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# Digital Transformation in Smart Mobility



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# 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*



**SMART**  
LIVABLE CITY



**SMART**  
NEW CITY

# The Criteria for Evaluation 7 Dimensions of Smart City



กระทรวงดิจิทัล  
เพื่อเศรษฐกิจและสังคม



## Smart ENERGY

Increase the efficiency of energy usage and the use of clean energy  $\geq 1\%$  annually \*



## Smart ECONOMY

Raise the citizens' annual income per capita  $\geq 250,000$  bath \*



## Smart LIVING

The livability index  $\geq 80\%$  annually \*



## Smart ENVIRONMENT

- ◆ Air, Water Quality, and Waste Management meet the environmental standard
- ◆ CO<sub>2</sub> Emission Reduction  $\geq 1\%$  annually \*



## Smart PEOPLE

Percentage of citizens gaining Digital Literacy Skills  $\geq 70\%$  annually \*



## Smart GOVERNANCE

- ◆ Percentage of accessibility of citizens to informative online contents  $\geq 60\%$  \*
- ◆ Percentage of citizens involvement in the public development services  $\geq 60\%$  \*



## Smart MOBILITY

- ◆ Percentage of commutes' satisfactory  $\geq 60\%$  \*
- ◆ The number of casualties  $\leq 12$  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

