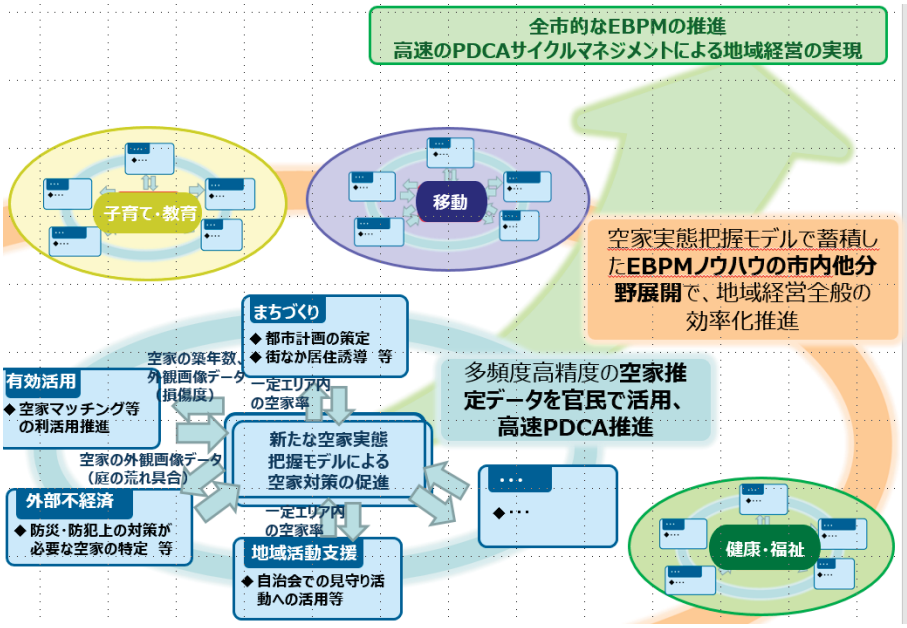
Source
Aidzu Wakamatsu City
Modified　by　Ishida

EBPM City Management　Maebashi

Evidence-based Policy Making and Fast PDCA Cycle Management

Urban Regeneration, Healthcare, Community activities,…

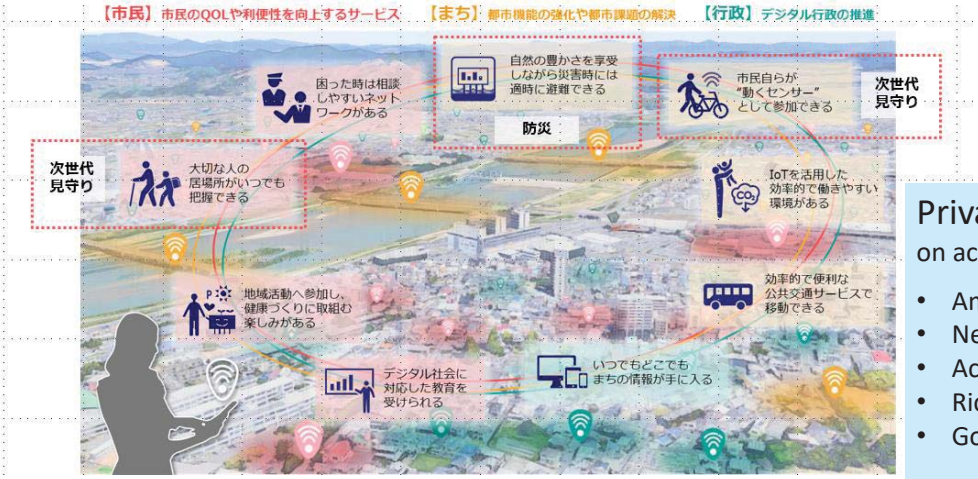
Pop. 341,000
Area 312km2



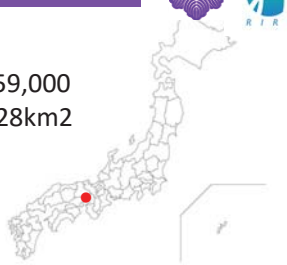
Source Maebashi city

Protecting Citizens against Disasters, Accidents and Crimes Kakogawa

Disaster prevention/ Resilience
Warm watch over elderly peoples and children



Pop. 259,000
Area 128km2



Private observation

on achievements in 3 cities

- Ambitious visions
- Needs/Problems driven
- Active/close co- working in teams
- Rich technologies and products are available
- Good Leader/ Architect

- In many Smart Cities various, various things are tried, achieved and failed
- These experiences and lessons are shared through the Smart City Pratform

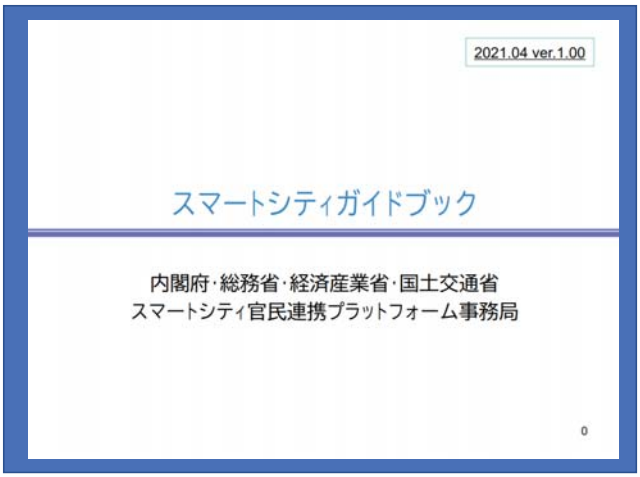
Possible Scene of Smart City Attempt

- A mayor wants to make his/her city better through SAMRT CITY Concept and request staff to develop plans.
- The easiest way for staff is to follow the technical/ methodological way : Smart City Flavor and to employ IT consultant.

- But, this is definitely not right ways.
- Smart City should aim at solving urban/regional problems, being human-oriented, being demand/needs oriented and so on.

- We have developed two Guidebooks to reduce this kind of misunderstanding and to assist right attempts.
- Smart City Guidebook
- Smart City Reference Architecture Guidebook

Smart City Guidebook and Smart City Reference Architecture



- To extend the significances and needs of SMART CITY
- To encourage and support local public organizations, consortiums by providing them basic ideas, theories, methods and good/advanced practices

SMART CITY is not only for Special Areas such as center of metropolis, but for any places including rural/local areas

Easy to read Technical Assistance to develop Smart City OS

English version will come soon

Five Important Points of SMART CITY Projects

- Building Functional and Flexible Driving Entities Organizations
- Ensuring Financial Sustainability Financial Power
- Proactive Citizen Involvement Public Acceptance and Support
- Introduction of City OS ICT
- Appropriate monitoring and evaluation of Project Evaluation and Fast PDCA

- Good practices and examples of these 5 points are given in this Samar City Guidebook

Challenges and Collaboration with ASEAN Cities

- Japanese cities, ASEAN cities and world cities have been trying to achieve many objectives; improvement of well-being, resilience, attractiveness, mobility services, city management, economic vitality, …
- SMART CITY can be quite powerful tool. We should collaborate further to produce, increase and share rich fruit of SAMRT CITY

Smart JAMP

Smart City supported by Japan-ASEAN Mutual Partnership

- Implementation of concrete smart city project formation
- Promotion of financial support for ASEAN smart city proposals
- Strengthening support for smart city in ASEAN countries
- Smooth information sharing and mutual cooperation through JASCA homepage

- Smart JAMP is very important for Japan, too.
  - To mobilize Japan
  - To widen, deepen and strengthen Mutual Partnership, Trust and Friendship
  - To synchronize development of Japan with ASEAN countries

We will go foreword
STRONGLY and TOGETHER!!

Thank you for your attention

筑波大学 University of Tsukuba

Thriving with Transport & Urban Systems in Post Covid Era: Indonesia Perspectives

14TH ATRANS ANNUAL CONFERENCE

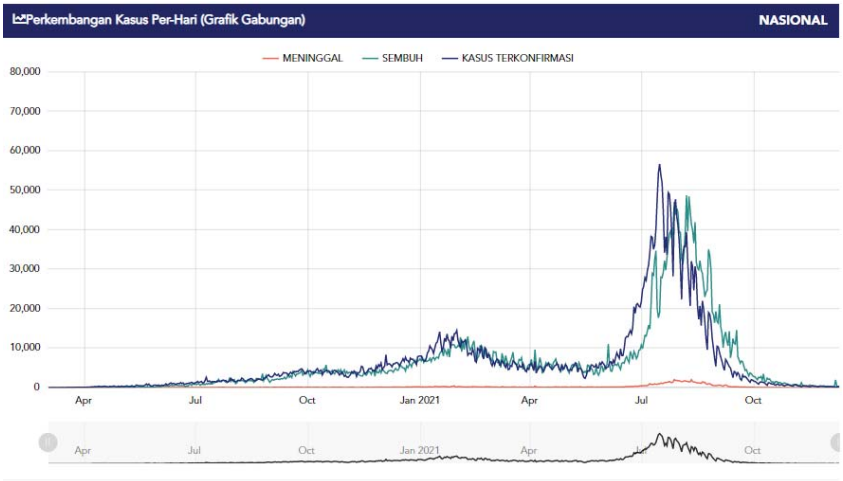
18TH DECEMBER 2021, BANKOK, THAILAND

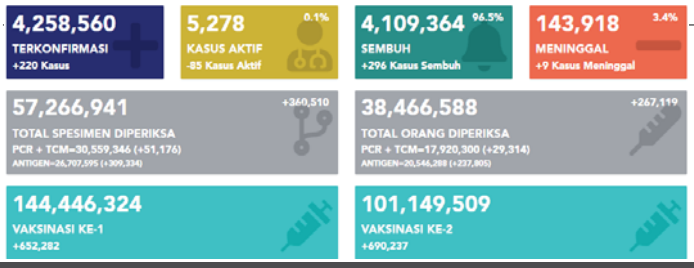
UNIVERSITAS INDONESIA
Veritas, Probitas, Iustitia

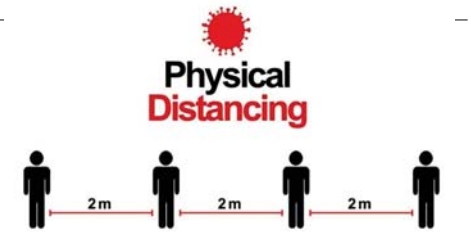
How good do we learn from pandemic Covid-19 to change our transport behaviors…and thrive with it.

SUTANTO SOEHODHO
UNIVERSITAS INDONESIA
TASK FORCE T2 – G20

Pandemic Covid-19 Condition in Indonesia







Future Urban Expediency

- Less urban face-to-face activities
- Less office space required
- More working space required
- New urban trip patterns
- Flexible working hours
- Optimal last miles of person trips and goods movements
- More urban amenities for better life designed with smart atmosphere

Transport Impacts on Economy

Total Energy Consumption

Indonesia …… 43.11% (2020)

USA …… 26.13% (2020)

China …… 20.00% (2020)

Total Emission

Indonesia …… 26% (2017)

USA …… 29% (2019)

China …… 10% (2020)

ICT Replacing People Movement

- New Pattern of Office Based Works (hybrid online-offline, product-based rather than time-based system, productivity rather than production)
- Reducing Person Trips
- Improving Traffic Performance
- Energy Efficiency
- Improving Environmental Quality

People Transport

PRIVATE-PUBLIC TRANSPORT;

SEAMLESS, INTERMODE, INTERNETWORK, RENEWABLE AND ENVIRONMENTALLY FRIENDLY ENERGY, SMART ENFORCEMENT; E-ENFORCEMENT

SMART PUBLIC TRANSPORT;

SMART PLANNING AND OPERATION, SMART FINANCING, INTEGRATED PRICING POLICY NOT ONLY TICKETING, AFFORDABLE AND COMFORTABLE

Goods Movement /Physical Distribution /Logistics

Smart Supply-Chain Management

No-Empty Backhaul

Integrated Transport-Warehouse Operation

Sound Last Mile Deliveries

Digital Logistics Data and Information Management

Real-time Optimization Process

Financing Transport Sector

Public-Private-Partnership (BOT, BTO, BOO, VGF, AP, etc.)

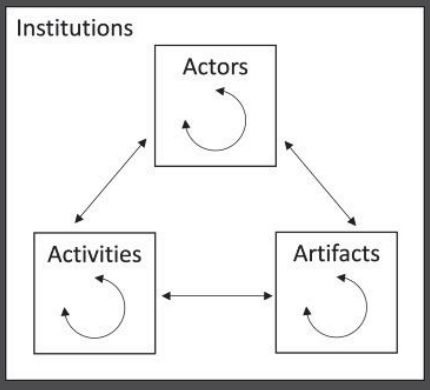
Strategic Financing for Infrastructures and Facilities

Earmarking Scheme of Fundings

Future Transport Perspectives

- Promoting more use of public transport and non-motorized transport (e.g., , bicycle paths, more incentive for public transport users and more disincentives for private vehicles)
- Promoting more use of green and renewable energy
- Development of more seamless goods movements (e.g., sea-toll)
- Digitalization and electrification of vehicle operations (e.g., e-enforcement, electric buses, digital logistics system operation)

Transport Innovation Ecosystem



An innovation ecosystem is the evolving set of actors, activities, and artifacts, and the institutions and relations, including complementary and substitute relations, that are important for the innovative performance of an actor or a population of actors. (Ove Granstand & Marcus Holgersson, 2020)

How all related stakeholders work, in harmony, in the context of co-evolving, competition, and collaboration.

Safety issues could be the peak of iceberg to comprehend appropriate actions and resources onto transport system (e.g., system, technology, financing, management, control, etc.). (Sutanto Soehodho, 2021)

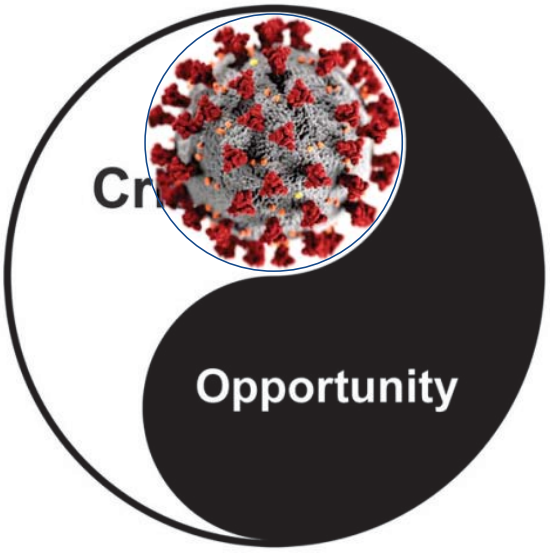
ATRANS
14th Annual Conference
18 December 2021

PUBLIC TRANSPORT REFORMS

A Journey in Three Axes: Competition, Ownership and Regulation

Rene S. Santiago

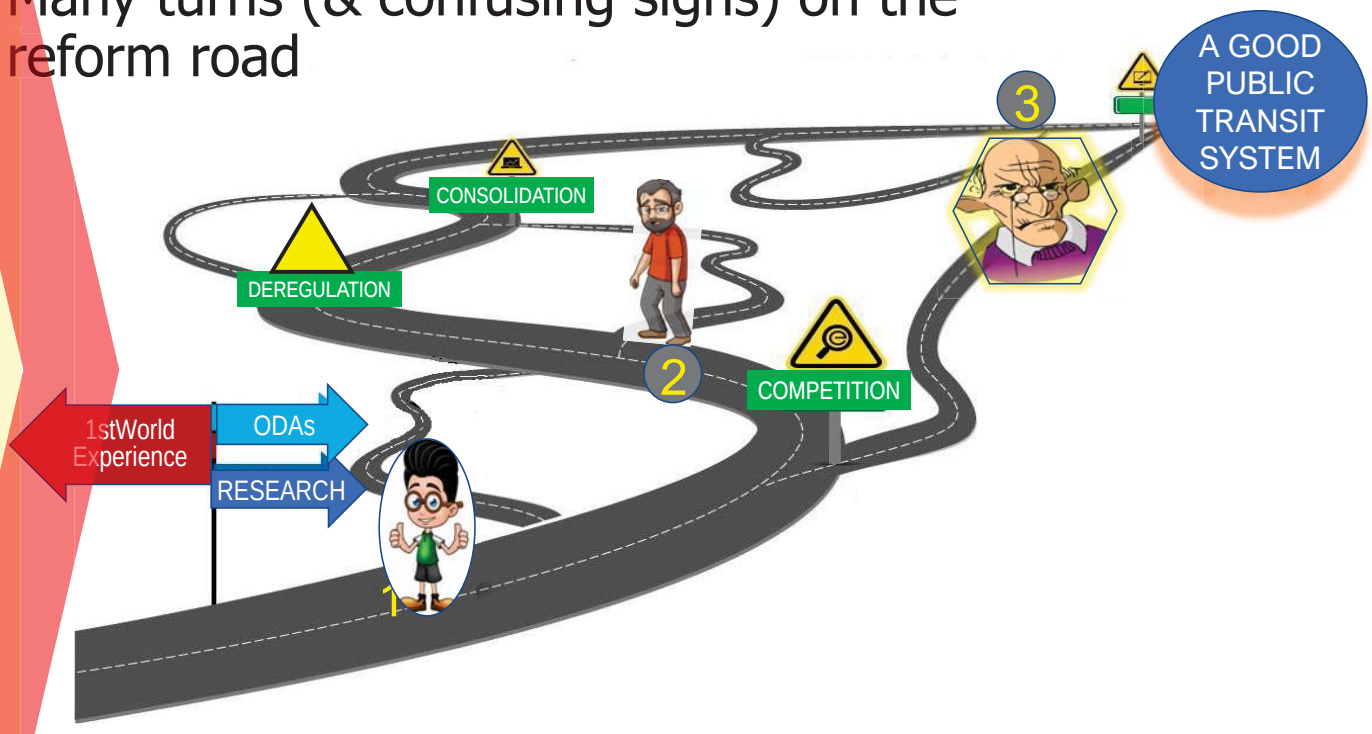
Danger or Opportunity on the Reform Road?



Rare Opportunity:

- ➔ Reset urban transport system (*especially, the road-based PT system*)
- ➔ Slowdown and re-calibrate the reform roadmap
- ➔ Accelerate long-simmering reforms of PT

Many turns (& confusing signs) on the reform road



Broad agreement on what makes PT good

- Convenient transfers across different modes (jeepney, bus, rail) with no cost penalties
- On-board comfort (seat, ventilation, personal space)
- Accessible, convenient, & safe loading/unloading point
- Reasonable journey time
- Reliability, predictability, high frequency
- Affordable fares

BUT . . .
No well-trodden road

Journey need not be as puzzling as a Rubik's Cube

My early exploration was on 2 Axes

REGULATION

COMPETITION

Regime	Demand on Public Institutions		Demand on Public Funds		Externalities: Effects on Other Sectors	
	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term
Public Monopoly	Medium: Capacity building for bureaucracy	HIGH: enlarge bureaucracy for transit O&M	HIGH: Funding to buy out or replace fleet	HIGH: Capex & Operating Subsidy	HIGH: Adverse effects on existing operators	LOW: minimized traffic impact
Controlled** Competition	High: Reform the regulatory agency & franchising law	Low: small bureaucracy required	Medium: Gov't may need to seed the consolidation	LOW: sound fare will lead to zero subsidy	Medium: Bus consolidation	Low: minimized traffic impact from fleet management
Deregulated Regime	LOW: small bureaucracy & low competency	LOW small bureaucracy & low competency	NONE	LOW: for common infrastructure	Low: no change in current structure	HIGH: high congestion due to street competition

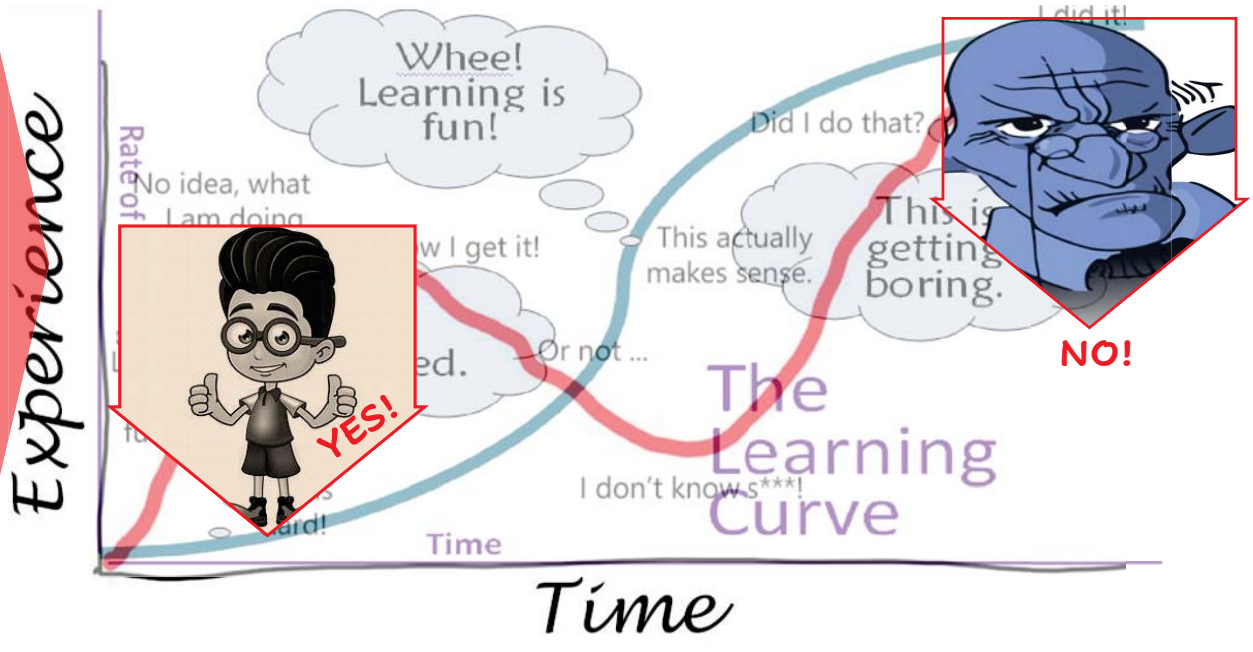
**Estache & Gomez-Lobo. "The Limits to Bus Competition in Urban Bus Services in Developing Countries", World Bank Policy Research Working Paper 3207 (Feb 2004)

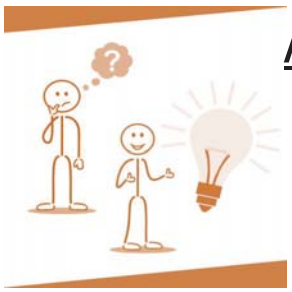
Is this supply deficiency (no competition)?

YES, lack of supply caused by Gov't Regulator restricting competition

NO, supply is adequate but Fare too low

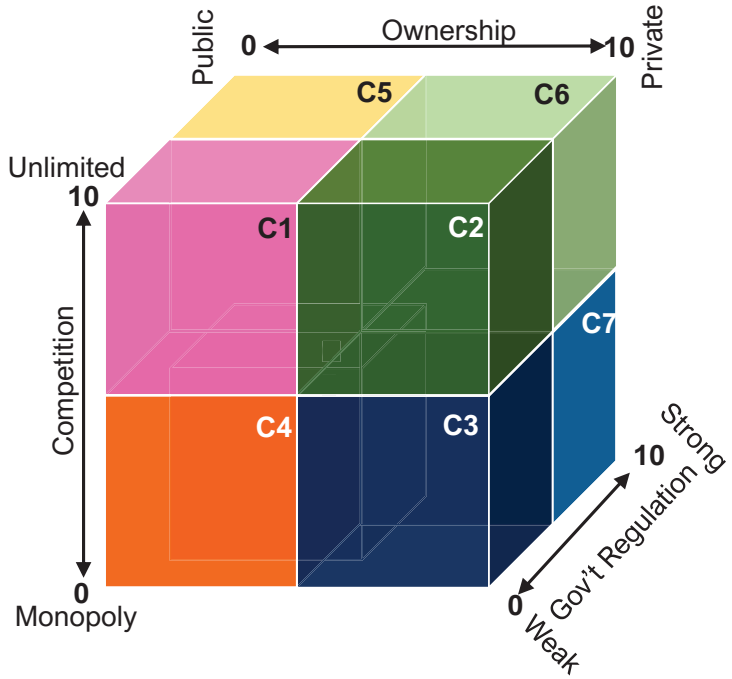
Viewpoints differ, as position in LC progress





As well as starting position in the cube

Trifecta of
x=Ownership
y=Competition
z= Regulation



STO Framework of THREDBO *

STRATEGIC:
Movement in 2 dimensions, or change in Cube

TACTICAL:
Change of position within same Cube, in 1 dimension

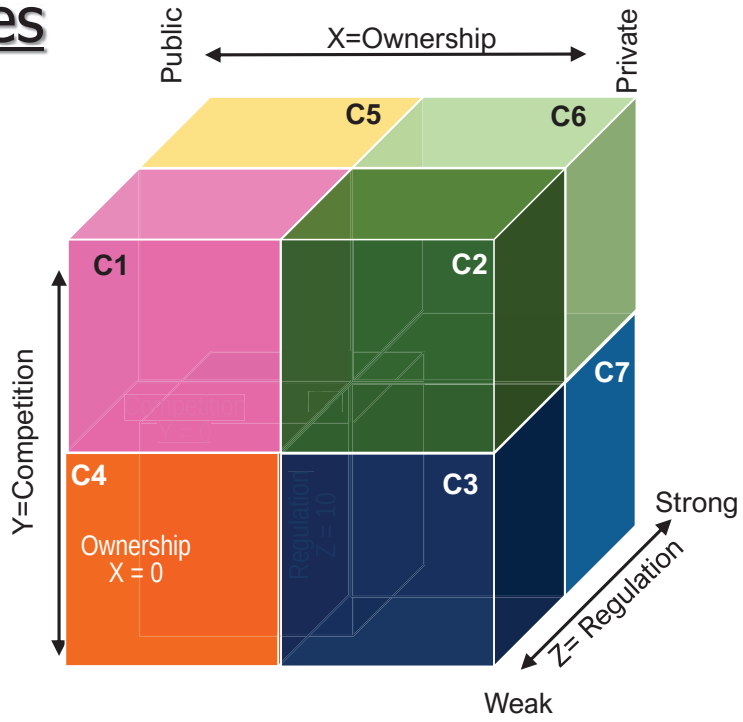
OPERATIONAL:
Improvement w/No change in position w/in a Cube

**Yale Z. Wong and David Hensher, "The Thredbo Story: A Journey of Competition and Ownership in land transportation market", Research in Transportation Economics, vol69 (Sept 2018)*

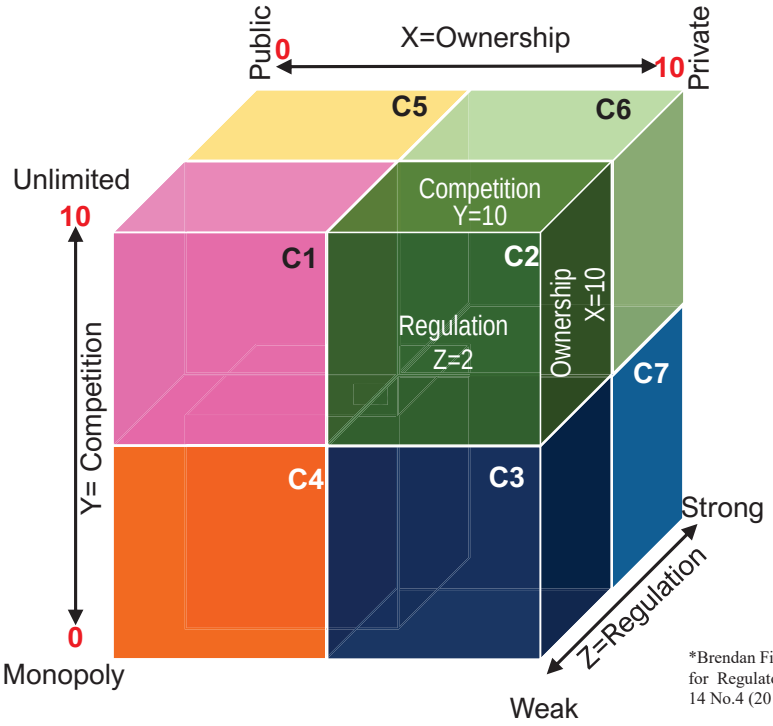
The View of C1W Cities

Reform Threads
- Unbundling
- Service Contracting
- Movement on Y axis

Thredbo Countries [C4]
(X=0, Y=0, Z=10)
- Local Public Transit Authorities
- Nil to Zero paratransit
- Car as dominant mode



The View of C3W Cities ("Threadbare" Countries)



Philippine [C2 Corner]

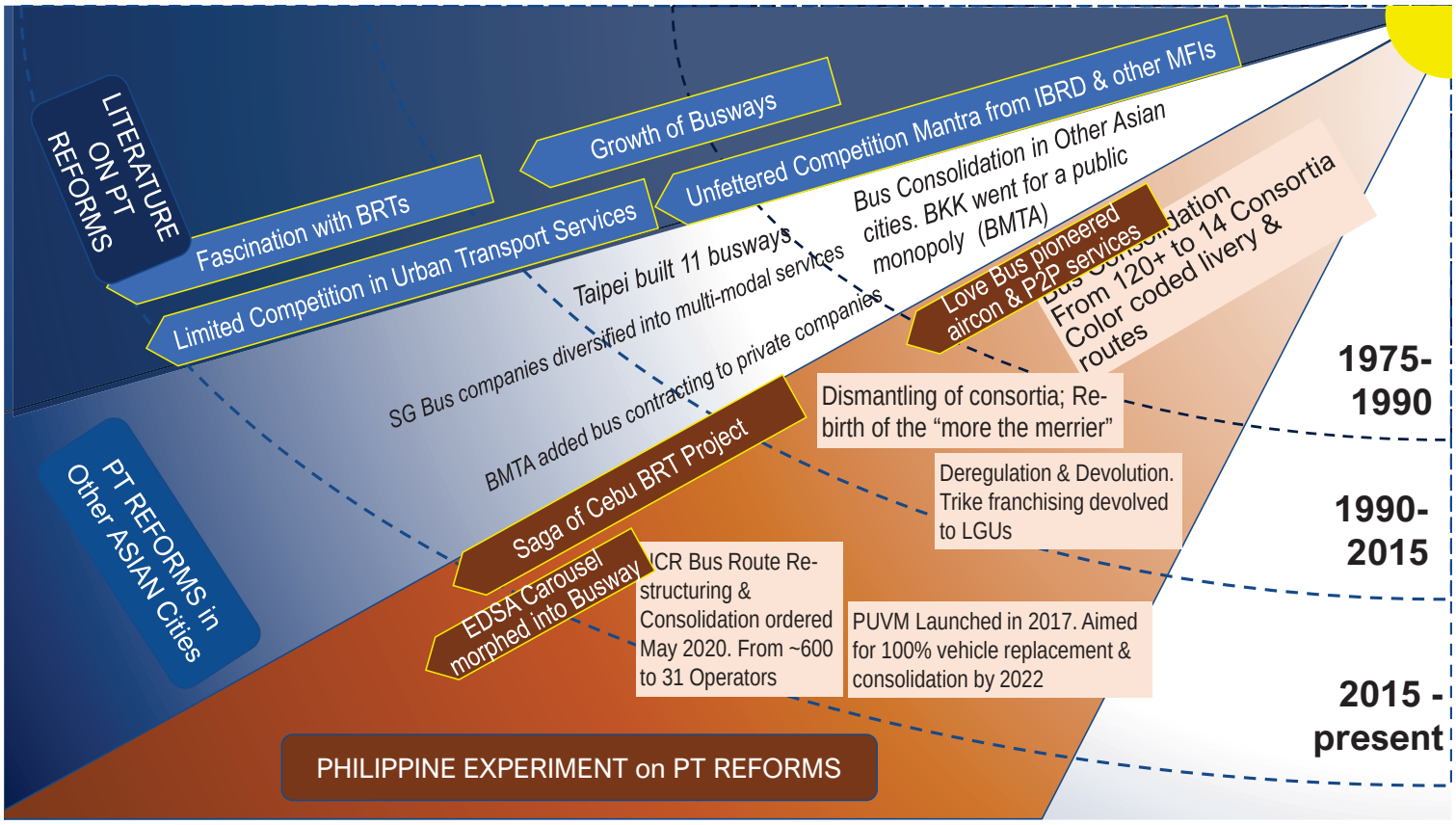
(X=10, Y=10, Z=2)

- Weak Institutions (Z)
- Multi-modal Competition of many small operators
- Private Ownership (X)

Reform Threads

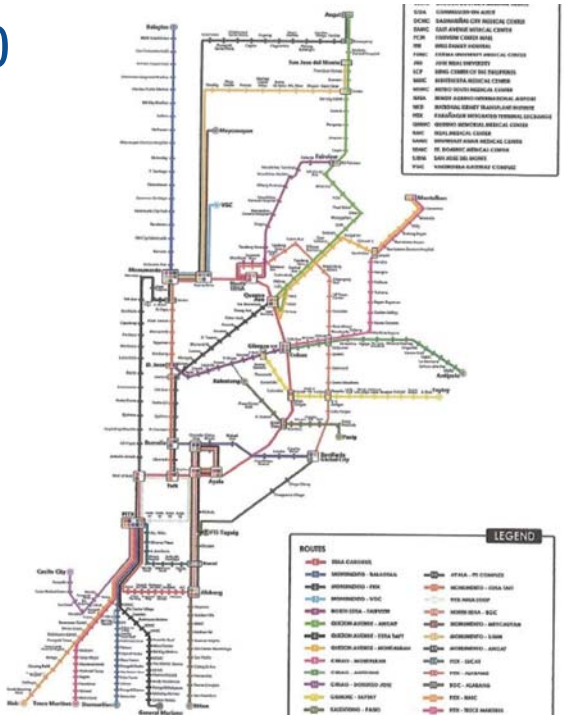
- Consolidation (Y) → C3
- Regulation (Z)→ C6
- Zero change on X axis

*Brendan Finn ."Urban Bus Services in DC and Countries in Transition: A Framework for Regulatory and Institutional Developments" Journal of Public Transportation , vol 14 No.4 (2011)



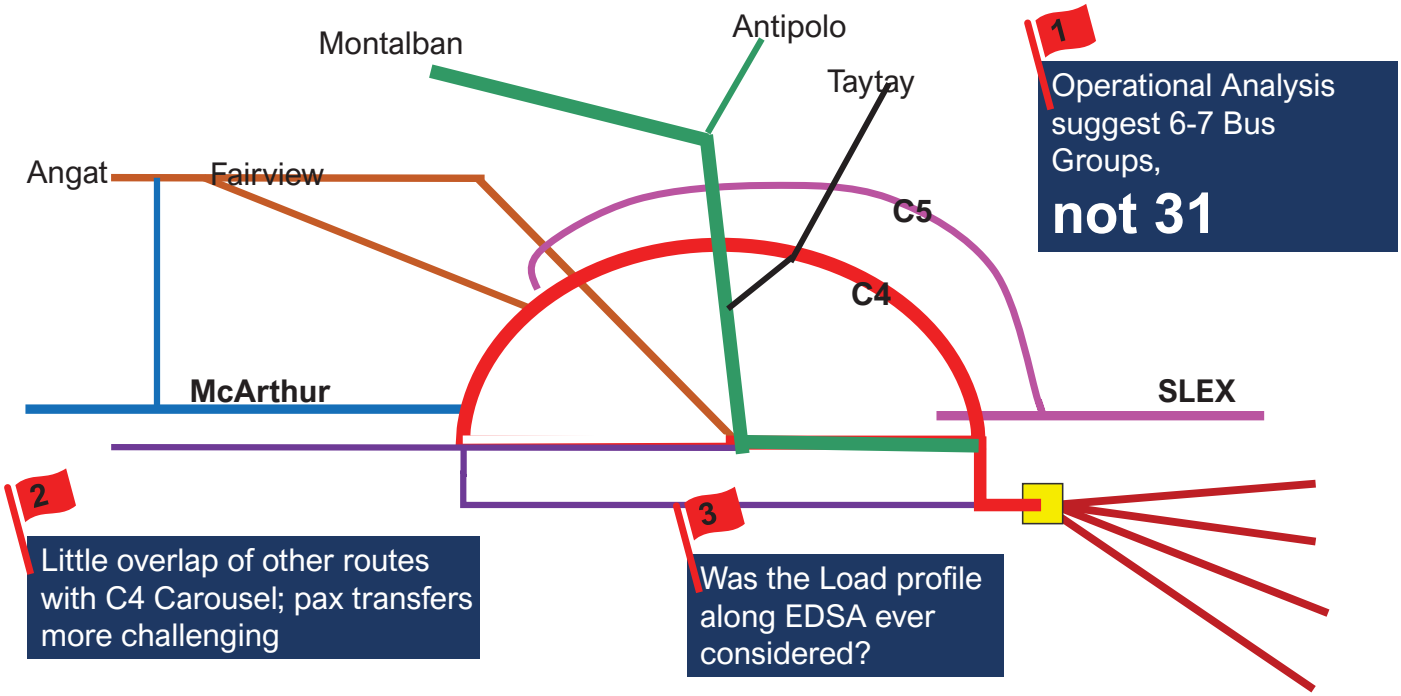
Bus Consolidation version 2020

- Merger of 600+ operators into 31
- Existing operators to re-apply for franchise (1 franchise=1 route)
- Intra-bus transfers, turn-around points, depot locations (unspecified)
- Color-coding buses & routes (31 colors)



Guarino, et.al "A Study into Viability of Consolidating Bus Companies Operating in Metro Manila", 8th TSSP Conference (1997)

Bus Routes Structure → Number of Operators



Tale of 2 Bus Consolidations

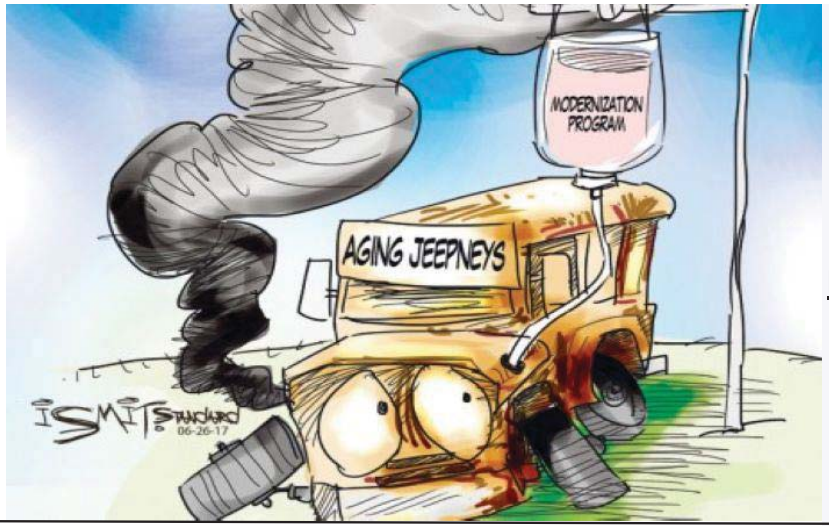
Consolidation circa 1970s

1. Presidential LOI#532, 1343 9s1975
2. Cabinet-level steering committee (COBRE)
3. Full-time Project Team inter-acting with bus operators
4. Route structure derived from operator's suggestions
5. Bus livery (color) for bus fleets proposed by consortium & approved by COBRE. Same with route color
6. No reduction in bus number, minimum fleet size for each consortium

Consolidation circa 2020s

1. LTFRB Memo Order 2020-019
2. ??? Maybe 3-pax Board of LTFRB
3. Undetermined project team
4. New route structure proposed by a consultant & imposed to operators
5. Route color and code number imposed by LTFRB
6. Reduction in bus number from ~10,000 to 4,600

The PUVM*: Teething or Systemic Problem?



- Target: replace 200k+ jeepneys with minibus by 2021
- Re-design all PT routes (to be done by LGUs)
- Consolidate operators: one 'coop' = one route

Dubious Assumptions:

- New vehicle will be viable at same old fare
- LGUs can prepare route plans, following LPTRP Manual
- Consolidation will happen, by fiat

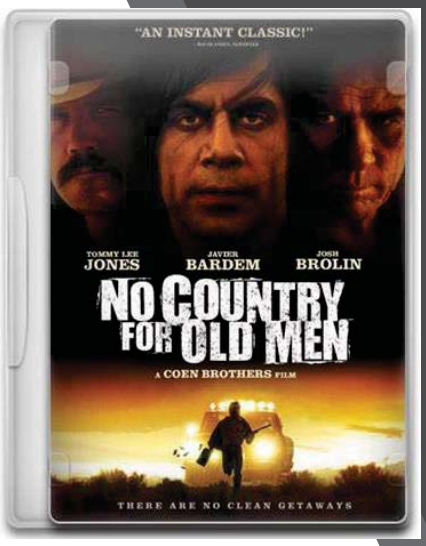
* PUVM – **P**ublic **U**tility **V**ehicle **M**odernization, a Phil government program to phase out old LAMAT, launched in 2017

The slippery slope of Service Contracting

- Private sector contractor is "yet to be organized"
  - Buses and jeepneys are in process of consolidation
  - Contracting with thousands of small operators is a bureaucratic nightmare
- Absence of a pre-existing (+Local) Public Transit Agency (PTA)
  - No LGUs has embraced PT as public service obligation (PSO)
  - Public sector counter-party to SCS is missing
- LTFRB is the wrong counterparty: conflicted interest between regulator and operator
  - No experience in PT transit management
  - Gov't as transit manager: from the frying pan into the fire
- Open a Pandora's Box: politicians meddling in the selection of operators and setting of fares (weak institutions)
- Wrong starting point in the Trifecta

**Conclusions derived by applying Backcasting methodology see ADB's Futures Thinking in Asia Pacific*

Realizations of an 'aging' Researcher



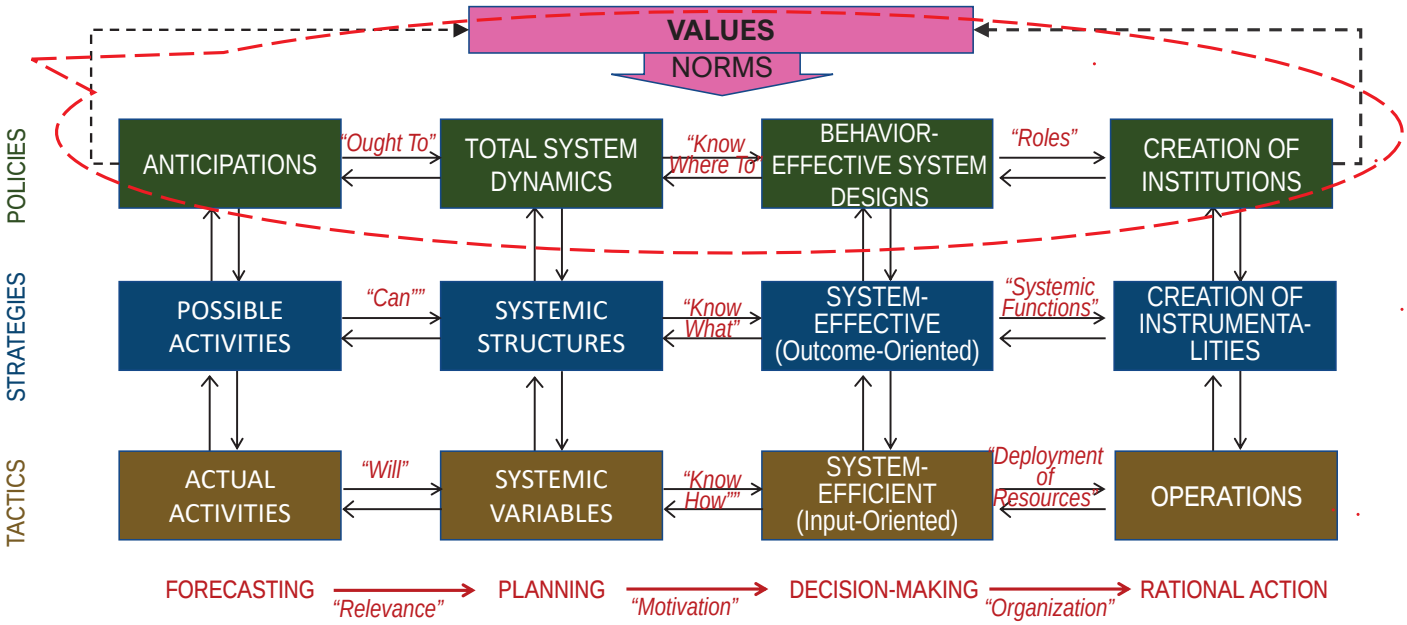
- ➔Public Monopoly is to be preferred when
  - *Economies of Scale*
  - *Public institutions are strong/competent*
- ➔Government (PHI) is a bad manager in O&M situation
  - *Reverse Midas touch: turns gold into bronze*
  - *Inner clock on accelerated entropy*
- ➔In a competitive market (according to Economists)
  - *Government hand is unnecessary*
  - *Steering, not Rowing, is the mantra*
- ➔Balancing too many vs too few operators
  - *Too many: commuters can't differentiate good from the bad*
  - *Fear of monopoly/oligopoly is imaginary (in transport)*
  - *Other modes are competitors (hiding on plain sight)*
- ➔Colonial mentality can't be dismissed
  - *Seduced by imported ideas & foreign experts*
  - *Dismissive of local researchers*
  - *Explains obsession with Service Contracting Scheme*

Many questions when I begun my journey

Many questions remain, after many years

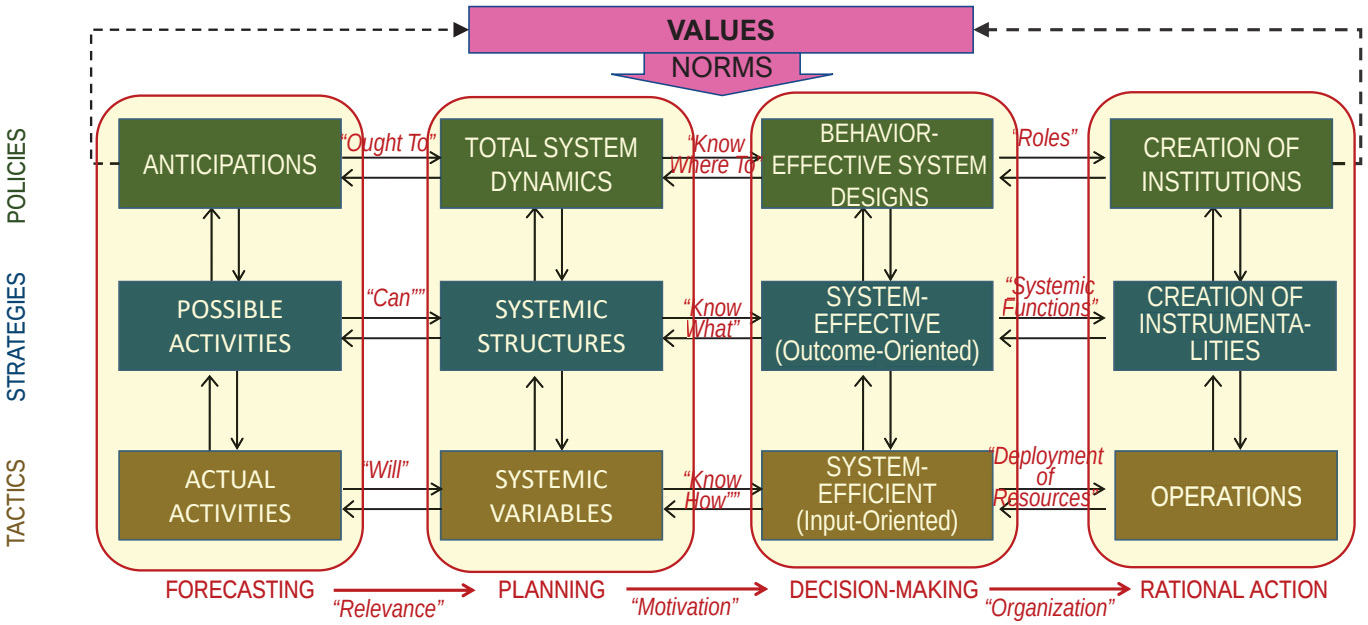
- PT Modernization = Corporatisation/Amalgamation?
- Can small operators be coordinated or integrated without consolidation?
- How to save PUVM? Or does it need saving?
- Will the old playbook on bus consolidation lead to new outcome?
- What about public transport in 1,400+ municipalities without buses or jeepneys as PT mode?

A Framework for Policy Design & Planning



This model appeared in a Journal of Policy Science sometime in the 1970s. Original paper and author could no longer be traced

Phasing of S-T-O-P



Thank You !

Rene S. Santiago
renesan@outlook.ph

Urban development and mobility in post-COVID Thailand:

Whither are we bound?

Apiwat Ratanawaraha
18-12-21

VUCA

Volatility,
Uncertainty
Complexity
Ambiguity

SCSC

Stability
Certainty
Simplicity
Clarity

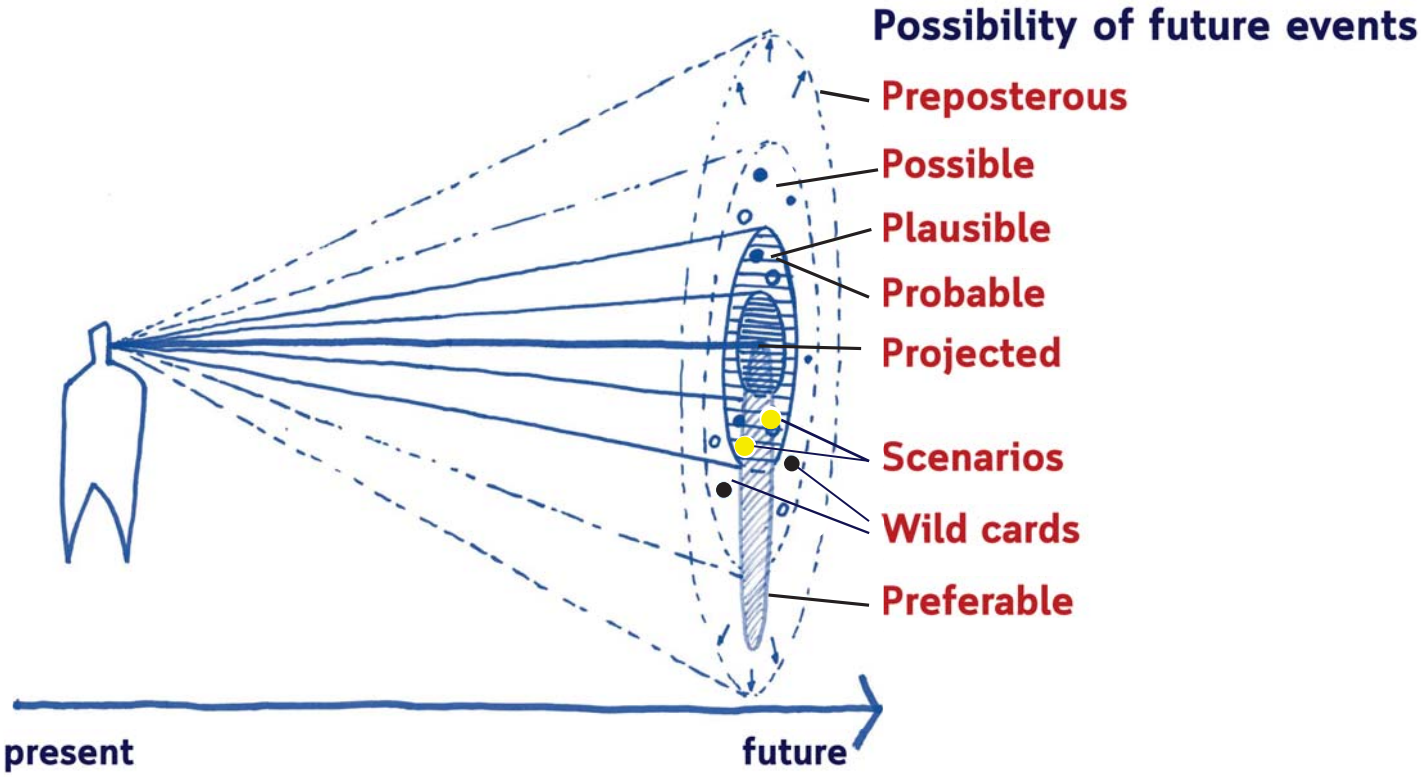
Urban infrastructure is long term

Assumptions on behaviors & lifestyles are short-term

Potential use of conceptual frameworks & methods from futures studies & strategic foresight

What are:
certain?
uncertain?

What are:
trends?
drivers?
wild cards?



Thailand: An Urban Country

Coffee shops
% 54

7-11
% 58

ATM
% 66

Urban population defined by household registration 45%

Urban population defined by consumption patterns **72%**

A tale of two cities

Large, young, growing cities

vs

Small, old, shrinking cities

# of Shrinking cities/towns in Thailand

1,427 out of 2,443 cities/towns

% of Population in shrinking cities/towns

44

Forecasting the futures by uncertainty levels

Baseline Future

based on key trends

Alternative Futures

based on key uncertainties

Baseline future for urban lifestyles: Bangkok & big cities

- Platform life
- AI & Robotics reliance
- Cosmopolitanism
- Tribal individualism
- Inequality
- Sustainability concerns

Uncertain futures post-COVID

Short-term

Bangkok & big cities:
Public transport + RHA VS private vehicles

Elsewhere:
Private vehicles VS RHA

Long-term

Bangkok & big cities:
Reconcentration VS Suburbanization

Elsewhere:
Speed of depopulation & economic decline

My humble predictions for medium-term futures

Bangkok

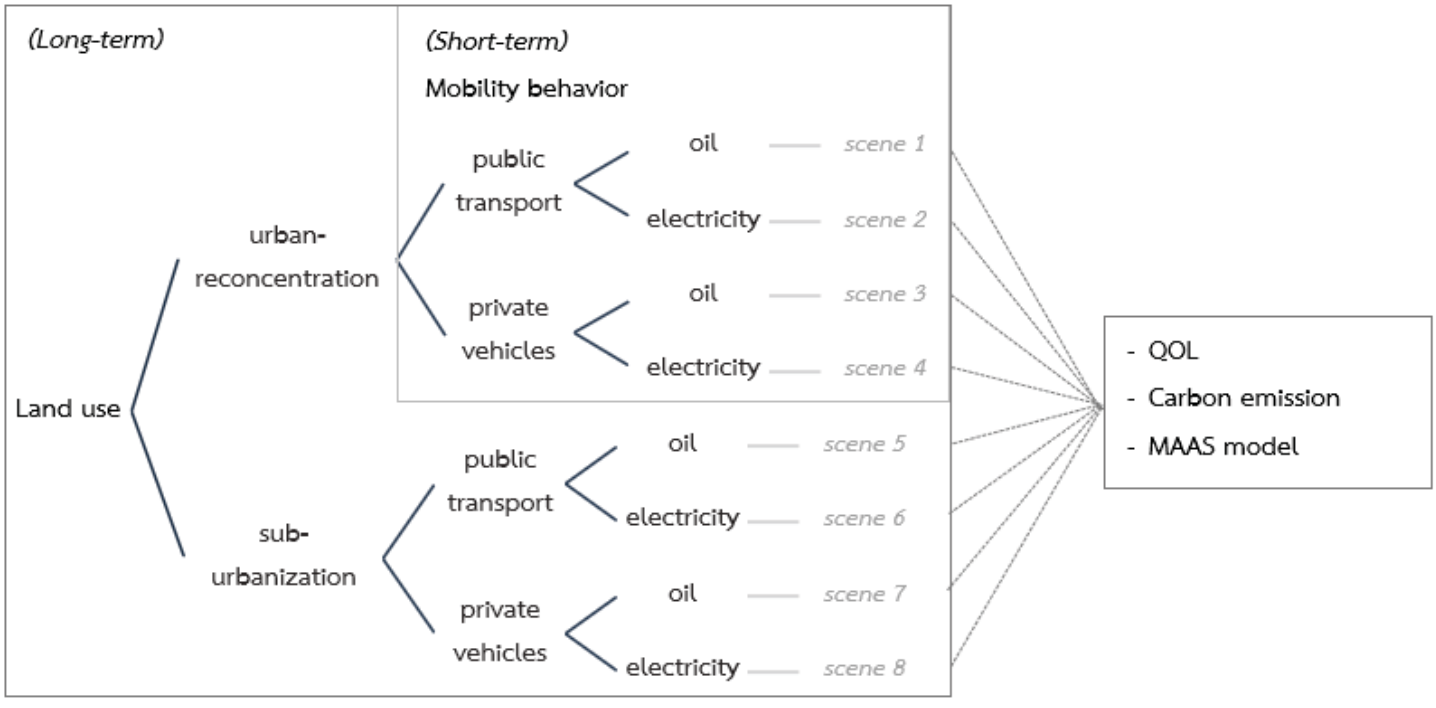
Return to pre-COVID b/c Agglomeration of jobs even w/ remote working

Same old challenges

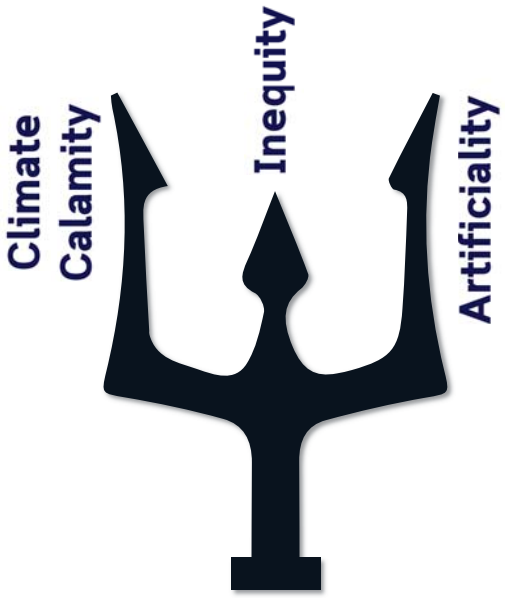
Elsewhere

Return to pre-COVID

Same old challenges



Divergent scenarios



one trident to rule them all

The Dual Decouplings

Economic growth vs Resource use
Productivity vs Wages

New technologies are the key driver &
“the gale of creative destruction”

Urban Transition Dilemmas

Big push vs Small pull
Top-down vs Bottom-up

Sustainability transitions

“Systemic transformation” requires large-scale investment for deploying technologies and building new infrastructure.

Urgency for decisive action requires top-down approach to planning and implementation

The Just Transitions

How to guarantee and improve social justice in the process towards a green & circular society and AI & automation-driven economy

New Infra vs Stranded Assets: ICEV vs EV
Capital vs Labor: RHA vs Riders

Procedural justice

Ensuring social justice requires inclusive, bottom-up participation and deliberative processes.

Context-specific plans and realistic implementation timelines are crucial to successful transitions.

Key urban development & mobility policies for post-COVID sustainable transitions:

- **Pay more attention to secondary & shrinking cities:**
  - **local economic development is key**
  - **Build it, but they won't come**
- **Beyond technical policy**
  - **Understand the interwoven social, political, and technical barriers and opportunities**
- **Inclusivity is a must**
  - **stakeholder involvement**
  - **Integrate labor and welfare policies, and if possible, income & asset redistribution policy**

14TH ATRANS ANNUAL CONFERENCE

"TRANSPORTATION FOR A BETTER LIFE: FUTURE POTENTIAL OF TRANSPORTATION AND URBAN MODEL POST COVID ERA"

Saturday, 18 December 2021 during 09:00 – 18:00
Meeting Room: Thonburi Ballroom on M Floor, Millennium Hilton Hotel Bangkok

13:10 – 14:30 Session 2: "Digitization in Transportation and Logistics"	
	**13:10 – 13:30 Speaker 1:** "Benefits and Problems in Digital map for Autonomous Driving: From Our Research Experiences" **By Assoc.Prof.Dr. Shunsuke KAMIJO** Interfaculty Initiative in Information Studies, The University of Tokyo, Japan
	**13:30 – 13:50 Speaker 2:** "Digital Transformation in Smart Mobility' **By Dr. Passakon Prathombutr** Senior Executive Vice President, Digital Economy Promotion Agency (DEPA) Ministry of Digital Economy and Society, Thailand
	**13:50 – 14:10 Speaker 3:** "Case studies and challenges in real-world deployment of digitization platform in Smart Mobility" **By Prof.Dr. Agachai Sumalee** School of Integrated Innovation (ScII), Chulalongkorn University, Thailand
Remarks	**14:10 – 14:30 Discussion, Q & A**
	**Moderator of Session 2:** **Assoc.Prof. Dr. Sorawit Narupiti** ATRANS Board, Chulalongkorn University, Thailand

14th ATRANS Annual Conference 18th December 2021

Benefits and Problems in Digital Map for Autonomous Driving: From Our Research Experiences

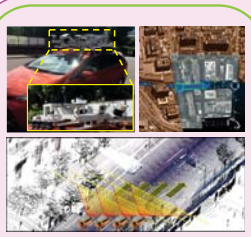
Shunsuke Kamijo
The University of Tokyo, IATSS member

LiDAR-based vehicle localization

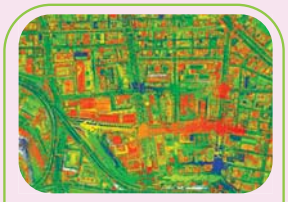
- LiDAR: One of the well-known sensor for localization
- LiDAR-based self-localization methods
  - SLAM (Simultaneous localization and mapping)
  - Map-based methods

3D Light Detection and Ranging (LiDAR) sensor

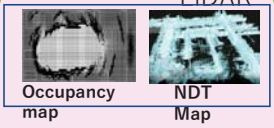
- 360 field of view
- Measuring error is less than 2cm in 100m
- Night condition without illumination
- Google, Toyota, Uber, Ford are using LiDAR



Collection data using Mobile Mapping System



Generate point cloud map (HD map)



Based on the matching algorithm the point cloud is converted to other map formats

Input scan is matched to the map to get position

Benefits of Digital Map in Autonomous Vehicle Application

- Self-Localization referencing to point-cloud data.
- Static rules are annotated in the High-Definition map.
  - Buildings, road sided facilities, lanes, road markings, …
  - lane semantics, speed limitation, traffic sign, stop line, pedestrian crossing, direction guiadance, …
  - Those information are useful for motion planning.
- Dynamic information are attached on the HD map, and delivered through digital network to the autonomous vehicles.
  - Macroscopic events of road construction, traffic regulation, damaged road, …
  - Mesoscopic events as congestion, accident, …
  - Those information are useful for travel planning.
- Object detection aided by HD map
  - HD map might comprise information of traffic signals, traffic sings, variable message signs: 3D positions and bounding boxes.
  - Improve the detection accuracy of those facilities in adverse condition as rain, fog, night time, …

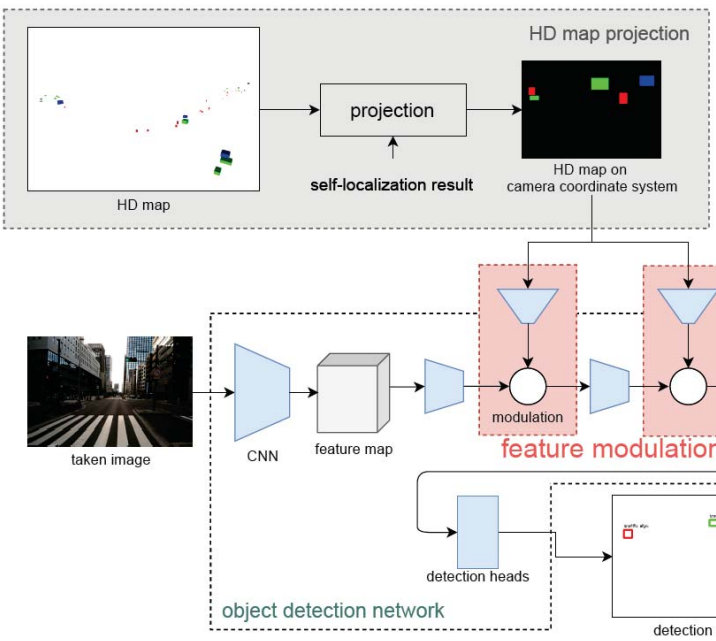
Problems of Digital Map in Autonomous Vehicle Application

- How the digital map can be updated?
  - Cloud sourcing or Tailor made?

- How the digital map should be standardized among countries, map providers, and OEMs?
  - What kind of format is available and suitable for the digital map?
    point cloud, vector, polygon, …
  - How the quality of the digital map should be defined, evaluated and secured?
    - and by whom?

- LiDAR is not reliable for localization in some scenarios.
  - Adverse weather conditions: heavy rain and fog
  - Occlusion effects: beams are interrupted by the surrounding tall vehicles
  - Passive sensor fusion mitigates the occlusion effects in conjunction with the digital map.

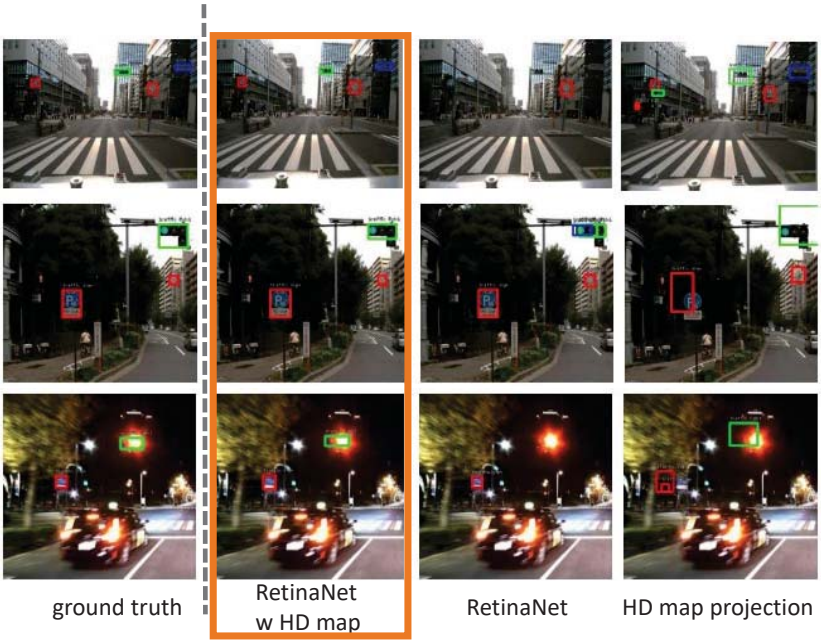
Algorithm Flow of the HD map aided Object Detection



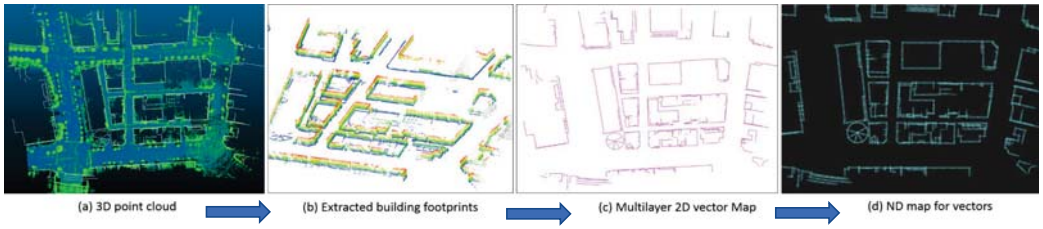
1. HD map projection as an image

2. Inference with HD map

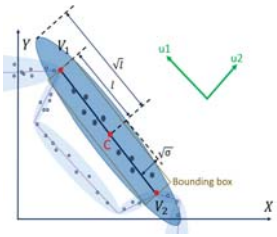
Evaluation of Object Detection in Night Image



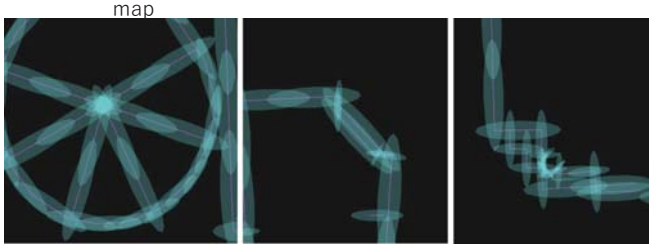
HD map comprising Vector Elements: Vector NDT



Points that made a vector form a normal distribution



Generated Normal distribution form vector map



$$P(\vec{x}) = \frac{1}{2\pi\sqrt{|\Sigma|}} \exp\left(-\frac{(\vec{y}_k-\vec{\mu})^T\Sigma^{-1}(\vec{y}_k-\vec{\mu})}{2}\right)$$

$Y=\{\vec{y}_1, \ldots, \vec{y}_n\}$ Points that made a vector segment

$\vec{\mu}$ Mean of generated normal distribution

Σ Covariance of generated normal distribution

ITSC 2018 - Adaptive Resolution Refinement of NDT Map Based on Localization Error Modeled by Map Factors

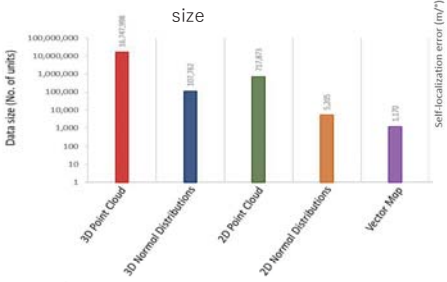
Experimental results

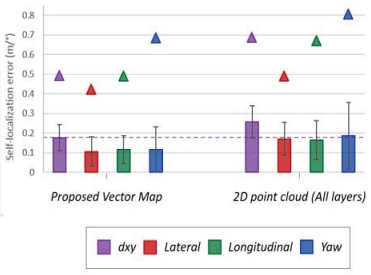
Route of experiments

Velodyne's VLP-16 (16 chennel)

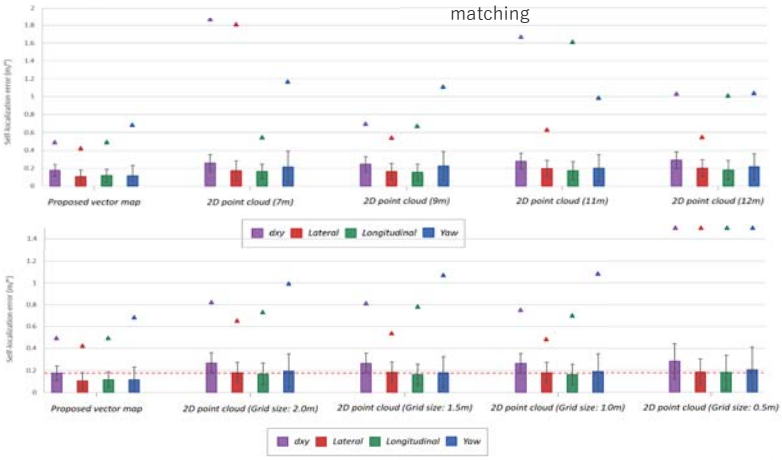
Our experimental vehicle

Evaluation of data size





Evaluation of vector ND map-matching

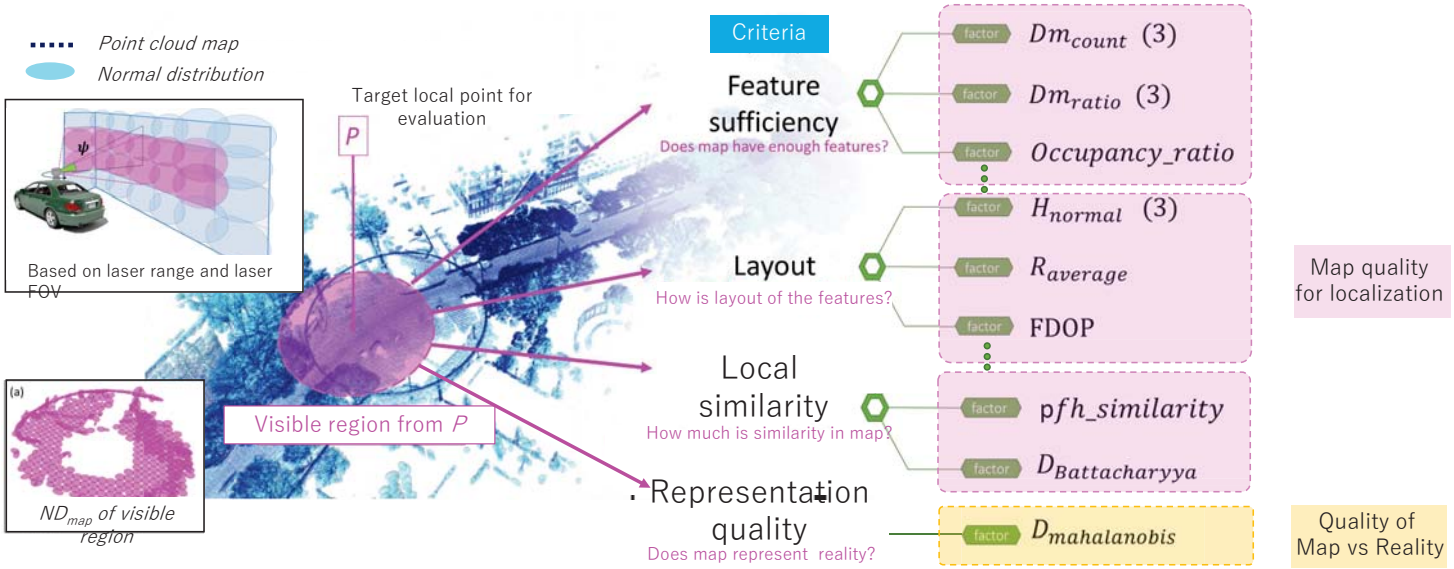


Evaluation of multilayer 2D vector structure (comparison with conventional 2D methods)

ITSC 2018 - Adaptive Resolution Refinement of NDT Map Based on Localization Error Modeled by Map Factors

Map evaluation criteria to formulate the Localization accuracy

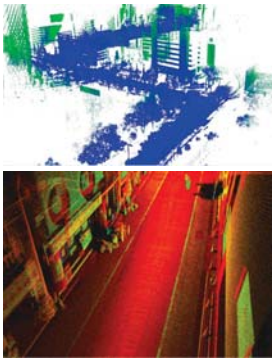
- For each local point P on the map, a visible region is extracted
- To evaluate the map ability for localization for point P 4 criteria are introduced



Test-bed and Setups for the Experiments

Experimental Path

Experimental Path in Shinjuku, Tokyo
1.2 km path



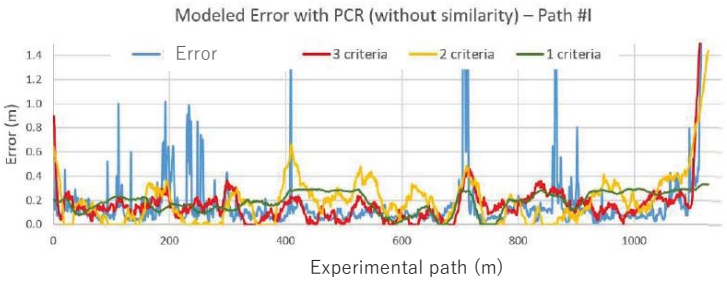
Point cloud map of experimental path

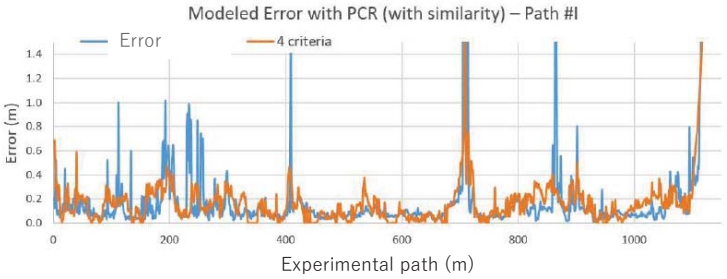
Our experimental vehicle

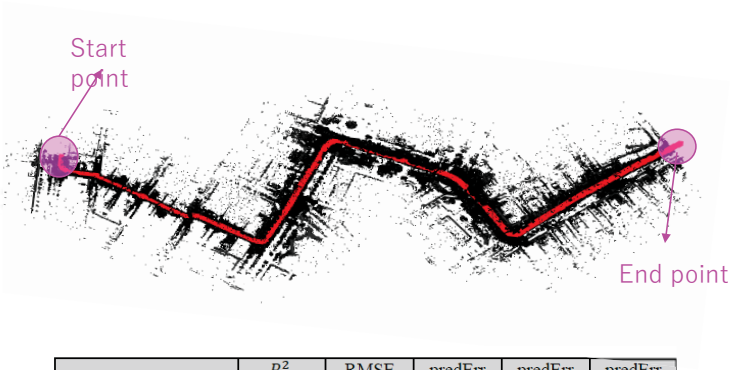
- Laser scanner range : 20m
- Frequency : 20Hz
- Driving speed : 10km/h
- (distortion is less than 7cm in each scan)

Results of error modeling

Localization error for 3.0m grid size NDT map





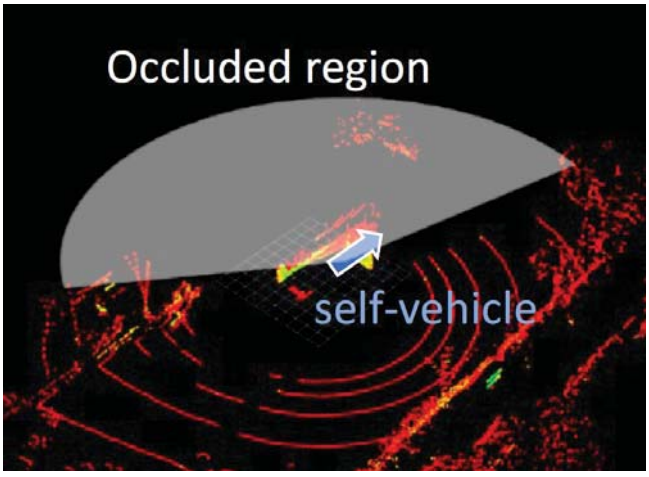


	R^2	RMSE	predErr < 10cm	predErr < 15cm	predErr < 20cm
Represent Quality	0.046	0.399	47.6%	65.2%	79.9%
+Feature Criteria	0.269	0.350	40.9%	60.2%	72.5%
+Layout Criteria	0.664	0.238	66.2%	83.3%	89.7%
+Local Similarity	**0.747**	**0.207**	**70.7%**	**83.2%**	**88.9%**

ITSC 2018 - Adaptive Resolution Refinement of NDT Map Based on Localization Error Modeled by Map Factors

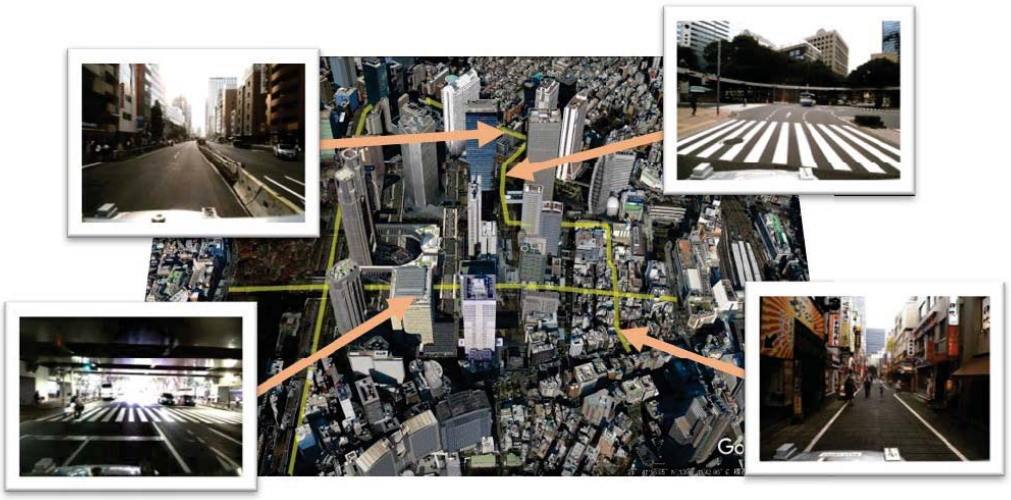
Occlusion Effects for Localization in Urban Scenario

- LiDAR beams are interrupted by tall vehicles in heavy traffics, and could not reach the reference infrastructures for the localization.
- The accuracy of the localization degenerates due to occlusion effects

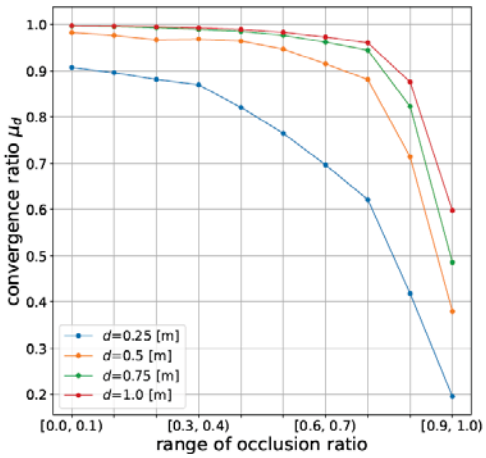


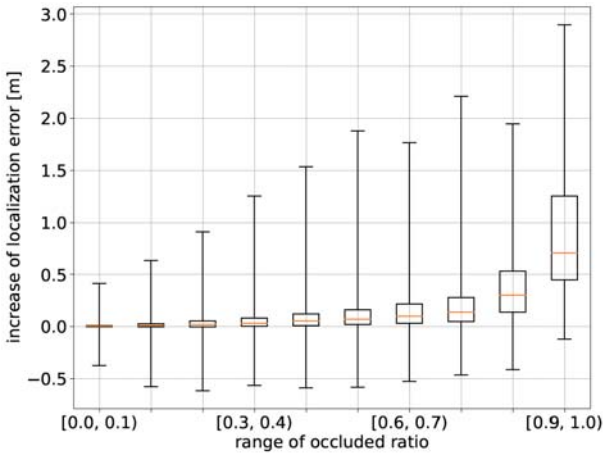
Test-bed to evaluate Occlusion effects in Urban Canyon

- The evaluations were performed in Shinjuku, Tokyo.
- Total length of the trajectory is 7.0km.



Evaluation of Occlusion effects: Convergence and Error

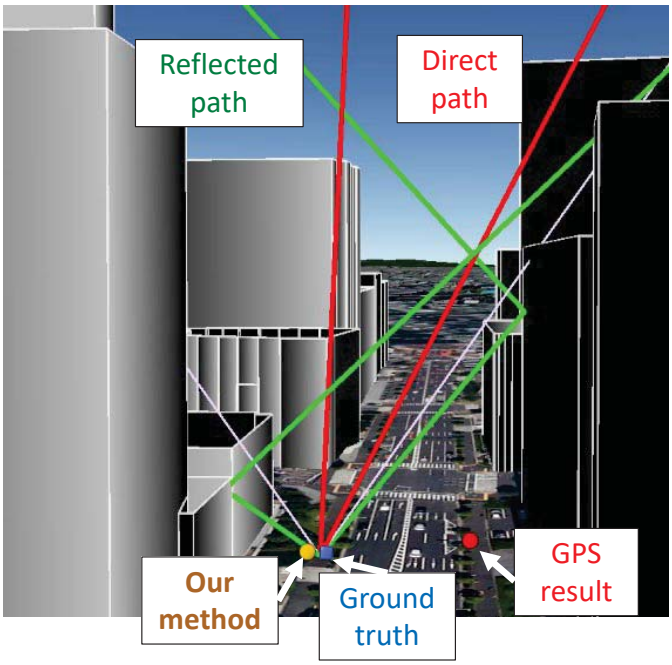




In the case which occlusion ratio is high:

- convergence ratio becomes lower for the localization algorithm
- localization error becomes larger even in the converged case.

3D-GNSS Positioning in Urban Canyon

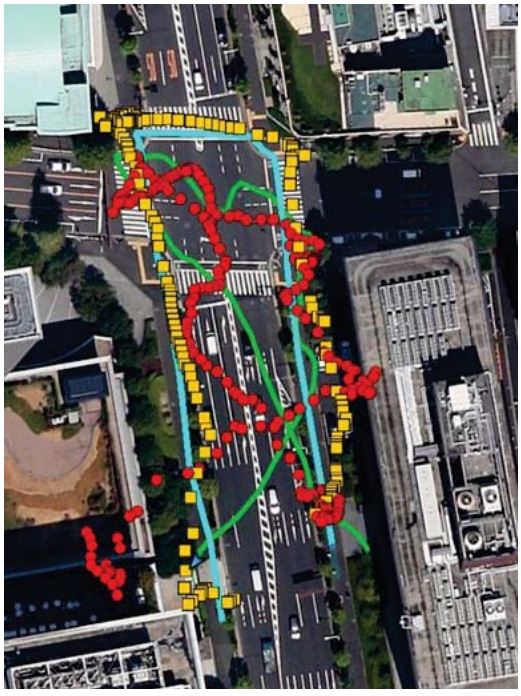


Signal Observation:
- Pseudorange
- RSSI (Received Signal Strength Indicator)
- Deceived positioning results

Find the most consistent

Position Assumptions:
Estimated by ray tracing
- Pseudorange
- RSSI (Received Signal Strength Indicator)
- Deceived positioning resuts

Evaluations applying 3D method to GPS signals



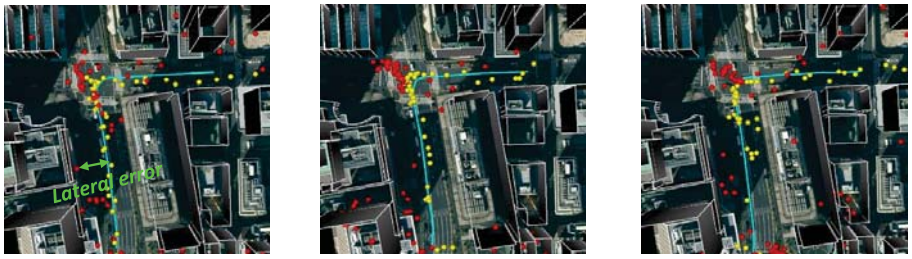
- iPhone4S with WiFi
- u-blox NEO-6P
- Proposed (with NEO-6P)
- Ground Truth

Shunsuke Miura, Shoma Hisaka, and Shunsuke Kamijo, "GPS Multipath Detection and Rectification using 3D Maps", IEEE ITSC2013, pp.1528-1534, The Hague, The Netherlands, Oct.6-9, 2013

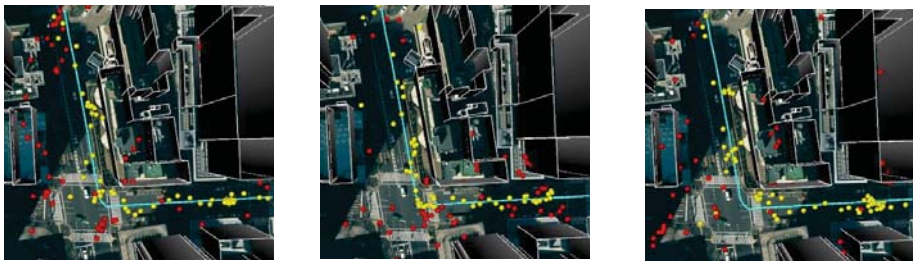
Experimental result: GPS

Weighted least square (WLS) GPS
Ground truth
3D map based GPS

Right turning



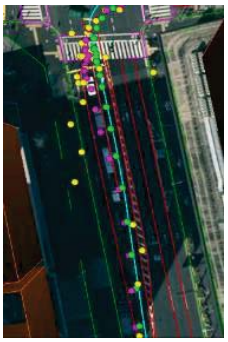
Left turning

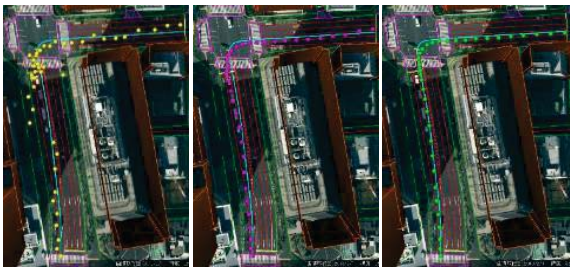


	Mean error (m)	Standard Deviation (m)	Maximum error (m)
WLS GPS	17.8	11.8	82.9
3D map based GPS	3.1	3.2	24.1

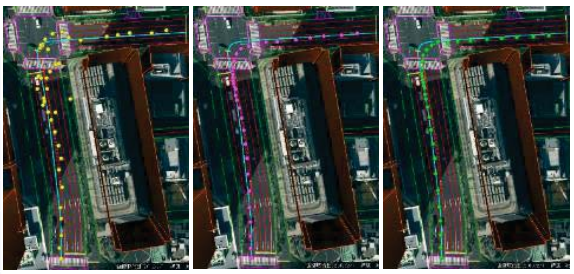
Experimental result for localization

GNSS
GNSS/INS
GNSS/INS/lane detection
Ground truth





(a) First right turning experiment



(b) Second right turning experiment

Ex.	*Evaluation method*	*GNSS*	*GNSS/ INS*	*GNSS/INS/ Lane Det.*
1	Positioning Error mean (meter)	3.44	1.79	0.73
	Correct lane rate	43.2%	59.1%	93.2%
2	Positioning Error mean (meter)	2.41	1.29	0.71
	Correct lane rate	55.0%	82.5%	95.0%

Case Study of Under the Bridge Environment

Experimental environment

Experimental equipment

Proposed Vehicle Localization System

- Topological map & stereo camera & IMU/CAN → HMM → Position

	Longitudinal Localizatcn	Lateral Localization
High-Level Integration	Hidden Markov Model	HMM Real-Time Correction
Intermediate-Level Integration	Stop-Line Detection	Multiple Lane Detection
	Road Marking Detection	Lane Changing Detection
Low-Level Integration	Initial Location	Drivable Area Detection
	Driving Distance	Inverse Perspective Mapping
	Topological Map	
	Control Points	
Data Sources	IMU, CAN, GNSS, Stereo Camera	High-Precision Map, Measurement Data
	Onboard Sensors	*Preset Offline Data Sources*

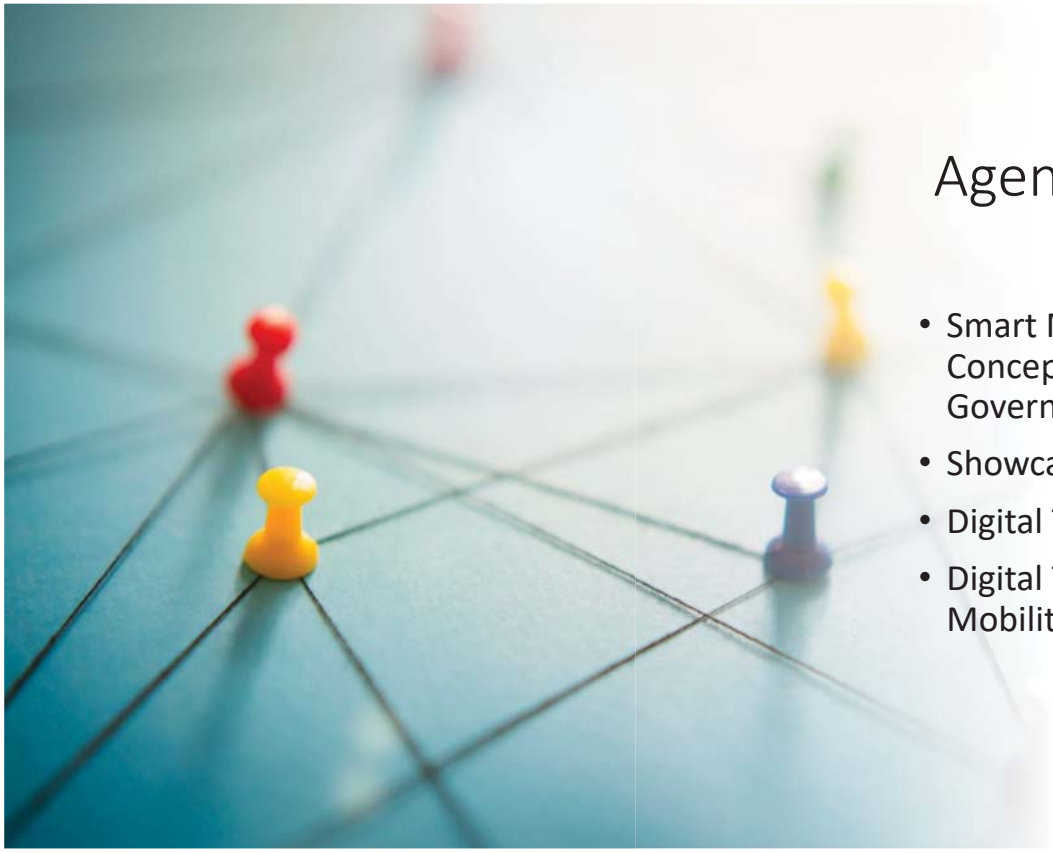
Conclusions

- Benefits and problems of the digital map for autonomous vehicle application were discussed in this presentation.
- Problems and their solutions were exemplified from our research experiences with the evidence of experimental data.

- Need to slimulate the discussions on the digital map solutions for the successful cross bordered delivery and usage of autonomous vehicles.

Digital Transformation in Smart Mobility

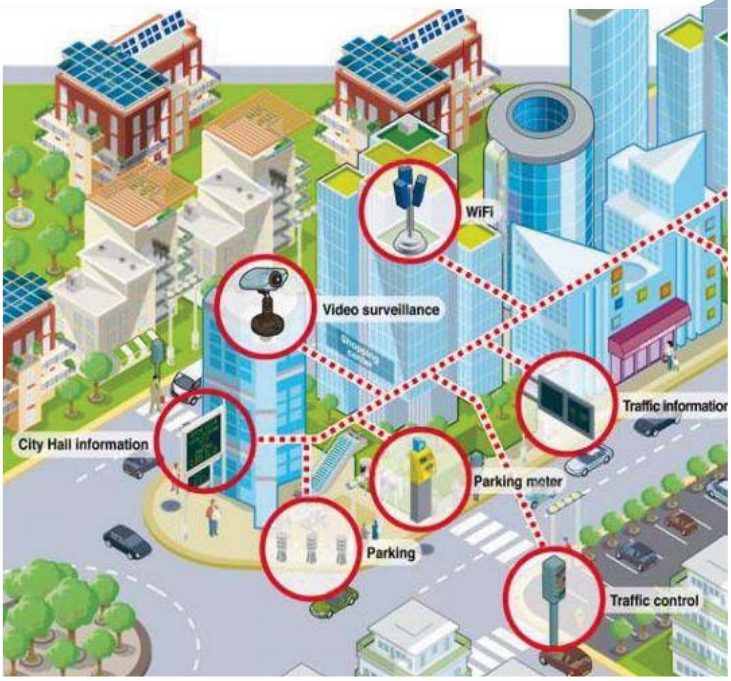
Dr.Passakon Prathombutr
SEVP
depa



Agenda

- Smart Mobility & Smart City Concept from Thai Government
- Showcase
- Digital Transformation
- Digital Technologies for Smart Mobility

City Transformation



Thailand's Smart City definition and dimensions

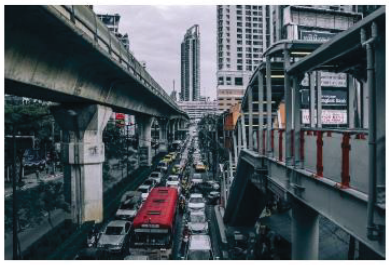
A city that leverages technology, innovation, and good design to increase efficiency, cut costs, and innovate in relation to smart city management and service provision in order to achieve citizen's quality of life, happiness, and sustainability

Mobility Pain points

Accessibility Quality Pollution Safety Congestion High cost and etc.