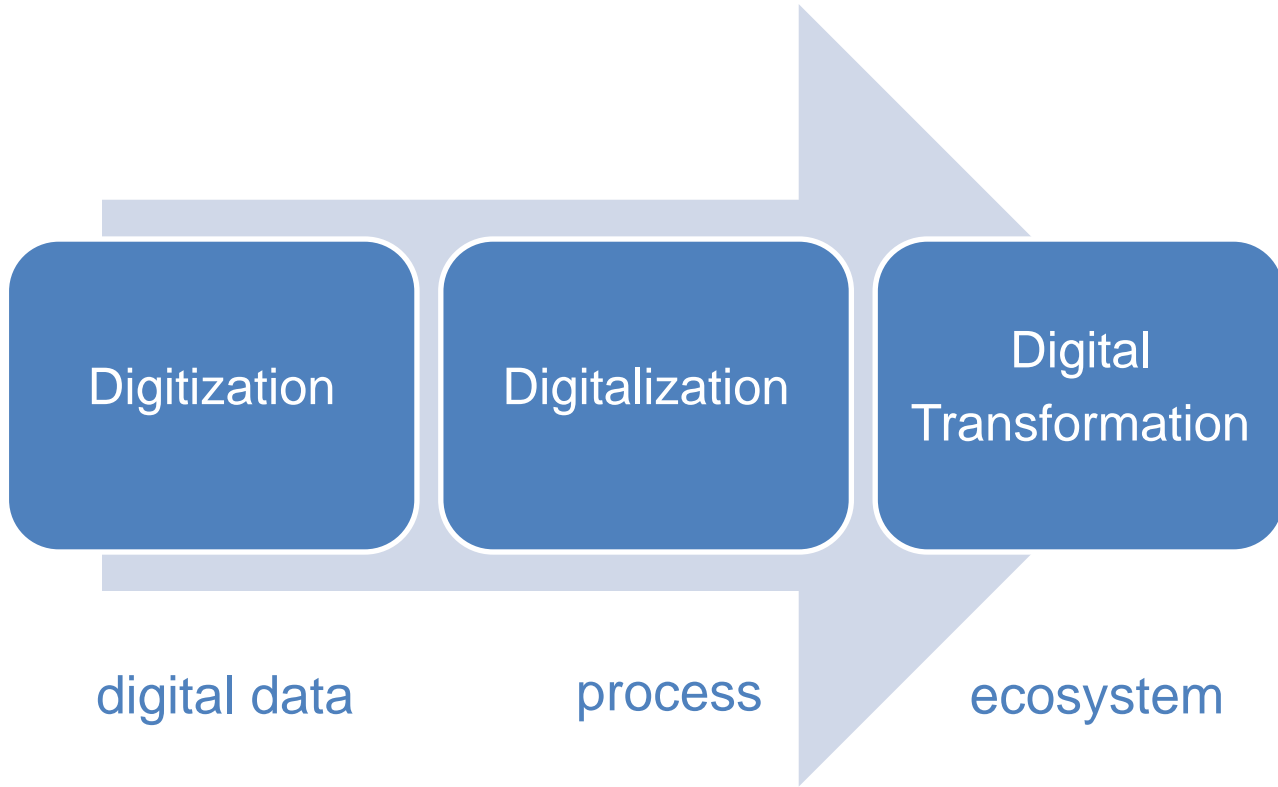


# Mobility Pain points

Accessibility Quality Pollution Safety Congestion High cost and etc.



Source: OTP



**Easter morning 1900: 5<sup>th</sup> Ave, New York City. Spot the automobile.**



Source: US National Archives.

**Easter morning 1913: 5<sup>th</sup> Ave, New York City. Spot the horse.**



Source: George Grantham Bain Collection.