Source: OTP

The Criteria for Evaluation 7 Dimensions of Smart City

Smart ENERGY

Increase the efficiency of energy usage and the use of clean energy **≥ 1% annually ***

Smart ECONOMY

Raise the citizens' annual income per capita **≥ 250,000 bath ***

Smart LIVING

The livability index **≥ 80% annually ***

Smart ENVIRONMENT

- Air, Water Quality, and Waste Management meet the environmental standard
- **CO_2** Emission Reduction **≥ 1% annually ***

Smart PEOPLE

Percentage of citizens gaining Digital Literacy Skills **≥ 70% annually ***

Smart GOVERNANCE

- Percentage of accessibility of citizens to informative online contents ≥ 60% *
- Percentage of citizens involvement in the public development services ≥ 60%*

Smart MOBILITY

- Percentage of commutes' satisfactory ≥ 60% *
- The number of casualties ≤ 12 people/ 100,000 citizens *

* Or depends on the goal/context of the city to express how the city can be developed to be the Smart City

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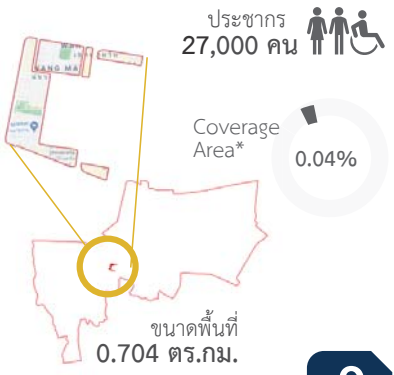
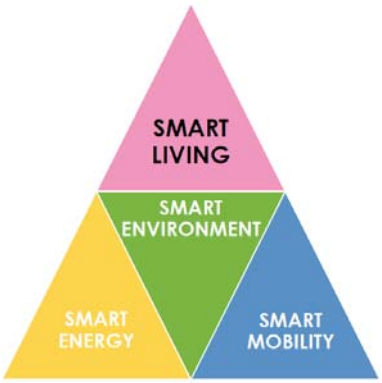
ผู้ยื่น : สำนักงานจัดการทรัพย์สิน จุฬาลงกรณ์มหาวิทยาลัย

บริการเมืองอัจฉริยะ 7 Smarts 42 โครงการ



CHULA
SMART CITY



Green and Sharing

Accessibility **G**reen **C**onvenience **I**nnovation

Ha:mo

Car Sharing

30 Cars
22 Stops
Chula West
Chula East
Siam Square
Suanluang Square

Accessibility
Green

Managed by PMCU

Haup Car

Car Sharing

3 Cars
2 Stops

Accessibility Innovation

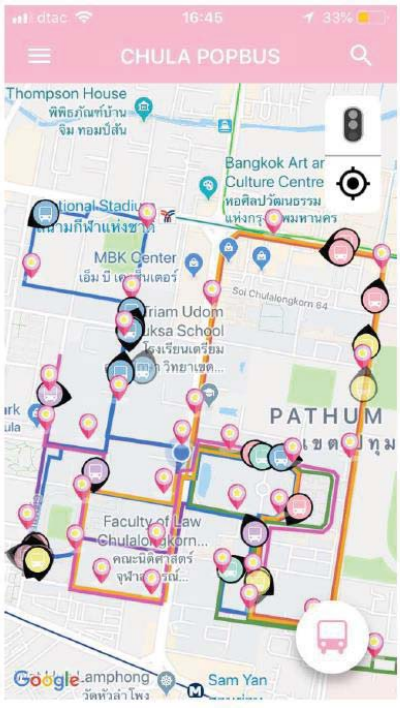
Accessibility

Accessibility Green Convenience

CHULA POPBUS

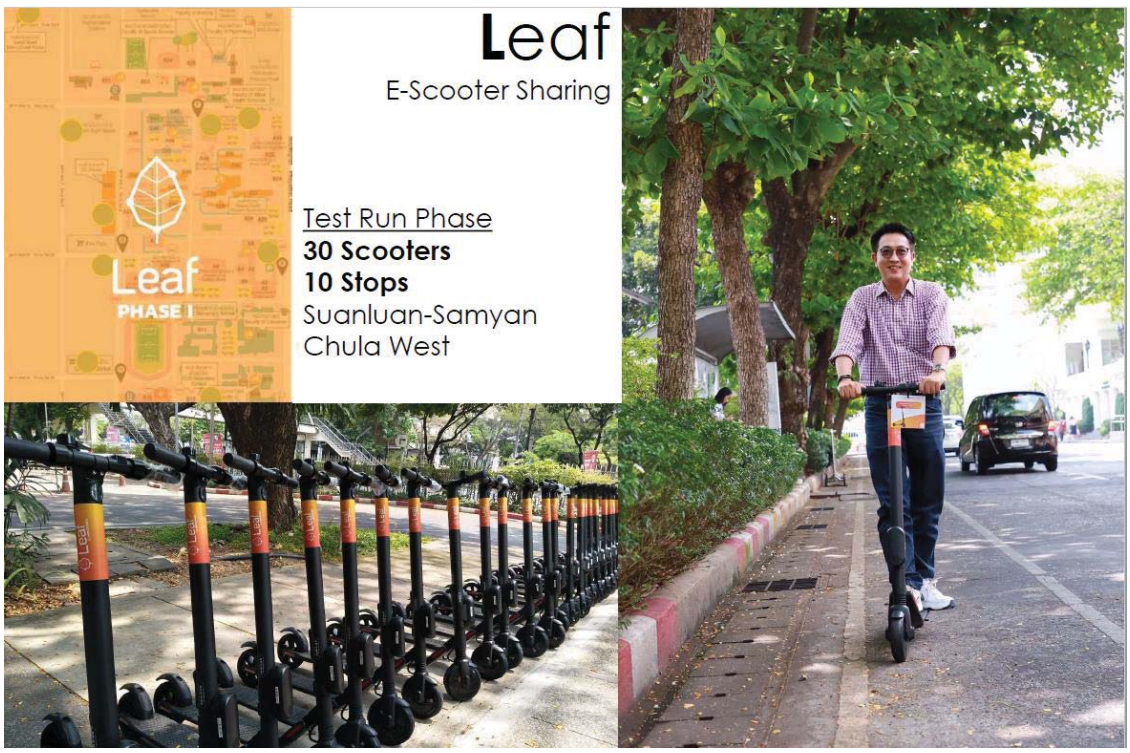
28 Buses

Chula West
Chula East
Chula Hospital



Innovation

Accessibility
Green
Convenience
Innovation



Accessibility
Green
Convenience
Innovation

coBike

Dockless Bike Sharing

Test Run Phase
20 Bikes
10 Stops
Chula West
CU Terrace

Accessibility
Green
Convenience
Innovation

Liluna

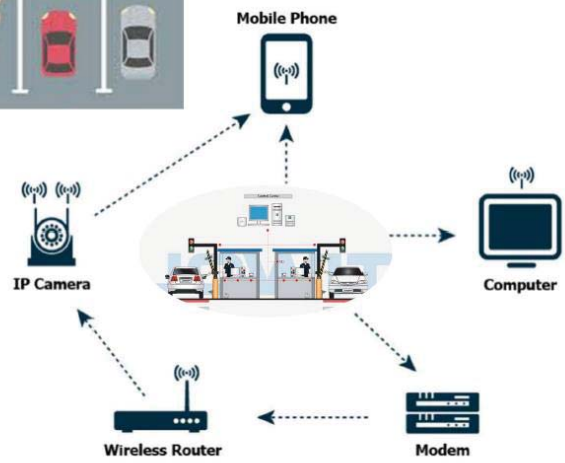
Car Pool
Ride Sharing

CHULA Sharing

#ChulaSharing
ร่วมเดินทางด้วยกันนะชาวจุฬาฯ

Accessibility
Convenience
Innovation

Convenience Smart Parking



Accessibility
Convenience
Innovation

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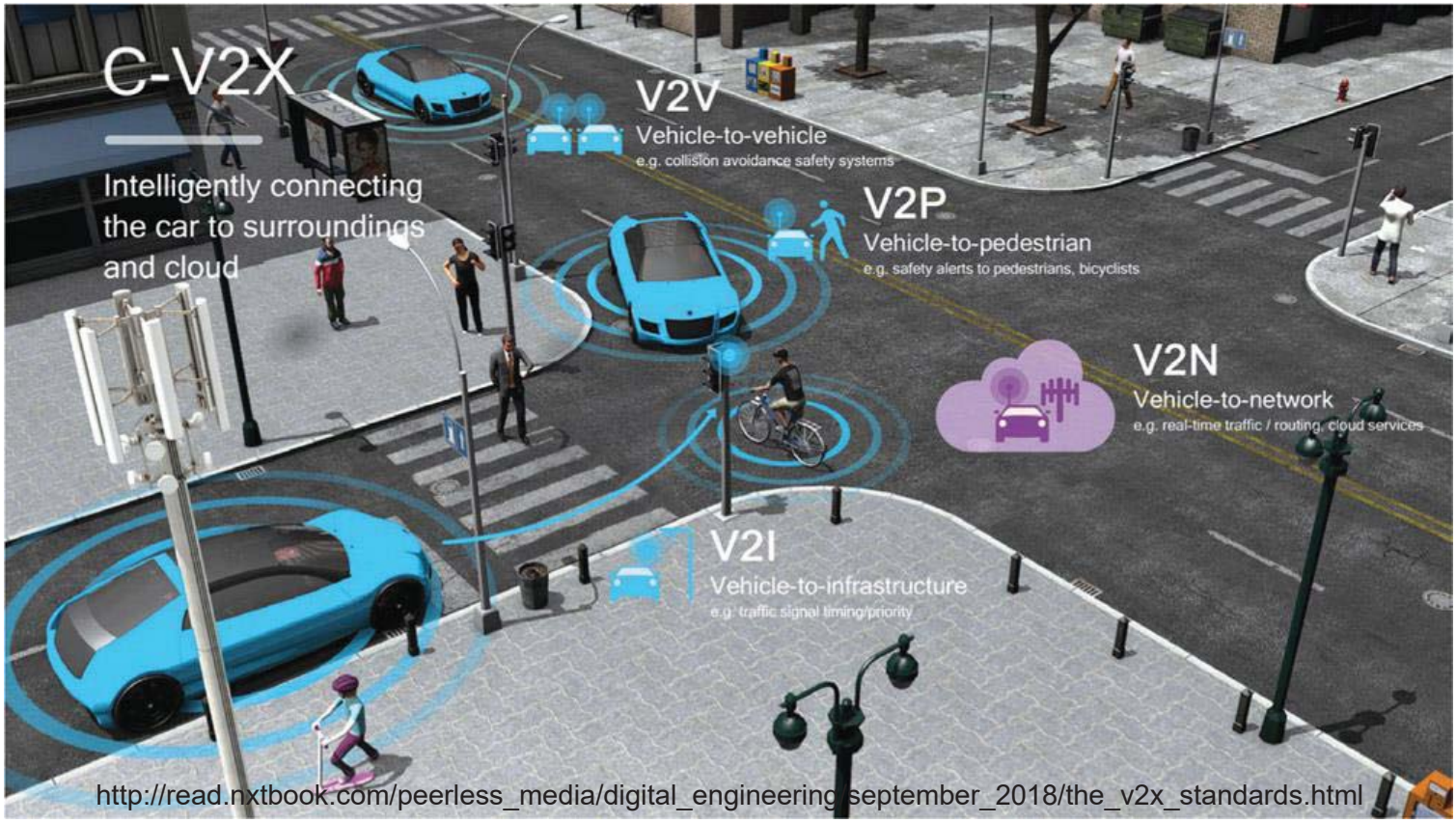
Easter morning 1900: 5th Ave, New York City. Spot the automobile.

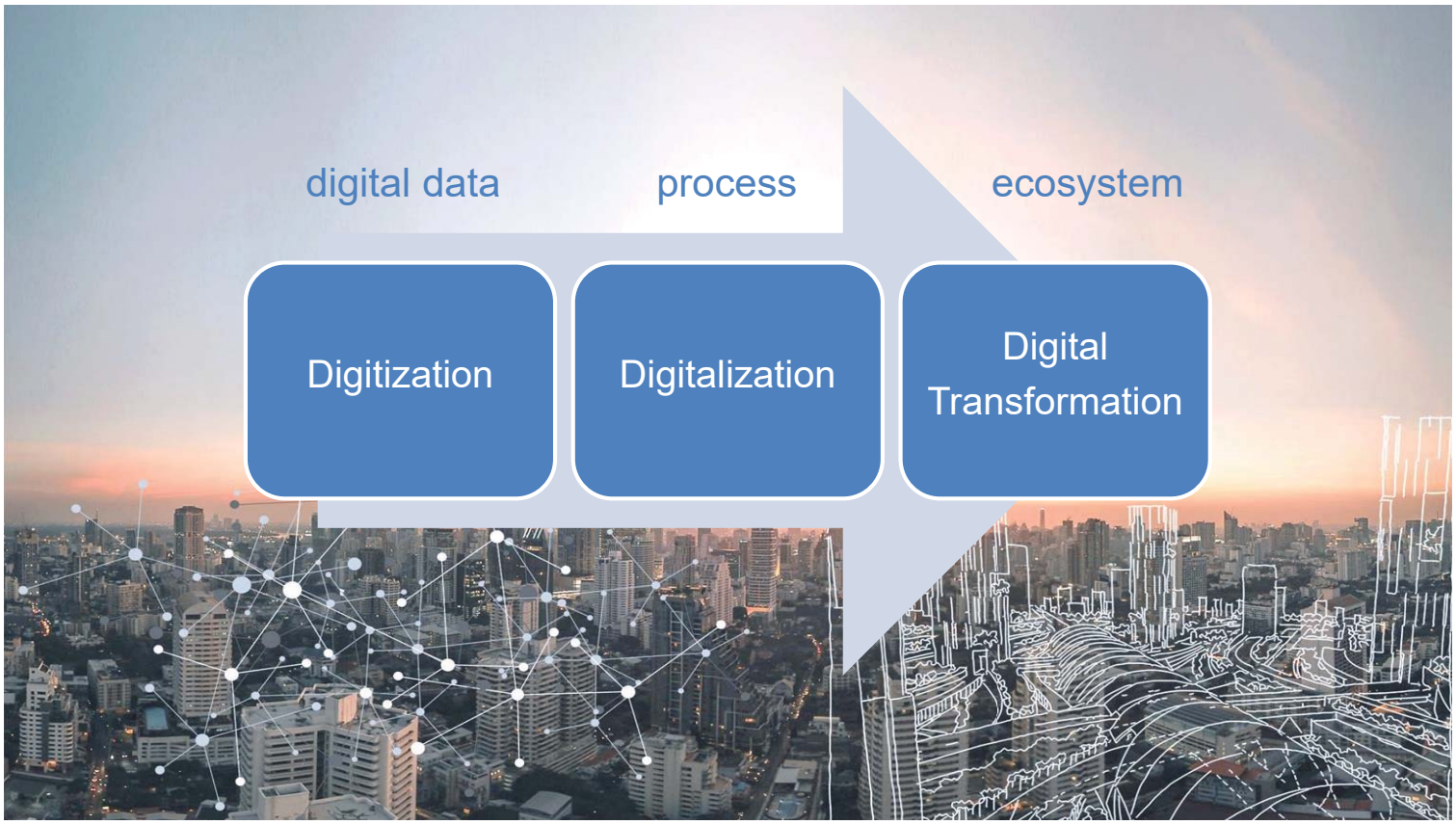
Source: US National Archives.

Easter morning 1913: 5th Ave, New York City. Spot the horse.

Source: George Grantham Bain Collection.



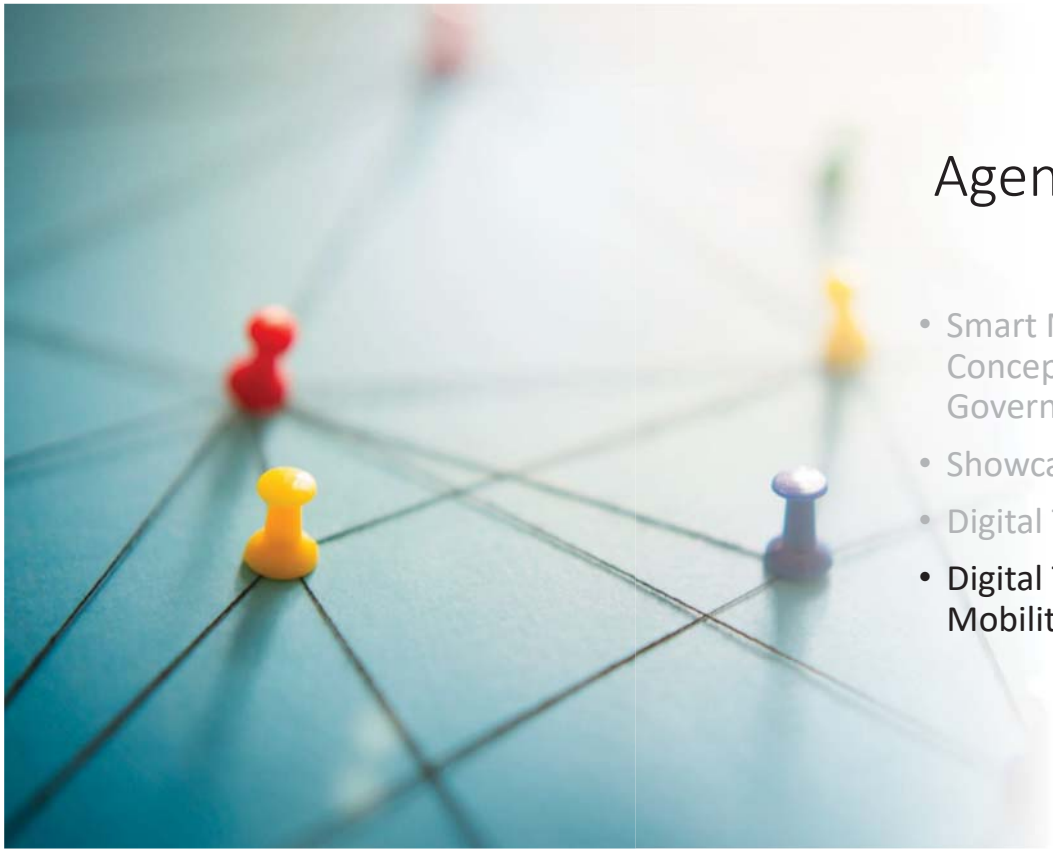
http://read.nxtbook.com/peerless_media/digital_engineering_september_2018/the_v2x_standards.html



digital data: product, license plate, acct balance
process: ordering, payment, shipping
ecosystem: PromptPay, M-FLOW, MaaS

New Paradigm

Source: BoT



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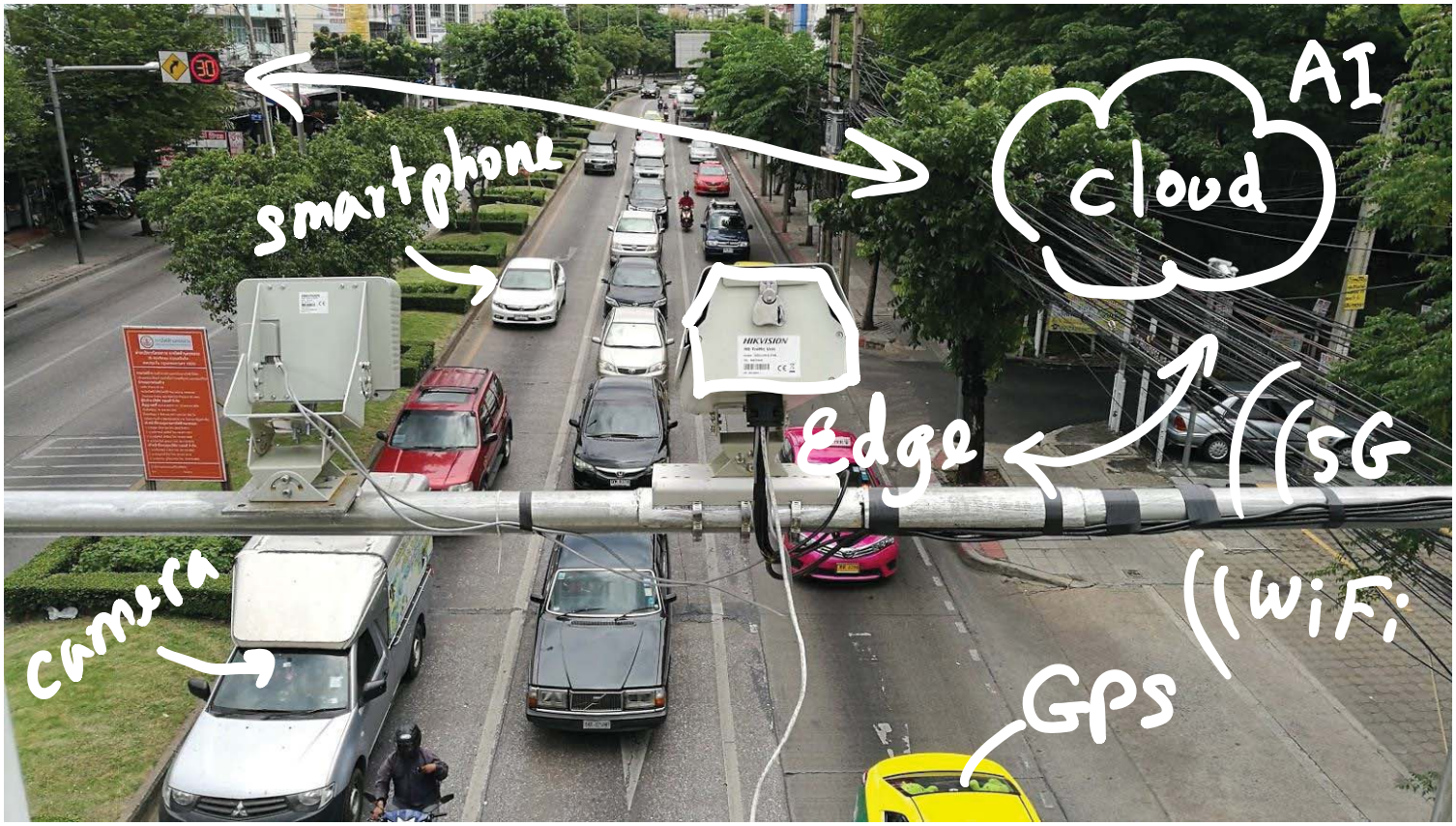
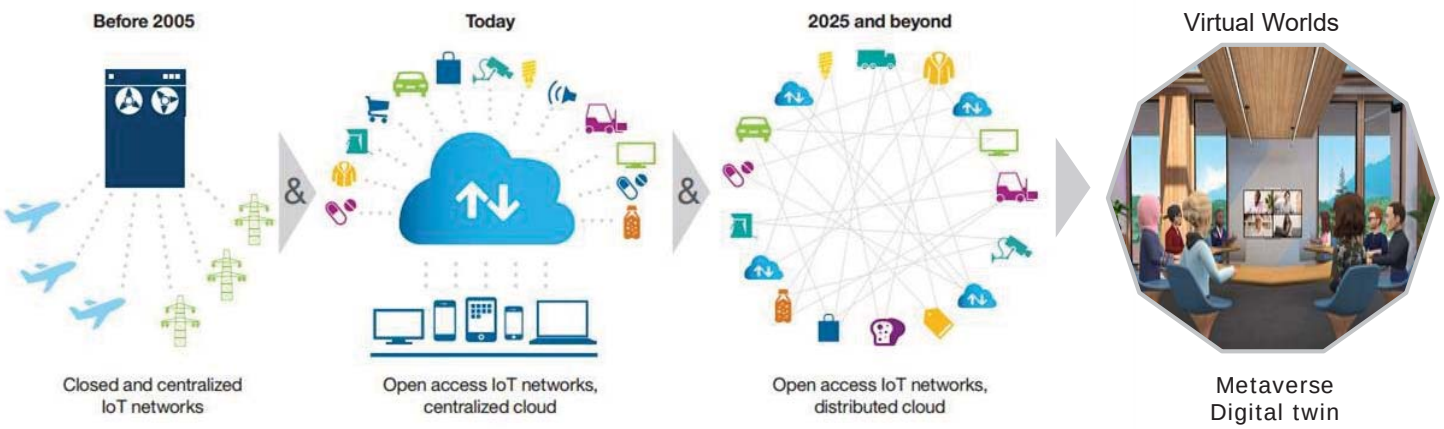
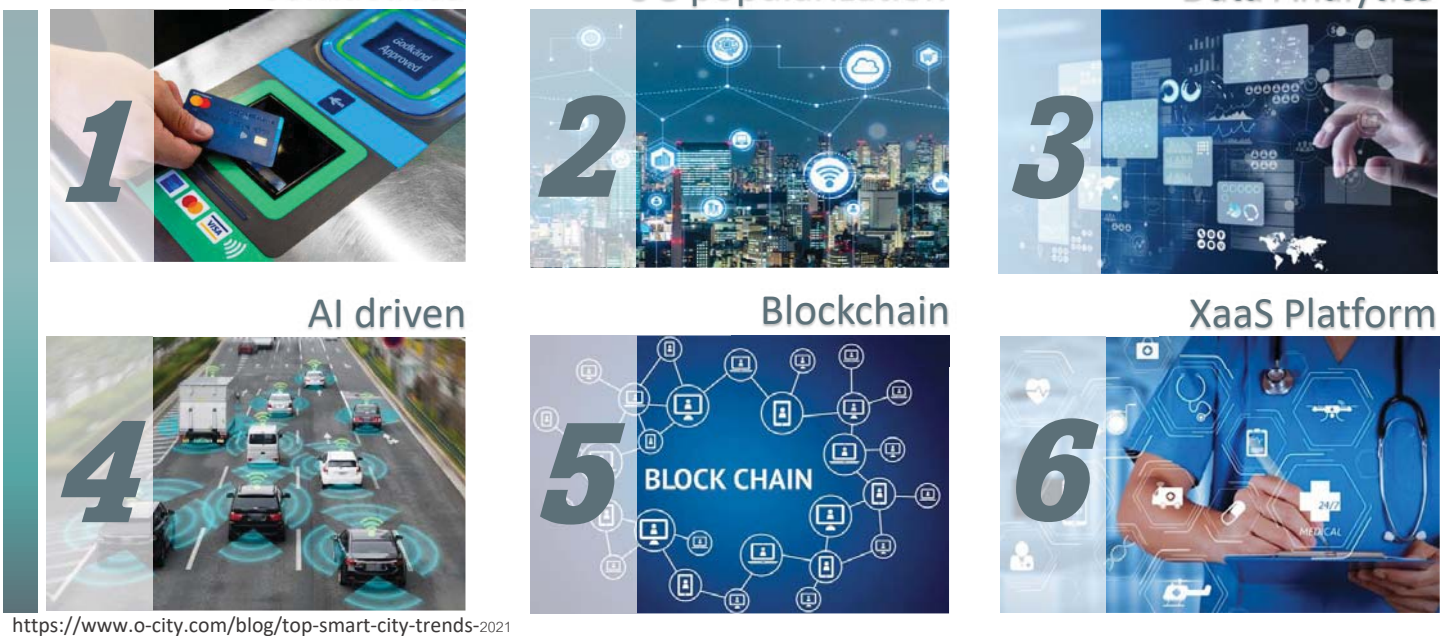




CASE

https://www.linkedin.com/pulse/digital-revolution-so-many-slogans-little-substance-what-callegari/

Trend of Technologies for Smart City



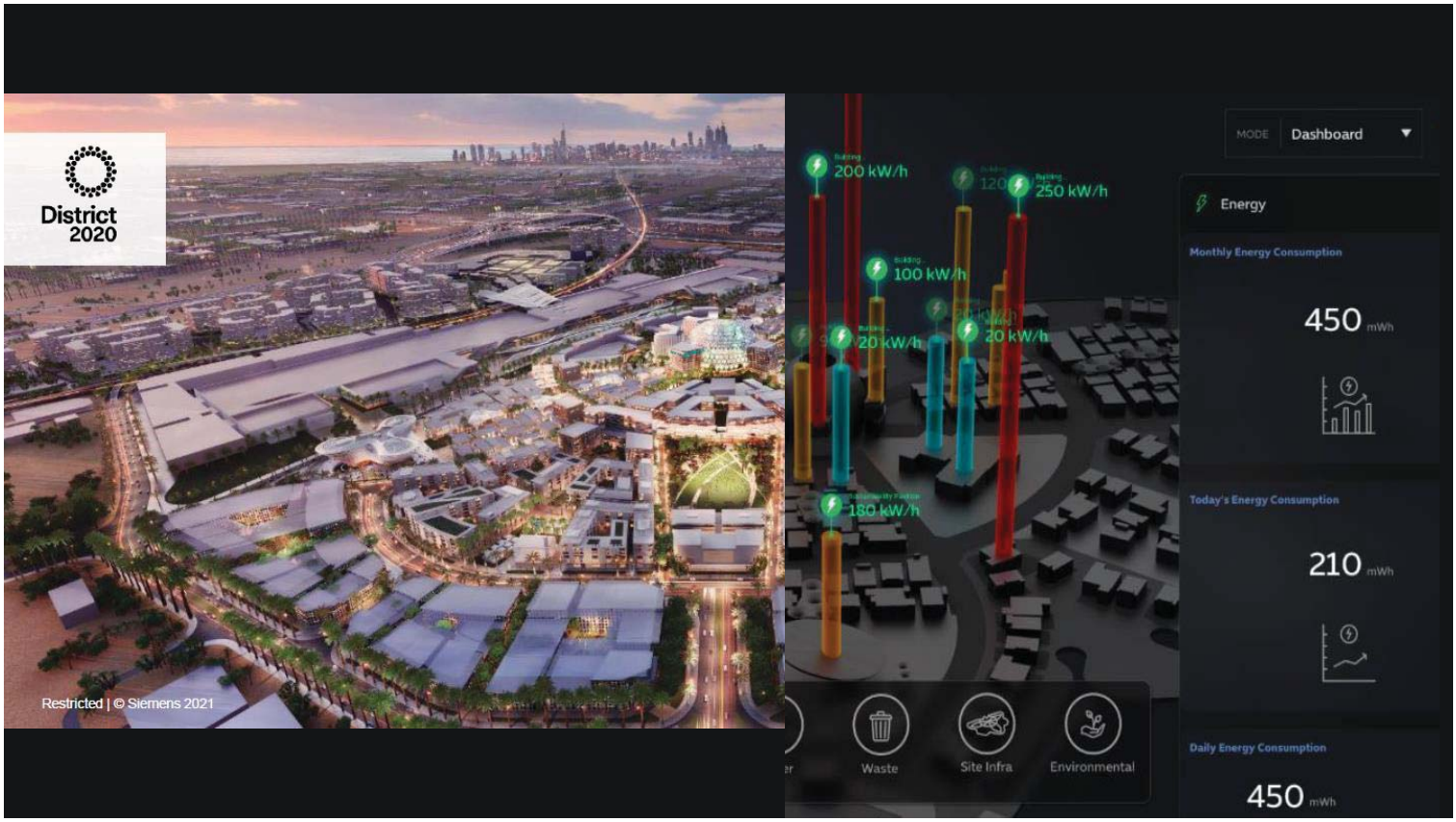
https://www.o-city.com/blog/top-smart-city-trends-2021

Digital twin

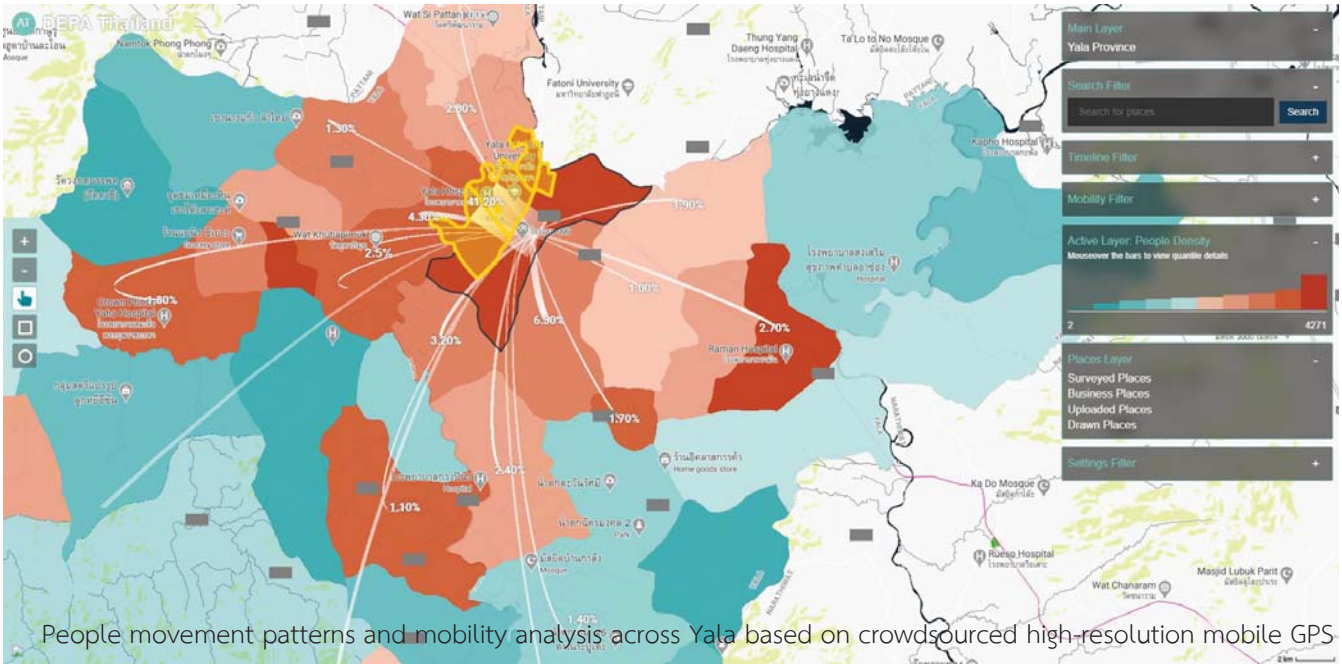
AI
edge
IoT
CCTV
mobile
Big data
cloud
5G
GPS

PCS

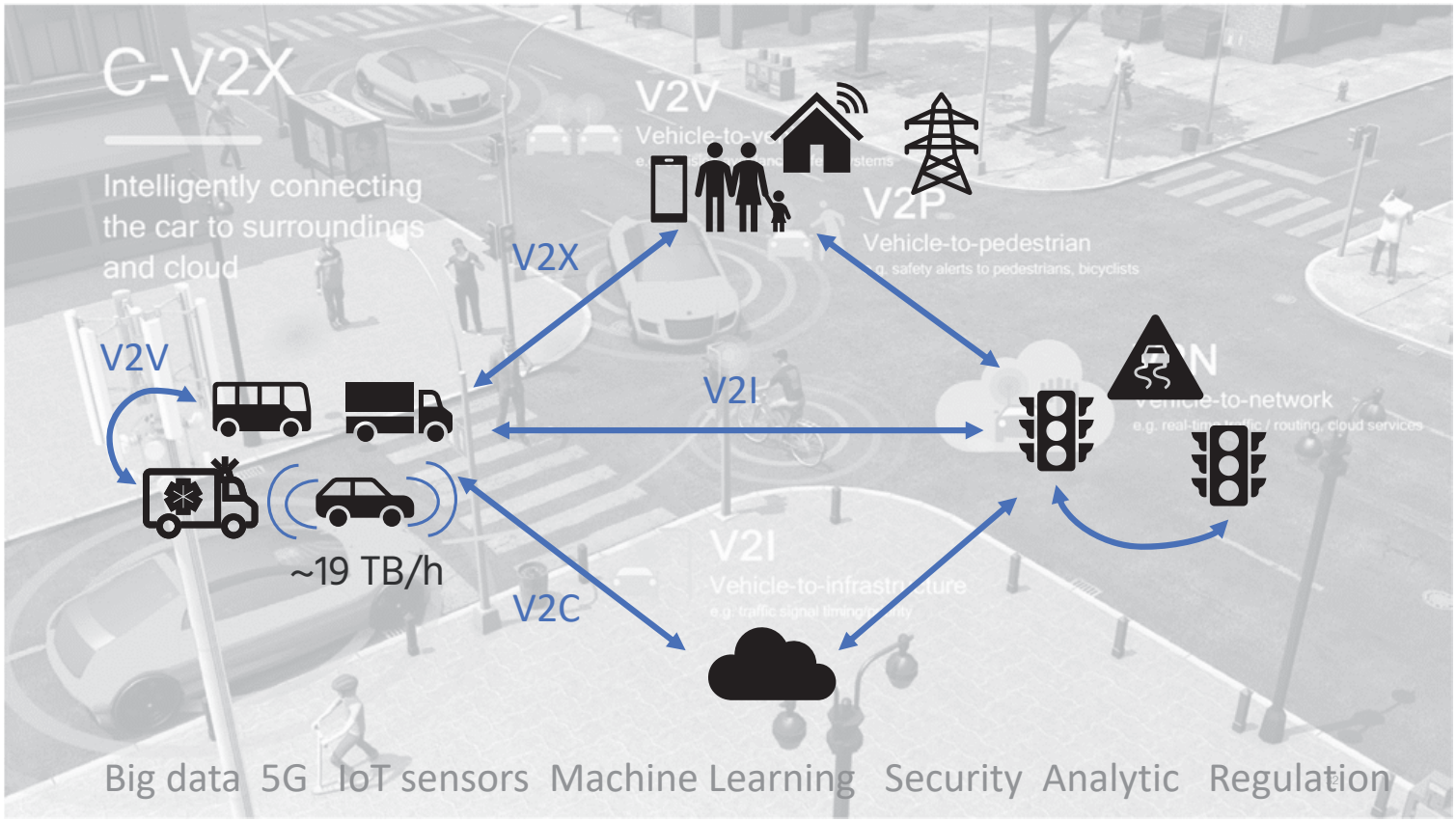
forecasting
planning
decision support system
monitoring
anomaly detection
control and command



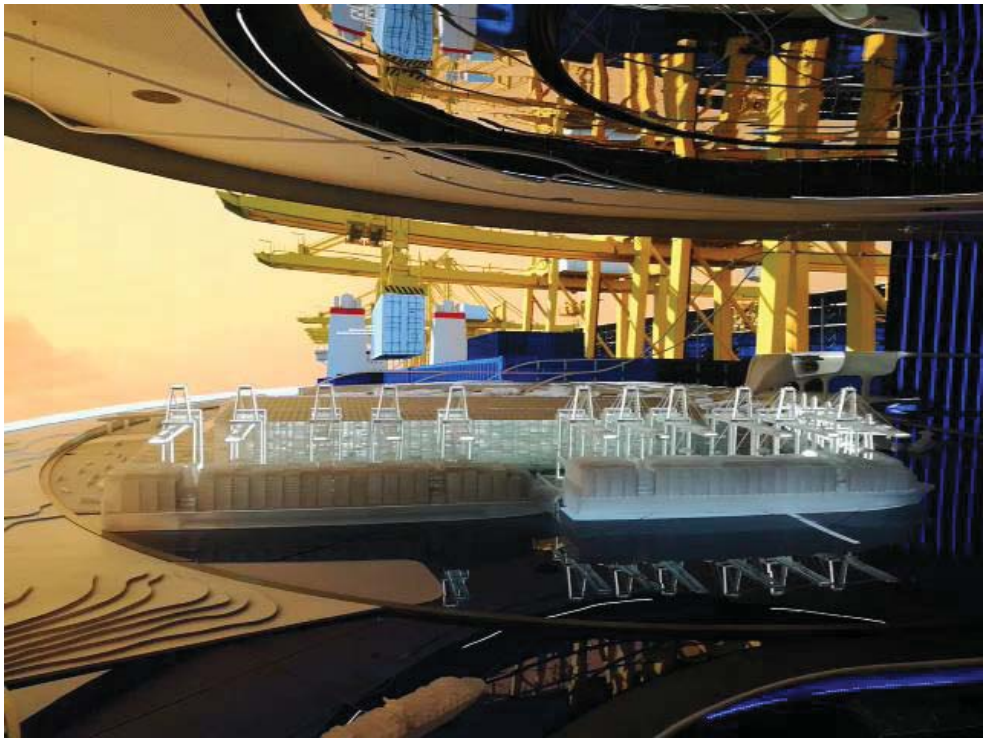
Mobility Intelligent



People movement patterns and mobility analysis across Yala based on crowdsourced high-resolution mobile GPS data

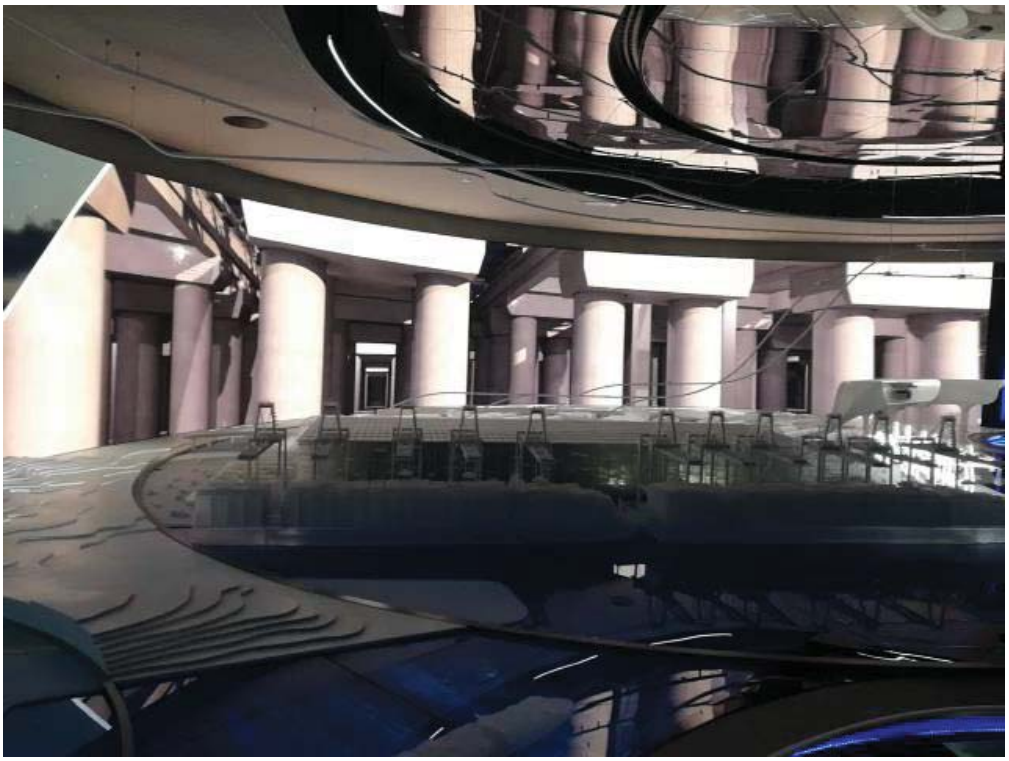


Smart Port
Autonomous Truck



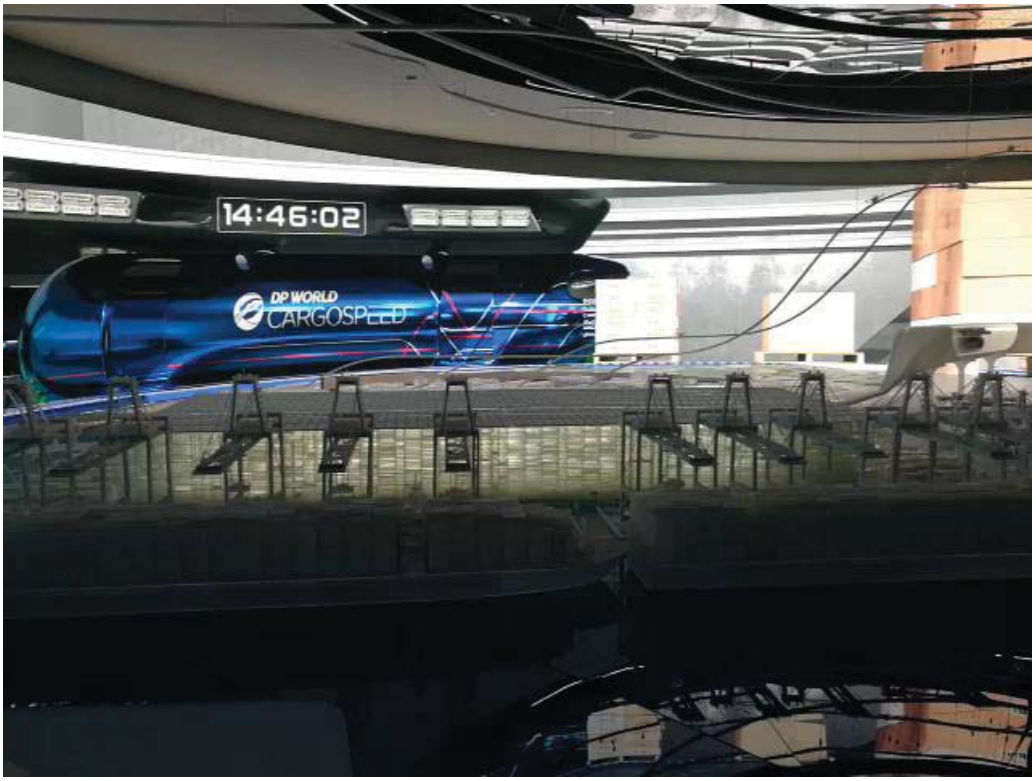
Source: DP World

Smart Port
Box Bay



Source: DP World

Smart Port
CargoSpeed
1,000 km/h



Source: DP World

Key success of digital transformation

- Leadership
- Ecosystem – new process through out value chain.
- Legal/Regulatory - sandbox
- Strategy/Policy – gov incentive, testing facility
- Data: privacy, security, open, big data

Thank you

passakon.pr@depa.or.th
www.smartcitythailand.or.th

depa

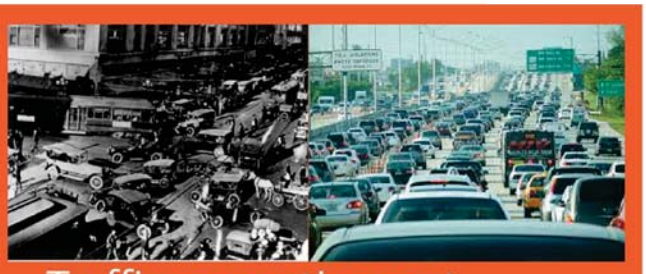
SMART CITY Thailand

CHULALONGKORN UNIVERSITY

Case studies and challenges in real-world deployment of digitization platform in Smart Mobility

Prof. Agachai SUMALEE
Chulalongkorn School of Integrated Innovation
Chulalongkorn University
Email: asumalee@gmail.com

Impacts



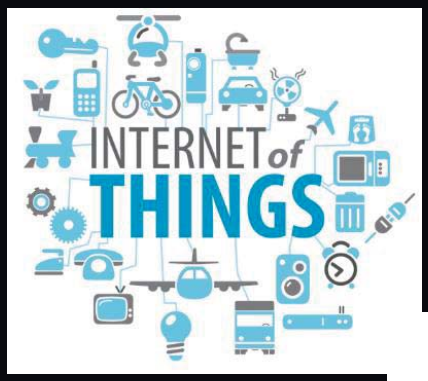
Traffic congestion cost:
-305 billion US$ year (USA)
-37 billion £/year (UK)
-43.3 billion HK$/year (HKG)

Deaths from air pollution
-110,292 in 2010 (USA)
-24,064 in 2010 (UK)
-1,863 (HKG)

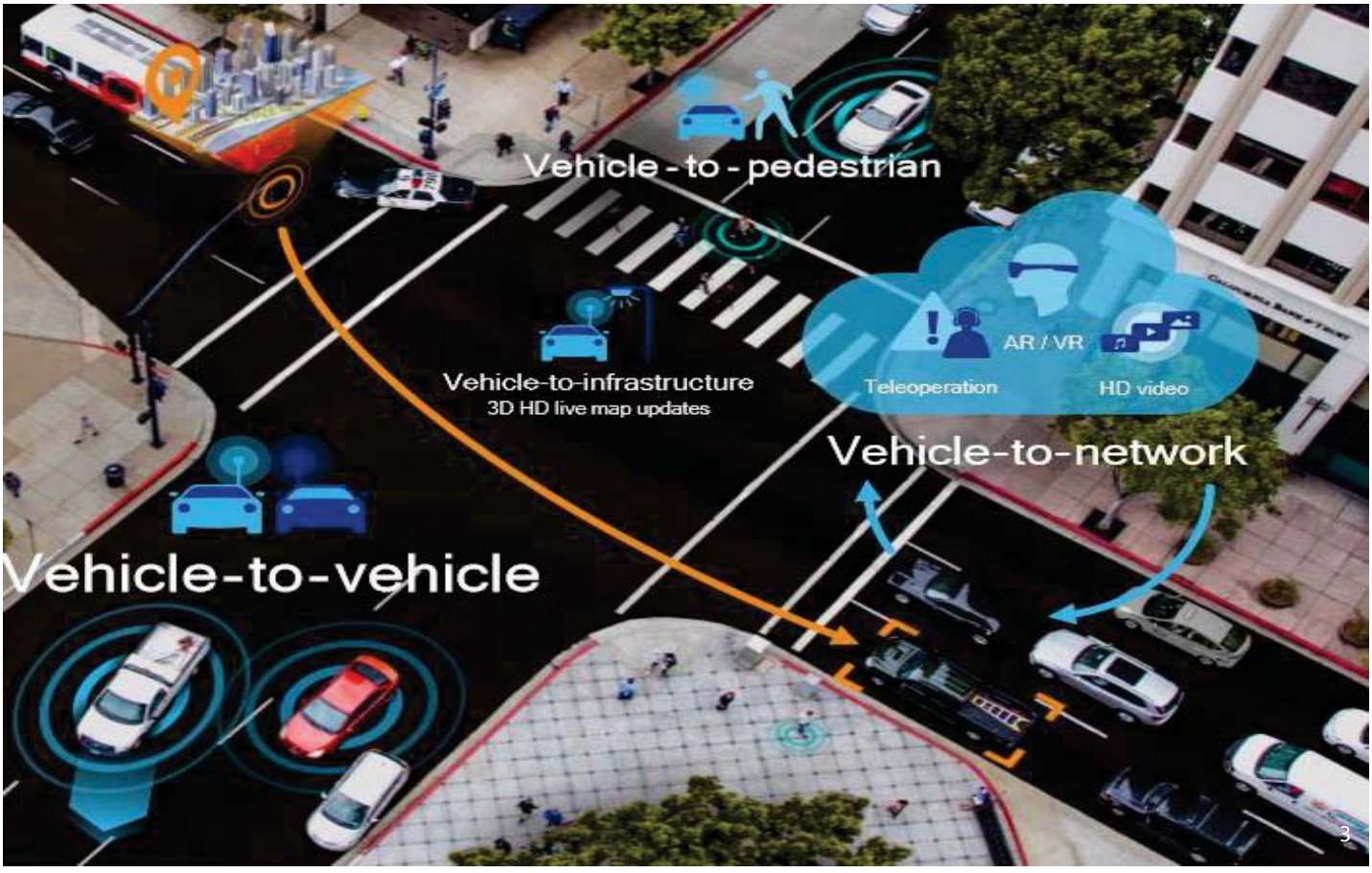
Safety

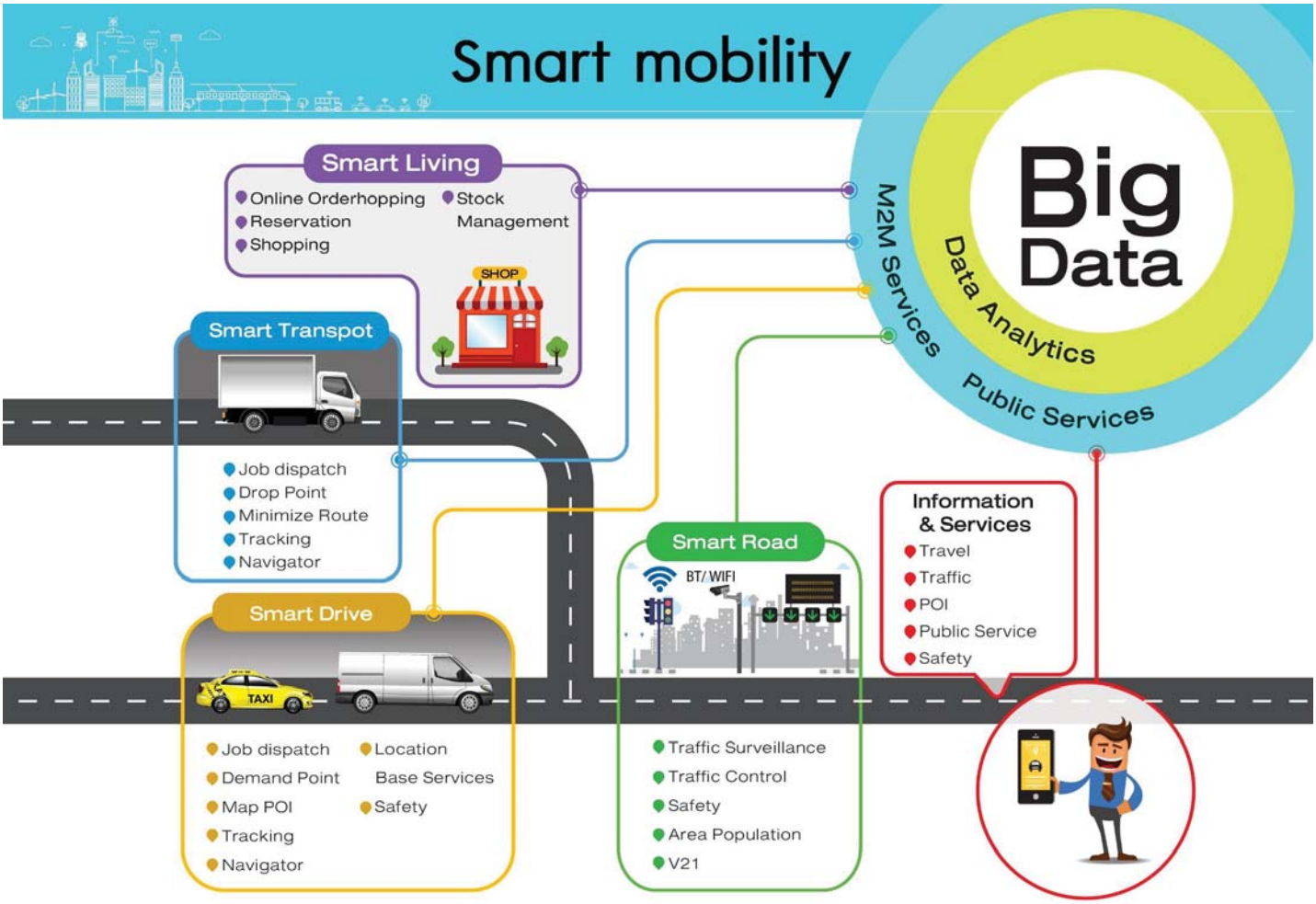
2015	USA	UK	HKG
Deaths	35,092	1,804	117
Injuries	1,747,560	151,063	16,053

Smart Mobility – Using new technologies to reduce congestion, improve air quality and improve safety

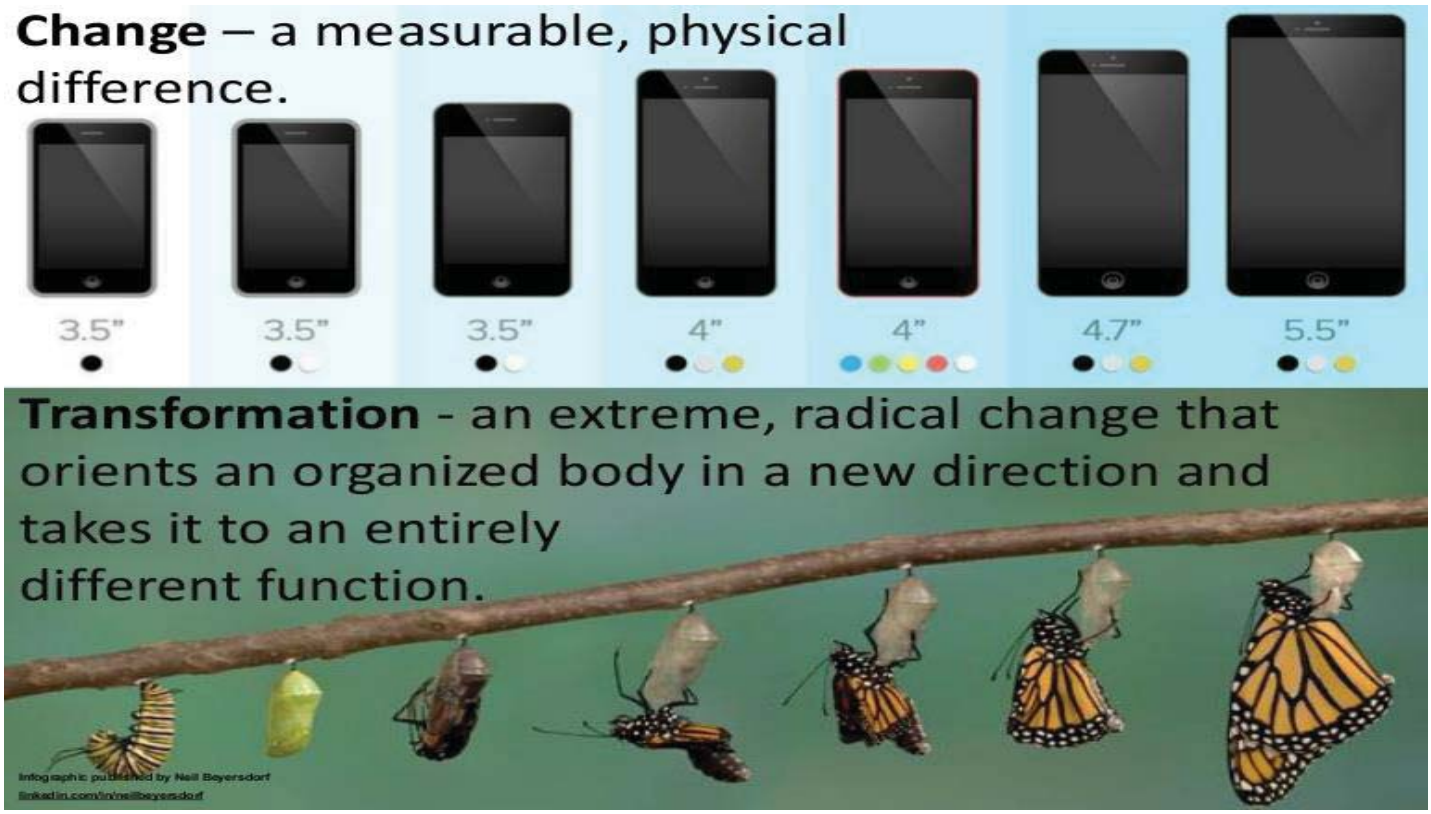


Opportunities





DIGITAL TRANSFORMATION = DIGITAL + TRANSFORMATION



CHANGE VS TRANSFORMATION

Change	Transformation
Subscribes to Vision	Prescribes Vision
Fixes the Past and Current	Creates the Future
Driven by Tactics	Driven by Strategy
Focus on Methods and Processes	Focus on Mindsets and Beliefs
External Influence is High	External Influence is Minimal

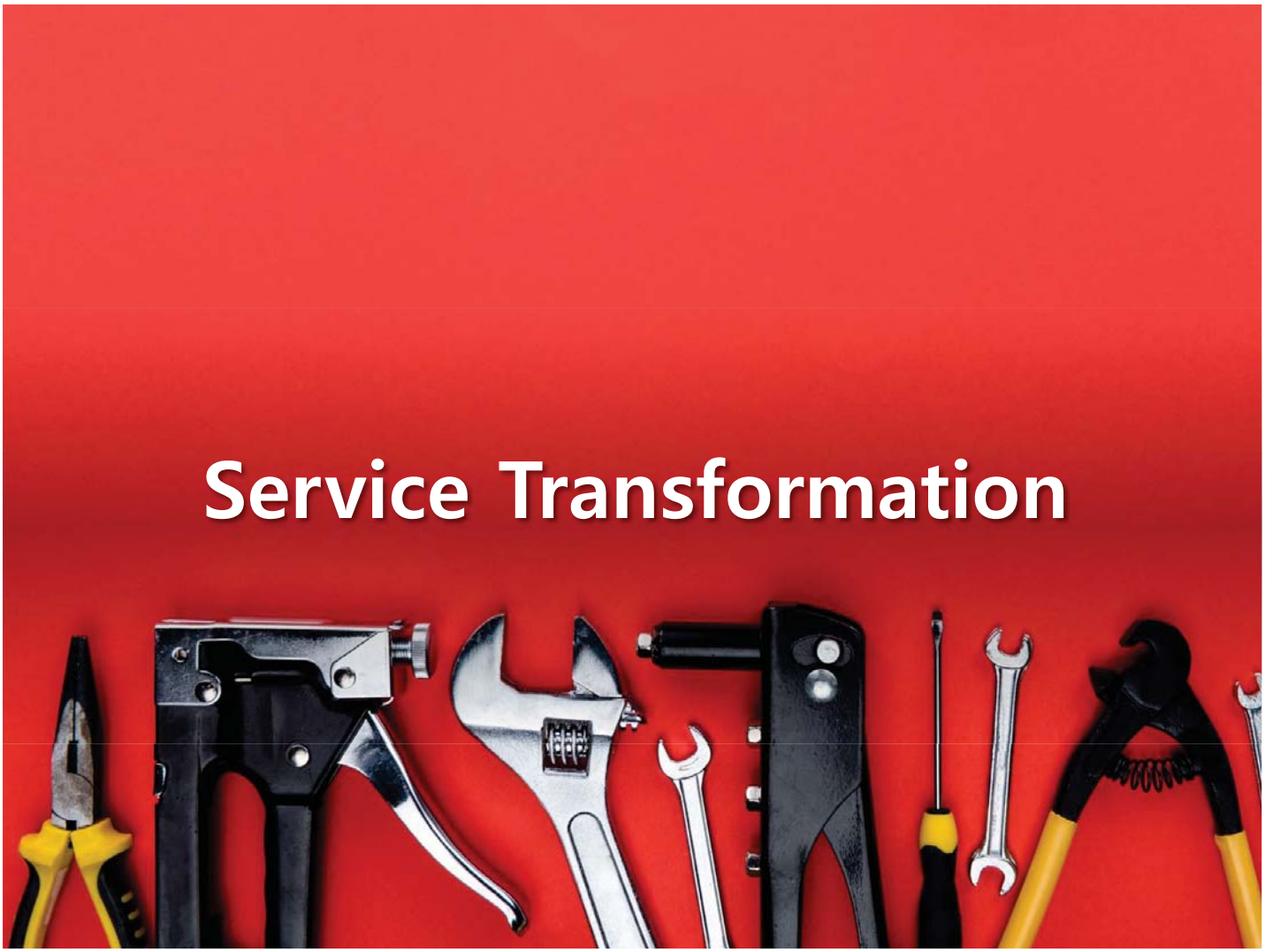
Technology and Disruption

Digital Transformation in Transportation in Thailand

- Service transformation
- E-Payment
- Monitoring and Management
- Data for User and Planning

Experiences and Challenges

- Principle of Transformation in Process is lacking
- Silo Effect in organizations (complex integration challenges)
- Need to handle legacy system/Poor data management
- Lack of technical understanding
- Law and regulation updates



DLT Service Digital Transformation

- Digitalized data
- Data sharing / gateways

- Data science and data analytics

Removing barriers for effective data use :

Managing and using data securely and analytically

User-centered designs

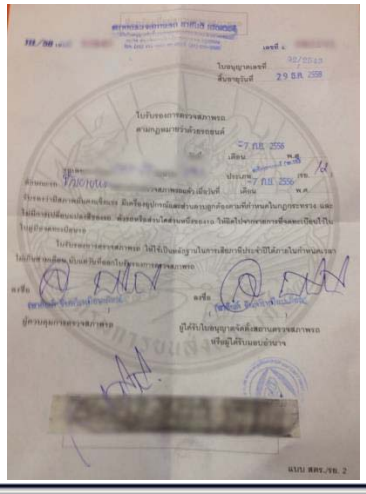
- e-services e.g. vehicle taxi payment, vehicle registration, driver license
- Data visualization

DLT e-Booking/e-Classroom/e-Exam

DLT e-Form

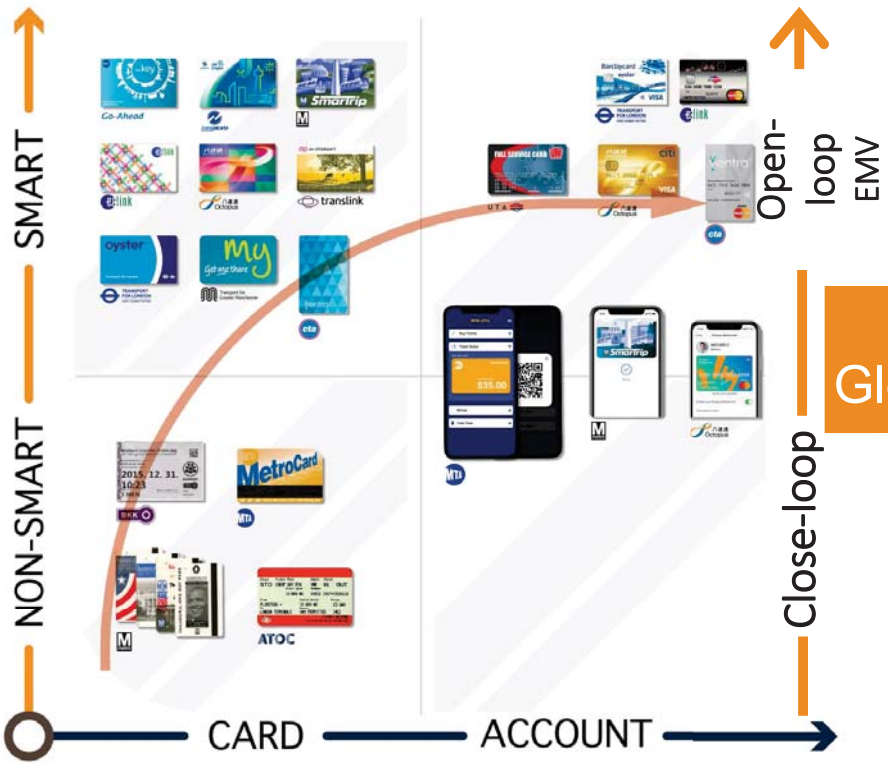
QR Driving Licence

On-line Vehicle Inspection Control Center



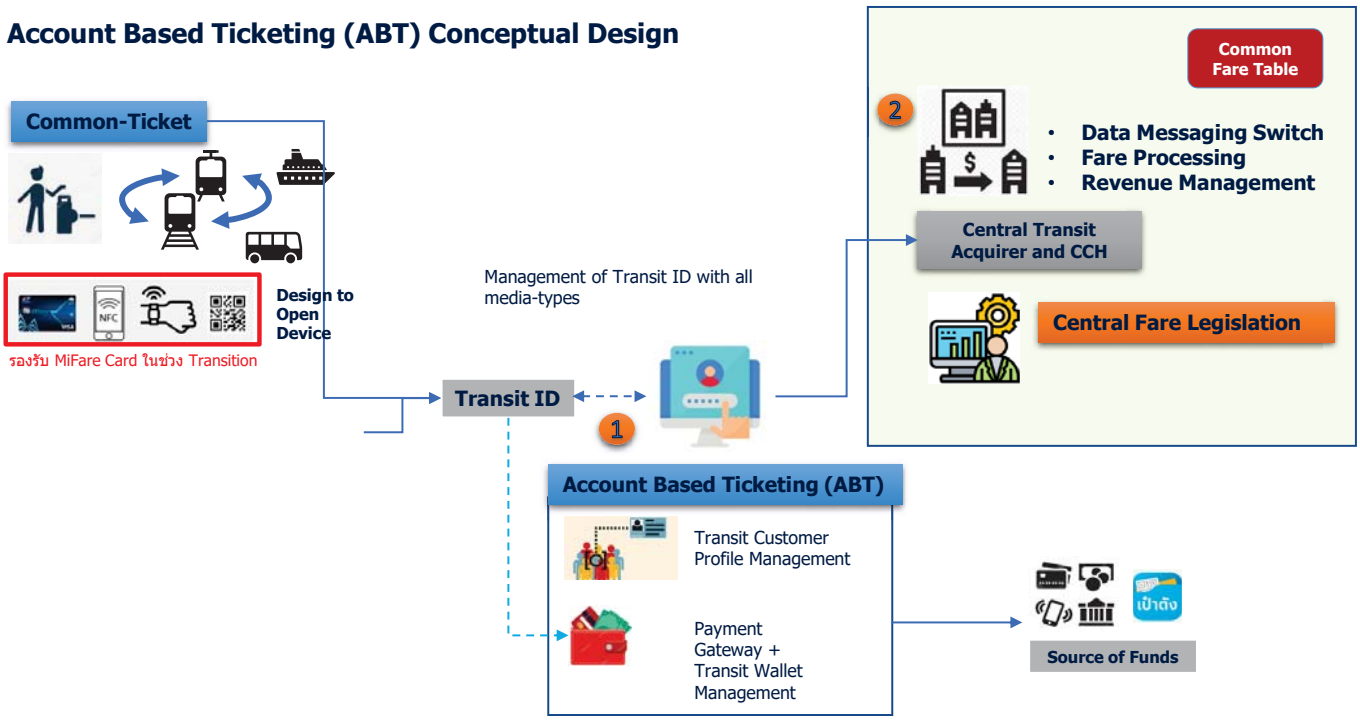
Upcoming Transformation

- RFID vehicle license
- Driver’s merit point scheme
- Vehicle ownership management
- Public transport license management



Global Market Trend

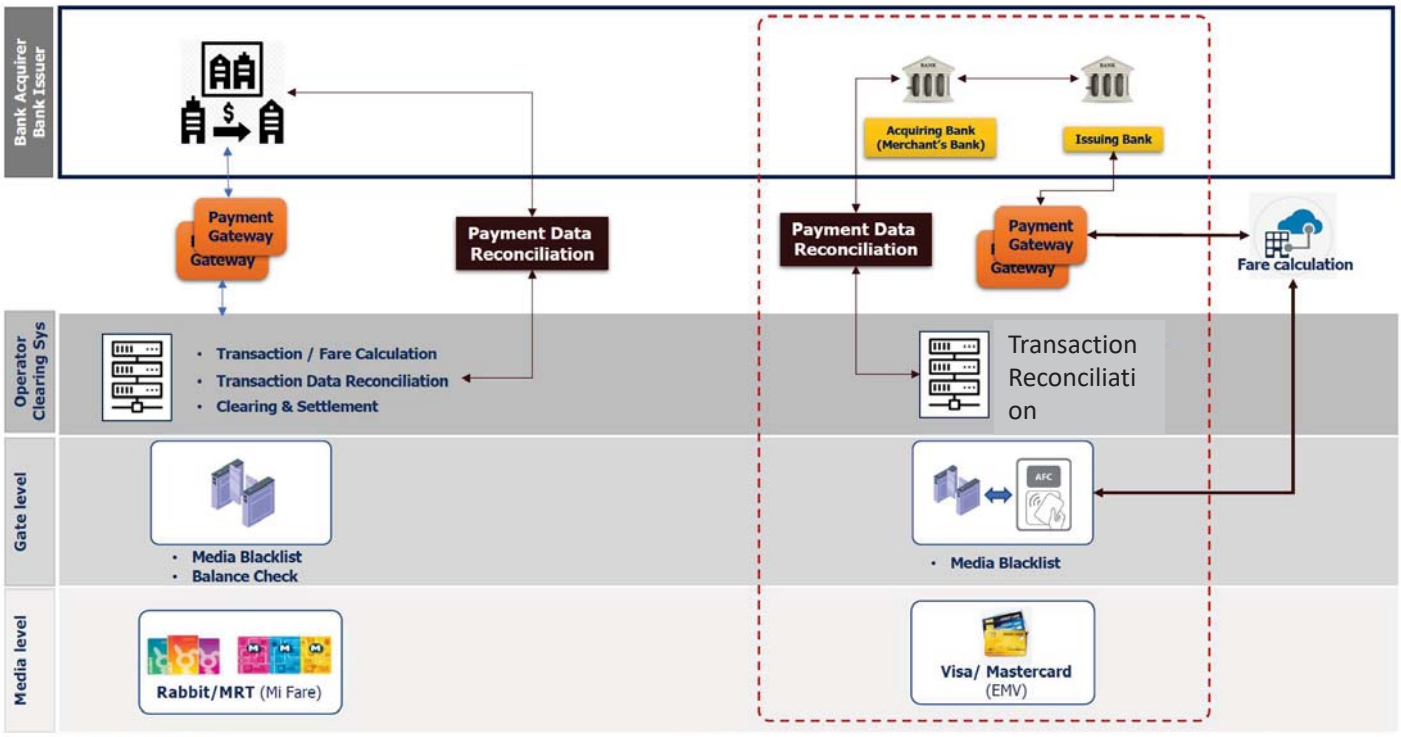
Account Based Ticketing (ABT) Conceptual Design



Current Status of Common-Ticketing System in Thailand

Operator	Rail Lines	Card/Device	Gate Reader	ABT	Clearing House
BTS		MIFARE Card, rabbit LINE Pay	EMV compliance on some routes	ABT ready	BTS
รถไฟฟ้าใต้ดิน MRT		EMV Card, MIFARE Card	EMV, MiFare	ABT ready	กรุงไทย
		EMV Card, MIFARE Card	EMV, MiFare EMV with new Gates	Support ABT	กรุงไทย
EHSR + ARL		MIFARE Card, EMV Card สนับสนุน	Only MiFare for ARL	Support ABT	TBC

Account Based Ticketing (ABT)



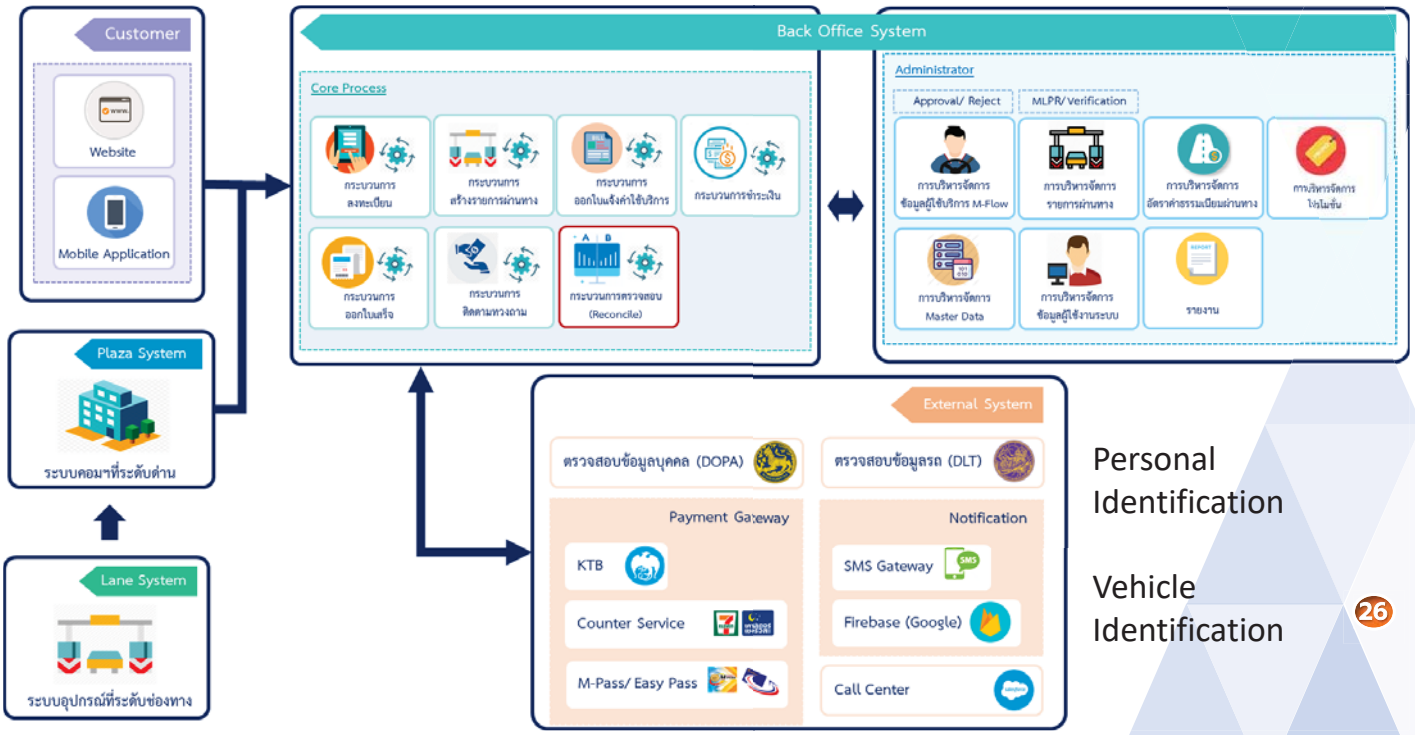
Current Card-Based Scheme ABT deployment on Purple and Blue Lines

MLFF

เข้าด่วน ไม่ต้องด่าน

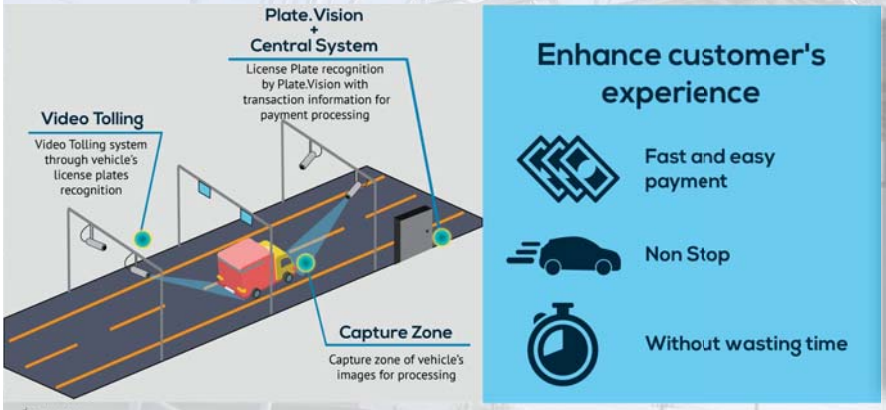
How We Action ?

M-Flow Process Overview

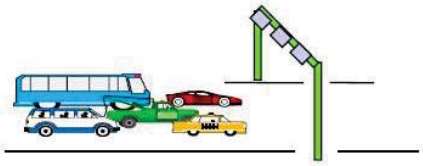


M-Flow Process Overview

Lane & Toll Gate – M-Flow Concept

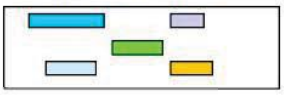


Lane & Toll Gate – M-Flow Concept

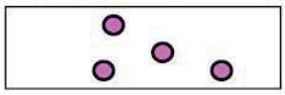


- 5 Vehicles
- 4 Valid communications
- Who is the violator?

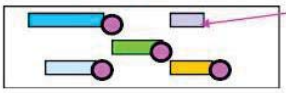
VEHICLE DETECTION



COMMUNICATION - OBU POSITION

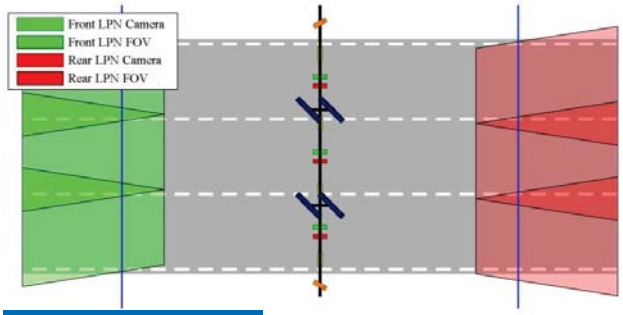


MATCHING



The Violator!

Lane & Toll Gate – LPR & Classification

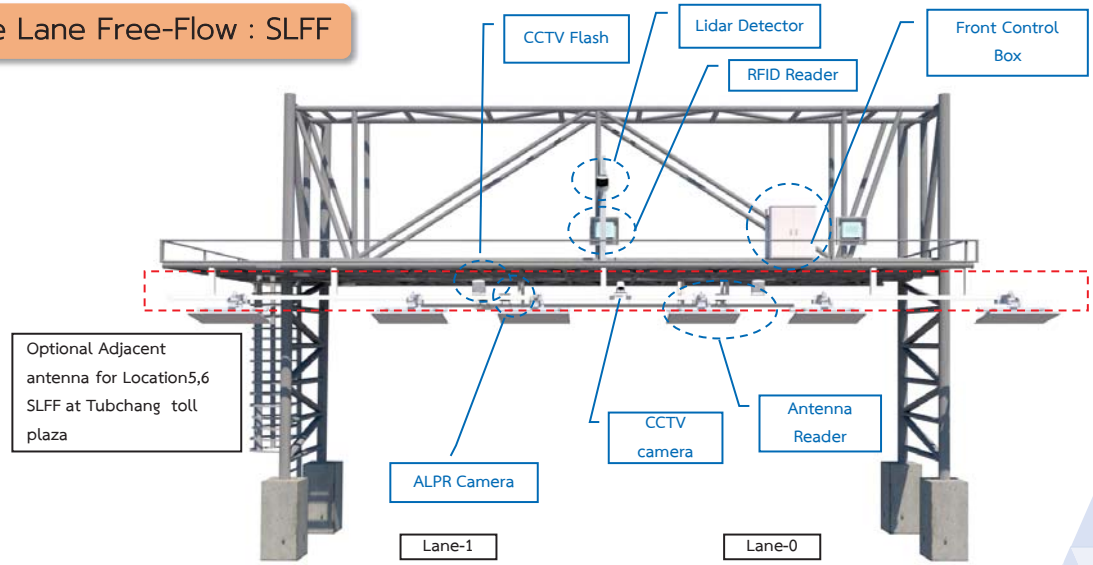


Camera trigger line

Operational Screen

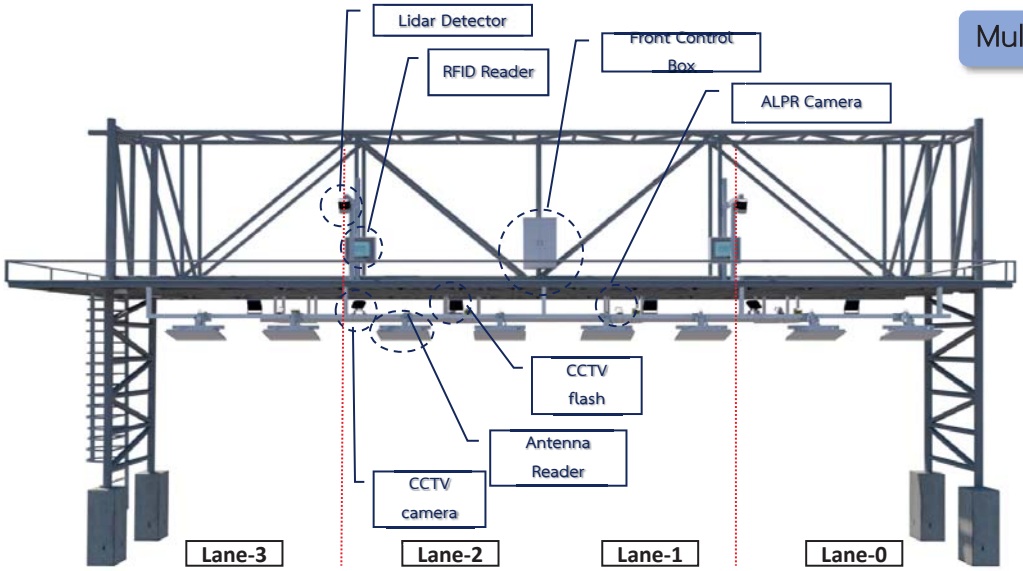
Lane & Toll Gate – Devices

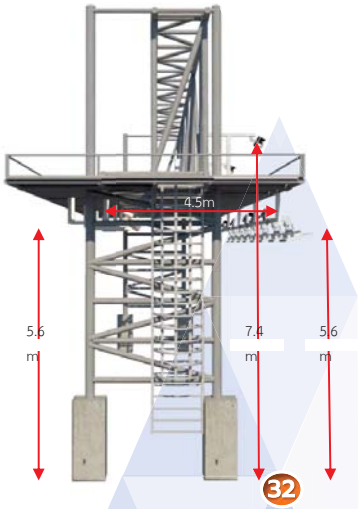
Single Lane Free-Flow : SLFF



Lane & Toll Gate – Devices

Multilane Free-Flow : MLFF

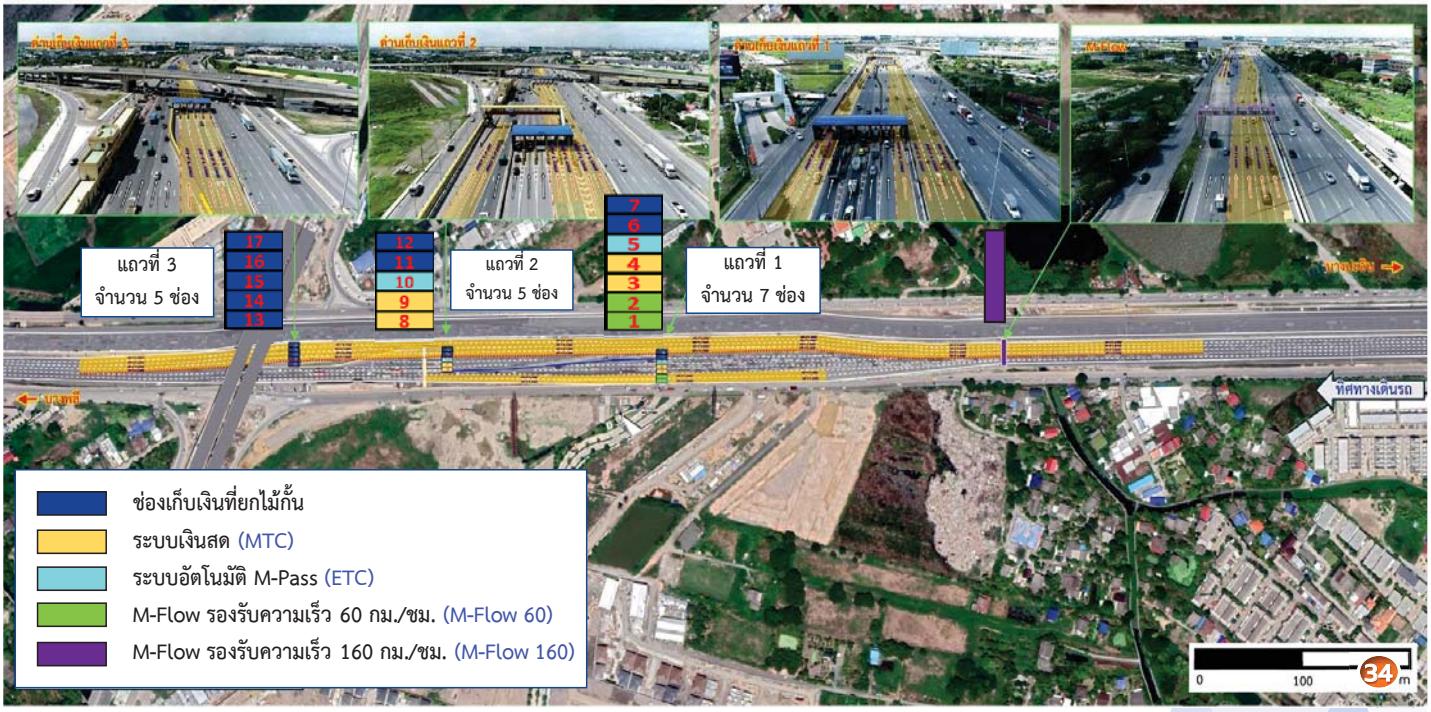




SLFF → MLFF

แผนผังการติดตั้งช่องทางระบบ M-Flow ด่านฯ ทับช้าง 1 มุ่งหน้าบางพลี

เฟสที่ 1



แผนผังการติดตั้งช่องทางระบบ M-Flow ด่านฯ ทับช้าง 1 มุ่งหน้าบางพลี

เฟสที่ 2

แผนผังการติดตั้งช่องทางระบบ M-Flow ด่านฯ ทับช้าง 2 มุ่งหน้าบางปะอิน

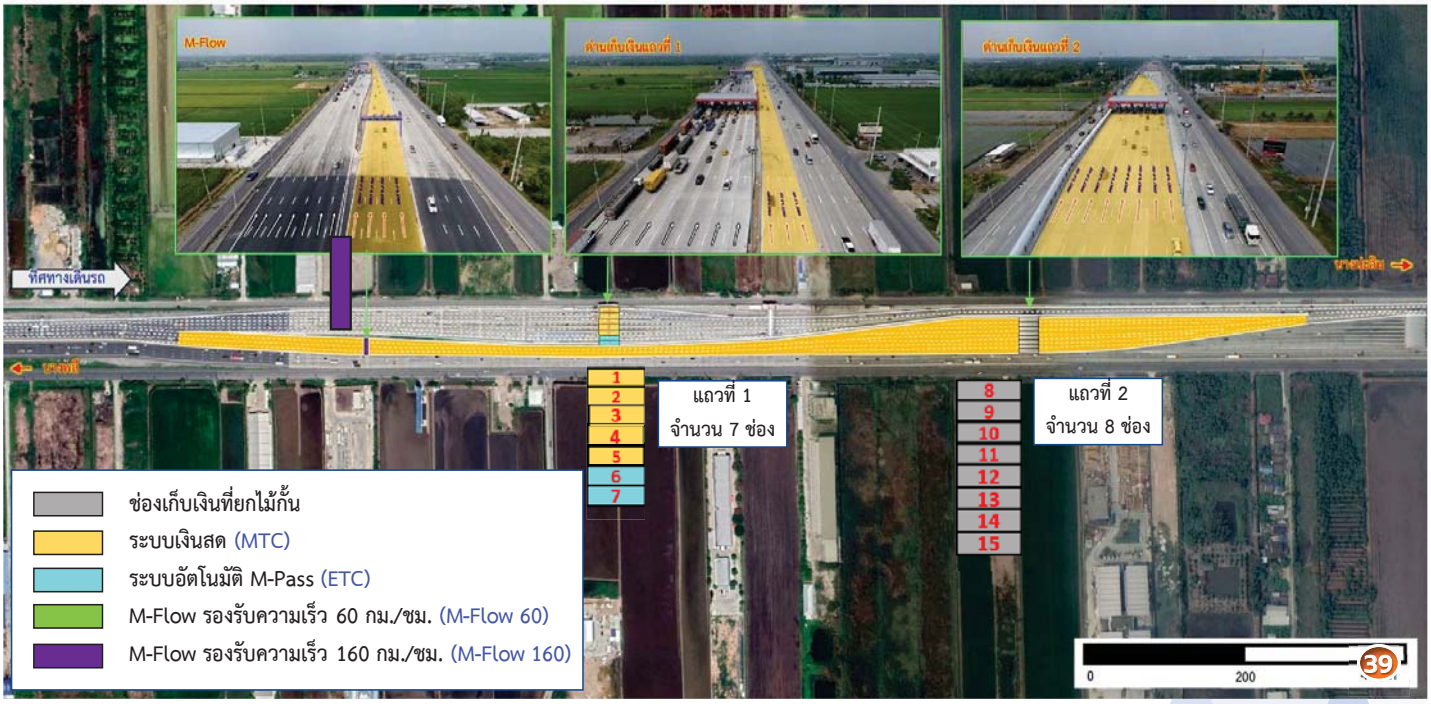
เฟสที่ 1

แผนผังการติดตั้งช่องทางระบบ M-Flow ด่านฯ ทับช้าง 2 มุ่งหน้าบางปะอิน

เฟสที่ 2

แผนผังการติดตั้งช่องทางระบบ M-Flow ด่านฯ ธัญบุรี 1 มุ่งหน้าบางพลี

แผนผังการติดตั้งช่องทางระบบ M-Flow ด่านฯ ธัญบุรี 2 มุ่งหน้าบางปะอิน

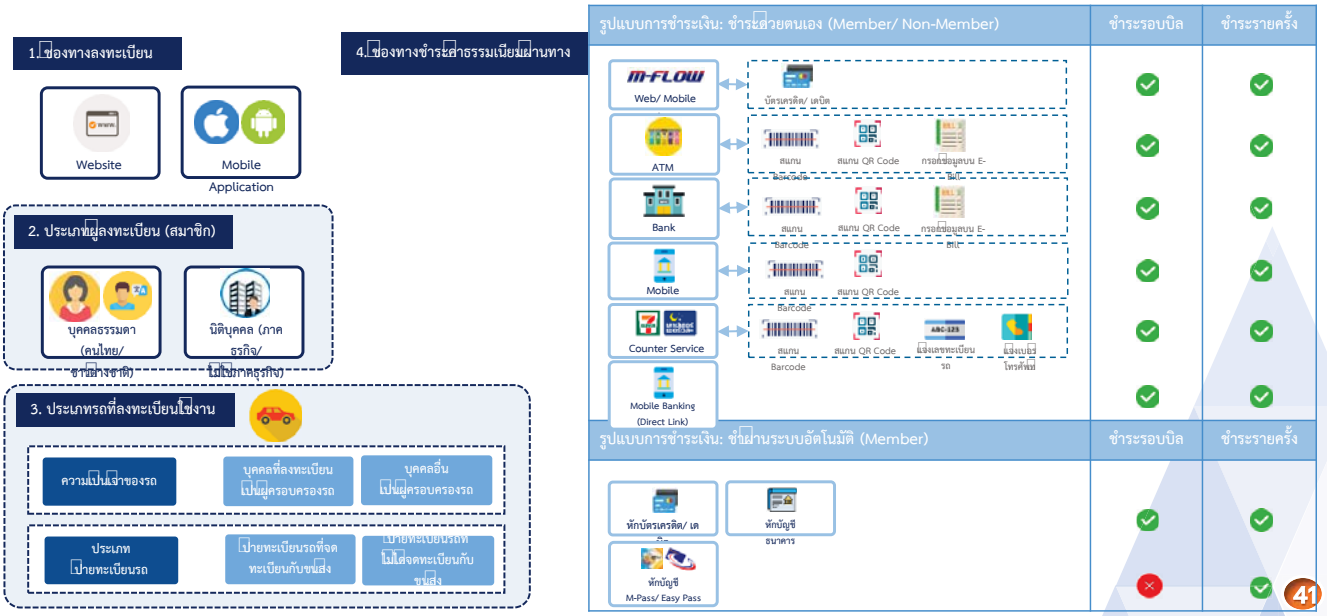


ALPR Accuracy Monitoring

Accuracy of ALPR ▶ **98.22 %**

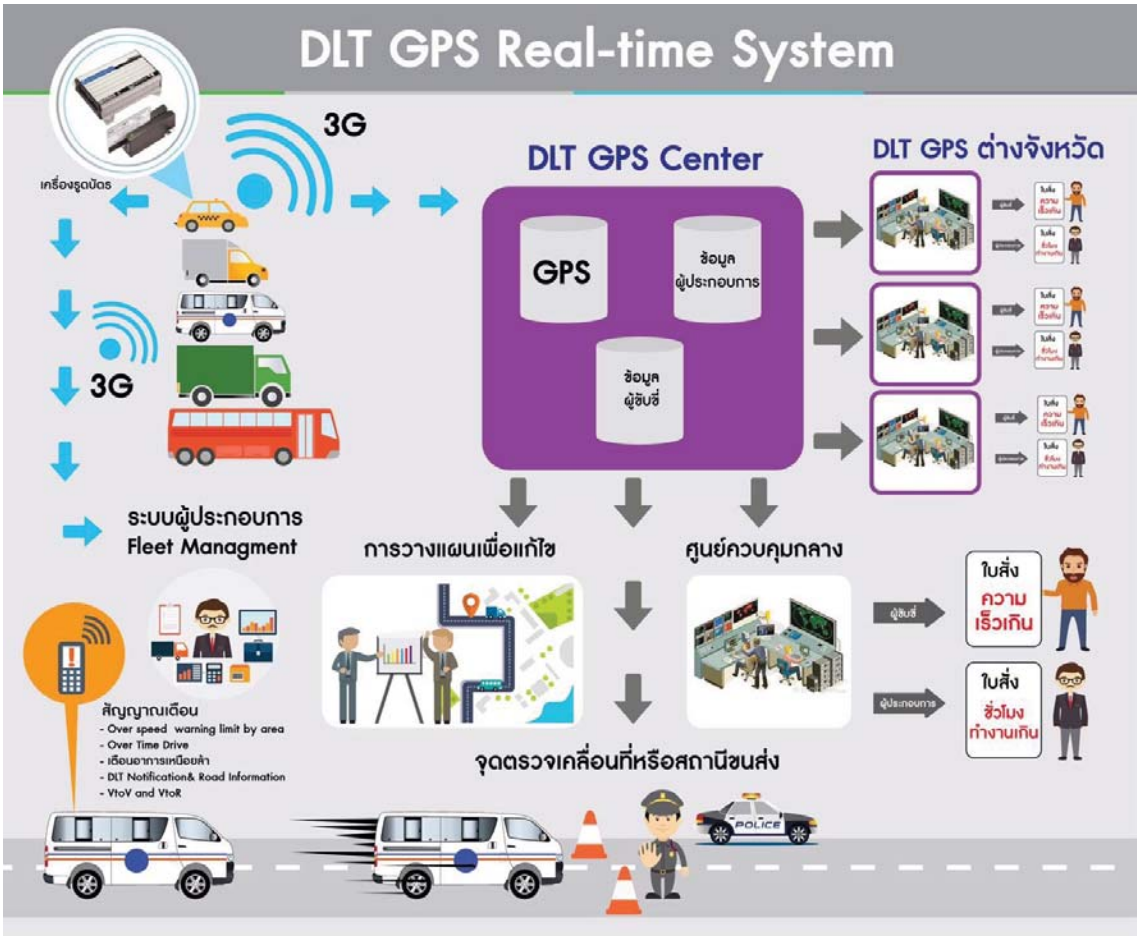
ALPR
98.22 %
MLPR go to
100 %

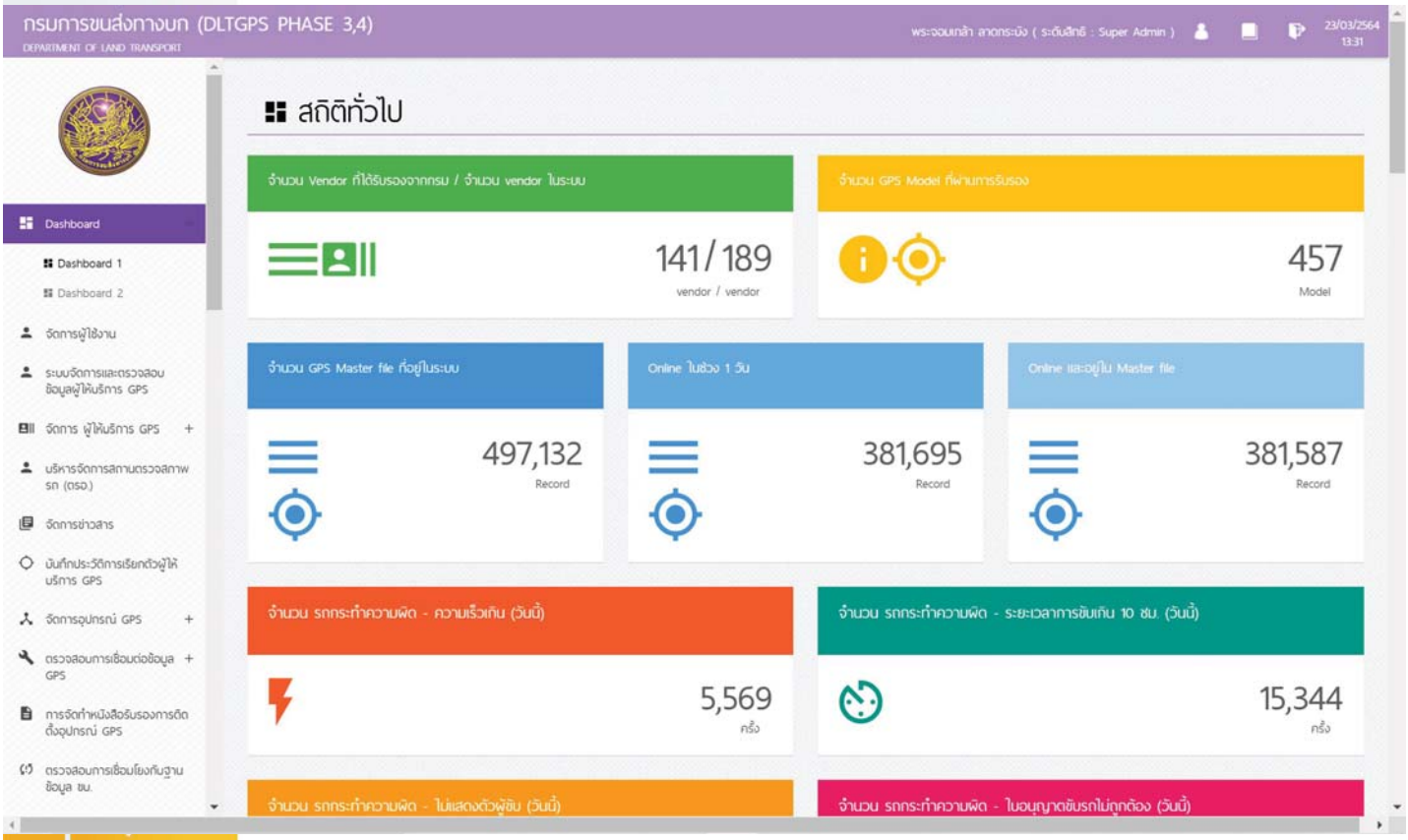
Payment System



Thailand GPS Center

System Design





Thailand GPS Center

System Design

≣ รายละเอียดรถ ในรอบ 24 ชม.

ข้อมูลรถ ณ เวลาปัจจุบัน

หมายเลขทะเบียน
14-9330 กรุงเทพมหานคร

หมายเลขตัวถัง
JTFSX22P706090522

ชนิดรถ
TOYOTA

ประเภทการขนส่งและลักษณะรถ
รถโดยสารประจำทาง / รถโดยสารปรับอากาศชั้น2

ชื่อผู้ประกอบการขนส่ง
องค์การขนส่งมวลชนกรุงเทพ

เบอร์โทรผู้ประกอบการขนส่ง
0-2246-0741-4

เลขที่ใบอนุญาต
37/2558

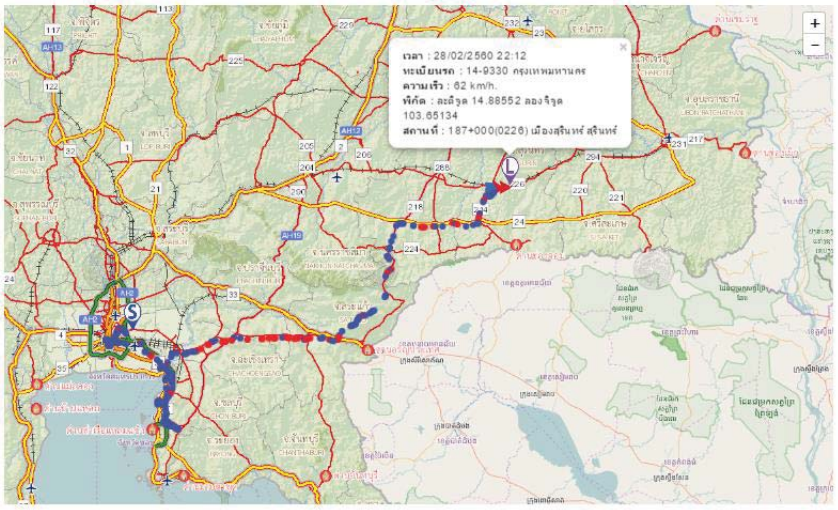
วันสิ้นอายุใบอนุญาต
08/02/2565

ชื่อผู้ขับรถ
นายสมศักดิ์ จูมพลหล้า

ประเภทและชนิดใบอนุญาต
ผู้ขับรถทุกประเภทชนิดที่ 2

เลขที่ใบอนุญาตขับขี่
กรุงเทพมหานคร 00377/58

วันสิ้นอายุใบอนุญาตขับรถ



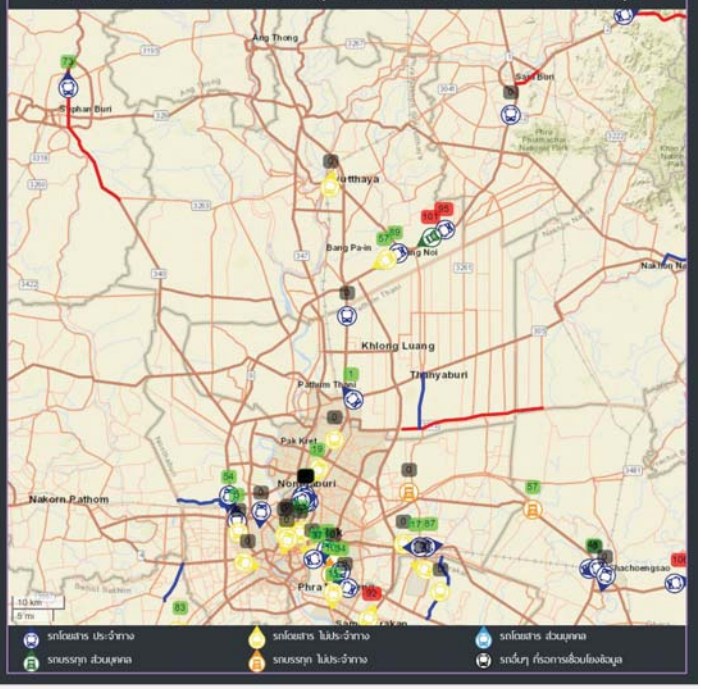
ข้อมูลที่แสดงผลในแผนที่ระหว่างวันที่ : 28/02/2560 05:17 ถึง 28/02/2560 22:12
ความถี่เฉลี่ยของข้อมูลภายในวันนี้ : 3 นาที/Record

รถที่กระทำความผิดในรอบ 3 ชั่วโมงล่าสุด (ความเร็วเกิน)

วันที่-เวลา ณ ปัจจุบัน : 7 กุมภาพันธ์ 2561 16:10 น.
วิเคราะห์ย้อนหลังถึงเวลา : 16:10 น.