# C-V2X

Intelligently connecting  
the car to surroundings  
and cloud



## V2V

Vehicle-to-vehicle

e.g. collision avoidance safety systems



## V2P

Vehicle-to-pedestrian

e.g. safety alerts to pedestrians, bicyclists



## V2N

Vehicle-to-network

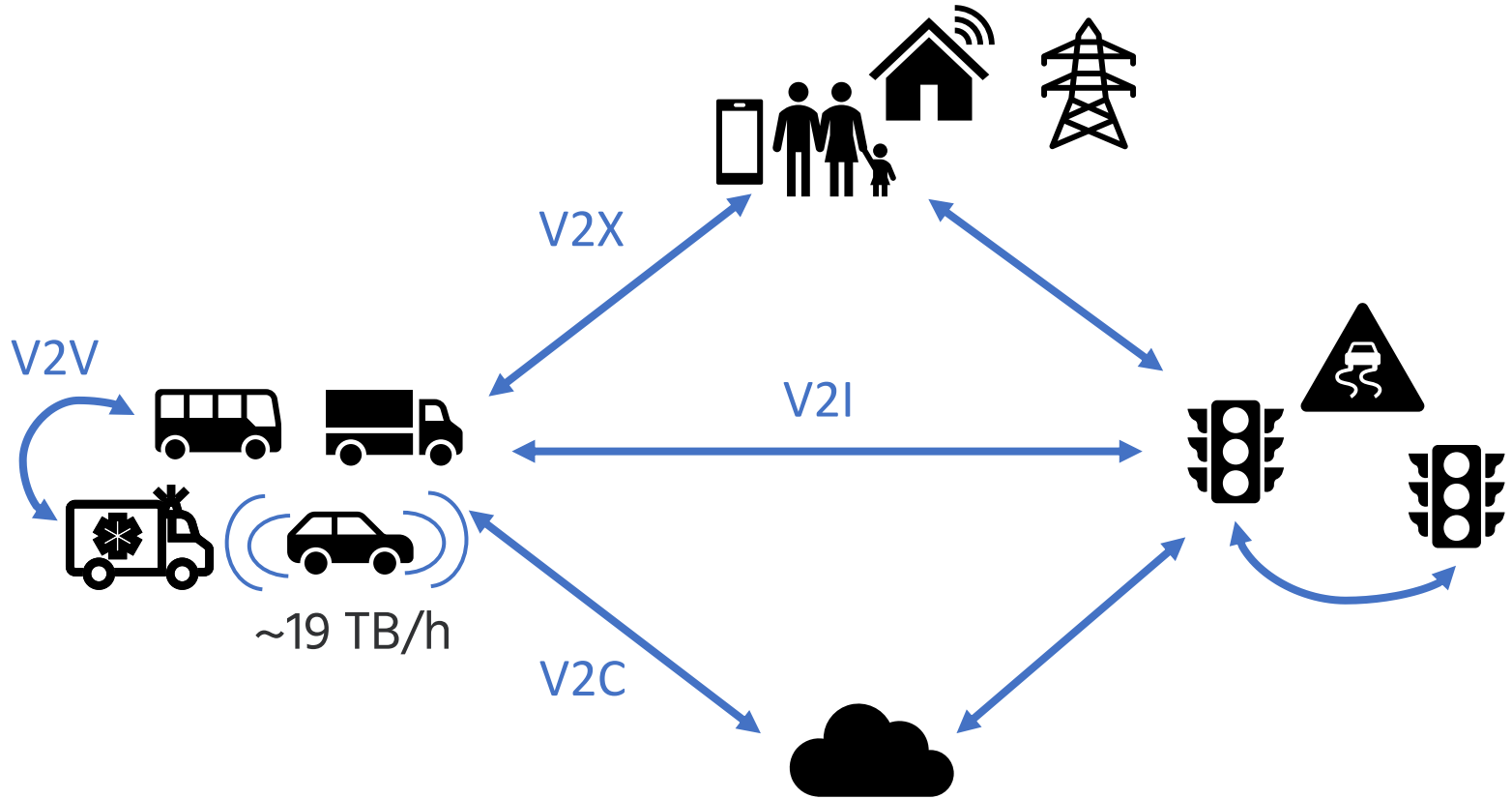
e.g. real-time traffic / routing, cloud services