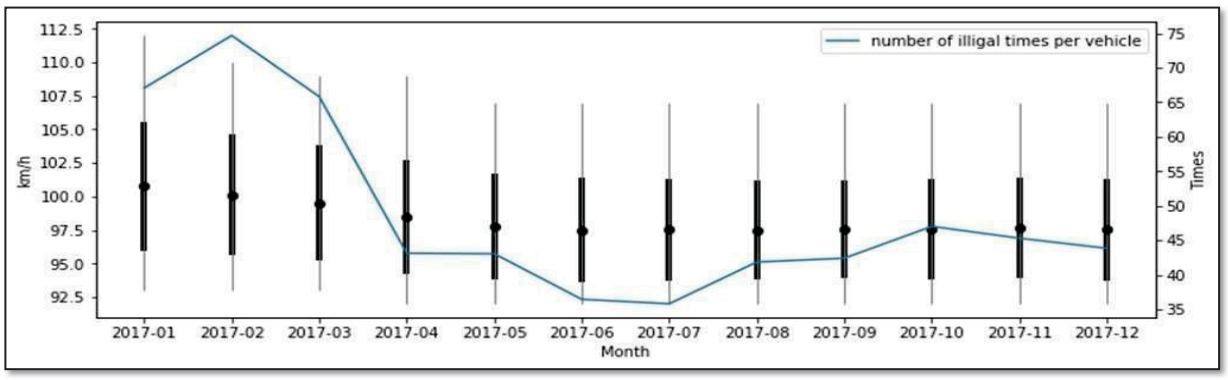
#	วันที่-เวลา	หมายเลขทะเบียนรถ	ประเภทการขนส่ง	ลักษณะรถ	ชื่อผู้ประกอบการขนส่ง	จำนวนที่กระทำความผิด (ครั้ง)	ระยะเวลาที่กระทำความผิด (นาที)	ความเร็วสูงสุด (กม./ชม.)	ความเร็วเฉลี่ย (กม./ชม.)	
1	07/02/2561 16:08:06	10-0808 อุทัยธานี	รถโดยสารประจำทาง	รถโดยสารปรับอากาศชั้น2	บริษัท ขนส่ง จำกัด	11	8	105	98	i
2	07/02/2561 16:08:06	15-5414 กรุงเทพมหานคร	รถโดยสารประจำทาง	รถโดยสารปรับอากาศชั้น2	-	11	5	103	97	i
3	07/02/2561 16:08:06	15-7500 กรุงเทพมหานคร	รถโดยสารประจำทาง	รถโดยสารปรับอากาศชั้น2	บริษัท ขนส่ง จำกัด	10	3	101	97	i
4	07/02/2561 16:08:06	84-1582 สมุทรปราการ	รถบรรทุกส่วนบุคคล	กระบะบรรทุก	-	10	3	107	98	i
5	07/02/2561 16:08:06	15-1318 กรุงเทพมหานคร	รถโดยสารประจำทาง	รถโดยสารปรับอากาศชั้น2	บริษัท ขนส่ง จำกัด	10	3	98	96	i
6	07/02/2561 16:08:06	10-7673 ชลบุรี	รถโดยสารประจำทาง	รถโดยสาร 2 ชั้นปรับอากาศพิเศษ	บริษัท ขนส่ง จำกัด	9	9	105	103	i
7	07/02/2561 16:08:06	33-2860 กรุงเทพมหานคร	รถโดยสารไม่ประจำทาง	รถโดยสารปรับอากาศชั้น2	นางสาว วาสนา ศรีมิ่งมิ่ง	9	7	110	100	i
8	07/02/2561 16:08:06	10-9050 นครราชสีมา	รถโดยสารประจำทาง	รถโดยสารปรับอากาศชั้น2	บริษัท ขนส่ง จำกัด	9	6	100	96	i
9	07/02/2561 16:08:06	15-8553 กรุงเทพมหานคร	รถโดยสารประจำทาง	รถโดยสารปรับอากาศชั้น2	องค์การขนส่งมวลชนกรุงเทพ	9	3	99	95	i
10	07/02/2561 16:08:06	10-3088 ระยอง	รถโดยสารประจำทาง	รถโดยสารปรับอากาศพิเศษ	บริษัท ขนส่ง จำกัด	9	2	121	111	i
11	07/02/2561 16:08:06	15-5530 กรุงเทพมหานคร	รถโดยสารประจำทาง	รถโดยสารปรับอากาศพิเศษ	บริษัท ขนส่ง จำกัด	8	6	98	95	i
12	07/02/2561 16:08:06	32-7982 กรุงเทพมหานคร	รถโดยสารไม่ประจำทาง	รถโดยสารปรับอากาศชั้น2	บริษัท วิสาร์ทพี แอดวานซ์ จำกัด	8	4	103	98	i
	07/02/2561	16-0004	รถโดยสารไม่							

แผนที่แสดงตำแหน่งของรถ ณ เวลาปัจจุบัน ที่ได้กระทำความผิดในรอบ 3 ชั่วโมงล่าสุด



The Change of Driving Behavior

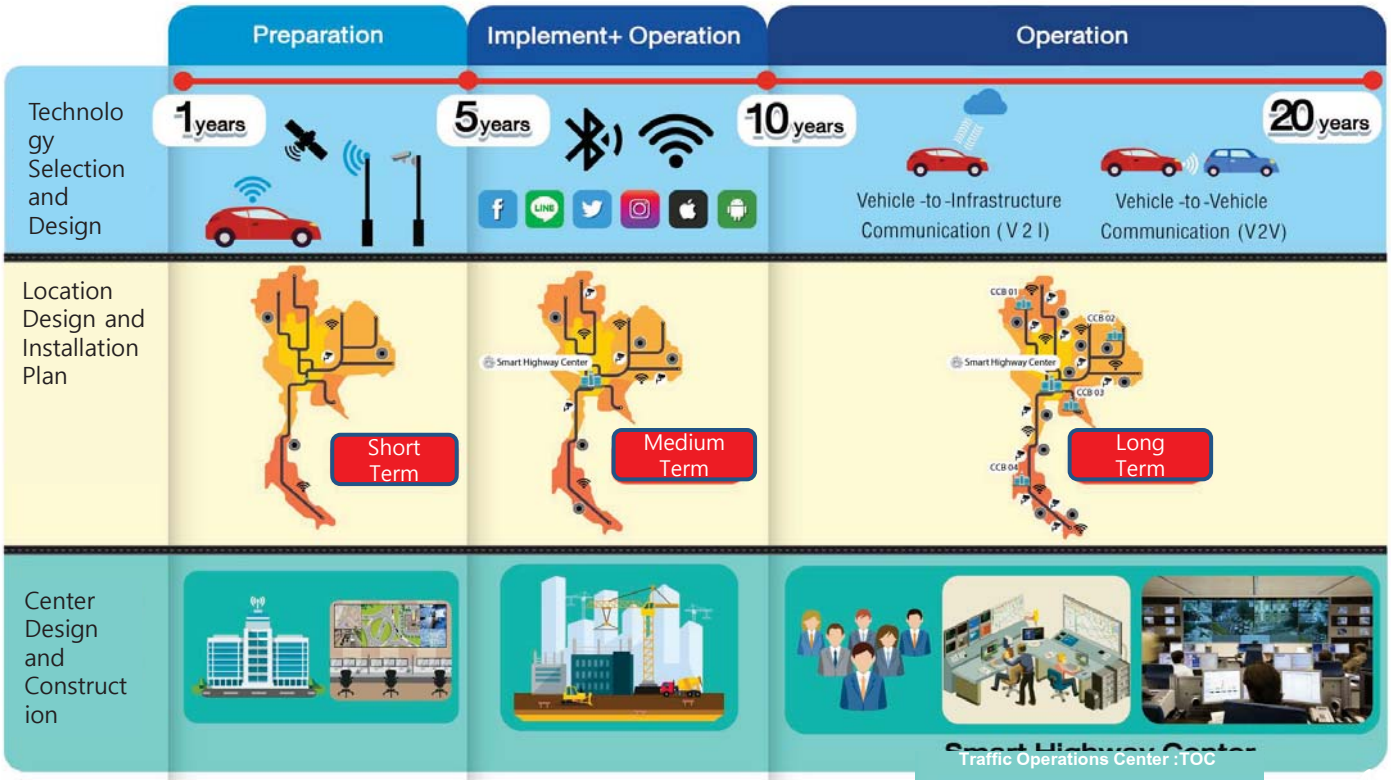
➢ **Trend of speed limit violations during January – December 2017**



- A **significant decrease** in number of speed limit violations of bus drivers after GPS installation
- Average speed also decreases due to driving behaviour control from government

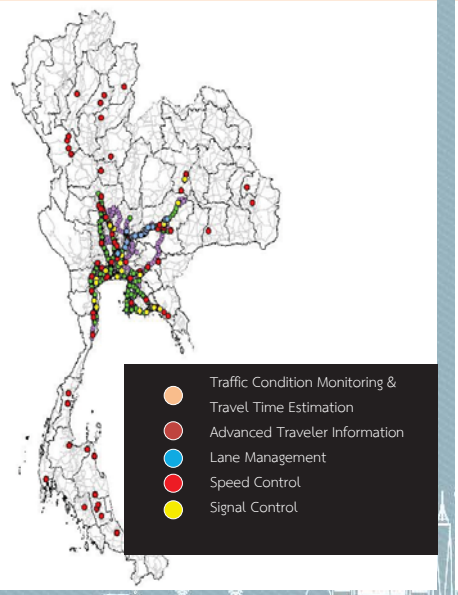
Upcoming Transformations

- Application of DLT-GPS for Public Transport Regulation (challenge exists on the integration with the existing MDM system of DLT)
- Application to App-based shared-ride services
- Share usage of data for operation and planning purposes (PDPA and agreement issue)
- Upgrade to 5G technology

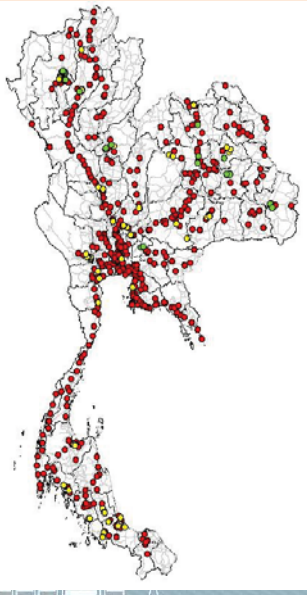


Installation Plan

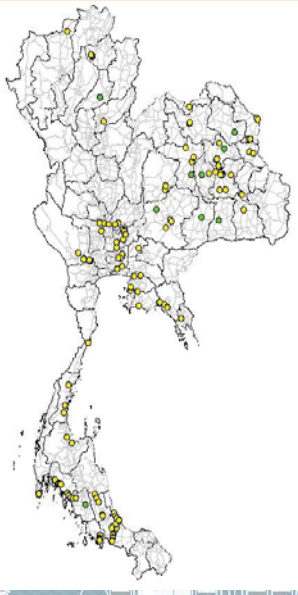
Short Term (5 years)

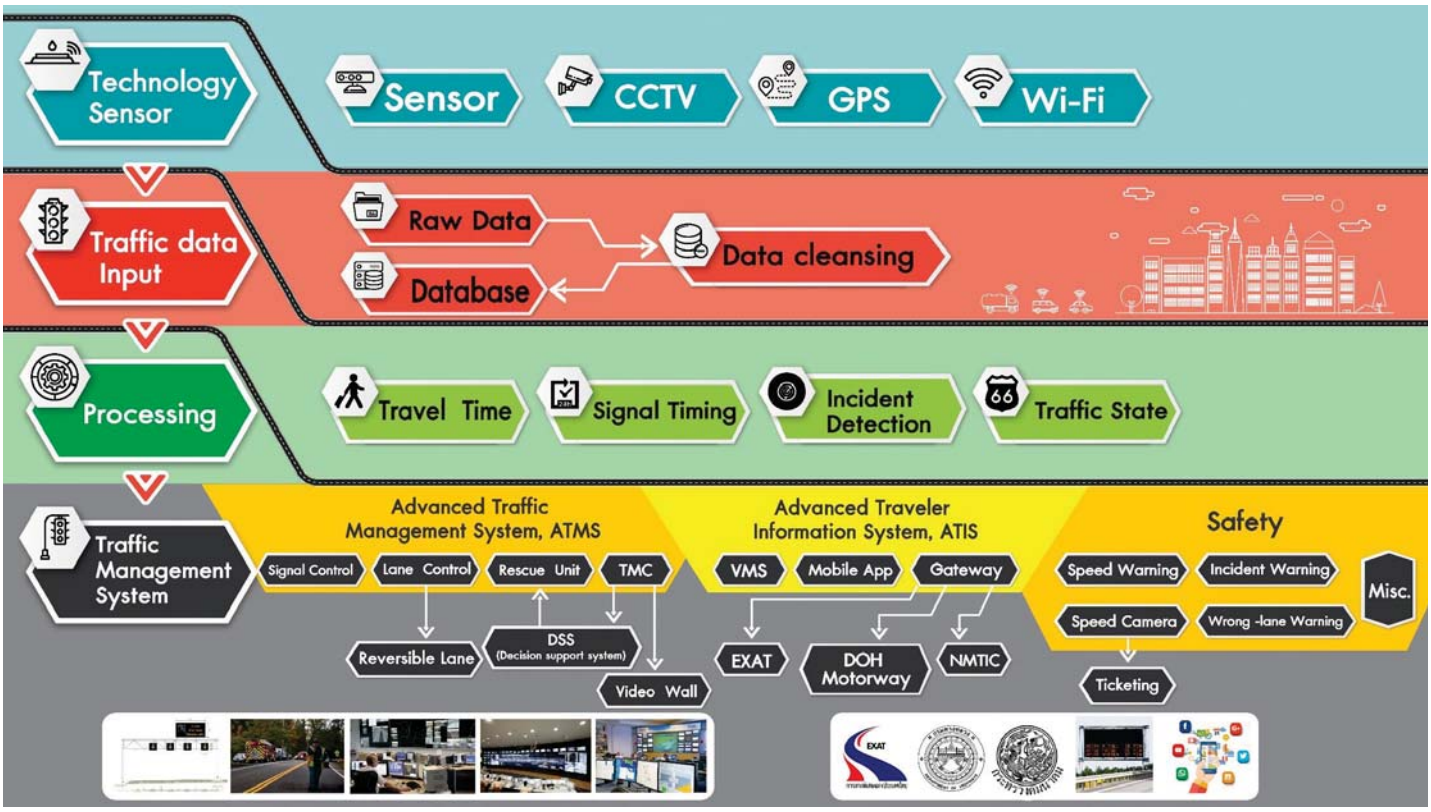


Medium Term (10 years)

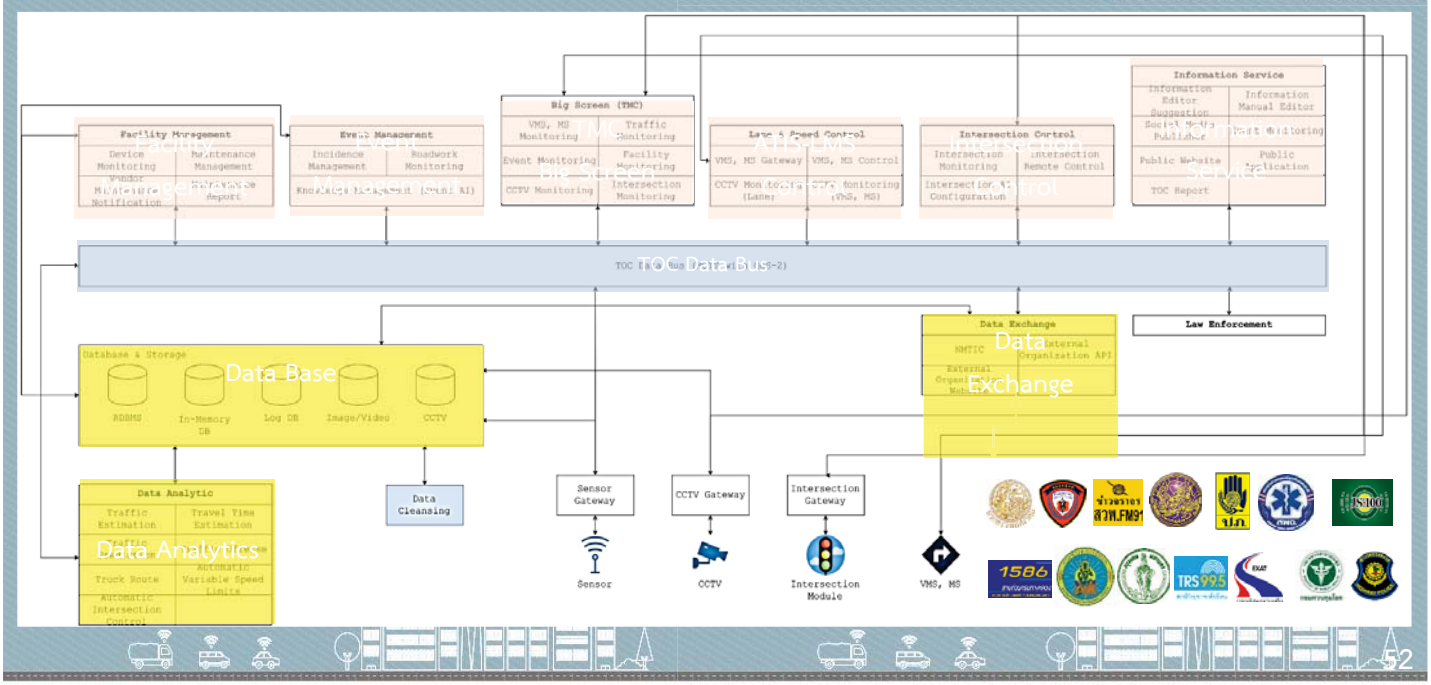


Long Term (20 years)

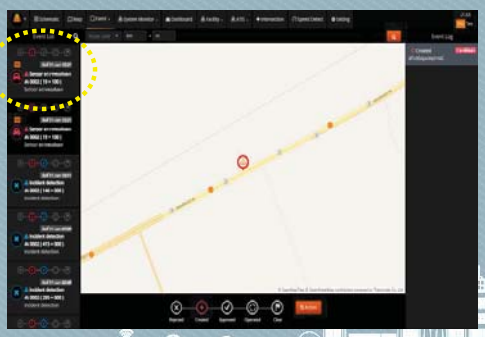


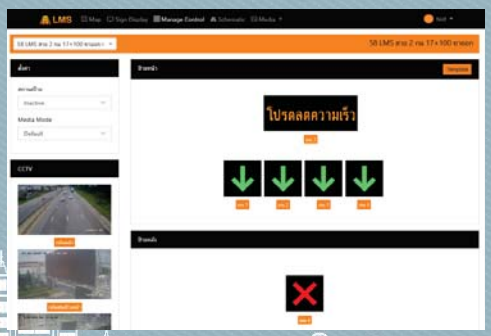


Data Integration (Detail)



System Features





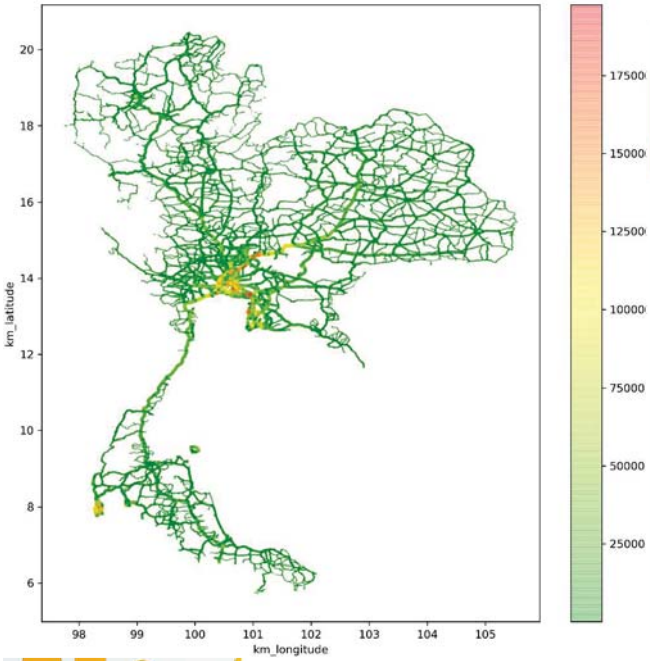
- Schematic map / Map
- Event Management
- System Monitor
- Facility Management
- ATIS / LMS Management
- Incident

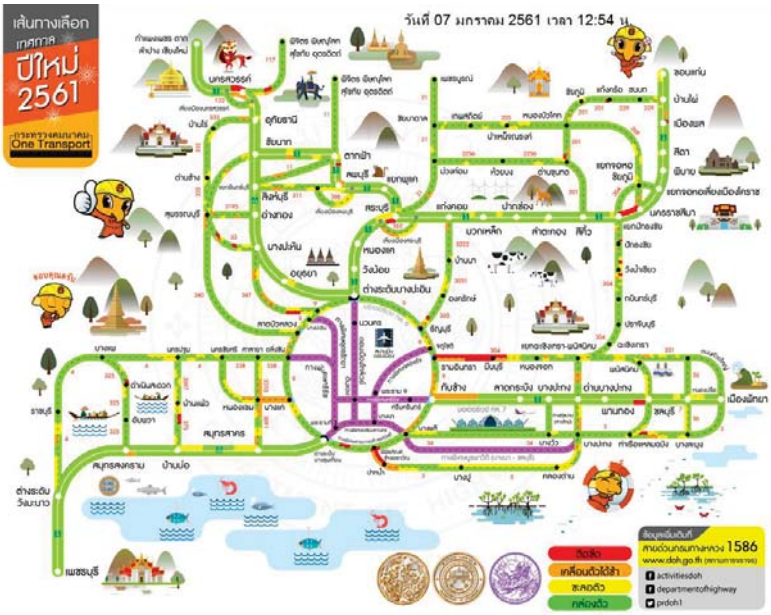
Traffic Operations Center (TOC)

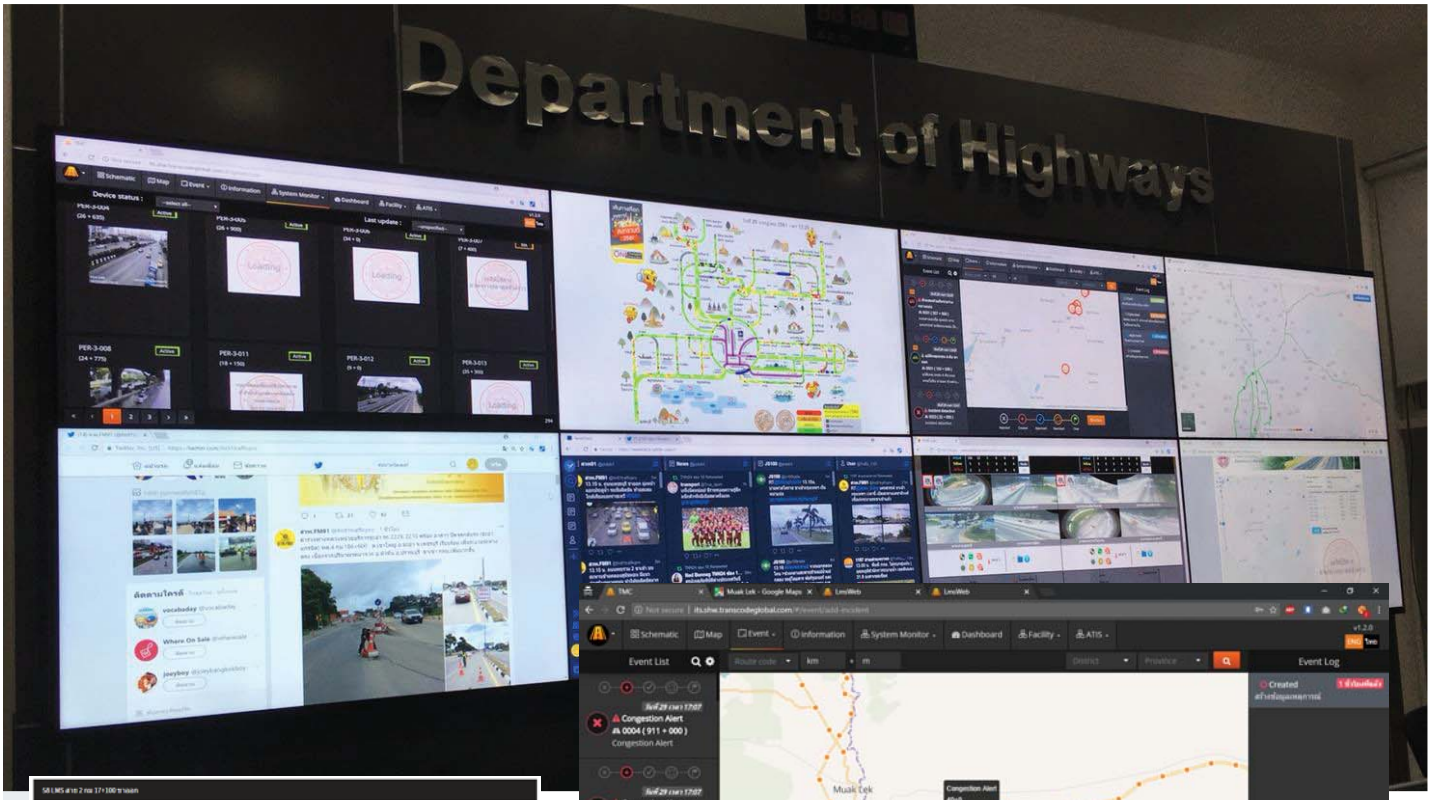
(Detailed Design)

H-TOC

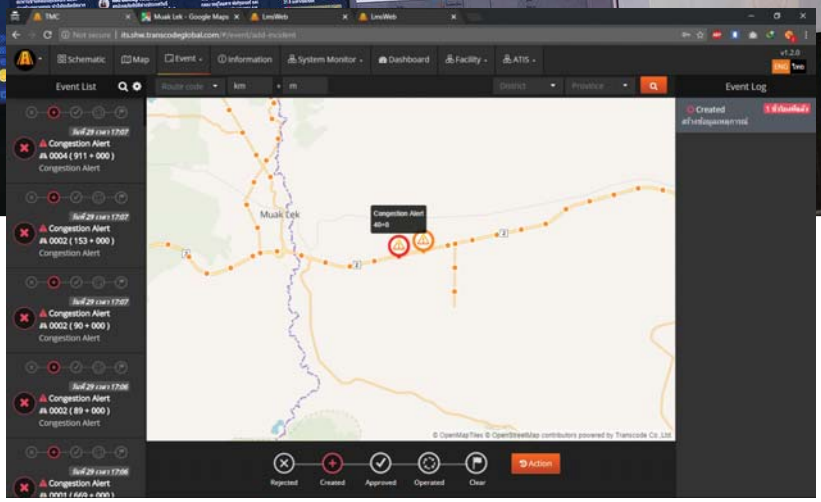
Thailand Highway Utilization (Feb, 2018)






Department of Highways


ไปรลดความเร็ว
ไปรลดความเร็ว
ไปรลดความเร็ว

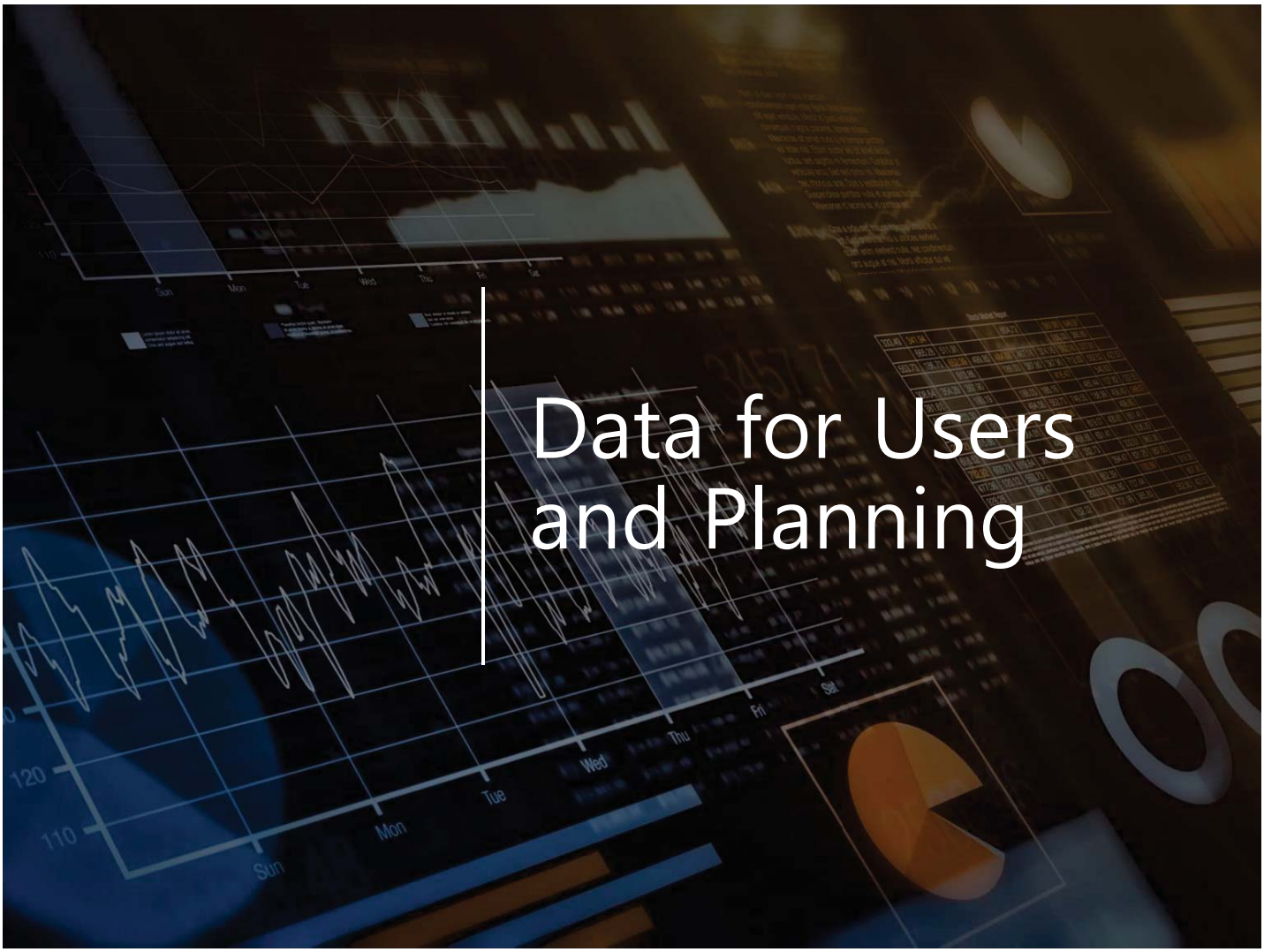

Event List
Event Log
Congestion Alert
Muak Lek
Rejected
Created
Approved
Operated
Clear
Action


แก่งคอย
สระบุรี
เลี่ยงเมือง
บ้านนา
47
66
362
33


ใช้ช่องทางพิเศษขิดขวา

Upcoming Transformations

- **Integration with inter-city Motorway Control**
- **Variable Speed Management and Speed Enforcement**
- **Social Network Data and Command System**
- **Upgrade to 5G technology**



ตารางการเดินรถโดยสาร ขาเข้า

หน้าที่ 1 / 3 (อยู่ในระหว่างการทดสอบระบบ)

สถานีขนส่งผู้โดยสารจังหวัดนครพนม
วันอาทิตย์ที่ 01 เมษายน 2561

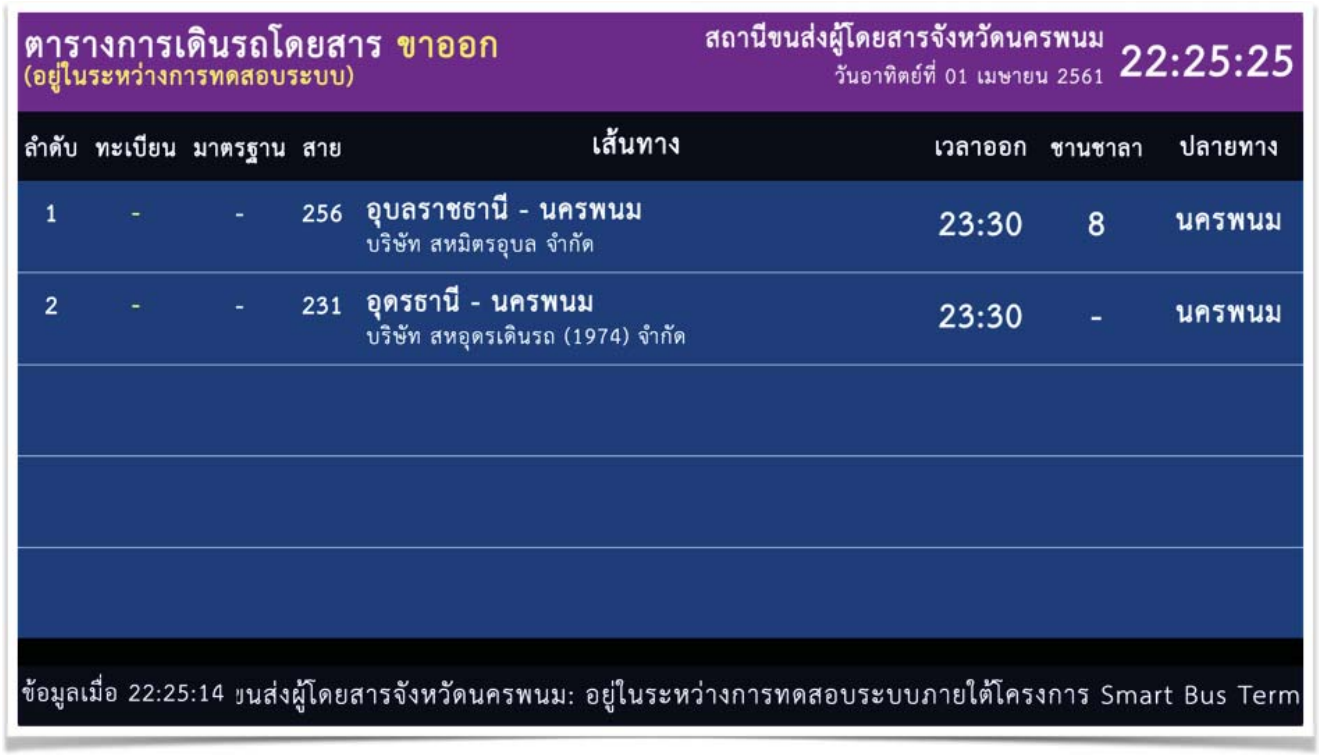
22:22:49

ลำดับ	ทะเบียน	มาตรฐาน	สาย	เส้นทาง	เที่ยว	เวลาถึง	ชานชาลา	ปลายทาง
1	10-1327 นค	ม.2 (จ)	224	อุดรธานี - นครพนม (ข) บริษัท ขนส่ง จำกัด	-	23:37	-	นครพนม
2	10-8307 ขก	ม.4 (ข)	827	นครพนม - ระยอง บริษัท ขอนแก่นชาญเทรดดิ้ง จำกัด	-	01:39	-	นครพนม
3	10-2813 ชร	ม.1 (ข)	661	เชียงราย - นครพนม บริษัท ขนส่ง จำกัด	-	01:42	-	นครพนม
4	10-1298 นค	ม.2 (จ)	224	อุดรธานี - นครพนม (ข) บริษัท ขนส่ง จำกัด	-	01:44	-	นครพนม
5	10-8308 ขก	ม.4 (ข)	827	นครพนม - ระยอง บริษัท ขอนแก่นชาญเทรดดิ้ง จำกัด	-	02:03	-	นครพนม

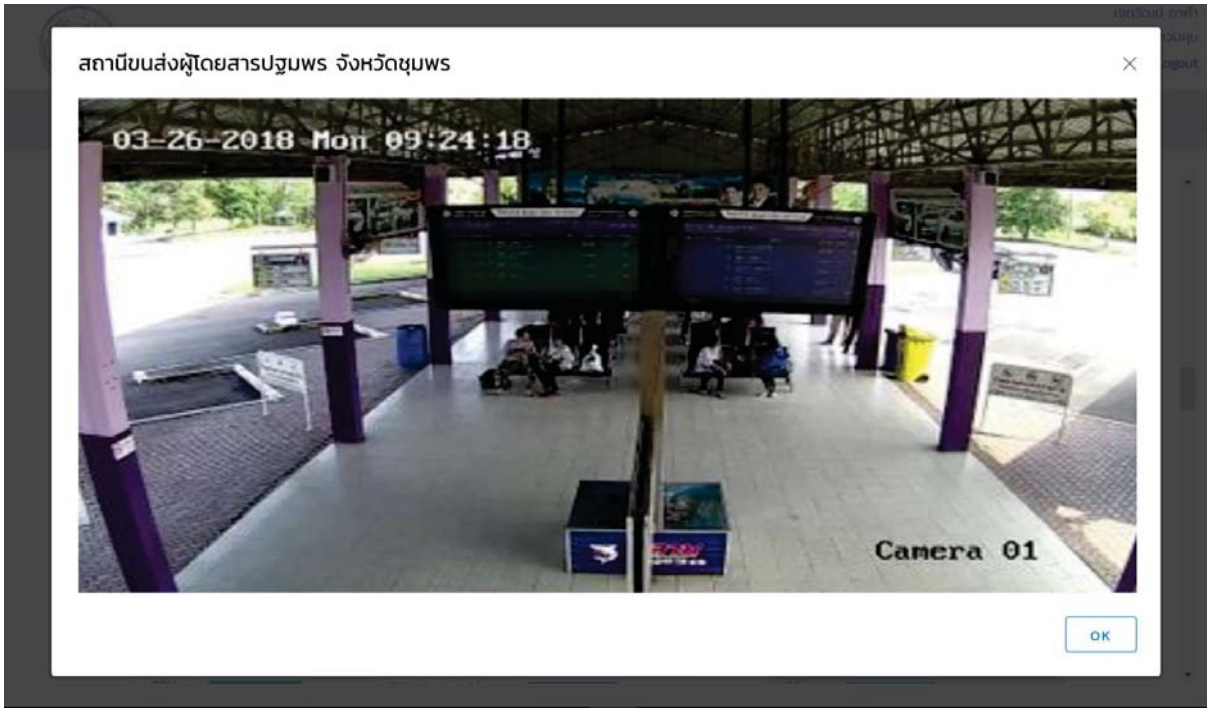
ข้อมูลเมื่อ 22:22:44

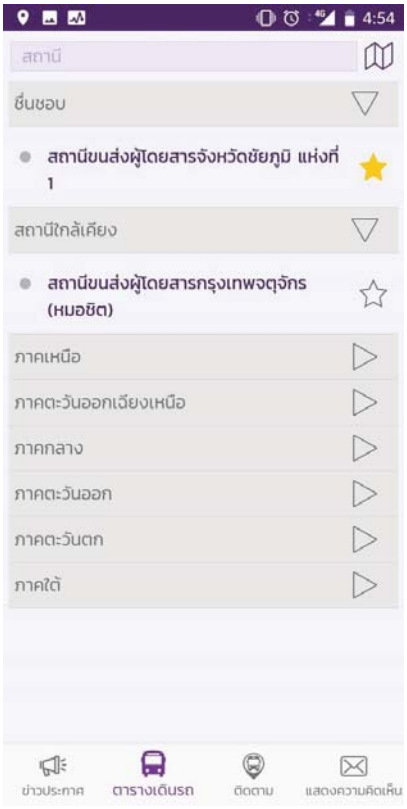
ข่าวประชาสัมพันธ์สถานีขนส่งผู้โดยสารจังหวัดนครพนม: อ

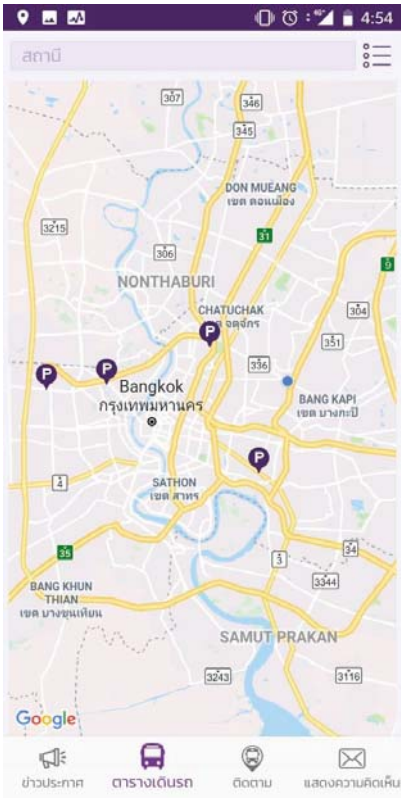
Arrival


ตารางการเดินรถโดยสาร ขาออก
(อยู่ในระหว่างการทดสอบระบบ)
สถานีขนส่งผู้โดยสารจังหวัดนครพนม
วันอาทิตย์ที่ 01 เมษายน 2561
22:25:25
ลำดับ ทะเบียน มาตรฐาน สาย เส้นทาง เวลาออก ชานชาลา ปลายทาง
1 - - 256 อุบลราชธานี - นครพนม
บริษัท สหมิตรอุบล จำกัด
23:30 8 นครพนม
2 - - 231 อุดรธานี - นครพนม
บริษัท สหอุดรเดินรถ (1974) จำกัด
23:30 - นครพนม
ข้อมูลเมื่อ 22:25:14 ขนส่งผู้โดยสารจังหวัดนครพนม: อยู่ในระหว่างการทดสอบระบบภายใต้โครงการ Smart Bus Term

Departure


สถานีขนส่งผู้โดยสารปฐมพร จังหวัดชุมพร
03-26-2018 Mon 09:24:18
Camera 01
OK





APP Smart Bus Terminal

สำนักงานนโยบายและแผนการขนส่งและจราจร
Office of Transport and Traffic Policy and Planning
กระทรวงคมนาคม (Ministry of Transport)

หน้าหลัก | เกี่ยวกับ สนข. | การพัฒนาการขนส่งและจราจร | เอกสารเผยแพร่ | ข่าวสาร/กิจกรรม | ดาวน์โหลด | กระดานสนทนา | คำถามที่พบบ่อย | ติดต่อ สนข.

DOWNLOAD APPLICATION ระบบนำทาง

หมวดหมู่

AOT SHUTTLE BUS ระบบควบคุมการเดินรถบริการรับส่งผู้โดยสาร

ควบคุมและติดตามรถ | จัดการรถประจำวัน | กรอกข้อมูลเที่ยววิ่งประจำวัน | จัดการข้อมูลพื้นฐานของรถ | รายงาน | จัดการกะงาน | จัดการผู้ใช้ | เครื่องมือ | Logout

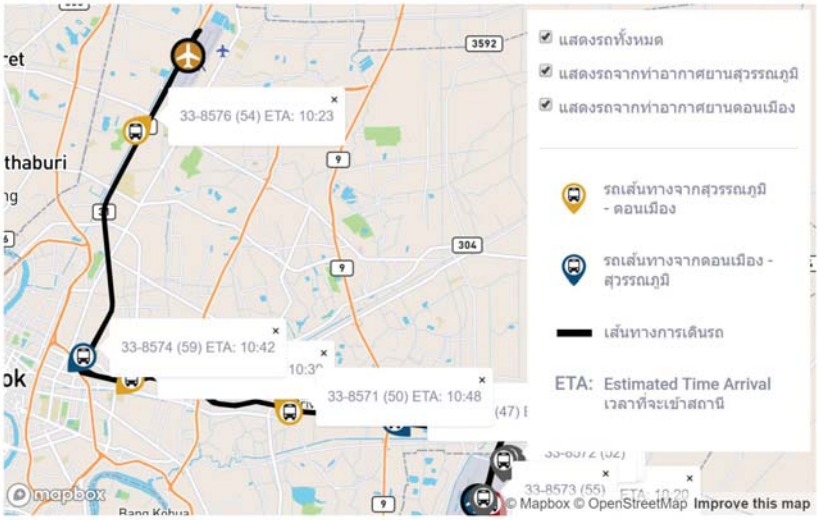
จำนวนเที่ยวทั้งหมด	จำนวนรถทั้งหมด	จำนวนพนักงานขับทั้งหมด
27 เที่ยว	13 คัน	15 คน

ท่าอากาศยานสุวรรณภูมิ - ท่าอากาศยานดอนเมือง จำนวนเที่ยววิ่งรวม 14 เที่ยว

ลำดับ	ทะเบียนรถ	หมายเลขรถ	ประมาณเวลาถึงสถานี	จำนวนเที่ยววิ่ง	เวลาเฉลี่ย/รอบ
1	33-8576	54	10:23	2	00:56 ชม.
2	33-8578	51	10:39	2	00:35 ชม.
3	33-8571	50	10:48	2	01:02 ชม.

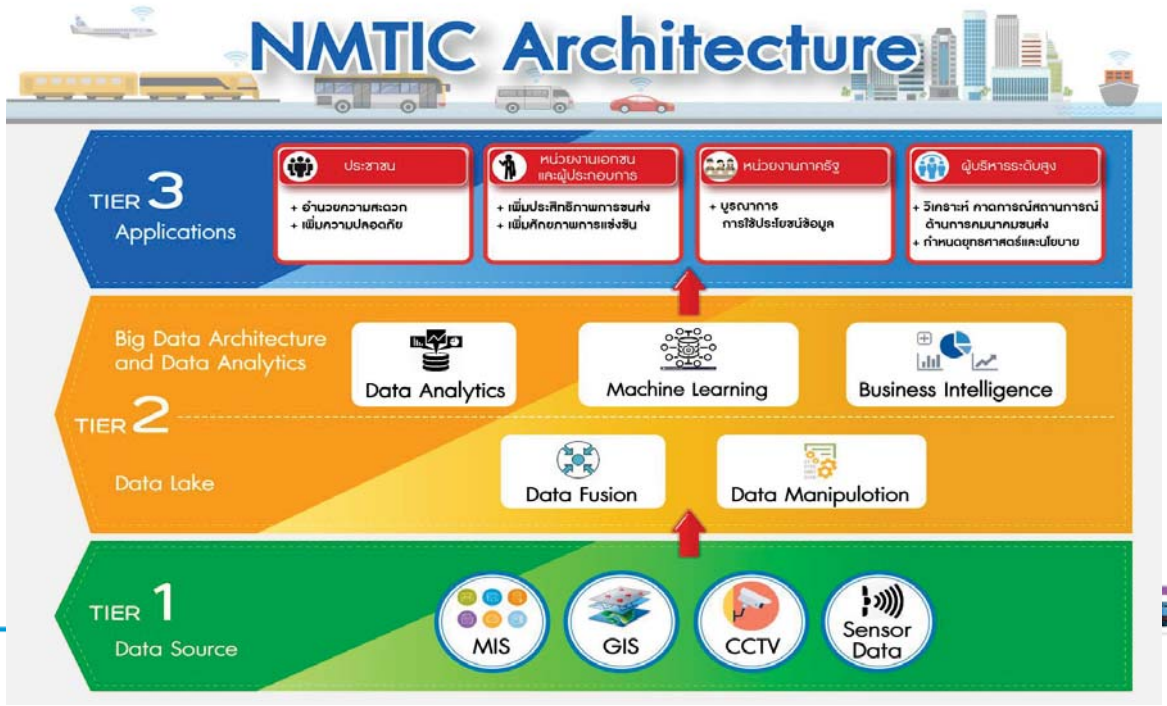
ท่าอากาศยานดอนเมือง - ท่าอากาศยานสุวรรณภูมิ จำนวนเที่ยววิ่งรวม 13 เที่ยว

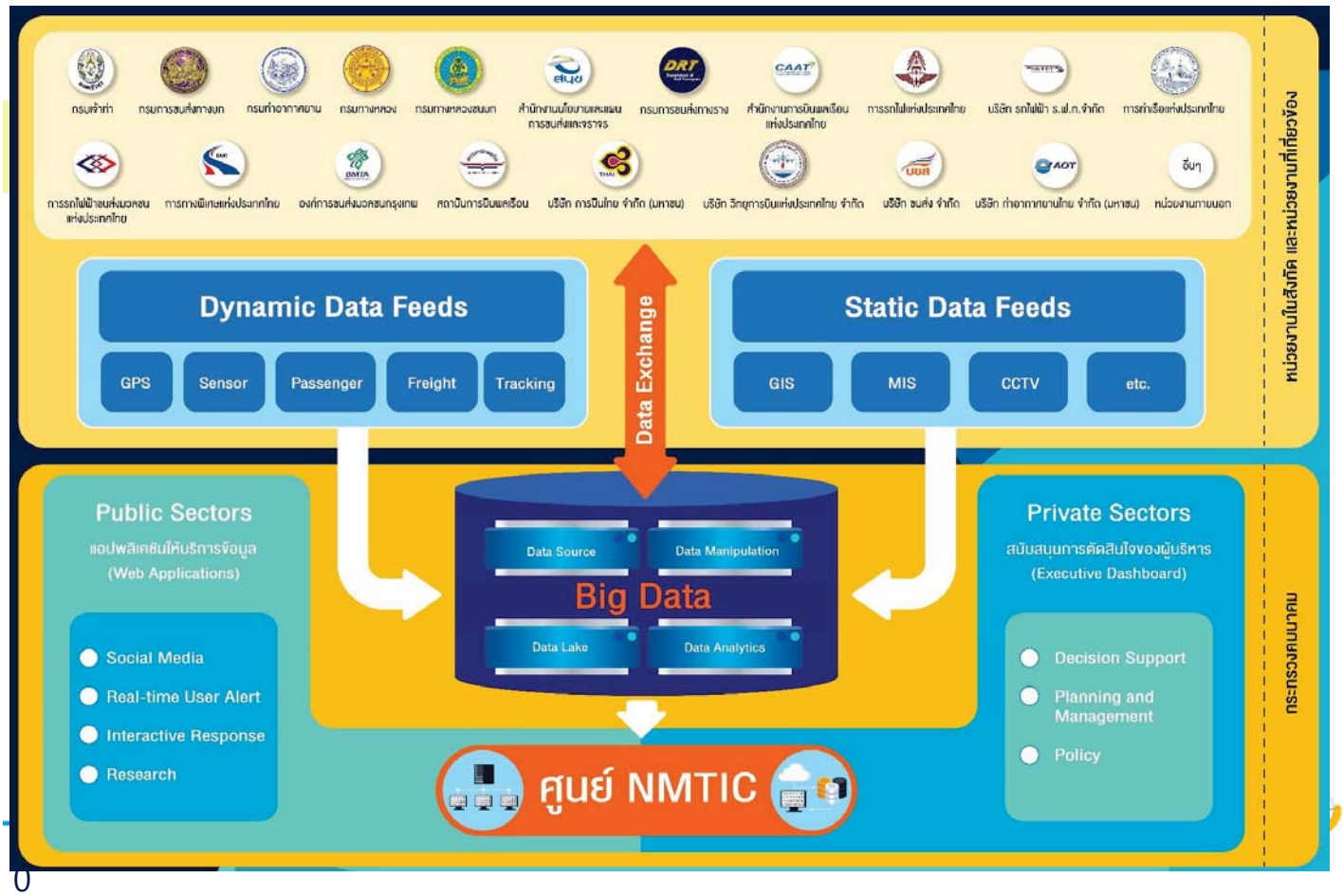
ลำดับ	ทะเบียนรถ	หมายเลขรถ	ประมาณเวลาถึงสถานี	จำนวนเที่ยววิ่ง	เวลาเฉลี่ย/รอบ
1	33-8575	49	10:20	1	00:55 ชม.
2	33-8579	47	10:25	1	00:58 ชม.
3	33-8574	59	10:42	1	00:57 ชม.



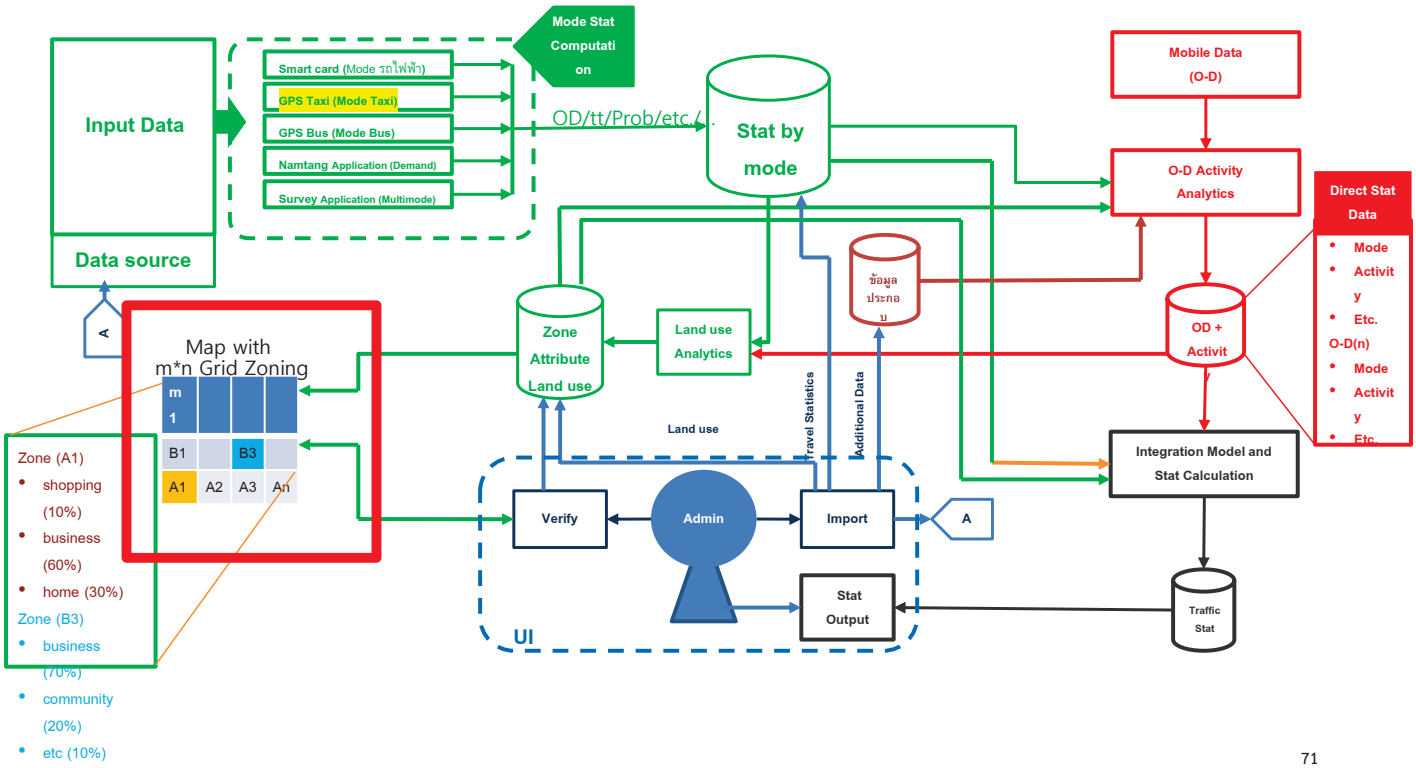
สถานีท่าอากาศยานดอนเมือง	
เข้าใกล้สถานี	0
ระหว่างการเดินทาง	4

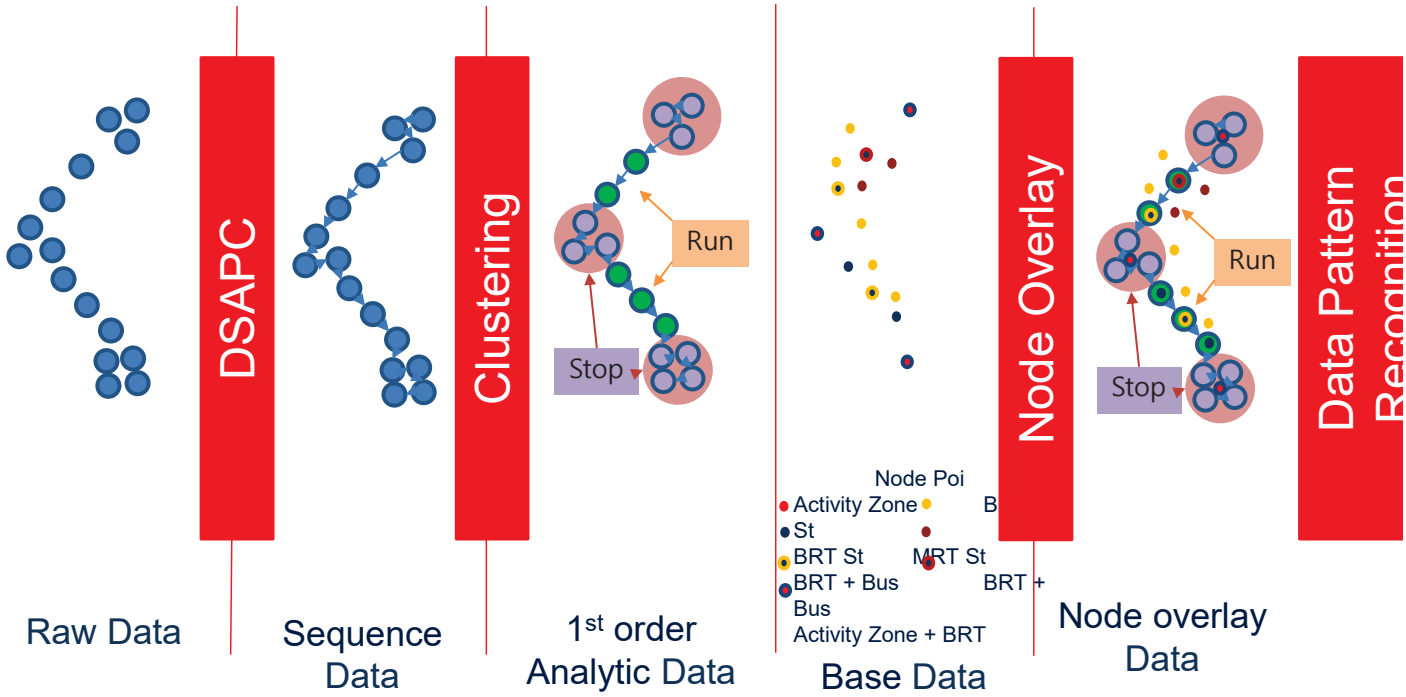
สถานีท่าอากาศยานสุวรรณภูมิ	
เข้าใกล้สถานี	1
ระหว่างการเดินทาง	2

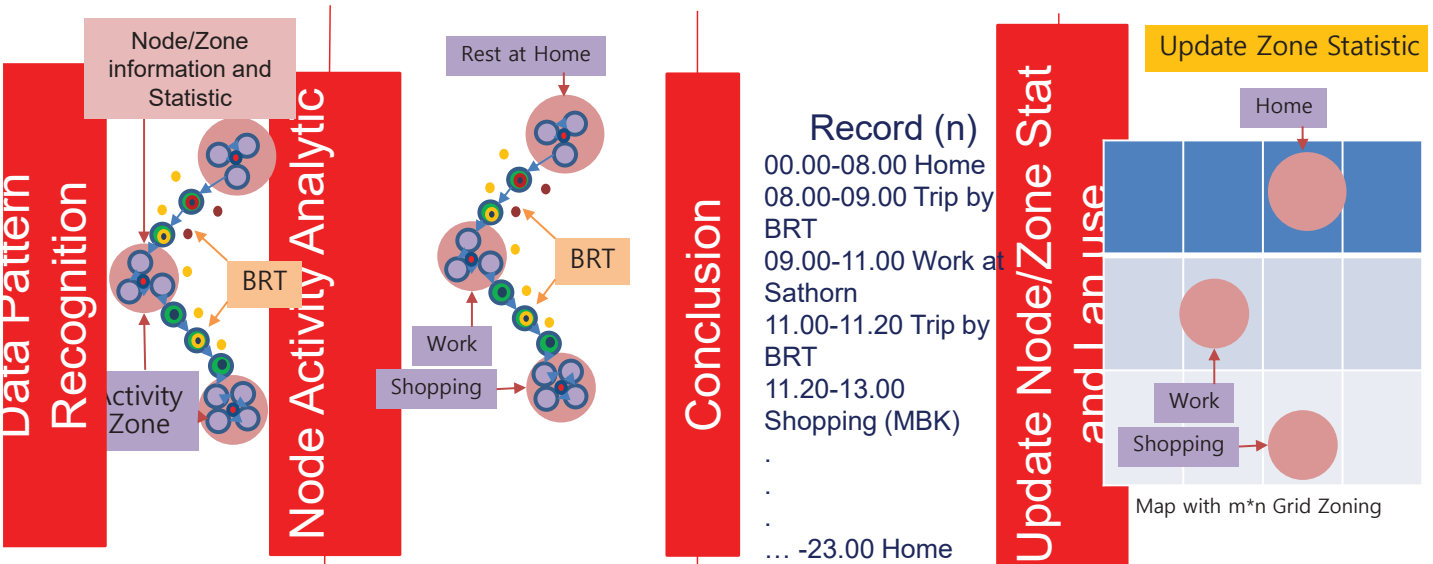

NMTIC Architecture
TIER 3
Applications
ประชาชน
+ อำนวยความสะดวก
+ เพิ่มความปลอดภัย
หน่วยงานเอกชน และผู้ประกอบการ
+ เพิ่มประสิทธิภาพการขนส่ง
+ เพิ่มศักยภาพการแข่งขัน
หน่วยงานภาครัฐ
+ บูรณาการ การใช้ประโยชน์ข้อมูล
ผู้บริหารระดับสูง
+ วิเคราะห์ คาดการณ์สถานการณ์ ด้านการคมนาคมขนส่ง
+ กำหนดยุทธศาสตร์และนโยบาย
Big Data Architecture and Data Analytics
TIER 2
Data Lake
Data Analytics
Machine Learning
Business Intelligence
Data Fusion
Data Manipulotion
TIER 1
Data Source
MIS
GIS
CCTV
Sensor Data


กรมเจ้าท่า
กรมการขนส่งทางบก
กรมท่าอากาศยาน
กรมทางหลวง
กรมทางหลวงชนบท
สำนักงานนโยบายและแผนการขนส่งและจราจร
กรมการขนส่งทางราง
สำนักงานการบินพลเรือนแห่งประเทศไทย
การรถไฟแห่งประเทศไทย
บริษัท รถไฟฟ้า ร.ฟ.ท. จำกัด
การท่าเรือแห่งประเทศไทย
การรถไฟฟ้าขนส่งมวลชนแห่งประเทศไทย
การทางพิเศษแห่งประเทศไทย
องค์การขนส่งมวลชนกรุงเทพ
สถาบันการบินพลเรือน
บริษัท การบินไทย จำกัด (มหาชน)
บริษัท วิทยุการบินแห่งประเทศไทย จำกัด
บริษัท ขนส่ง จำกัด
บริษัท ท่าอากาศยานไทย จำกัด (มหาชน)
อื่นๆ
หน่วยงานภายนอก
หน่วยงานในสังกัด และหน่วยงานที่เกี่ยวข้อง
Dynamic Data Feeds
GPS
Sensor
Passenger
Freight
Tracking
Data Exchange
Static Data Feeds
GIS
MIS
CCTV
etc.
Public Sectors
แอปพลิเคชันให้บริการข้อมูล
(Web Applications)
Social Media
Real-time User Alert
Interactive Response
Research
Data Source
Data Manipulation
Big Data
Data Lake
Data Analytics
Private Sectors
สนับสนุนการตัดสินใจของผู้บริหาร
(Executive Dashboard)
Decision Support
Planning and Management
Policy
ศูนย์ NMTIC
กระทรวงคมนาคม

OTP Big Data Analytics Platform







2st order Analytic Data
- Transit Mode and TT

2st order Analytic Data
- Node Activity Identify

Direct Stat Data

Land use Data

Data Example

	name	from_time	to_time	distance(m	time(min:s	angle	samepoint	predict	desc
1									
2	T00-7D52	0:00:00	1:00:00	0	60:00:00	0	-1	stop	BTS:_5
3	T01-B310	1:00:00	1:27:59	68.74	27:59:00	0	0	stop	BTS:_5
4	T01-EC33	1:27:59	1:28:24	34.37	0:24	0	1	stop	BTS:_5
5	T02-49235	2:00:00	3:00:00	51.56	60:00:00	0	0	stop	BTS:_5
6	T03-7D53	3:00:00	3:50:22	25.78	50:22:00	0	1	stop	BTS:_5
7	T03-84822	3:50:22	4:00:00	51.56	9:37	0	0	stop	BTS:_5
8	T04-49245	4:00:00	4:46:14	36.04	46:14:00	0	0	stop	BTS:_5
9	T05-49245	5:00:00	6:00:00	18.02	60:00:00	0	1	stop	BTS:_5
10	T06-49245	6:00:00	7:00:00	9.01	60:00:00	0	1	stop	BTS:_5
11	T07-49245	7:00:00	7:00:41	4.5	0:41	0	1	stop	BTS:_5
12	T07-25913	7:00:41	7:01:50	7.14	1:09	127	0	move	BTS:_5
13	T07-BA95	7:01:50	7:02:29	57.42	0:38	87	0	move	BTS:_5
14	T07-CBD3	7:02:29	7:10:36	48.08	8:07	203	0	move	BTS:_5
15	T07-7E52	7:10:36	7:11:35	67.04	0:58	0	0	stop	BTS:_3__bus:_0.3
16	T07-97F1	7:11:35	7:19:29	10.36	7:54	218	0	move	BTS:_5
17	T07-7D51	7:19:29	7:21:22	71.93	1:52	0	0	stop	BTS:_5
18	T07-D2B3	7:21:22	7:21:38	35.96	0:16	0	1	stop	BTS:_5
19	T07-36A0	7:21:38	7:22:25	702.15	0:46	155	0	move	BTS:_1__bus:_0.3
20	T07-3CA5	7:22:25	7:22:31	378.84	0:06	200	0	move	BTS:_1__bus:_0.3
21	T07-1C50	7:22:31	7:24:30	288.21	1:59	177	0	move	BTS:_3__bus:_0.3
22	T07-61733	7:24:30	7:25:09	299.09	0:38	167	0	move	BTS:_5__MRT:_5__bus:_0.3
23	T07-BB04	7:25:09	7:28:22	276.07	3:12	267	0	move	BTS:_2__MRT:_2__bus:_0.3
24	T07-6BD3	7:28:22	7:28:35	171.76	0:13	0	0	stop	BTS:_2__MRT:_2__bus:_0.6
25	T07-D2A3	7:28:35	7:30:19	85.88	1:43	0	1	stop	BTS:_2__MRT:_2__bus:_0.6
26	T07-BA90	7:30:19	7:30:48	42.94	0:28	0	1	stop	BTS:_2__MRT:_2__bus:_0.6
27	T07-C6B4	7:30:48	7:41:12	153.77	10:23	113	0	move	BTS:_2__MRT:_2__bus:_0.6
28	T07-EE51	7:41:12	7:53:08	363.43	11:55	186	0	move	BTS:_3__MRT:_4__bus:_0.6
29	T07-4FD2	7:53:08	7:53:16	552.31	0:08	16	0	move	MRT:_3__bus:_0.3
30	T07-C5F31	7:53:16	7:59:25	70.85	6:09	150	0	move	BTS:_5__MRT:_3__bus:_0.3
31	T07-4DA5	7:59:25	8:00:00	254.65	0:34	0	0	stop	BTS:_4__MRT:_3__bus:_0.3
32	T08-F874	8:00:00	8:21:42	127.33	21:42	0	1	stop	BTS:_4__MRT:_3__bus:_0.3
33	T08-F3011	8:21:42	8:22:45	461.31	1:02	64	0	move	BTS:_3__MRT:_2__bus:_0.6
34	T08-D465	8:22:45	8:27:36	531.09	4:51	103	0	move	None
35	T08-39638	8:27:36	8:34:20	306.93	6:43	0	0	stop	bus:_0.3
36	T08-72128	8:34:20	8:56:27	153.47	22:07	0	1	stop	bus:_0.3
37	T08-4ED0	8:56:27	8:59:59	45.25	3:32	0	0	stop	None
38	T09-0FA2	9:00:00	9:00:24	22.62	0:24	0	1	stop	None
39	T09-1023E	9:00:24	9:00:27	389.48	0:03	96	0	move	bus:_0.6
40	T09-C6B2	9:00:27	9:01:14	513.66	0:47	67	0	move	BTS:_2__MRT:_2__bus:_0.6
41	T09-F875	9:01:14	9:06:35	184.01	5:21	0	0	stop	BTS:_4__MRT:_3__bus:_0.3
42	T09-0940	9:06:35	9:51:54	92	45:18:00	0	1	stop	BTS:_4__MRT:_3__bus:_0.3
43	T09-0653	9:51:54	9:52:37	46	0:43	0	1	stop	BTS:_4__MRT:_3__bus:_0.3
44	T09-BE05	9:52:37	9:55:45	23	3:07	0	1	stop	BTS:_4__MRT:_3__bus:_0.3
45	T09-C5F11	9:55:45	9:59:16	269.98	3:31	209	0	move	BTS:_5__MRT:_3__bus:_0.3
46	T09-C535	9:59:16	9:59:55	393.62	0:39	0	0	stop	MRT:_3__bus:_0.3
47	T09-CAE3	9:59:55	9:59:59	80.5	0:04	205	0	move	BTS:_5__MRT:_3__bus:_0.3
48	T10-1023	10:00:00	11:00:00	552.96	60:00:00	97	0	move	bus:_0.6
49	T11-7604	11:00:00	11:10:38	397.14	10:38	215	0	move	bus:_0.6
50	T11-1643	11:10:38	11:12:23	293.18	1:44	257	0	move	MRT:_5__bus:_0.3
51	T11-04151	11:12:23	11:12:34	471.33	0:11	95	0	move	bus:_0.6
52	T11-C3C1	11:12:34	11:13:05	350.48	0:31	213	0	move	None
53	T11-ED35	11:13:05	11:14:25	382.61	1:19	111	0	move	bus:_0.6
54	T11-7D50	11:14:25	11:38:40	735.43	24:15:00	0	0	stop	BTS:_5
55	T11-4920	11:38:40	11:57:23	367.71	18:43	0	1	stop	BTS:_5
56	T11-84842	11:57:23	11:57:37	226.45	0:13	170	0	move	BTS:_5
57	T11-B005	11:57:37	11:57:47	267.42	0:10	260	0	move	None
58	T11-1BA1	11:57:47	11:58:55	322.12	1:07	231	0	move	None
59	T11-78D4	11:58:55	11:59:16	265.47	0:20	60	0	move	bus:_0.8999999999999999
60	T11-1221	11:59:16	11:59:59	171.73	0:43	0	0	stop	bus:_0.8999999999999999
61	T12-1220	12:00:00	12:01:28	85.86	1:28	0	1	stop	bus:_0.8999999999999999
62	T12-AE41	12:01:28	12:03:07	121.86	1:39	115	0	move	None
63	T12-8A82	12:03:07	12:03:49	258.37	0:41	0	0	stop	None
64	T12-2D23	12:03:49	12:04:42	129.18	0:53	0	1	stop	None
65	T12-BA95	12:04:42	12:06:05	216.05	1:22	107	0	move	BTS:_5
66	T12-7D51	12:06:05	12:15:58	146.36	9:52	0	0	stop	BTS:_5
67	T12-4922	12:15:58	12:17:21	73.18	1:23	0	1	stop	BTS:_5
68	T12-9723	12:17:21	12:17:51	28.35	0:30	127	0	move	BTS:_5
69	T12-C424	12:17:51	12:18:22	47.16	0:30	115	0	move	BTS:_5
70	T12-9025	12:18:22	12:22:43	435.95	4:21	325	0	move	None
71	T12-2E709	12:22:43	12:23:46	362.15	1:02	120	0	move	None
72	T12-7893	12:23:46	12:23:51	537.55	0:04	291	0	move	None
73	T12-37903	12:23:51	12:24:17	283.02	0:25	127	0	move	bus:_0.6
74	T12-A534	12:24:17	12:27:43	327.45	3:26	97	0	move	bus:_0.3
75	T12-3BF4	12:27:43	12:30:24	285.96	2:41	294	0	move	bus:_1.2
76	T12-C2A1	12:30:24	12:31:26	367.51	1:02	183	0	move	bus:_0.8999999999999999
77	T12-80D3	12:31:26	12:32:09	258.12	0:43	177	0	move	bus:_1.2
78	T12-F7D0	12:32:09	12:33:41	267.48	1:32	93	0	move	bus:_1.2
79	T12-7854	12:33:41	12:35:45	196.69	2:04	190	0	move	bus:_0.8999999999999999
80	T12-39043	12:35:45	12:37:30	366.19	1:45	179	0	move	None

Experiences and Challenges

- Principle of Transformation in Process is lacking
- Silo Effects in organization (complex integration challenges)
- Need to handle legacy system/Poor data management
- Lack of technical understanding
- Law and regulation updates

Thank you very much for your attention

Email: asumalee@gmail.com

14:35 – 15:50 Session 3: "Environmental related Transportation on Decarbonization Issues"	
	**14:35 – 14:55 Speaker 1:** "Transport Policies to support Climate Action in Asia" **By Dr. Madan B. Regmi** Economic Affairs Officer, Transport Research and Policy Section, UNESCAP
	**14:55 – 15:15 Speaker 2:** "Zero Carbon Transport by Mid Century – Rhetoric or Reality?" **By Ms. Urda Eichhorst** Project Director 'NDC Transport Initiative for Asia' Climate Coordination (2410), Asia/Pacific, Latin America/Caribbean, GIZ, Germany
	**15:15 – 15:35 Speaker 3:** "Decarbonizing road transport to Zero-emission pathways for electric vehicles (EV)" **By Assoc.Prof.Dr. Yossapong Laoonual** Assistant to the President for Sustainability, King Mongkut's University of Technology Thonburi, Thailand
Remarks	**15:35 – 15:50 Discussion, Q & A**
	**Moderator of Session 3:** **Dr.Nuwong Chollacoop**, National Energy Technology Center (ENTEC), Ministry of Higher Education, Science, Research and Innovation

14th ATRANS Annual Conference
Bangkok, 17 December 2021

Transport Policies to support Climate Action in Asia

Madan B. Regmi, D. Eng.
Transport Division
UNESCAP

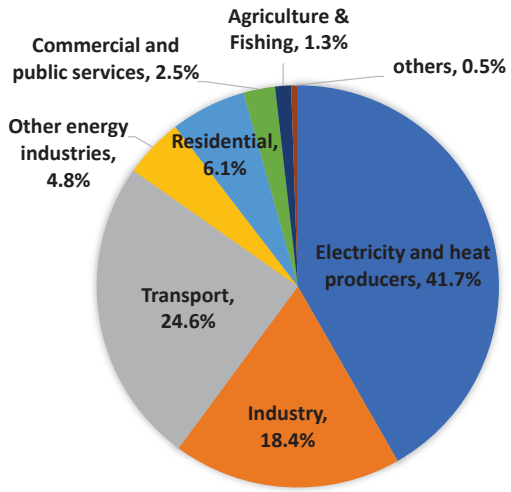
Introduction

- Transport: Contributor to the climate change and impacted by climate events
- Carbon intensive transport system
- Paris Agreement: to keep rise global average temperatures to below 2°C and closer to 1.5°C above pre-industrial levels
  - Mitigation and Adaptation Action
  - Nationally Determined Contributions- ambitious
- Sustainable Development Goal 13: Take urgent action to combat climate change
  - Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries (target 13.1)
- Rise in the number & intensity of climate-related disasters in Asia

Transport Emissions in Asia

- Transport sector accounts for 25% emissions from fuel consumption, 2018
- Road transport responsible for 75% emissions
- Passenger-59% and freight- 41% responsible global transport CO2 emissions
- Major GHG emitter countries are in Asia
- 41% growth of transport emissions in Asia, 2010-2019

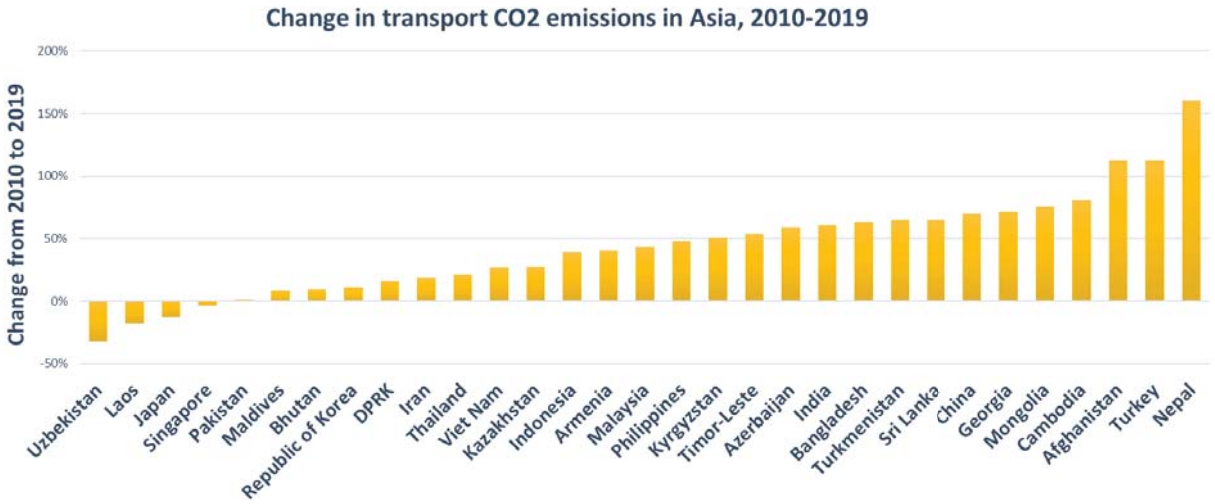
CO_2 emissions from fuel combustion by sector, 2018



Source: IEA

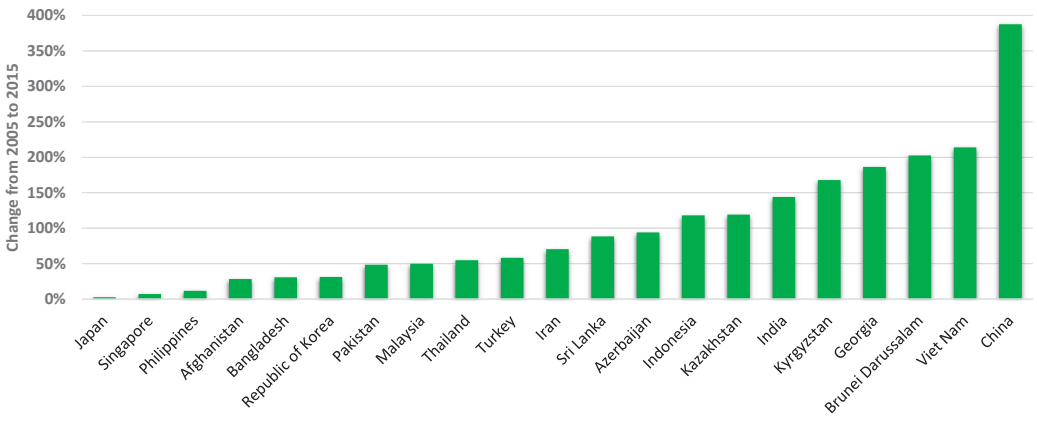
CO2 Emissions in Asia

41% growth of Transport Emissions in Asia, 2010-2019



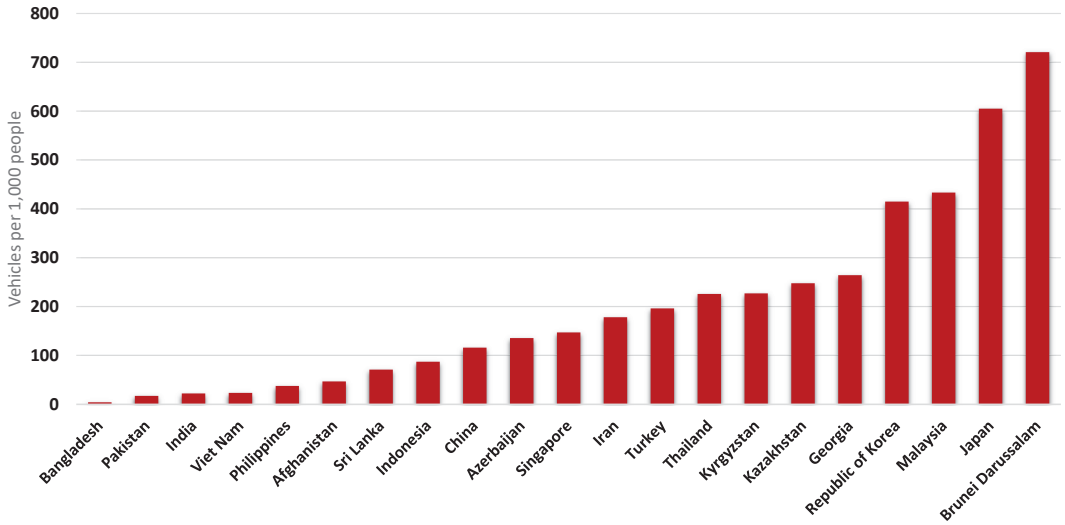
Source: SLOCAT, Transport and Climate Change, 2021

Growth in Car Ownership, 2005-2015



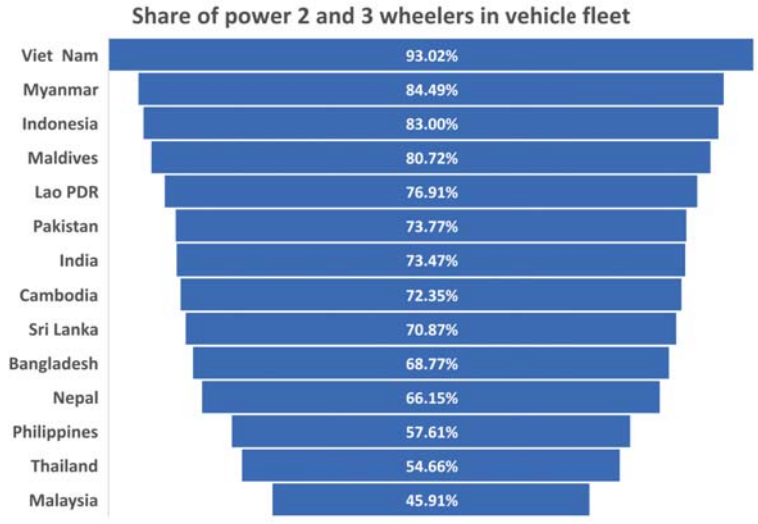
Source: https://www.oica.net/category/vehicles-in-use/

Car Ownership per 1000 people in Asia, 2015



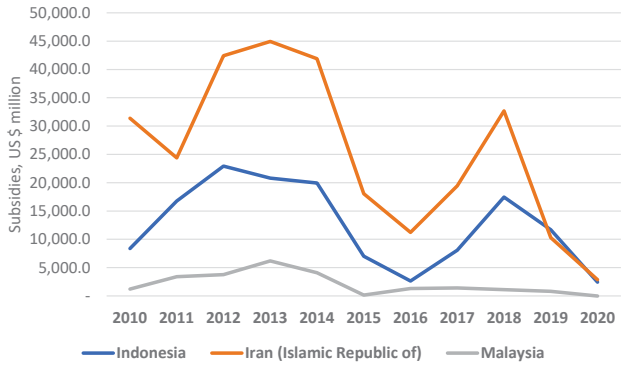
Source: https://www.oica.net/category/vehicles-in-use/

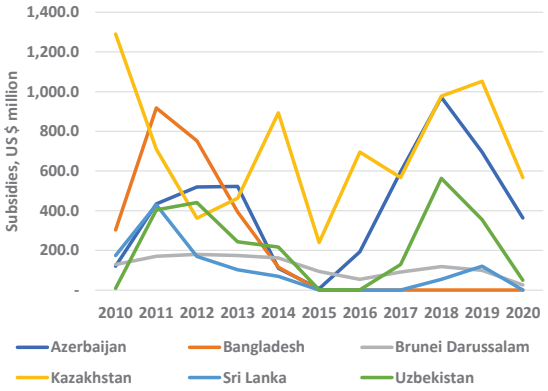
Powered 2 and 3 wheelers



Source: WHO, 2018

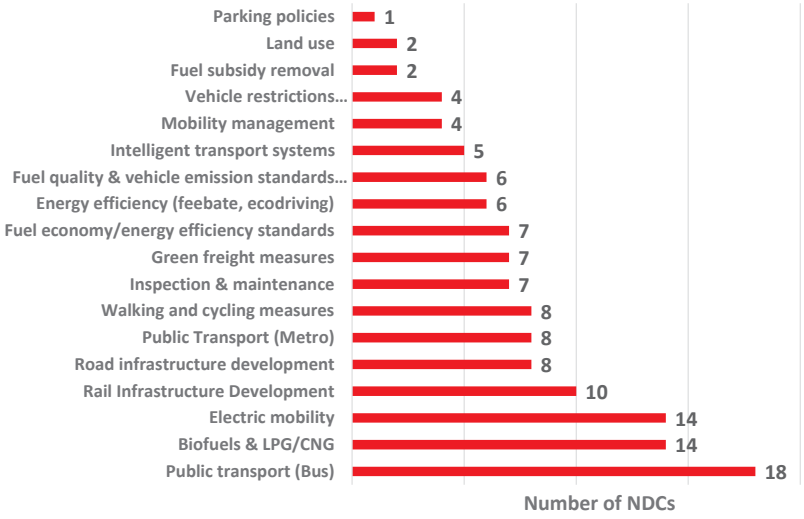
Fossil Fuel Subsidies in Asia



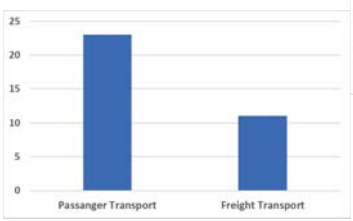


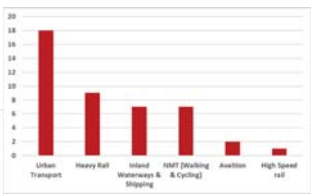
Source: IEA

Transport Strategies in NDCs



- Contains transport action – but not specific
- Limited countries have transport emissions reduction targets

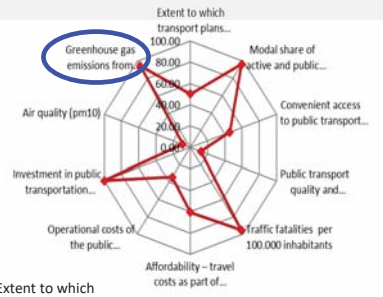




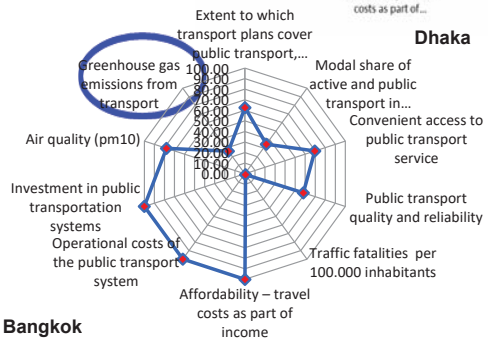
Source: UNFCC

Measuring Sustainability- SUTI

No	Indicators	Measurement units	Weights	Range	
				MIN	MAX
1	Extent to which transport plans cover public transport, intermodal facilities and infrastructure for active modes	0 - 16 scale	0.1	0	16
2	Modal share of active and public transport in commuting	Trips/mode share	0.1	10	90
3	Convenient access to public transport service	% of population	0.1	20	100
4	Public transport quality and reliability	% satisfied	0.1	30	95
5	Traffic fatalities per 100,000 inhabitants	No of fatalities	0.1	10	0
6	Affordability – travel costs as part of income	% of income	0.1	35	3.5
7	Operational costs of the public transport system	Cost recovery ratio	0.1	22	100
8	Investment in public transportation systems	% of total investment	0.1	0	50
9	Air quality (pm10)	µg/m3	0.1	150	10
10	Greenhouse gas emissions from transport	CO2 Eq. Tons	0.1	2.75	0
	SUM		1.00		

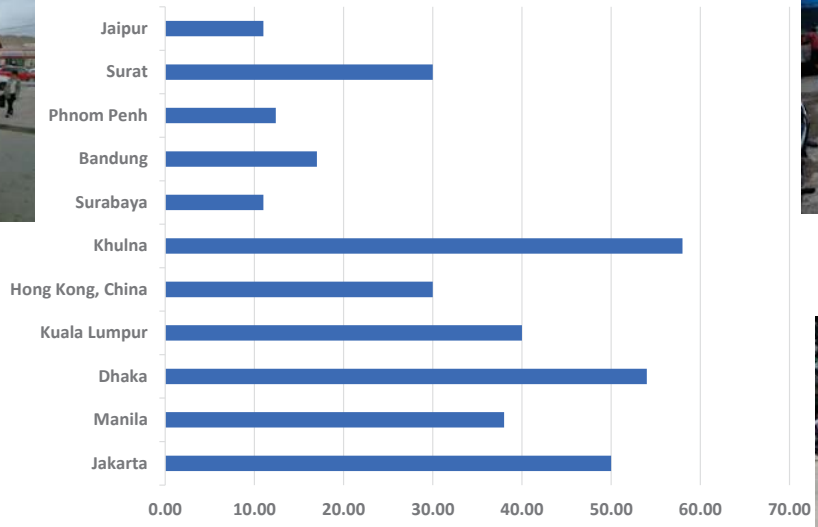


Dhaka



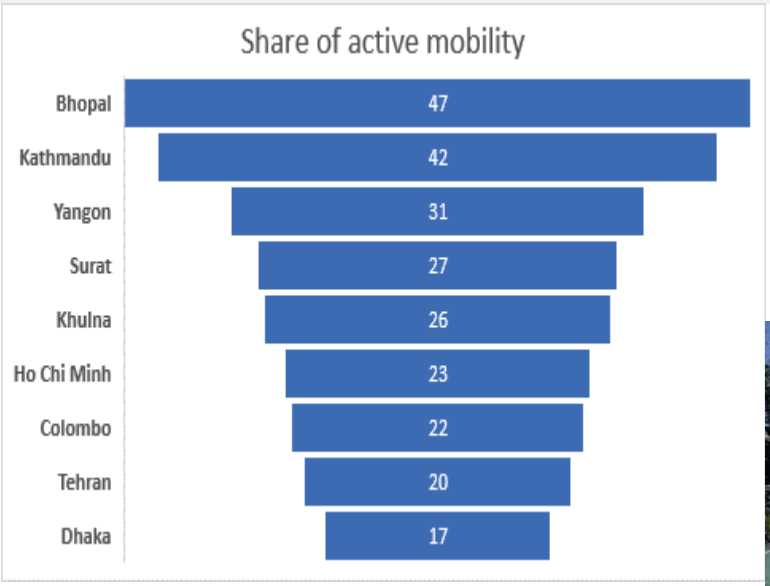
Bangkok

Share of Informal Transport



Source: ESCAP, Mobility Assessment Reports

Active Mobility



Source: ESCAP, Mobility Assessment Reports

ASI Framework- Mitigation Opportunities in Transport

AVOID

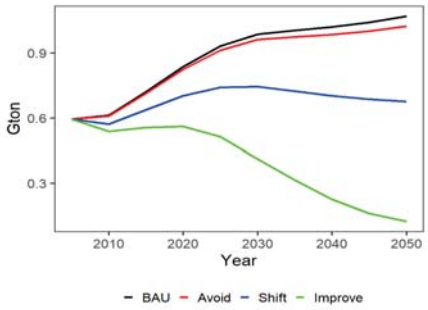
- Reducing travel demand
- Compact city planning
- Post-COVID-19: Teleworking, use of ICT, 15-minute city
- Discourage private mode

SHIFT

- Public Transport- BRT, Metro, Bus
- Non-Motorized modes
- Energy efficient modes
- Car sharing

IMPROVE

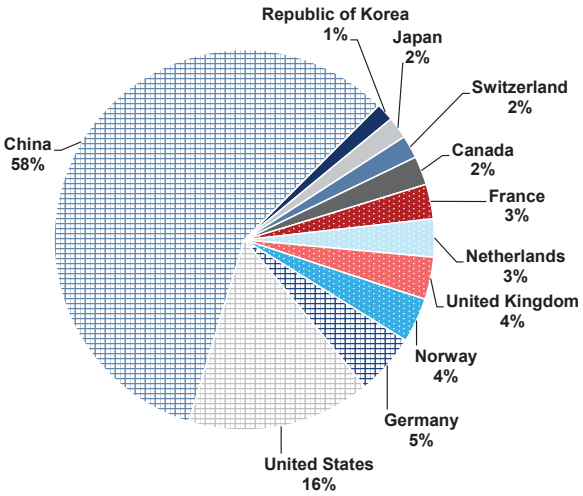
- Improve energy efficiency
- Electric mobility
- Alternate fuels



Model analysis of 5 scenarios

- Energy efficiency
- Electric mobility

New Energy Vehicle Sale in 2019



Source: IEA

Key Policy Challenges towards Decarbonization

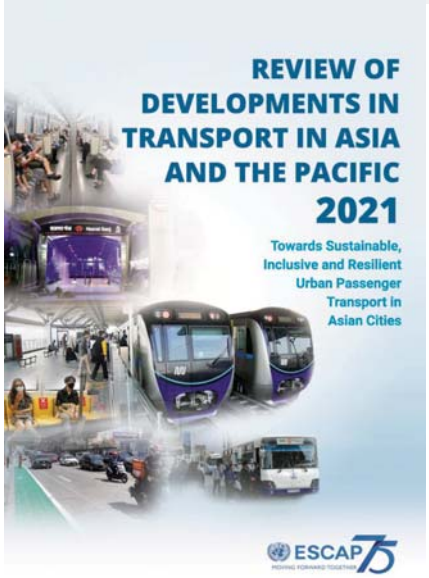
- More focus on passenger transport
- Enhancing energy efficiency of informal transport
- High share of 2 and 3 wheelers - decarbonize
- Initiative in the freight transport
- Still lack clear trajectory what will lead to carbon neutral in transport
- More efforts in planning and polices
- More focus on implementation and scaled up implementation
- Diffusion of technology
- Collaboration among researcher and policy makers

Regional Initiative on Transitioning to EV in Public Transport

- **National EV Polices and Strategies**
  - Pilot countries – Georgia, Laos, Nepal, and Thailand
  - Review of current polices and opportunities
  - National stakeholders' consultation workshops- 2022
- **Regional EV Initiative**
  - Regional policy guidelines and case studies
  - Regional Initiative on EV
  - Regional and Subregional Meeting on EV
- **Collaboration and Partnerships**
  - UNEP, GGGI, Research Institute of Highways, China
  - GIZ- Sustainable Mobility in Metropolitan Region in ASEAN Project
  - King Mongkut University of Technology, Thonburi, Thailand

Concluding Remarks

- ❑ **Transport strategies & plans with specific emission reduction targets**
  - ❑ Cover passenger and freight, modes- NMT, Public transport, 2/3 wheelers and informal
  - ❑ Monitoring and carbon accounting
- ❑ **Scaled-up implementation**
  - ❑ Current pace not enough to be carbon neutral by 2050
  - ❑ Integrated planning and cross-sectoral coordination
  - ❑ Partnerships- Global Initiatives and Alliances, Private sector
- ❑ **Financing and Diffusion of Technology- NDCs linked to additional support**
- ❑ **Strengthen Transport Ministry's involvement - visioning, scenario analysis and modelling- encourage evidence-based decisions**
- ❑ **Prioritize Adaptation**



Thank You

regmi.unescap@un.org

ESCAP 75
MOVING FORWARD TOGETHER

www.unescap.org/kp/2021/review-developments-transport-asia-and-pacific-2021

Zero Carbon Transport by Mid Century – Rhetoric or Reality?

Urda Eichhorst | GIZ | NDC-TIA Project Director

14th ATRANS Annual Conference | 18.12.2021 |

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

On behalf of:
Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
of the Federal Republic of Germany

NDC Transport Initiative for Asia

Objective

Facilitate a paradigm shift to zero-emission transport across Asia.

https://www.ndctransportinitiativeforasia.org/

→ **Towards high ambition in Nationally Determined Contributions**

→ **Project financed by Germany's International Climate Initiative**

→ **Collaboration of 7 organisations**

Partners:

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH · World Resources Institute · International Transport Forum · icct · Agora Verkehrswende · SLOCAT Partnership · REN21

On behalf of: Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety of the Federal Republic of Germany

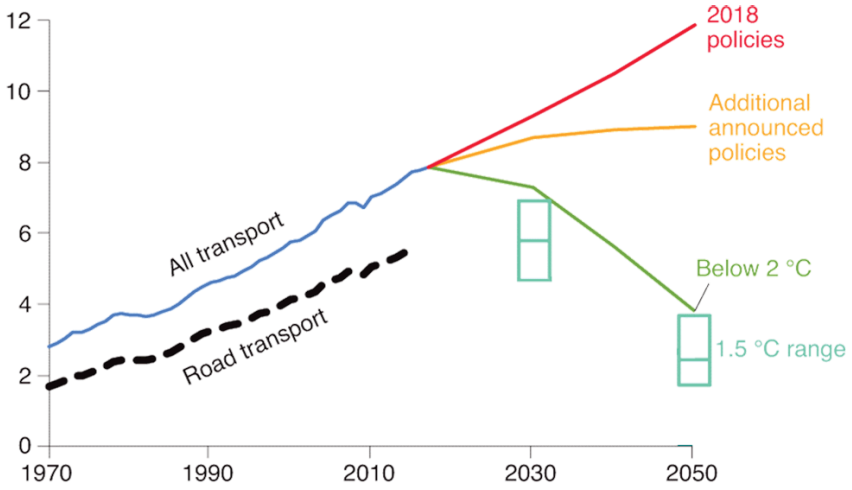
Project components

	China	India	Vietnam
Identifying pathways	National double peaking strategy for GHG & pollutant emissions	National stakeholder platform for decarbonizing transport	Enhanced NDC and systems for monitoring and reporting
Fostering key actions	Peaking roadmap & stakeholder platform in Guangdong province	Improved deployment framework for e-mobility	Clean transport policies: EVs, urban mobility & fuel economy

International learning: Knowledge Sharing; Discourse on decarbonizing transport in Asia; Support to additional countries

Transforming transport is fundamental

Global transport emissions 2019 (IEA, 2020): over **8 Gt CO_2**



Will Asia break the trend?

75% below current levels!

Source: Axsen et al (2020); https://www.nature.com/articles/s41558-020-0877-y based on data by IEA,IPCC,EDGAR.

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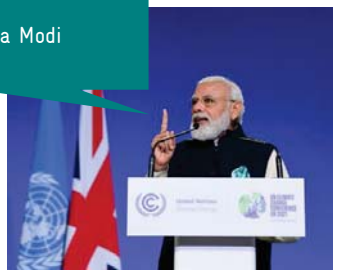
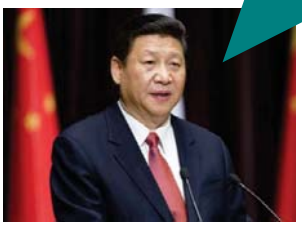
Asian countries are stepping up ambition (examples)

"[…] by the year 2070, India will achieve the target of Net Zero."
2021, COP26, Shri Narendra Modi
Prime Minister of India



"We aim to have CO_2 emissions peak before 2030 and achieve carbon neutrality before 2060."
2020, Xi Jinping
President of the People's Republic of China



"We will aim to realise a decarbonised society [by 2050]."
2020, Yoshihide Suga
Prime Minister of Japan

"Climate change response […] must become the highest priority in all development decisions. […] achieve net-zero emissions by 2050."
2021, COP 26, Pham Minh Chinh
Prime Minister of Vietnam

"[…] be more aggressive in addressing climate change using every means possible, in order to achieve carbon neutrality in 2050, and net zero emissions on or before 2065."
2021, COP 26, Prayut Chan-o-cha
Prime Minister of Thailand

"Together with the international community, we will actively respond to climate change and target carbon neutrality by 2050."
2020, Moon Jae-in
President of South Korea

Picture Source: http://hanoitimes.vn/

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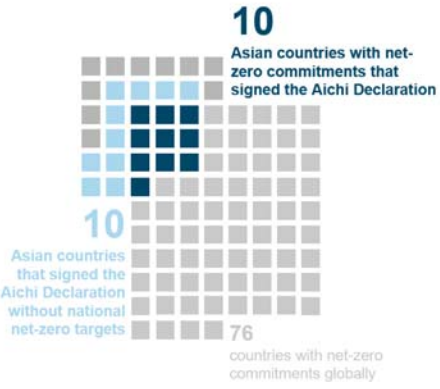
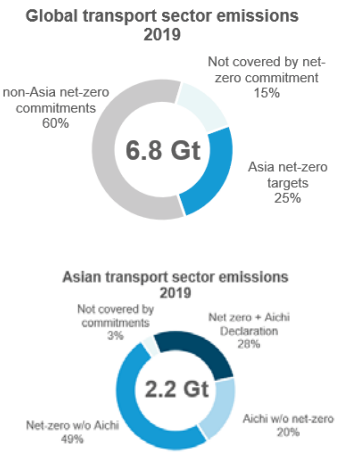
A total of 13 Asian countries have net-zero emission commitments





→ Net-zero commitments means transport needs to become carbon free

→ Now countries need to elaborate the pathways and **policy packages** to reach their climate and sustainability goals in the transport sector

Graphs Source: Marion Vieweg, based on data from WRI, GIZ & SLOCAT, emissions data from EDGAR

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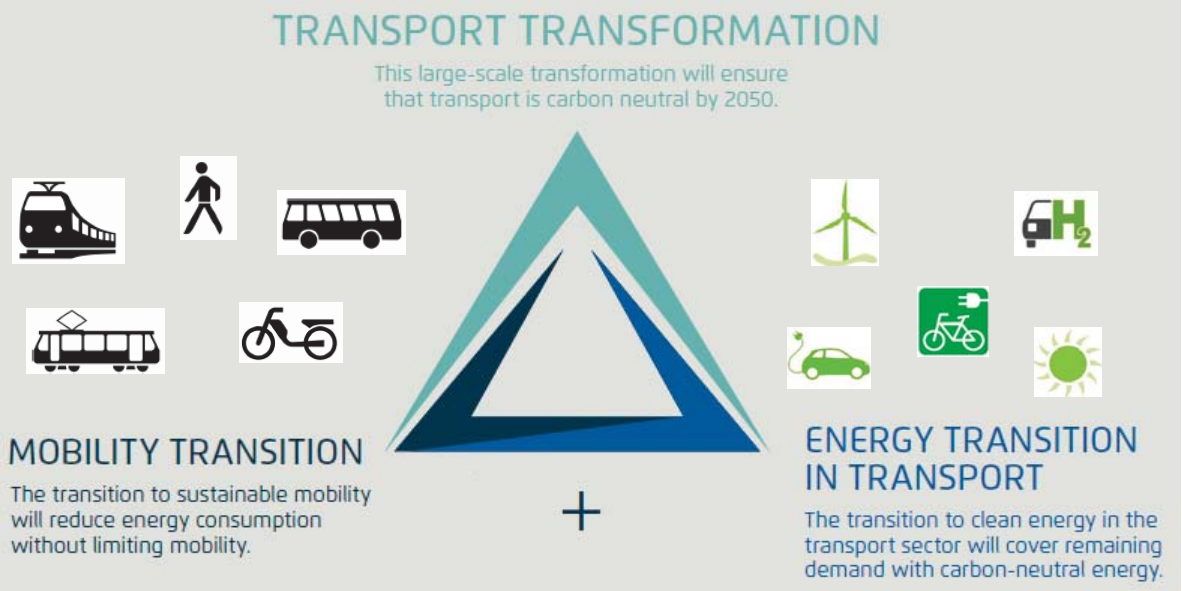
Zero carbon transport requires a mobility revolution and an energy transition in transport



Source: Agora Verkehrswende

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Example: Hanoi launches 1st three e-bus routes

Vietnam's transport climate actions include, inter alia, expansion of public transport systems and electric mobility.