## V2I

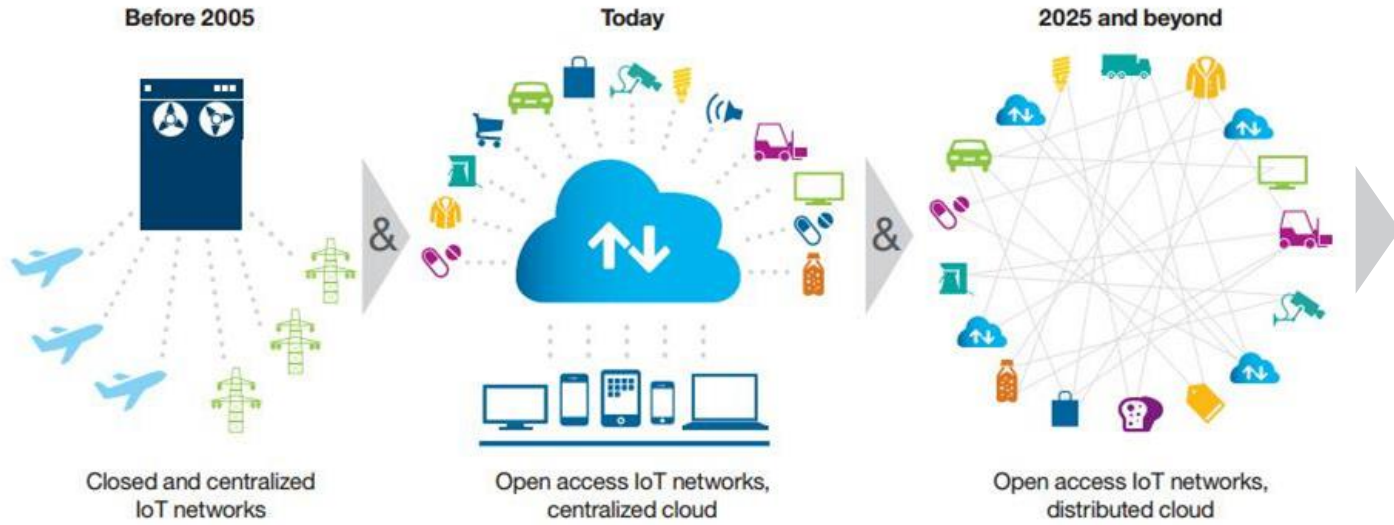
Vehicle-to-infrastructure

e.g. traffic signal timing/priority



Big data 5G IoT sensors Machine Learning Security Analytic Regulation

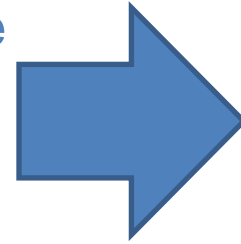




**Metaverse  
Digital twin**

**C A S E**

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



Newer  
Paradigm



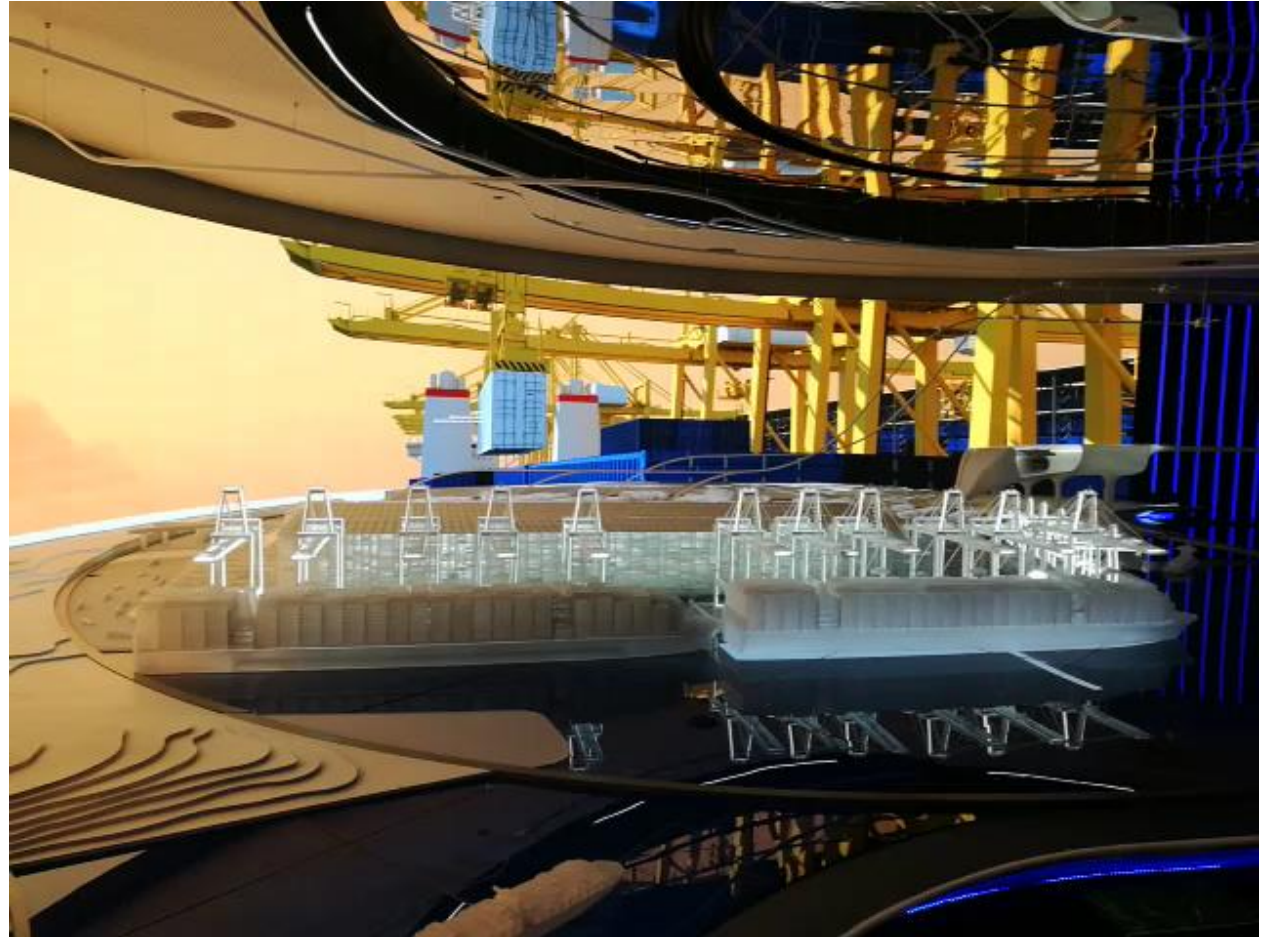


SCG has updated the results of using Blockchain in procurement for 1 year, reducing costs by more than 70%.