Hanoi Plan: "5% – 20% number of buses in the city using clean fuel (e.g. electric vehicles)"

On 2nd December 2021, **Hanoi has launched the first smart electric bus line.** Two more lines are starting to operate this month, and six more in 2022.

→ To deploy e-buses at national scale, GIZ Vietnam is currently supporting the People's Committees of Ha Noi and Ho Chi Minh city to develop the **economic–technical norms for e-buses.**

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Shifting gears towards socially just zero-carbon sustainable transport

Paper: Enhancing Climate Ambition in Transport (GIZ, 2020)

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Shifting the paradigm requires a multi-stakeholder dialogue

NDC TRANSPORT INITIATIVE FOR ASIA

Council for Decarbonising Transport in Asia

Council Mission:

- **Visualize change.**
- **Shift the narrative.**
- **Engage with leaders.**

In April 2022, the council will publish a **Flagship Report** to share its recommendations for decarbonised transport.

Video: https://youtu.be/iWoyQJSWAhI

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National stakeholder platform established in India

The **Forum for Decarbonizing Transport** is a platform to bring diverse stakeholders together (different potential work streams):

CEOs of key e-mobility companies have approached NITI Aayog directly to be part of this forum.

Several events planned for next year, inter alia on financing for sustainable transport.

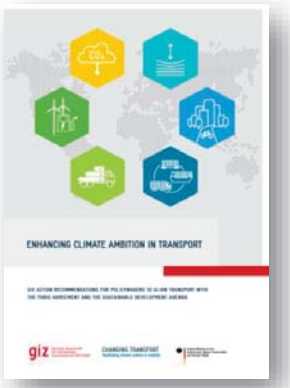
Analysis and modelling of a renewable-based transport system planned for next year by GIZ to inform dialogue and policy development.

Hosted by NITI Aayog

References and further reading

- Tracker of Climate Strategies for Transport (GIZ & SLOCAT): www.changing-transport.org/tracker
- Transport in new Nationally Determined Contributions and Long-Term Strategies - Changing Transport (changing-transport.org)

- GIZ's Six Action Recommen-dations to enhance climate ambition in transport
- GIZ's Sourcebook on Adapting Transport to Climate Change of 2021



THANK YOU FOR YOUR ATTENTION!

Urda Eichhorst
Project Director "NDC Transport Initiative for Asia"

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www.changing-transport.org

https://twitter.com/giztransport

14TH ATRANS ANNUAL CONFERENCE

"TRANSPORTATION FOR A BETTER LIFE: FUTURE POTENTIAL OF TRANSPORTATION AND URBAN MODEL POST COVID ERA"

Saturday, 18 December 2021 during 09:00 – 18:00

16:00 – 17:50 IATSS Session 4: "Road Safety"	
	**16:00 – 16:20 Speaker 1:** "Traffic Safety Education for Young Road Users: Implications from the IATSS Project in Cambodia" **By Prof.Dr. Yuto KITAMURA** Graduate School of Education, The University of Tokyo, Japan
	**16:20 – 16:40 Speaker 2:** "Road Safety in Japan" **By Prof.Dr. Takeshi TANIGAWA, MD.** Chairman, Department of Public Health, Graduate School of Medicine, Juntendo University, Japan
	**16:40 – 17:00 Speaker 3:** "Road Safety Leading & Management: Transferring Learnings from Australia" **By Dr. Tana TAN** Research & Evaluations Lead, Safe System Solutions Pty Ltd., Australia
	**17:00 – 17:20 Speaker 4:** "Understanding Traffic Safety Culture of Thai Youngsters" **By Asst.Prof.Dr. Sittha JAENSIRISAK** Ubonratchathani University, Thailand
	**17:20 – 17:30 Speaker 5 & Moderator of Session 4:** "Thailand Road Safety Related to Global Road Safety Plan" **By Dr. Witaya Chadbunchachai** Director, World Health Organization Collaborating Centre on Injury Prevention and Safety Promotion, Thailand
Remarks	**17:30 – 17:50 Discussion, Q & A**

Sleep apnea as a health-related cause of accidents

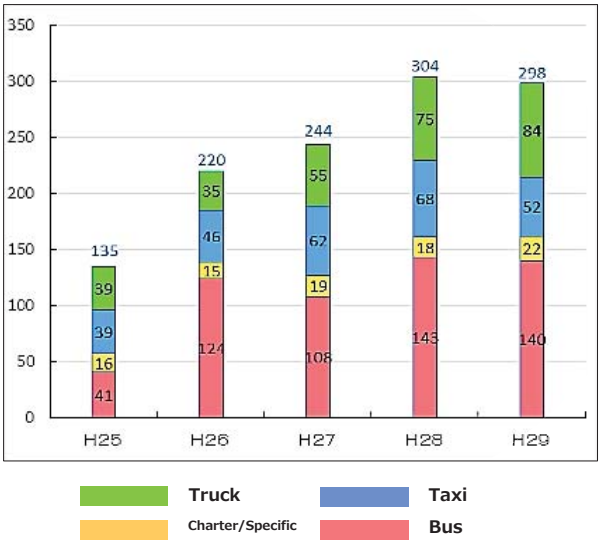
Professor and Chair, Department of Public Health
Juntendo University Graduate School of Medicine

Takeshi Tanigawa M.D., Ph.D

Health-related accidents

- The Ministry of Land, Infrastructure, Transport and Tourism, Japan requires transport companies to report health-related accidents
- "The driver's illness made it impossible to continue driving a commercial vehicle"
  - (Article 2 of the Automobile Accident Reporting Regulations)

Number of accident reports due to health condition (Number of cases by business type)



From the Ministry of Land, Infrastructure, Transport and Tourism "Health-related accidents and efforts to prevent health-related accidents"

Highway bus driving accident on the Kanetsu Expressway

- April 29,2012
  - Near the Kanetsu Expressway (in-bound line) Fujioka Junction
  - A tour bus crashed into a soundproof wall due to drowsy driving
  - 7 passengers were killed, and 39 passengers and crewmembers were injured in the crash
  - **The driver was diagnosed with chronic sleep deprivation and moderate sleep apnea**


平成24年4月29日(日) 金経新聞 号外

高速バス事故46人死傷

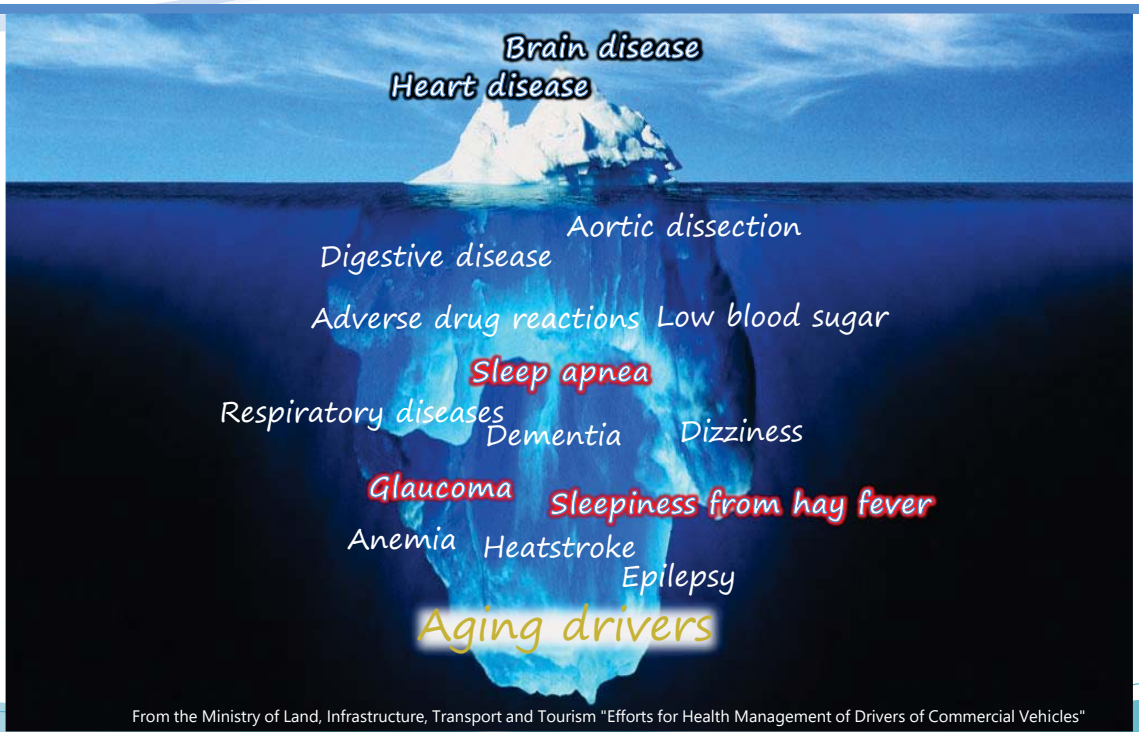
運転手居眠り 壁に激突

群馬・関越道、GWツアー中

Karuizawa ski bus crash

- January 15, 2016
- In Karuizawa city, Nagano prefecture
- A large-tour bus crashed into a guardrail and fall off the side of the road **due to the loss of consciousness of the driver**
- 15 of the 41 crewmembers and passengers were killed and all other survivors were injured

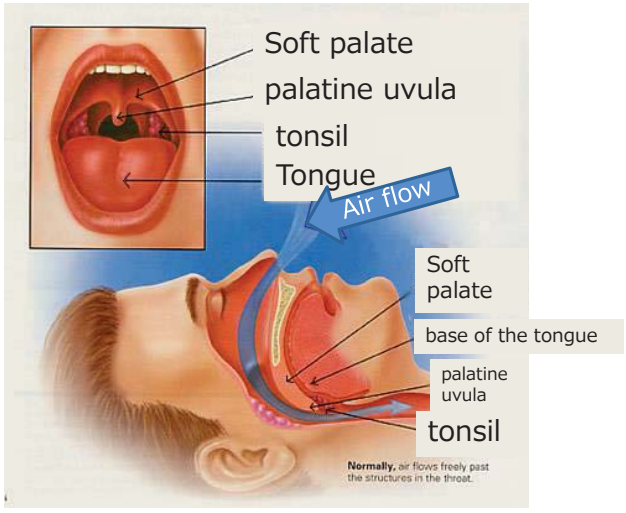
The cause of health-related accidents is just the tip of the iceberg!



From the Ministry of Land, Infrastructure, Transport and Tourism "Efforts for Health Management of Drivers of Commercial Vehicles"

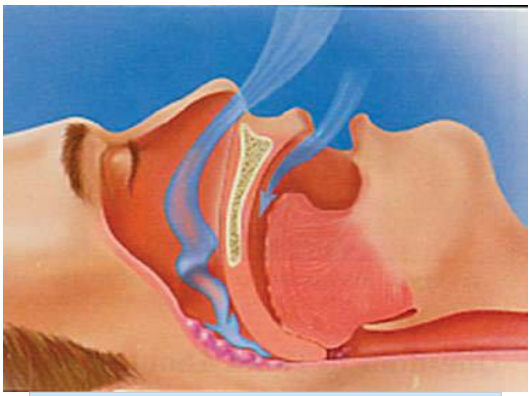
Obstructive sleep apnea, OSA

Normal



In normal situations, even if you sleep in the supine position, the upper respiratory tract doesn't close and airflow is maintained

OSAS



Upper respiratory obstruction and disruption of airflow

- **Frequent oxygen deficiency**
- **Awakening occurs in order to open the airway, resulting in fragmented sleep.**

As a result, sleep quality is deteriorated and next day drowsiness is increased.

Bullet train driver fell asleep for 8 minutes while the train was moving at 270km/h (36km)

"Patients with sleep apnea estimated to be about 2,000,000 in Japan"

スキャナー SCANNER

「ひかり居眠り運転」の原因 睡眠時無呼吸症候群

肥満男性に多い障害

国内患者 推計200万人

過去にも"あわや" 私鉄運転士、2度も駅停車忘れ

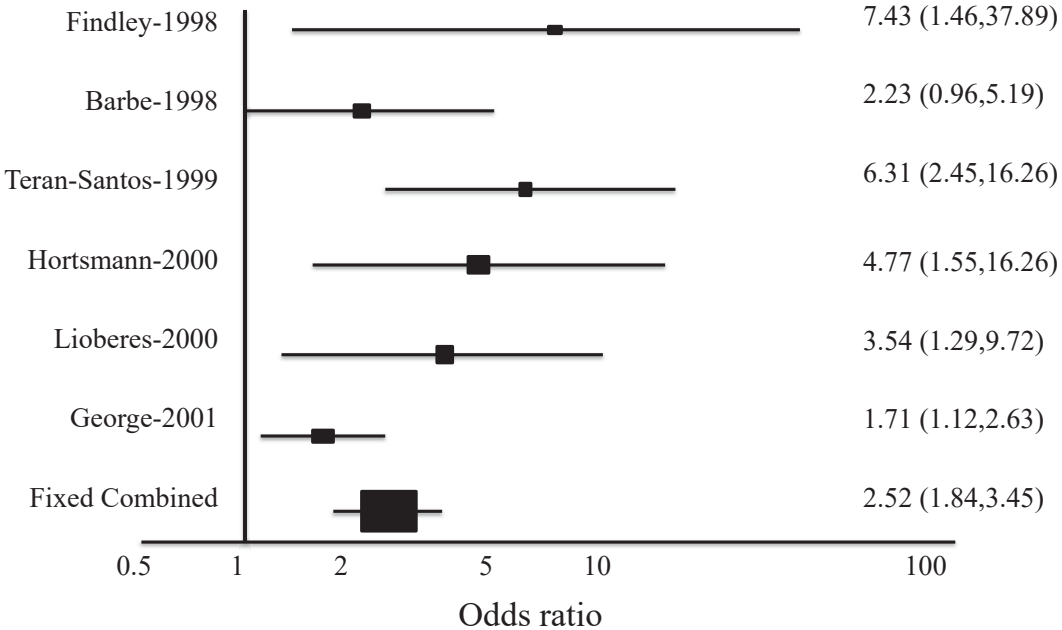
「長く寝るほど疲れてしまう」

「症状」体験談

治せる病気

大惨事の危険性 未然防止は国の責務

An average threefold increase in accidents due to OSA



Development and dissemination of OSA screening services

- Development and dissemination of a system that can examine OSAS patients easily and efficiently
- Inspection system
  - Development of a flow sensor which captures the flow of breath by placing a sensor between mouth and nose overnight; the number of apneas or hypopneas are recorded while sleeping at home.

Development of automatic detection system

Eur Respir J 2007; 29: 728–736
DOI: 10.1183/09031936.00091206

Automatic detection of sleep-disordered breathing from a single-channel airflow record

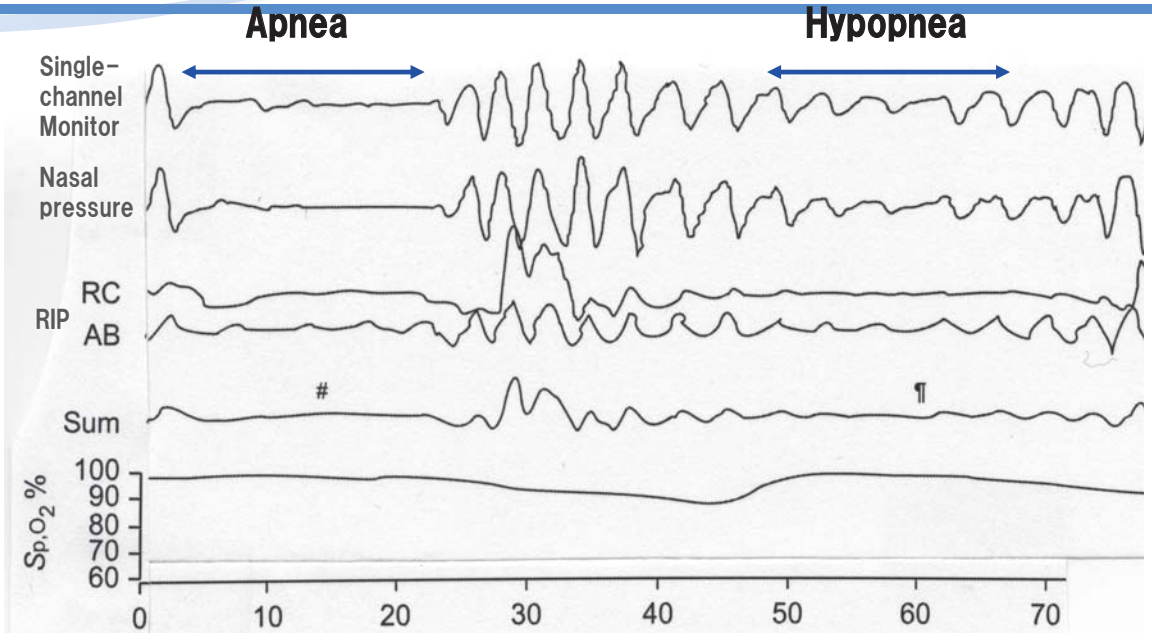
H. Nakano*, T. Tanigawa#, T. Furukawa* and S. Nishima*

Validation study

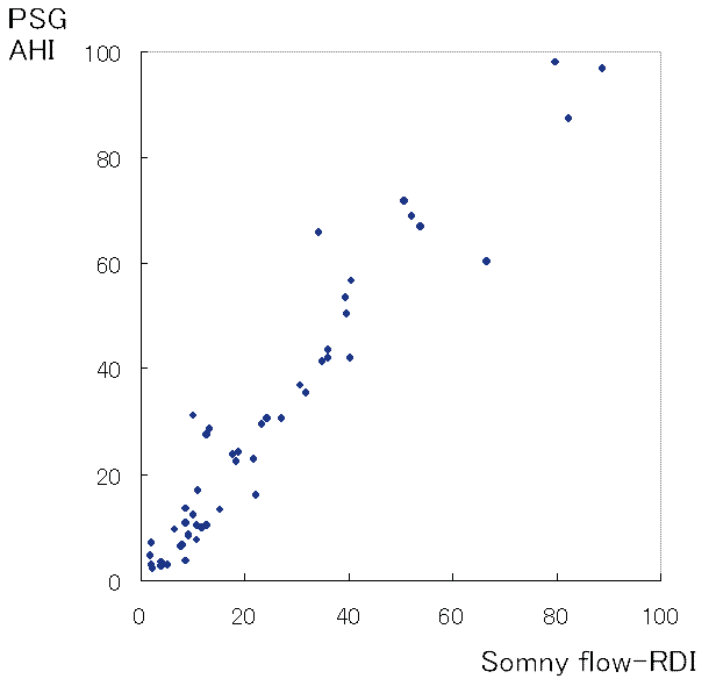
Eur Respir J 2008; 32: 1060–1067
DOI: 10.1183/09031936.00130907

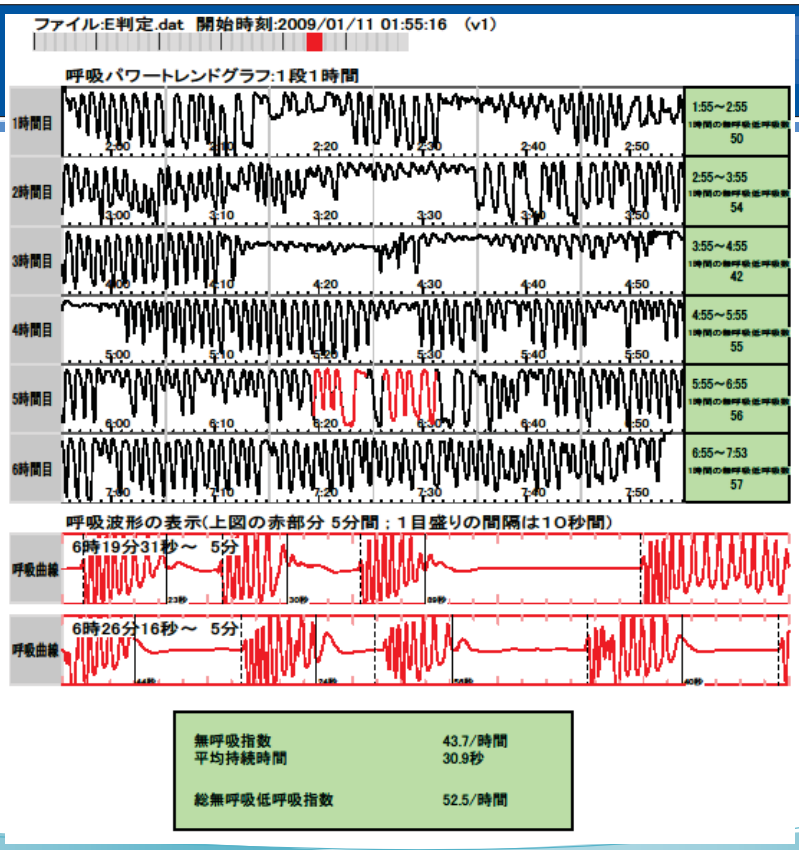
Validation of a single-channel airflow monitor for screening of sleep-disordered breathing

H. Nakano*, T. Tanigawa#, Y. Ohnishi¶, H. Uemori*, K. Senzaki¶, T. Furukawa* and S. Nishima*



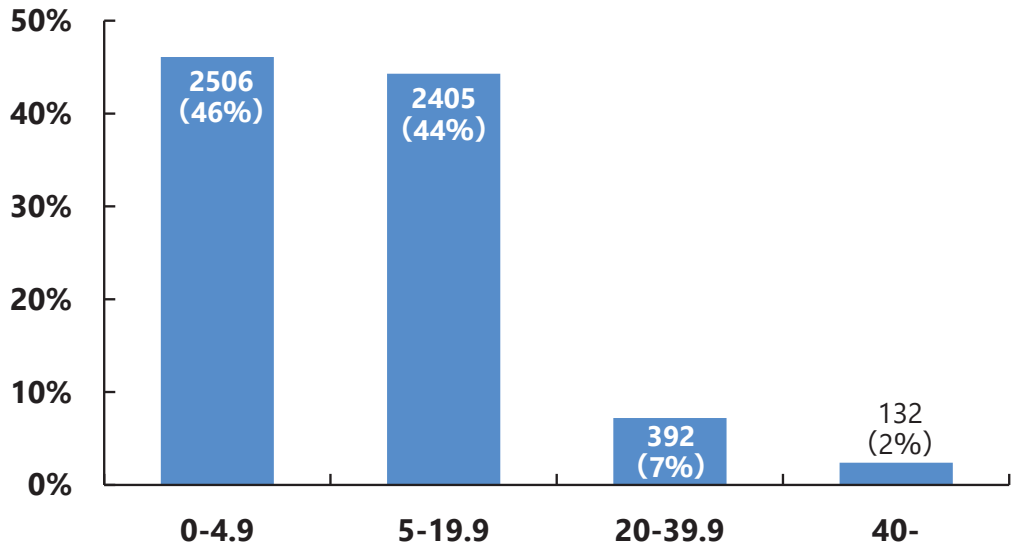
Validity of flow sensor method





Prevalance of OSA among All-Japan Trucking Association member drivers

- 5,435 men aged 20-65, by severity



RDI: Apnea-hypopnea index, number: number of people

Is OSA screening using self-reported sleepiness recommended?

Comments on driving by people with OSA

- 2004 Ministry of Health, Labor and Welfare commissioned research
  - **Survey on the effects of sleep apnea on occupational safety**

Case 1	I had already arrived at my destination but **had no recollection** of driving there. While driving on the highway, **I hadn't realized** that I crashed into the highway exit until it had already happened. Other than that, I tend to often nick the barriers.
Case 2	I often fall asleep while driving and have had five rear-end collisions in the last 10 years.
Case 3	While in traffic, **I suddenly realized** that the car in front of me had already moved. After that, traffic ahead continued to stop and go, however, despite me stepping on the brake, I ended up rear-ending the car in front of me. **I don't remember exactly** what happened. I felt like I had forcefully pressed on the brake, however, I still rear-ended the car.
Case 4	While driving my motorcycle, I fell asleep and **didn't notice** that I had rear-ended a car in front of me until it had already happened.
Case 5	While driving about 12 times this past year I have dozed off, **not realizing** that I had rear-ended cars in front of me who were waiting at the traffic light until I had rear-ended them.

Daytime sleepiness (ESS Questionnaire)

In the following situations, excluding being just tired, how often do you fall asleep?
Please select an applicable score.

0 Never have I felt drowsy (or fell asleep) 1 I have sometimes felt drowsy (or fell sleep)
2 I have often felt drowsy (or fell asleep) 3 I always feel drowsy (or fall asleep)

(1) When I'm sitting and reading something	0	1	2	3
(2) While I'm watching TV	0	1	2	3
(3) When other people are here with me in public spaces and are not moving but just sitting (at a meeting, in a theater, etc.)	0	1	2	3
(4) When someone is driving me, and we don't have a break for about an hour	0	1	2	3
(5) When I take a break in the afternoon, I lay down	0	1	2	3
(6) When I'm sitting and talking with people	0	1	2	3
(7) After lunch (with no alcohol), when I'm just sitting quietly by myself	0	1	2	3
(8) In a car, while stopped in traffic	0	1	2	3

Relationship between sleepiness and the prevalence of OSA

❖ Judging by ESS scores alone, there is a risk of overlooking 76% of those who have severe OSA

		Sleep Apnea				Total
		Normal (RDI <5)	Mild (RDI 5-<20)	Moderate (RDI20<40)	Severe (RDI ≧40)	
Weak ↑ Sleepiness ↓ Strong	ESS 0-5	1,457 (47%)	1,391 (45%)	201 (7%)	46 (1%)	3,095 (100%)
	ESS 6-10	774 (46%)	725 (43%)	138 (8%)	52 (3%)	1,689 (100%)
	ESS 11-15	142 (39%)	170 (46%)	34 (9%)	23 (6%)	369 (100%)
	ESS 16-20	37 (39%)	44 (47%)	5 (5%)	8 (9%)	94 (100%)
Total		2,410 (46%)	2,330 (44%)	378 (7%)	129 (3%)	5,247 (100%)

Source: Takeshi Tanikawa, Hiroyasu Iso: "Construction of a traffic accident prevention system by screening for sleep apnea disorders of professional drivers" 2006 Grant-in-Aid for Scientific Research (Ministry of Education, Culture, Sports, Science and Technology) Report

Be careful about NOSSA！！

❖ **NOSSA：non sleepy sleep apnea**

⇒sleep apnea without subjective drowsiness

【Subjective symptoms】

- Chronic fatigue
- Depression
- Loss of concentration
- Decreased memory
- Irritability
- Headache when waking up
- Nocturia
- ED
- Two or more rear-end collisions
- Frequent traffic accidents/Industrial accidents

Established OSA treatment

Weight loss, smoking cessation, sobriety, losing weight due to sleeping pills

Continuous Positive Airway Pressure

Lifestyle improvement

Treatment is symptom dependent

nCPAP nasal continuous positive airway pressure

Oral device

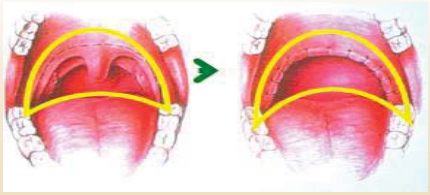
PMA(Prosthetic mandibular advancement) and Tongue retaining device (TRD)

一体型

分離型

Surgical operation

Uvulopalatopharyngoplasty (UPPP) and laser assisted uvula palatoplasty (LAUP)



Principle of CPAP

Obstructive sleep apnea syndrome

Obstructive sleep apnea syndrome causes airway obstruction due to blockage of the soft palate and tongue base, resulting in apnea.

C P A P treatment

nCPAP, through a nasal mask, sends constant positive air pressure to widen the upper airway and assist patency of the upper airway.

Effect of CPAP treatment

- Apnea, hypopnea, snoring disappearance
- Improved sleep quality
- Disappearance of daytime sleepiness
- Increased daytime activity
- Reduction of nocturnal urine
- Improved high blood pressure
- Improved cardiac function
- Improved QOL
- **Decrease in traffic accident rates**

Effect of OSA measures

Early detection of OSA contributed to safety

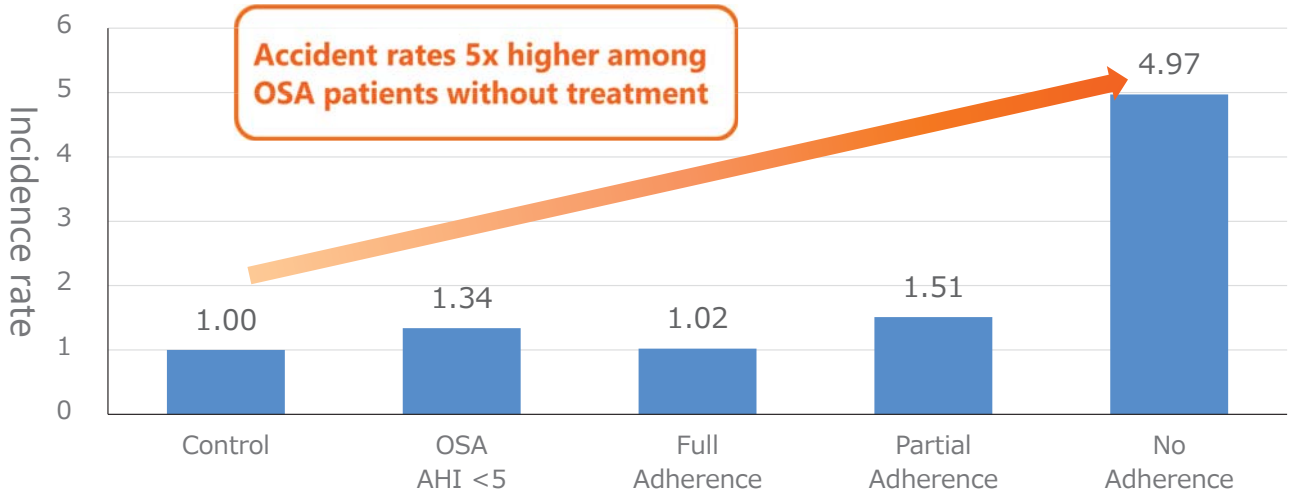
❖Personal Data	• Fixed route bus driver (7 years of experience) • 31 years old, male • Height 167 cm, weight 79.5 kg, BMI 28.5
❖Before starting treatment	• **I felt strong drowsiness during the day** • **I was worried about continuing my career due to this issue**
❖About the examination consultation	• I felt drowsy during the day, so I wasn't hesitant to undergo examination.

After treatment

❖Method of treatment	• It took a week or two to get used to wearing the device, but now it's no longer an issue. • It's not too noisy and it does not bother who sleep near me.
❖Changes after treatment	• **I slept well and no longer felt drowsy during the day.** • **I've had increased concentration and less stress and irritability.**

Accident rates increased fivefold among those without treatment

❖ Target: 3,732 drivers of the same level of work quantity and quality



Burks SV, Anderson JE, Bombyk M, et al. Sleep. 2016 May 1;39(5):967-75. *Revised*

Effect of OSA screening follow-up measures

Drowsiness and poor concentration improvement in subjects with OSA

Decrease in accident rate (expected to decrease by 5-17%)

Reduced health risk for people with OSA

Prevention of hypertension, diabetes, myocardial infarction, arrhythmia, and stroke

Lower medical costs

Coming soon!!

- Chinese and Thai version movies are available!

Let's collaborate together!

Dr. Apiwat Ratanawaraha (Chulalongkorn University)
Dr. Passakon Prathombutr (Ministry of Digital Economy and Society)
Dr. Agachai Sumalee (Chulalongkorn University)
Dr. Yossapong Laoonual (King Mongkut's University of Technology Thonburi)
Dr.Sittha Jaensirisak (Ubonratchathani University)

In 2022, we will conduct a study funded by the IATSS to examine the usefulness of our movies on sleep apnea and visual field disorder.

Let's collaborate together to prevent sleep apnea-related accidents in Thailand!

Thank you for your attention

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Road Safety Leadership & Management: Transferring Learnings from Australia

1. Vision and strategy
2. Leadership
3. Collaboration
4. Embedding safety into design

1. Vision and Strategy

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Vision and Strategy

VISION ZERO
NO MORE TRAFFIC DEATHS

Source: Greatr Mercer TMA

50BY30
HALVE ROAD DEATHS & SERIOUS INJURIES BY2030

Source: Towards Zero Foundation

ROAD TO ZERO
TE ARA KI TE ORA

Source: NZTA

TOWARDS ZERO

Source: TAC

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Vision and Strategy

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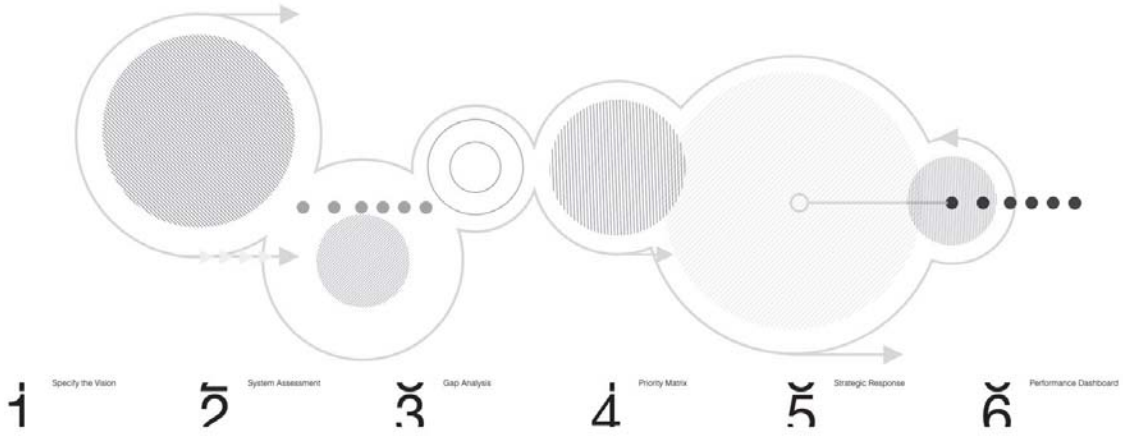
Vision and Strategy



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2. Leadership

1. Strong

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2. Leadership

1. Strong
2. Consistent

50BY30
HALVE ROAD DEATHS & SERIOUS INJURIES BY2030
Source: Towards Zero Foundation

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2. Leadership

1. Strong
2. Consistent
3. Wise

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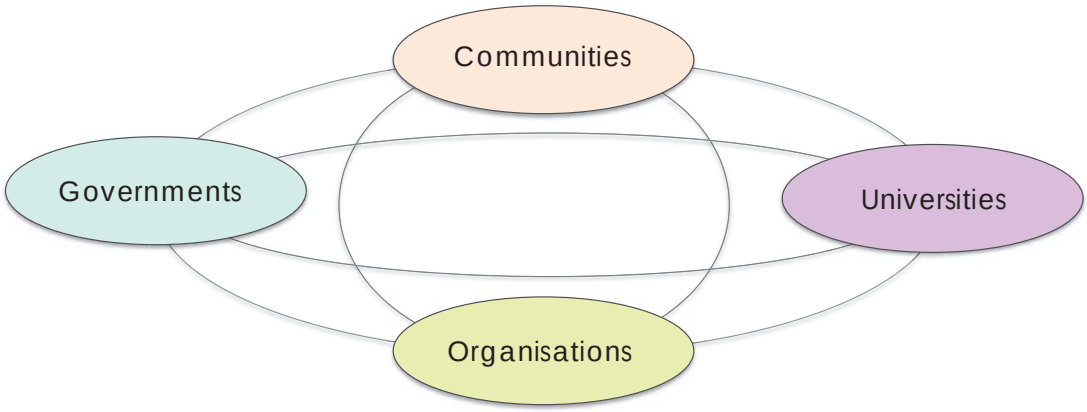
3. Collaboration



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3. Embedding Safety into Road Design

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Thank You
ขอบคุณครับ
ありがとうございます
Terima kasih
cảm ơn
សូមអរគុណ
Salamat
ຂໍຂອບໃຈ

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Understanding Traffic Safety Culture of Thai Youngsters

Sittha Jaensirisak
Ubon Ratchathani University

18 December 2021

Background

- Very high road traffic fatality rate in Thailand
- Unsafe driving behavior is the main cause of crashes
- ≈ 70% of deaths are motorcyclists
- High proportion of youngsters
- Improving driving behaviour can decrease fatality rate significantly
- BUT, how to manage change in unsafe driving behaviour?

Related ATRANS Research Projects

- ATRANS Safety Map Application (2018-2020)
  - Project leader: Assoc.Prof.Dr Paramet Luathep
- Youngsters' driving behaviour (2017-2018)
- Road safety education for youngsters (2018-2020)
- Safe Routes to School Program in Thailand (2021-2022)

Case studies

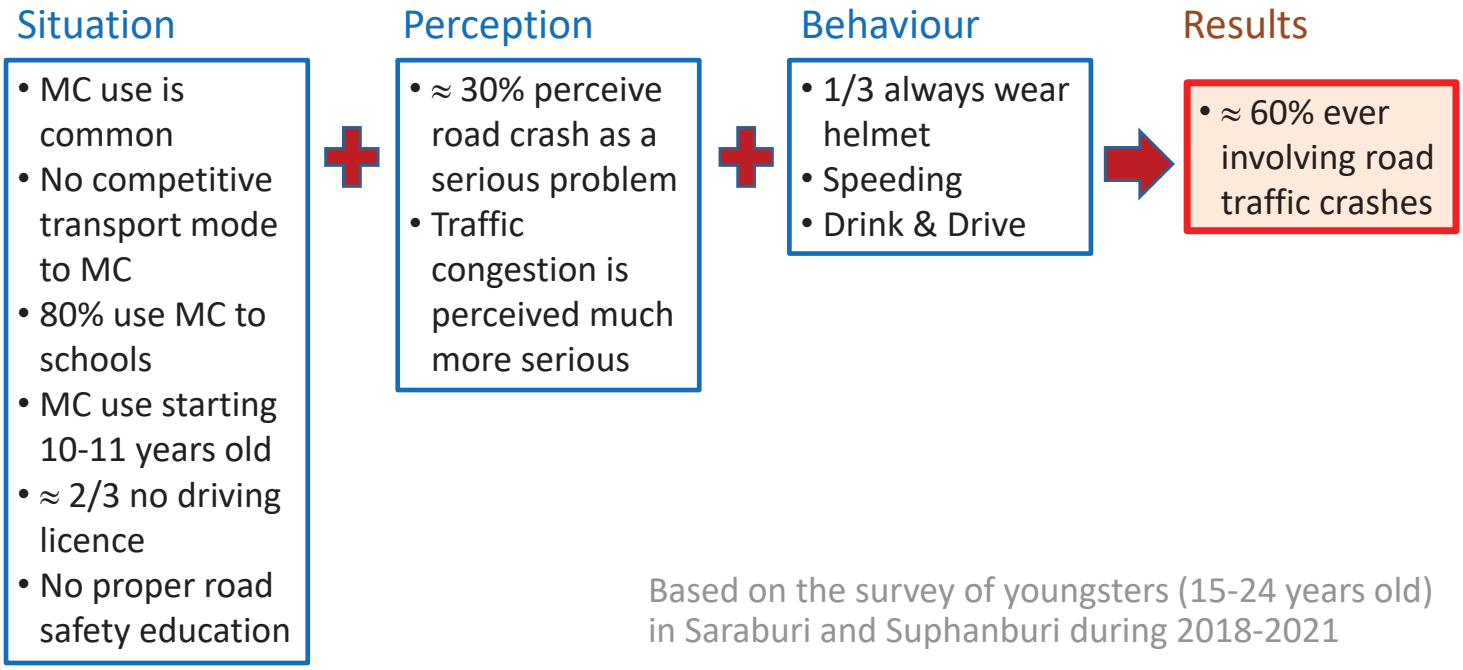
- **Saraburi** - Thaluang Cementhaianusorn Technical College
- **Suphanburi** - Suphanburi Technical College
- **Chainat** - Chainat Technical College

Three key elements

1. Youngsters' driving behaviours
2. Stakeholders and Social norms
3. Infrastructure Systems

1. YOUNGSTERS' DRIVING BEHAVIOURS

Youngsters and road traffic crashes



Based on the survey of youngsters (15-24 years old) in Saraburi and Suphanburi during 2018-2021

Changing unsafe behaviours

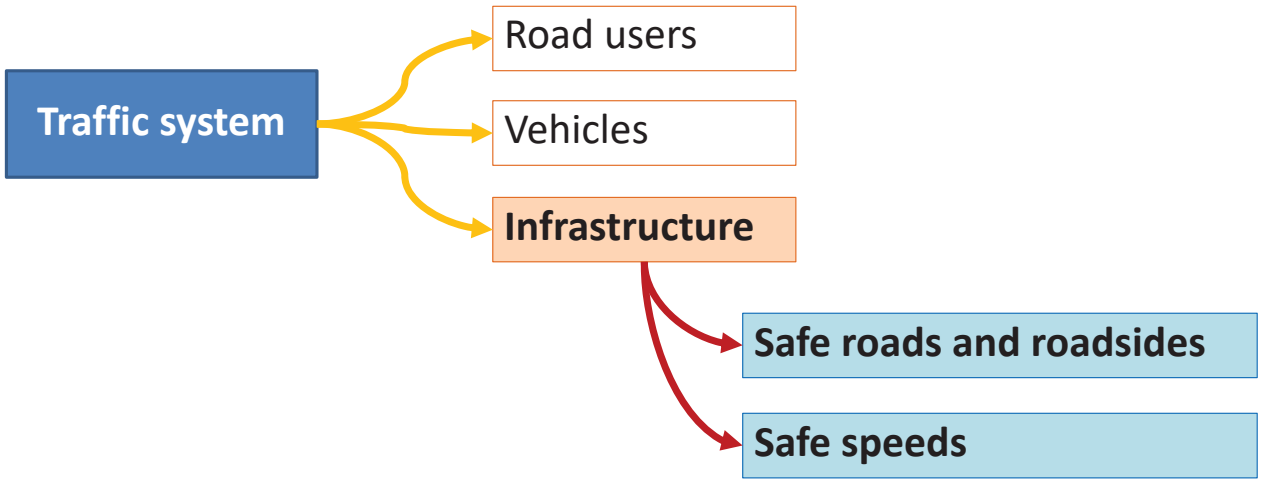
- **Top 2 risky behaviours –** no helmet wearing and speeding
  - Not wearing helmet when riding for short distance or on a small road
  - Speeding behaviour because of time saving, fun, available road condition and habit
- **Enforcement** by police is effective in short term
- **Education** is for long term
  - But providing knowledge of traffic rules and driving skills is not enough
  - Typical campaigns (TV, roadside messages, …) is unlikely to influence behaviour (only intention)

2. STAKEHOLDERS AND SOCIAL NORMS

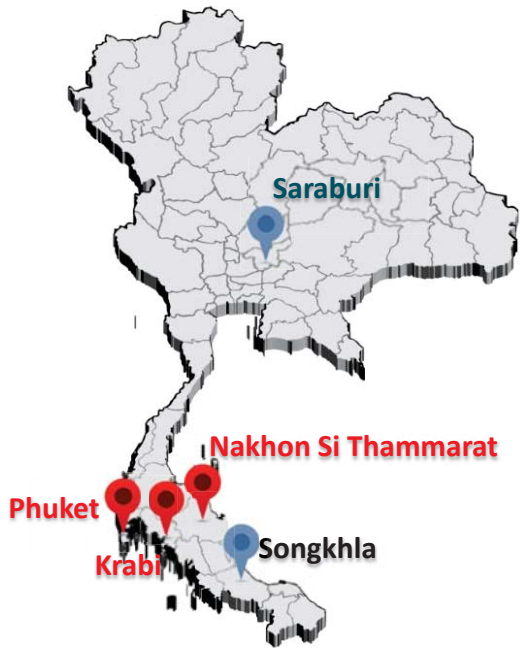
Actions and Interactions among Stakeholders

3. INFRASTRUCTURE SYSTEMS

Safe Infrastructure system



Data collected in ATRANS Safety Map App. (2018-2020)

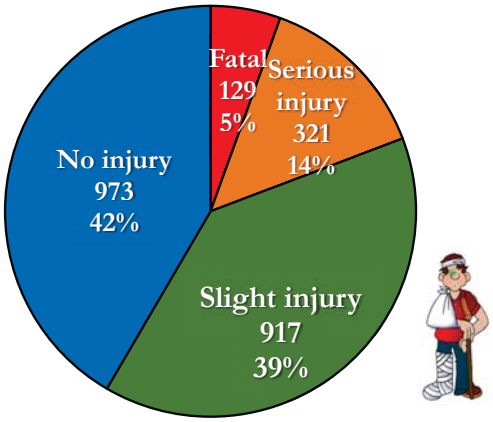


Risk location data

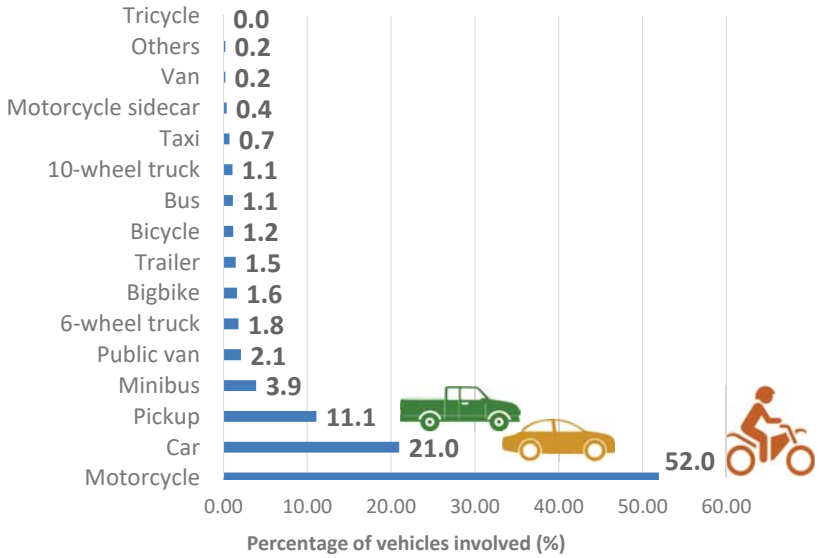
Hazardous location data

Crash data

- 3-year crash data (2018-2020)
- 1,171 crashes, resulting in 2,340 casualties and 2,044 vehicles
- More than half of the casualties are motorcyclists (52%)



2,340 casualties



Influencing behaviour change by design

- Arterial roads in developed areas
- Geometric roadway design – alignment and profile
- Safety devices – e.g., warning sign, barrier, delineator
- Road surface and drainage
- Night-time
- Speeding – self-explaining road and forgiving road and roadside

Based on the analysis of 3-year crash data (2018-2020) from ATRANS Safety Map App.

Perceptions on routes to school

Existing routes

- Fully with cars and trucks
- Speeding cars and trucks
- Shortest route
- Convenient
- Unsafe to travel

Needs

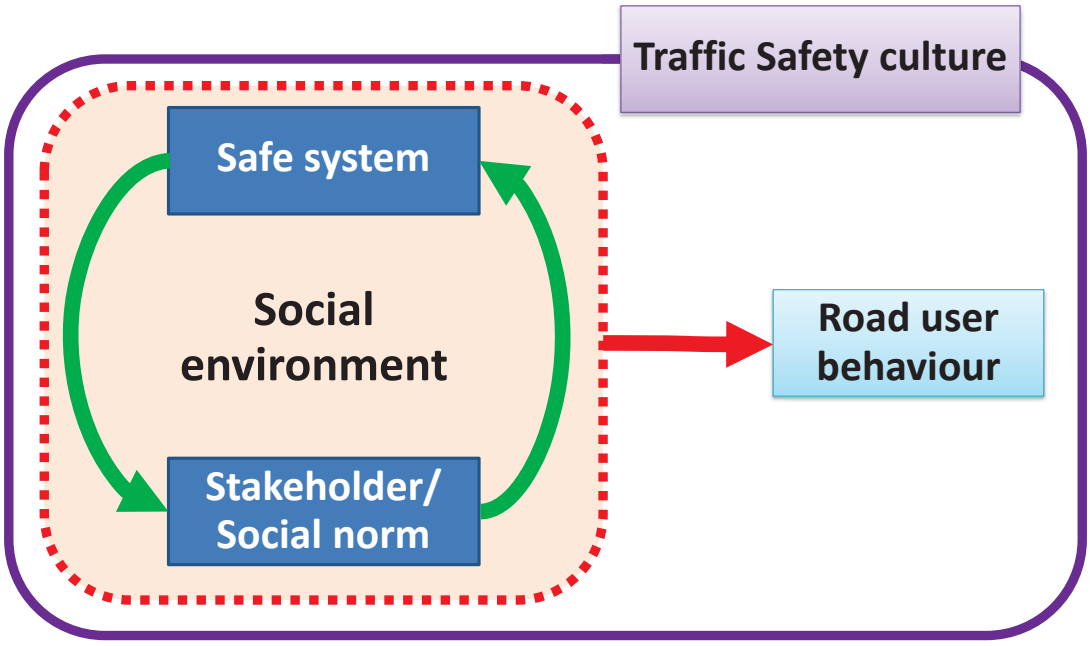
- Safe and convenient pedestrian crossing
- Safe and convenient motorcycle lane
- Standard bus service
- Route with shady trees
- Safe and convenient bike lane
- Safe and convenient walking route

Road space reallocation

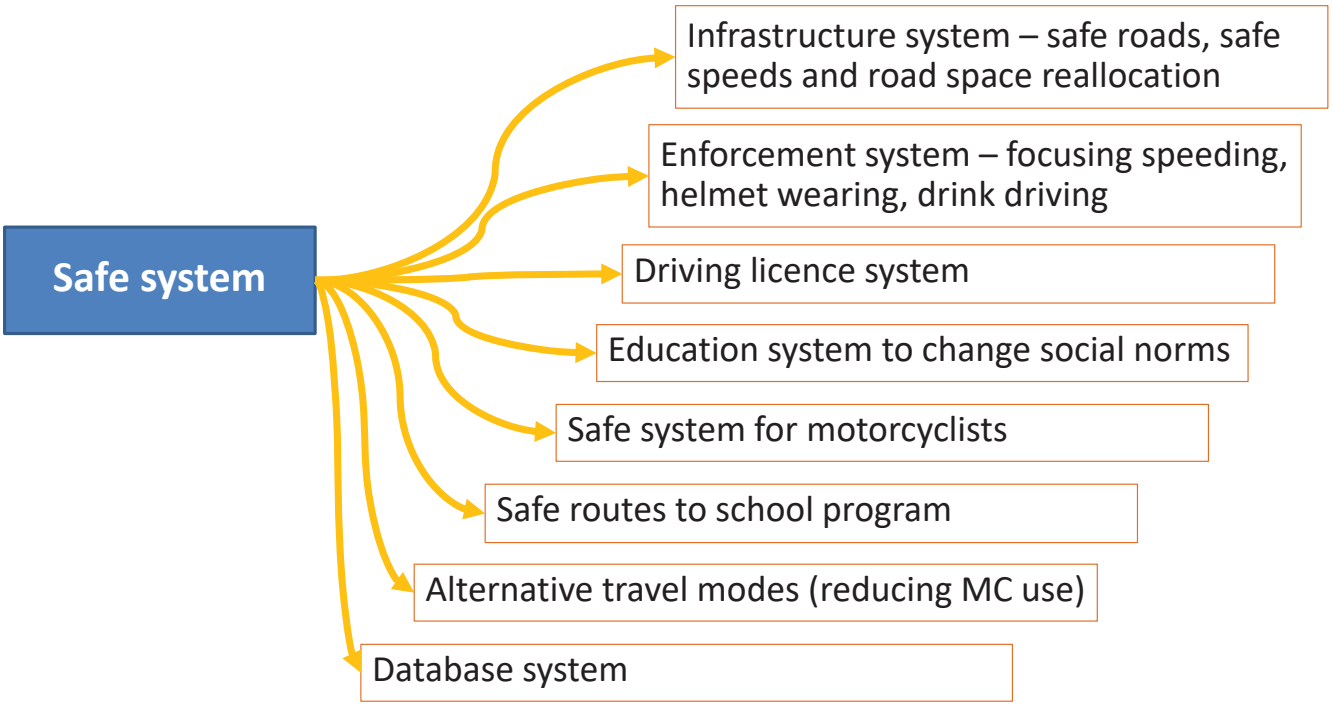
Based on the survey of 650 youngsters (15-24 years old) in Saraburi and Suphanburi in 2021

SUMMARY AND SUGGESTION

Framework for Conceptualising Traffic Safety Culture



Safe System for Creating Traffic Safety Culture in Thailand



"It is unreasonable to expect that people will change their behavior easily when so many forces in the social, cultural, and physical environment conspire against such change."

Smedly and Syme (2000)

Witaya Chadbunchachai, M.D.,FRCST
WHO Expert Advisory Panel for Injury Prevention and Control

Safe system : 5 Basic, 7 Principles, 8 Workplans

Recommended actions to encourage multimodal transport and land-use planning

- Implement policies that promote compact urban design.
- Implement policies that lower speeds, and prioritize the needs of pedestrians, cyclists, and public transport users.
- Promote transit-oriented development to concentrate urban and commercial developments around mass transit nodes.
- Strategically locate – where feasible – public, subsidized, and workforce housing to provide convenient access to high-capacity transit services.
- Discourage the use of private vehicles in high density urban areas by putting restrictions on motor vehicle users, vehicles, and road infrastructure, and provide alternatives that are accessible, safe, and easy to use, such as walking, cycling, buses and trams.
- Provide intermodal connectivity between transit and bike share schemes at major transit stops and create transport connections for bicycle and pedestrian travel that reduce total travel time.
- Construct (or reconstruct existing) transport networks to ensure that non-motorized modes of travel are as safe as motorized ones, and most importantly serve the travel needs of all ages and abilities.
- Promote positive marketing and use of incentives such as employer cost-sharing of public transport subscriptions.

Recommended actions to improve the safety of road infrastructure

- Develop functional classifications and desired safety performance standards for each road user group at the geographic land-use and road corridor level.
- Review and update legislation and local design standards that consider road function and the needs of all road users, and for specific zones.
- Specify a technical standard and star rating target for all designs linked to each road user, and the desired safety performance standard at that location.
- Implement infrastructure treatments that ensure logical and intuitive compliance with the desired speed environment (e.g. 30 km/h urban centres; ≤ 80 km/h undivided rural roads; 100 km/h expressways).
- Undertake road safety audits on all sections of new roads (pre-feasibility through to detailed design) and complete assessments using independent and accredited experts to ensure a minimum standard of three stars or better for all road users.
- Undertake crash-risk mapping (where crash data are reliable) and proactive safety assessments and inspections on the target network with a focus on relevant road user needs as appropriate.
- Set a performance target for each road user based on the inspection results with clear measurable metrics at the road-attribute level (e.g. sidewalk provision).

Recommended actions to ensure vehicle safety

- Require high-quality harmonized safety standards for new and used motor vehicles, safety belts, child-restraint systems and motorcycle helmets, including:
  - standards on front and side impact to ensure that occupants are protected in a front and side-impact crash;
  - safety belts and safety belt anchorage for all seats to ensure that safety belts are fitted in vehicles when they are manufactured and assembled;
  - ISOFIX child-restraint anchor points to secure the child-restraint systems attached directly to the frame of the vehicle to prevent misuse;
  - electronic stability control to prevent skidding and loss of control in cases of oversteering or understeering;
  - advanced emergency braking to reduce collisions;
  - pedestrian protection standards to reduce the severity of impact with a motor vehicle;
  - motorcycle helmets certified according to international harmonized standards;
  - anti-lock braking system and daytime running lights for motorcycles;
  - intelligent speed assistance systems to help drivers keep to speed limits;
  - eCall or Accident Emergency Call Systems (AECS) to trigger an emergency response by an in-vehicle sensor.
- Ensure that high-quality, harmonized safety standards are kept throughout the full lifecycle of the vehicle. This can be done, for example, through:
  - mandatory certification and registration systems for new and used vehicles based on established safety requirements and combined with routine inspections;
  - regulations for the export and import of used vehicles that are accompanied by inspections at entry and exit points, and mandatory periodic technical inspection of vehicles; and
  - building demand for safer vehicles by encouraging independent new car assessment programs.

Recommended actions to ensure safe road use

- Enact and enforce road safety legislation:
  - Set maximum speed limits considering the type and function of roads.
  - Establish blood alcohol concentration (BAC) limits to prevent impaired driving (drink- and drug-driving) with specific provisions for novice and professional drivers.
  - Mandate the use of protective equipment (safety belts, child restraints and helmets).
  - Restrict the use of handheld electronic devices while driving.
  - Establish a dedicated enforcement agency, provide training and ensure adequate equipment for enforcement activities.
- Establish traffic rules and licensing requirements:
  - Set out and regularly update traffic rules and codes of conduct for road users.
  - Provide information and education on traffic rules.
  - Set minimum age and vision requirements for drivers.
  - Implement competency-based testing for driver licensing and adoption of graduated driver licensing for novice drivers.
  - Set limits for maximum driving time and minimum rest periods for professional drivers.
  - Make liability insurance mandatory for operators of motorized vehicles.
- Ensure road infrastructure takes account of the needs of all road users and is designed to facilitate safe behaviours, including:
  - clear road signage and road markings that are intuitive;
  - use of roundabouts and traffic calming designs such as speed humps;
  - physical separation of road users including use of protected bicycle lanes and pedestrian only zones.
- Make use of vehicle safety features and technologies to support safe behaviours, including:
  - automatic safety belts and seat-belt alerts;
  - intelligent speed assistance;

Recommended actions to improve the post-crash response

- Provide a system to activate post-crash response:
  - Unique emergency telephone number with national coverage.
  - Coordination mechanism for dispatching response (fire brigade, police, ambulance).
- Build response capacity among lay responders (non-medical professionals):
  - Provide basic (EMS) training for lay providers such as taxi and public transport providers, police, fire brigade etc.
  - Enact Good Samaritan Laws to ensure protection for lay responders.
- Strengthen professional medical care:
  - Establish trauma registries in health-care facilities to gather information on the cause of injury and clinical interventions.
  - Build capacity of pre-hospital, hospital and rehabilitation care/services, and establish a basic package of emergency care services for each level of the health system.
  - Ensure 24-hour access – regardless of ability to pay – to operative and critical care services that are staffed and equipped.
  - Provide recovery and rehabilitation services to prevent permanent disability.
- Establish requirements multidisciplinary, post-crash investigation:
  - Mandate investigations for crashes resulting in serious and fatal injuries to inform prevention strategies and apply an effective judicial response for victims and their families.
  - Establish coordination mechanisms for post-crash investigation and sharing of data by relevant sectors.
  - Establish appropriate financing mechanisms such as road-user insurance schemes (e.g. mandatory third-party liability).
- Provide social, judicial and, where appropriate, financial support to bereaved families and survivors.

Role of Government

- Government bear the main responsibility to ensure citizen safety….by
- Establishing an authorized and sustainable lead agency
- Providing legislative framework for road safety
- Developing national plan of action with targets and monitoring the RS activities
- Encouraging compliance with standards for road, vehicle and users
- Providing overall coordination

Opportunity for RS movement in Thailand

-SDG

-Global plan for 2nd decade of action for road safety

12 Global targets and indicators for road safety

-National Strategic Plan (Office of National Economics and Social Development Council)

-5th National Master Plan for Road Safety(2022-2027)

-Thai Health Plan for Chain of Outcome

Thailand's Goal

Specific strategies : Focus

1: Strengthen lead agency - accountability

2: Area base :district,subdistrict

MC: standard, behavior, license

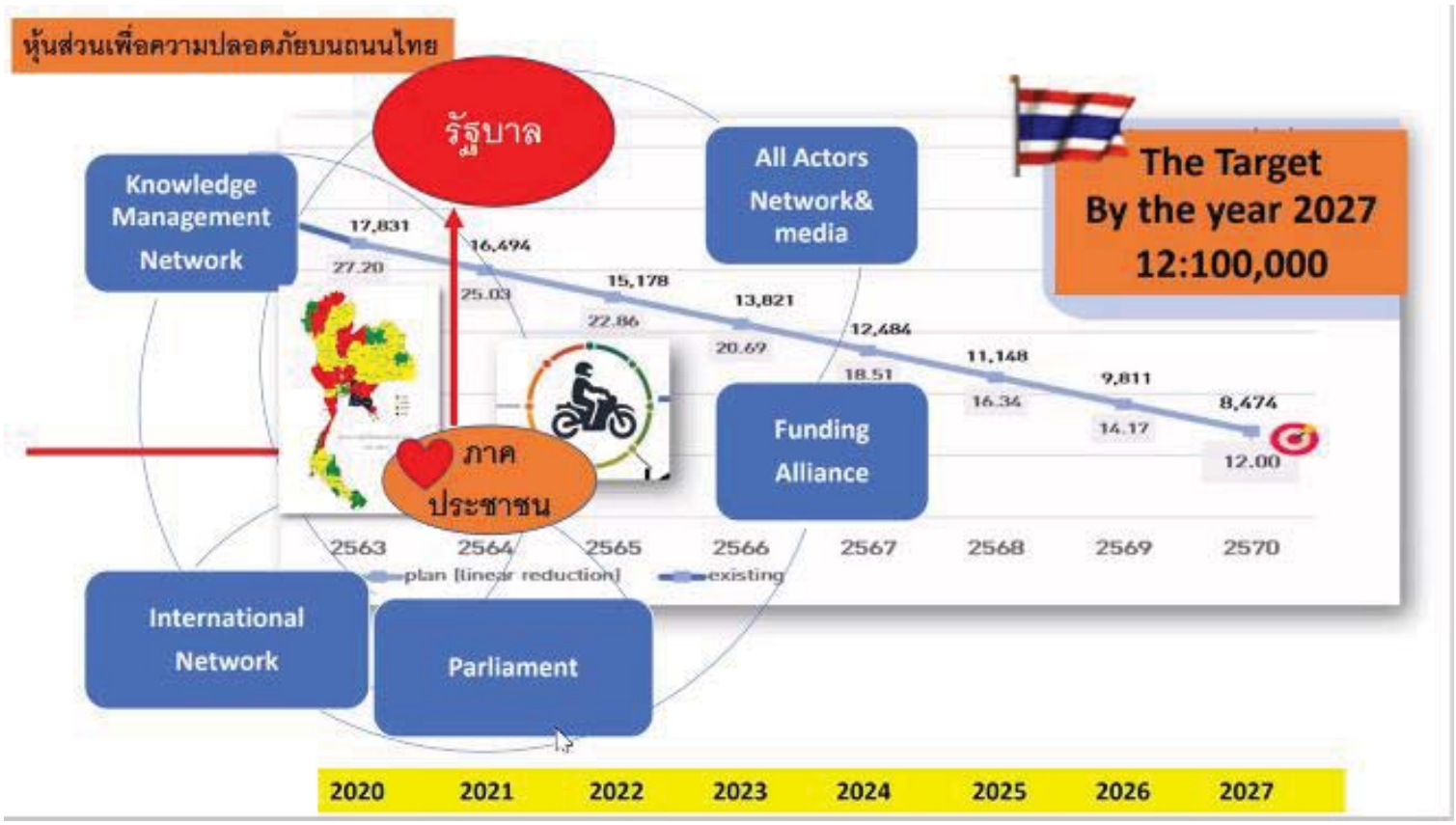
Road : 3 stars rating

Networking: Organization enforcement, Youth

IT for enforcement, effectiveness of enforcement

3: Media: awareness, safety culture , social response , new way through social media

4 : Information for ME,: policy advocacy , dash board


หุ้นส่วนเพื่อความปลอดภัยบนถนนไทย
รัฐบาล
Knowledge Management Network
All Actors Network& media
Funding Alliance
International Network
Parliament
ภาค ประชาชน
The Target By the year 2027 12:100,000
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plan (linear reduction)
existing
2020
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1. Vision and Strategy

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Vision and Strategy

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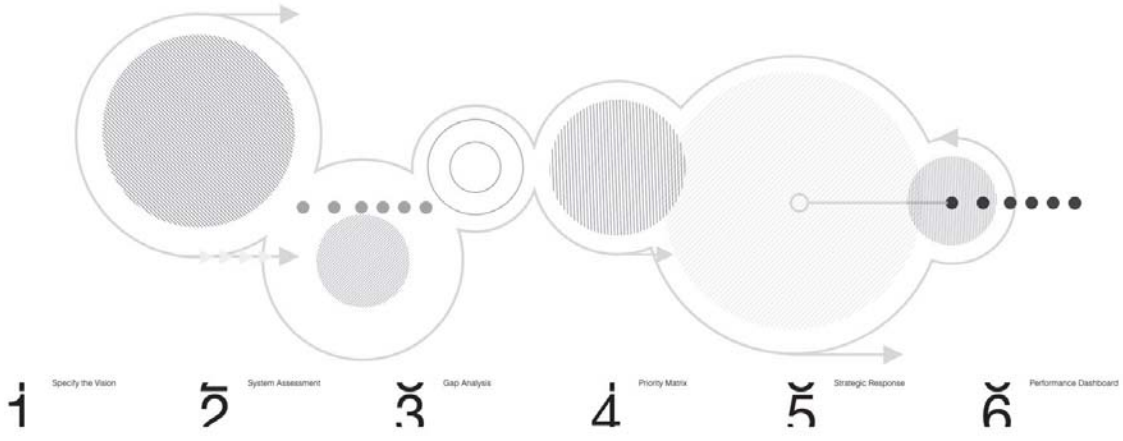
Vision and Strategy



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2. Leadership

1. Strong

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2. Leadership

1. Strong
2. Consistent

50BY30
HALVE ROAD DEATHS & SERIOUS INJURIES BY2030
Source: Towards Zero Foundation

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2. Leadership

1. Strong
2. Consistent
3. Wise

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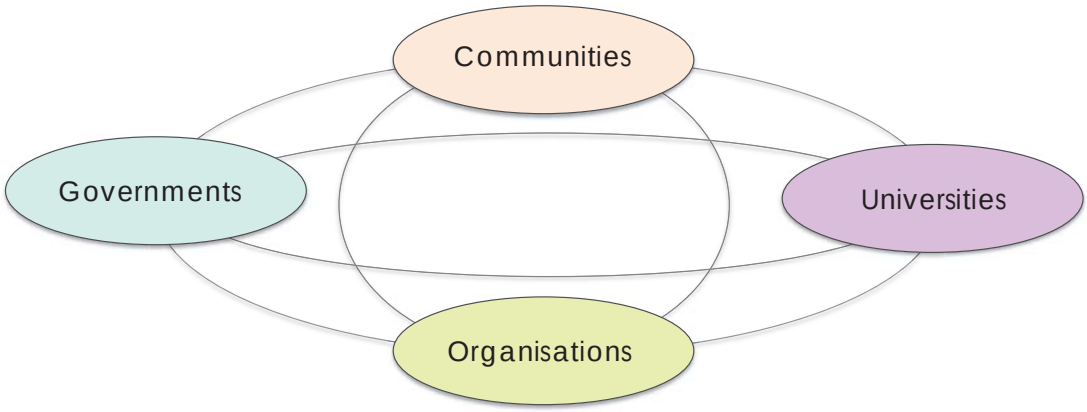
3. Collaboration



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3. Embedding Safety into Road Design

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Thank You
ขอบคุณครับ
ありがとうございます
Terima kasih
cảm ơn
សូមអរគុណ
Salamat
ຂໍຂອບໃຈ

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Understanding Traffic Safety Culture of Thai Youngsters

Sittha Jaensirisak
Ubon Ratchathani University

18 December 2021

Background

- Very high road traffic fatality rate in Thailand
- Unsafe driving behavior is the main cause of crashes
- ≈ 70% of deaths are motorcyclists
- High proportion of youngsters
- Improving driving behaviour can decrease fatality rate significantly
- BUT, how to manage change in unsafe driving behaviour?

Related ATRANS Research Projects

- ATRANS Safety Map Application (2018-2020)
  - Project leader: Assoc.Prof.Dr Paramet Luathep
- Youngsters' driving behaviour (2017-2018)
- Road safety education for youngsters (2018-2020)
- Safe Routes to School Program in Thailand (2021-2022)

Case studies

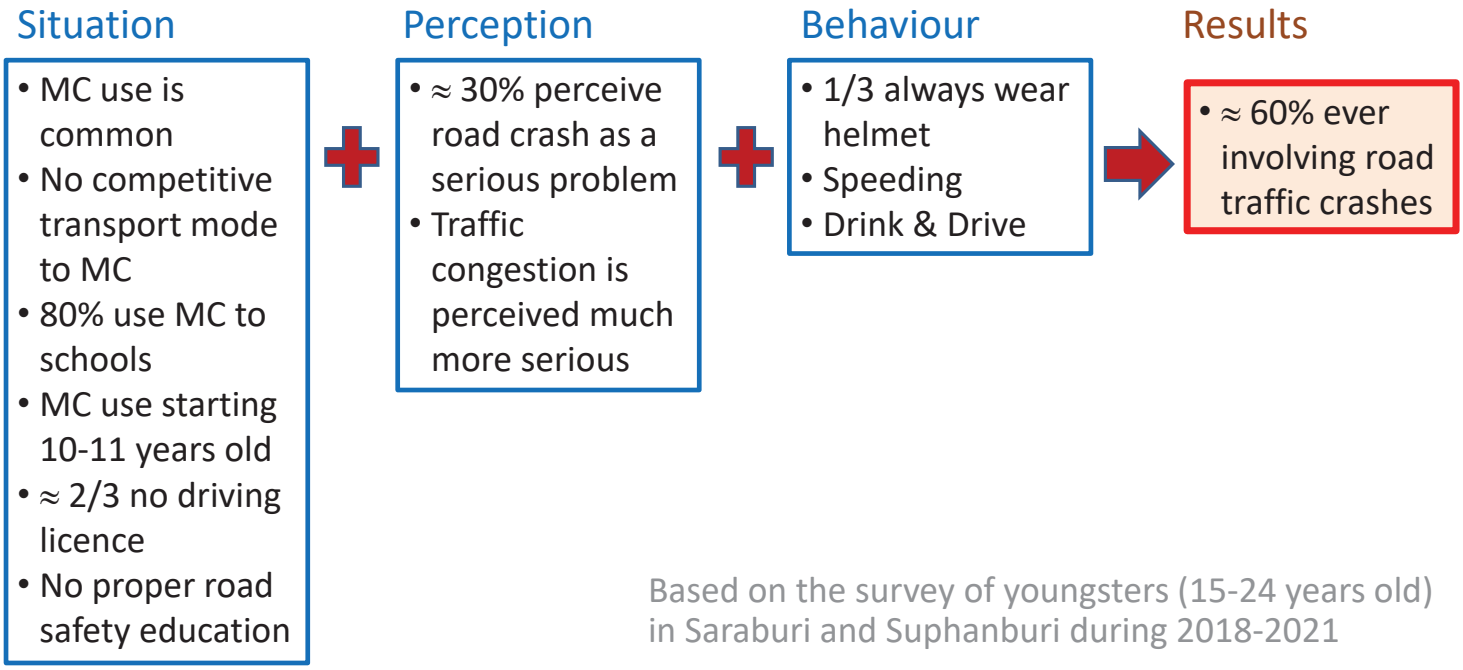
- **Saraburi** - Thaluang Cementhaianusorn Technical College
- **Suphanburi** - Suphanburi Technical College
- **Chainat** - Chainat Technical College

Three key elements

1. Youngsters' driving behaviours
2. Stakeholders and Social norms
3. Infrastructure Systems

1. YOUNGSTERS' DRIVING BEHAVIOURS

Youngsters and road traffic crashes



Based on the survey of youngsters (15-24 years old) in Saraburi and Suphanburi during 2018-2021

Changing unsafe behaviours

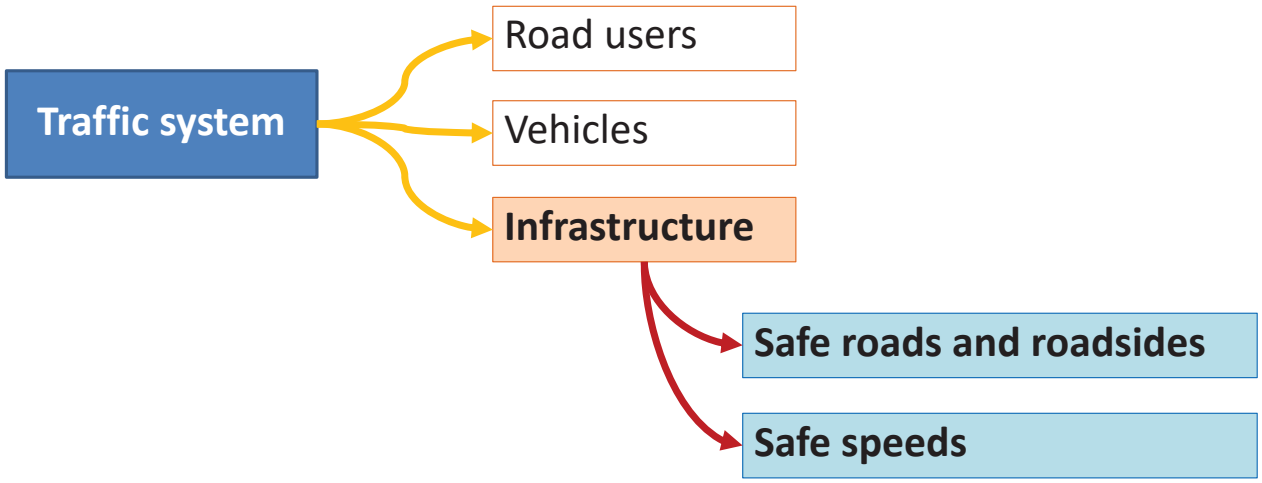
- **Top 2 risky behaviours –** no helmet wearing and speeding
  - Not wearing helmet when riding for short distance or on a small road
  - Speeding behaviour because of time saving, fun, available road condition and habit
- **Enforcement** by police is effective in short term
- **Education** is for long term
  - But providing knowledge of traffic rules and driving skills is not enough
  - Typical campaigns (TV, roadside messages, …) is unlikely to influence behaviour (only intention)

2. STAKEHOLDERS AND SOCIAL NORMS

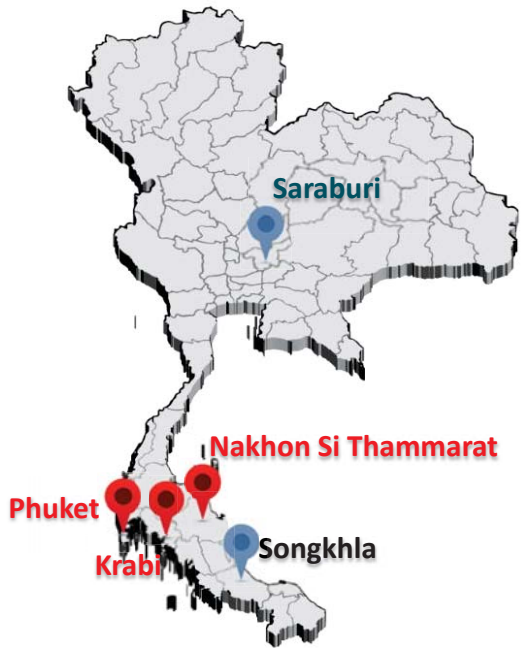
Actions and Interactions among Stakeholders

3. INFRASTRUCTURE SYSTEMS

Safe Infrastructure system



Data collected in ATRANS Safety Map App. (2018-2020)

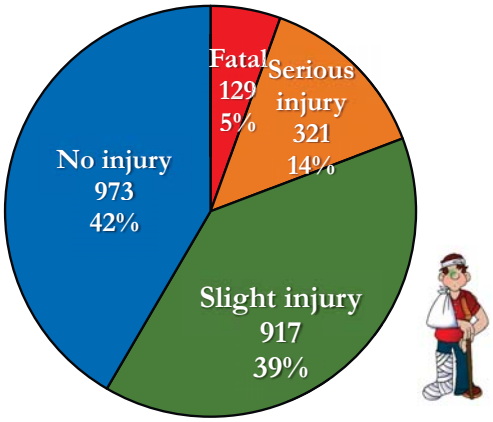


Risk location data

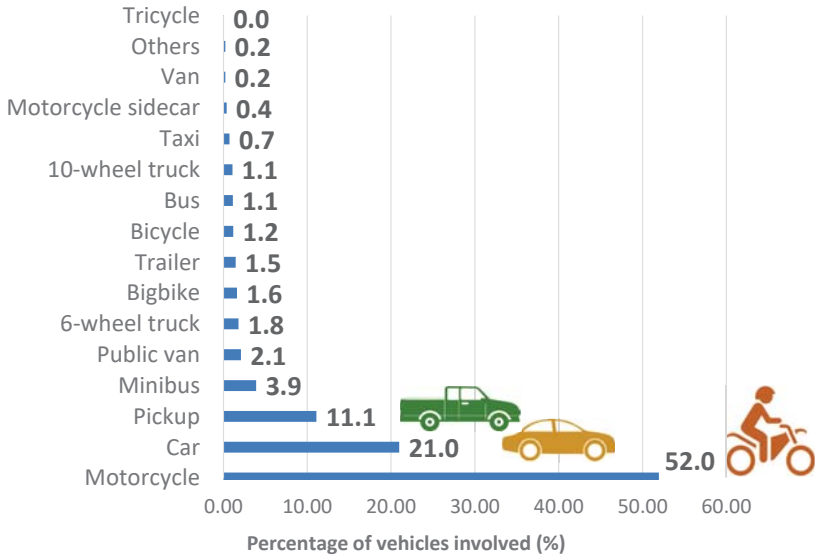
Hazardous location data

Crash data

- 3-year crash data (2018-2020)
- 1,171 crashes, resulting in 2,340 casualties and 2,044 vehicles
- More than half of the casualties are motorcyclists (52%)



2,340 casualties



Influencing behaviour change by design

- Arterial roads in developed areas
- Geometric roadway design – alignment and profile
- Safety devices – e.g., warning sign, barrier, delineator
- Road surface and drainage
- Night-time
- Speeding – self-explaining road and forgiving road and roadside

Based on the analysis of 3-year crash data (2018-2020) from ATRANS Safety Map App.

Perceptions on routes to school

Existing routes

- Fully with cars and trucks
- Speeding cars and trucks
- Shortest route
- Convenient
- Unsafe to travel

Needs

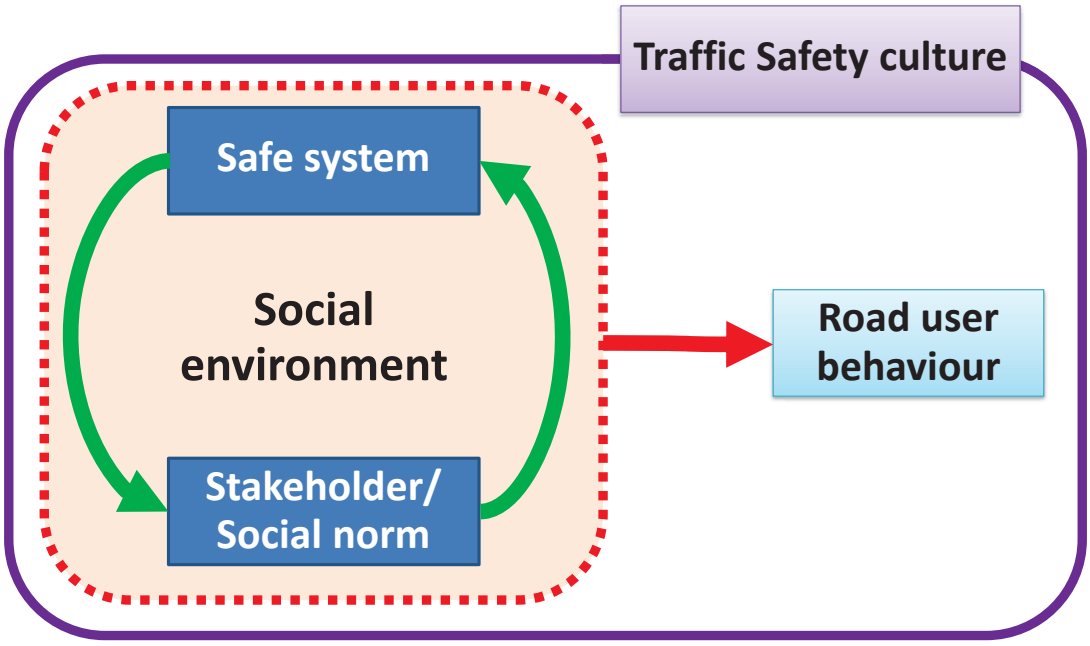
- Safe and convenient pedestrian crossing
- Safe and convenient motorcycle lane
- Standard bus service
- Route with shady trees
- Safe and convenient bike lane
- Safe and convenient walking route

Road space reallocation

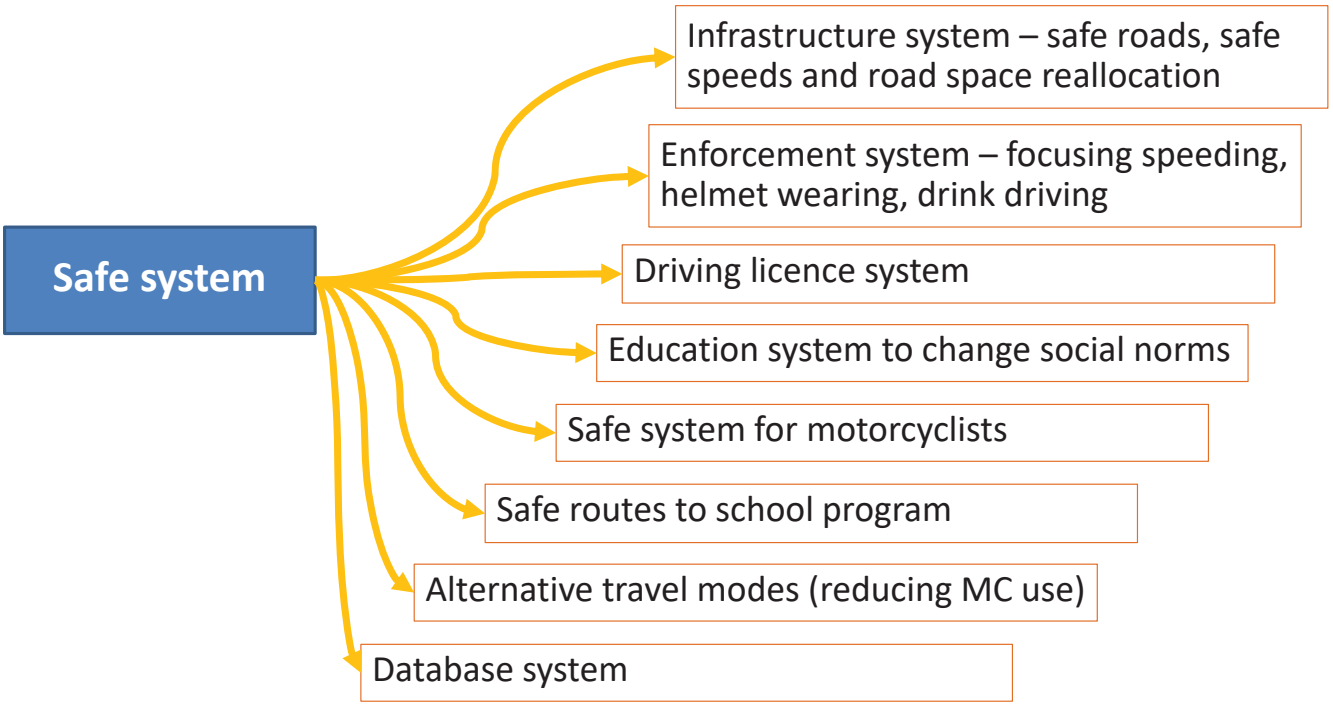
Based on the survey of 650 youngsters (15-24 years old) in Saraburi and Suphanburi in 2021

SUMMARY AND SUGGESTION

Framework for Conceptualising Traffic Safety Culture



Safe System for Creating Traffic Safety Culture in Thailand



"It is unreasonable to expect that people will change their behavior easily when so many forces in the social, cultural, and physical environment conspire against such change."

Smedly and Syme (2000)

Witaya Chadbunchachai, M.D.,FRCST
WHO Expert Advisory Panel for Injury Prevention and Control

Safe system : 5 Basic, 7 Principles, 8 Workplans

Recommended actions to encourage multimodal transport and land-use planning

- Implement policies that promote compact urban design.
- Implement policies that lower speeds, and prioritize the needs of pedestrians, cyclists, and public transport users.
- Promote transit-oriented development to concentrate urban and commercial developments around mass transit nodes.
- Strategically locate – where feasible – public, subsidized, and workforce housing to provide convenient access to high-capacity transit services.
- Discourage the use of private vehicles in high density urban areas by putting restrictions on motor vehicle users, vehicles, and road infrastructure, and provide alternatives that are accessible, safe, and easy to use, such as walking, cycling, buses and trams.
- Provide intermodal connectivity between transit and bike share schemes at major transit stops and create transport connections for bicycle and pedestrian travel that reduce total travel time.
- Construct (or reconstruct existing) transport networks to ensure that non-motorized modes of travel are as safe as motorized ones, and most importantly serve the travel needs of all ages and abilities.
- Promote positive marketing and use of incentives such as employer cost-sharing of public transport subscriptions.

Recommended actions to improve the safety of road infrastructure

- Develop functional classifications and desired safety performance standards for each road user group at the geographic land-use and road corridor level.
- Review and update legislation and local design standards that consider road function and the needs of all road users, and for specific zones.
- Specify a technical standard and star rating target for all designs linked to each road user, and the desired safety performance standard at that location.
- Implement infrastructure treatments that ensure logical and intuitive compliance with the desired speed environment (e.g. 30 km/h urban centres; ≤ 80 km/h undivided rural roads; 100 km/h expressways).
- Undertake road safety audits on all sections of new roads (pre-feasibility through to detailed design) and complete assessments using independent and accredited experts to ensure a minimum standard of three stars or better for all road users.
- Undertake crash-risk mapping (where crash data are reliable) and proactive safety assessments and inspections on the target network with a focus on relevant road user needs as appropriate.
- Set a performance target for each road user based on the inspection results with clear measurable metrics at the road-attribute level (e.g. sidewalk provision).

Recommended actions to ensure vehicle safety

- Require high-quality harmonized safety standards for new and used motor vehicles, safety belts, child-restraint systems and motorcycle helmets, including:
  - standards on front and side impact to ensure that occupants are protected in a front and side-impact crash;
  - safety belts and safety belt anchorage for all seats to ensure that safety belts are fitted in vehicles when they are manufactured and assembled;
  - ISOFIX child-restraint anchor points to secure the child-restraint systems attached directly to the frame of the vehicle to prevent misuse;
  - electronic stability control to prevent skidding and loss of control in cases of oversteering or understeering;
  - advanced emergency braking to reduce collisions;
  - pedestrian protection standards to reduce the severity of impact with a motor vehicle;
  - motorcycle helmets certified according to international harmonized standards;
  - anti-lock braking system and daytime running lights for motorcycles;
  - intelligent speed assistance systems to help drivers keep to speed limits;
  - eCall or Accident Emergency Call Systems (AECS) to trigger an emergency response by an in-vehicle sensor.
- Ensure that high-quality, harmonized safety standards are kept throughout the full lifecycle of the vehicle. This can be done, for example, through:
  - mandatory certification and registration systems for new and used vehicles based on established safety requirements and combined with routine inspections;
  - regulations for the export and import of used vehicles that are accompanied by inspections at entry and exit points, and mandatory periodic technical inspection of vehicles; and
  - building demand for safer vehicles by encouraging independent new car assessment programs.

Recommended actions to ensure safe road use

- Enact and enforce road safety legislation:
  - Set maximum speed limits considering the type and function of roads.
  - Establish blood alcohol concentration (BAC) limits to prevent impaired driving (drink- and drug-driving) with specific provisions for novice and professional drivers.
  - Mandate the use of protective equipment (safety belts, child restraints and helmets).
  - Restrict the use of handheld electronic devices while driving.
  - Establish a dedicated enforcement agency, provide training and ensure adequate equipment for enforcement activities.
- Establish traffic rules and licensing requirements:
  - Set out and regularly update traffic rules and codes of conduct for road users.
  - Provide information and education on traffic rules.
  - Set minimum age and vision requirements for drivers.
  - Implement competency-based testing for driver licensing and adoption of graduated driver licensing for novice drivers.
  - Set limits for maximum driving time and minimum rest periods for professional drivers.
  - Make liability insurance mandatory for operators of motorized vehicles.
- Ensure road infrastructure takes account of the needs of all road users and is designed to facilitate safe behaviours, including:
  - clear road signage and road markings that are intuitive;
  - use of roundabouts and traffic calming designs such as speed humps;
  - physical separation of road users including use of protected bicycle lanes and pedestrian only zones.
- Make use of vehicle safety features and technologies to support safe behaviours, including:
  - automatic safety belts and seat-belt alerts;
  - intelligent speed assistance;

Recommended actions to improve the post-crash response

- Provide a system to activate post-crash response:
  - Unique emergency telephone number with national coverage.
  - Coordination mechanism for dispatching response (fire brigade, police, ambulance).
- Build response capacity among lay responders (non-medical professionals):
  - Provide basic (EMS) training for lay providers such as taxi and public transport providers, police, fire brigade etc.
  - Enact Good Samaritan Laws to ensure protection for lay responders.
- Strengthen professional medical care:
  - Establish trauma registries in health-care facilities to gather information on the cause of injury and clinical interventions.
  - Build capacity of pre-hospital, hospital and rehabilitation care/services, and establish a basic package of emergency care services for each level of the health system.
  - Ensure 24-hour access – regardless of ability to pay – to operative and critical care services that are staffed and equipped.
  - Provide recovery and rehabilitation services to prevent permanent disability.
- Establish requirements multidisciplinary, post-crash investigation:
  - Mandate investigations for crashes resulting in serious and fatal injuries to inform prevention strategies and apply an effective judicial response for victims and their families.
  - Establish coordination mechanisms for post-crash investigation and sharing of data by relevant sectors.
  - Establish appropriate financing mechanisms such as road-user insurance schemes (e.g. mandatory third-party liability).
- Provide social, judicial and, where appropriate, financial support to bereaved families and survivors.

Role of Government

- Government bear the main responsibility to ensure citizen safety….by
- Establishing an authorized and sustainable lead agency
- Providing legislative framework for road safety
- Developing national plan of action with targets and monitoring the RS activities
- Encouraging compliance with standards for road, vehicle and users
- Providing overall coordination

Opportunity for RS movement in Thailand

-SDG

-Global plan for 2nd decade of action for road safety

12 Global targets and indicators for road safety

-National Strategic Plan (Office of National Economics and Social Development Council)

-5th National Master Plan for Road Safety(2022-2027)

-Thai Health Plan for Chain of Outcome

Thailand's Goal

Specific strategies : Focus

1: Strengthen lead agency - accountability

2: Area base :district,subdistrict

MC: standard, behavior, license

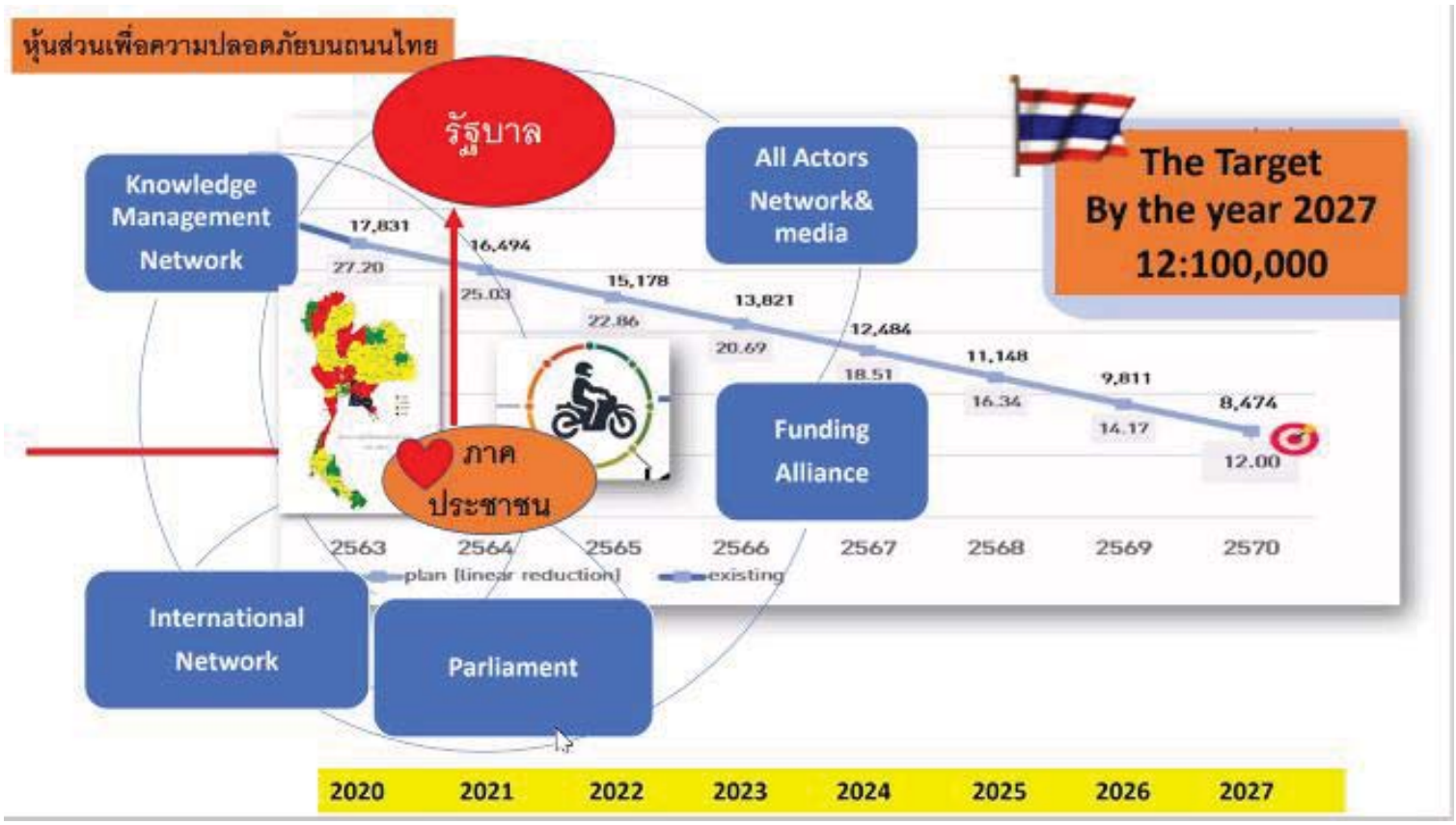
Road : 3 stars rating

Networking: Organization enforcement, Youth

IT for enforcement, effectiveness of enforcement

3: Media: awareness, safety culture , social response , new way through social media

4 : Information for ME,: policy advocacy , dash board


หุ้นส่วนเพื่อความปลอดภัยบนถนนไทย
รัฐบาล
Knowledge Management Network
All Actors Network& media
Funding Alliance
International Network
Parliament
ภาค ประชาชน
The Target By the year 2027 12:100,000
17,831
16,494
15,178
13,821
12,484
11,148
9,811
8,474
27.20
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20.69
18.51
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plan (linear reduction)
existing
2020
2021
2022
2023
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Asian Transportation Research Society
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Closing Remark

By Dr. Chula Sukmanop, ATRANS Chairperson

At 14th ATRANS Annual Conference:
"Transportation for a Better Life: Future Potential of Transportation and Urban Model Post COVID Era"
18 December 2021, 09.00 – 18:00 Millennium Hilton Hotel, Bangkok

Distinguished guests, Delegates, Ladies and gentlemen,

The 14th ATRANS Annual Conference has come to its inevitable conclusion. I would like to express my heartfelt thanks to you for taking your precious time joining our ATRANS Annual Conference on "Transportation for a Better Life: Future Potential of Transportation and Urban Model Post COVID Era."

I am certain that our future will change us all for better, smarter, and healthier lifestyle.

I am overwhelmed by your enthusiastic participation today. More than 250 online and offline participants from across nation and overseas have taken part in this International Academic Event.

Briefly looking back from today's sessions:

The first morning session was, I believe, a good opportunity to share various perspectives on "Future Potential of Transportation and Urban Model Post COVID Era."

As for the afternoon Sessions, I believe we were able to broaden and deepen our knowledge about digitalization in transportation and logistics such as Digital map for Autonomous Driving and smart mobility.

In addition, we cannot denial that the emitted pollution from transport sector has significant impact on climate change and hence decarbonization was discussed among other.

Furthermore, the importance of Road Safety regardless of Global Road Safety Plan, Safety Education for Young Road Users, Safety Culture, and health-related cause of accidents entails the need of Road Safety Leading & Management for preventive solutions.

Distinguished guests, Ladies and gentlemen,

Yesterday, we had an attached program of ATRANS Annual Conference so-called "ATRANS Young Researcher's Forum 2021 Special Session."

There were number of papers presented at ATRANS Young Researcher's Forum 2021 Special Session and only 3 papers were selected for the best paper and presentation award.

Now, I am pleased to announce the awarding papers which are:

1) The paper ID Number: 001-21
   Paper entitled "An evaluation of accuracy autonomous driving in parking application by using Jetbot comparing ResNet-18 and AlexNet model"

   Presents by Mr.Nutchanan PETCHARAT,
   From Suranaree University of Technology, Thailand

2) The paper ID Number: 004-21
   Paper entitled "Evaluating Impacts of Teleworking Policy in Jakarta Metropolitan Area by The Analysis of Activity Pattern"

   Presents by Mr.Rizky WAHYULINATA
   From Nihon University, Japan

3) The paper ID Number: 006-21
   Paper entitled "Study on Improvement of Star Rating Approach to Extract Traffic Hazardous Location in Nakhon Ratchasima Province, Thailand"

   Presents by Mr.Takeru MIYOKAWA
   From Nihon University, Japan

So, Congratulations to the authors of these 3 awarding papers. Your hard works are finally paid off. Our ATRANS Secretariat will contact you for awarding prize afterward. Congratulations once again.

In closing today's conference, I would like to express my sincere thanks to you once again for your participation and cooperation in making this event such a real success.

We sincerely ask for your continual support and collaboration in the future so that ATRANS can continue doing its best to serve and to contribute to our mobile society in the Asian region and beyond.

To our foreign guests and participants, even though, the outbreak of COVID-19 may take us apart this year, I hope we can meet you next year at the 15th ATRANS Annual Conference here in Thailand.

Please stay safe from the COVID and have a nice weekend. Thank you very much.

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