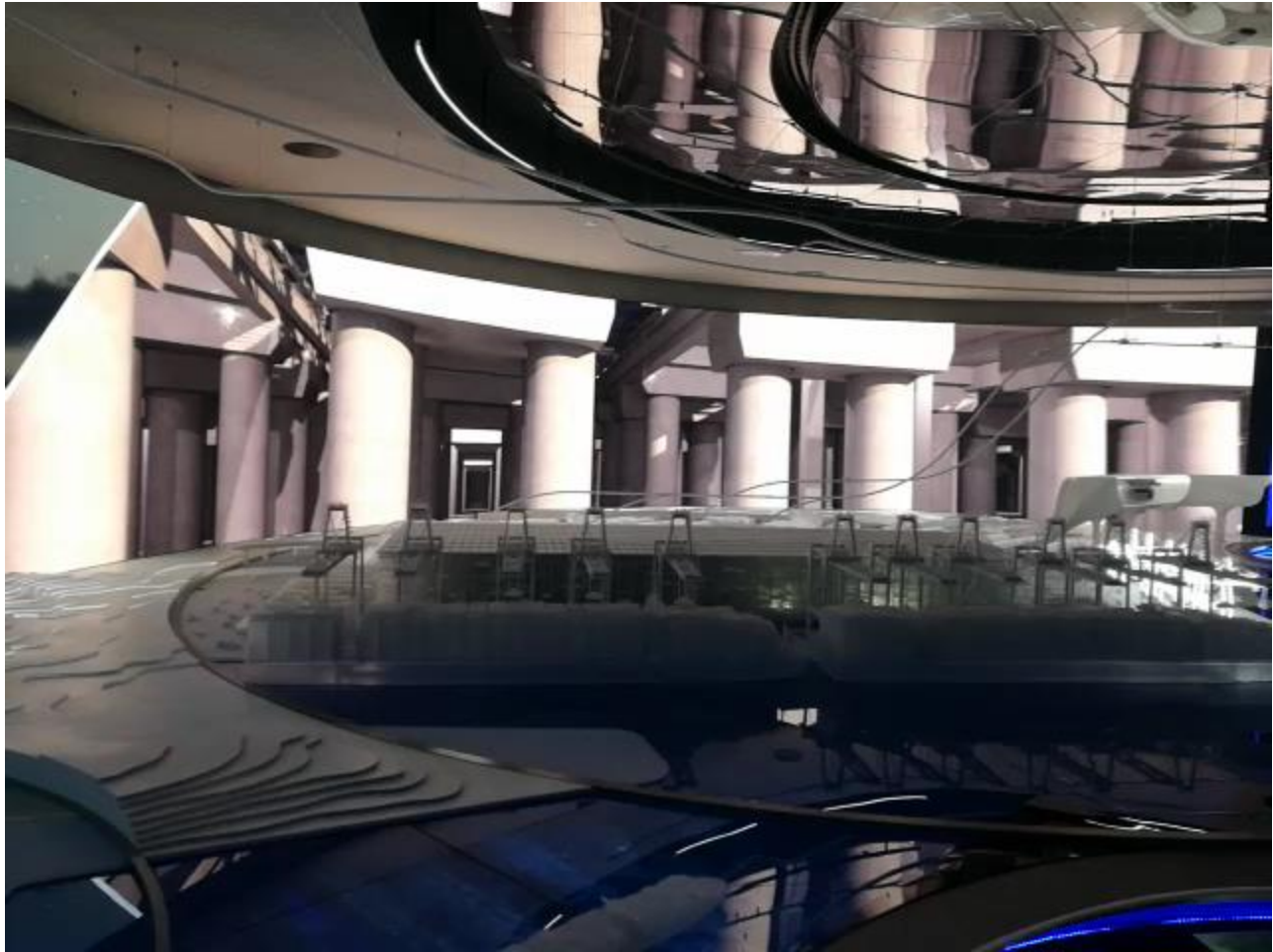




Smart Port  
Autonomous Truck

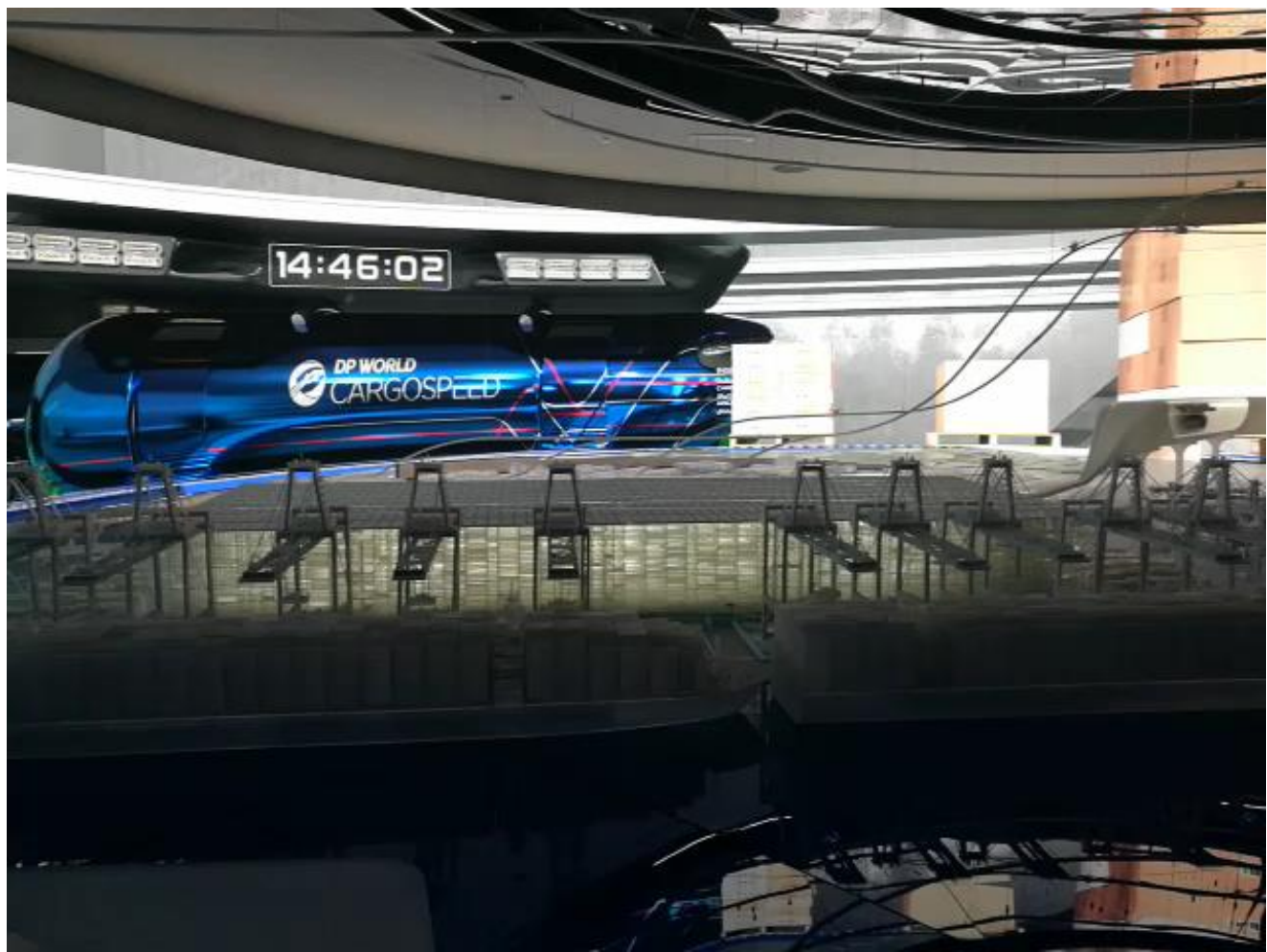


Smart Port  
Box Bay



Source: DP World

Smart Port  
CargoSpeed  
1,000 km/h



Source: DP World



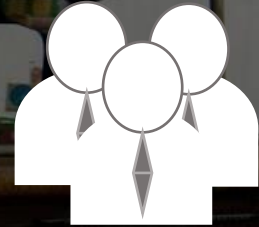
ตลอดเวลา  
Anytime

351026

# Smart Mobility

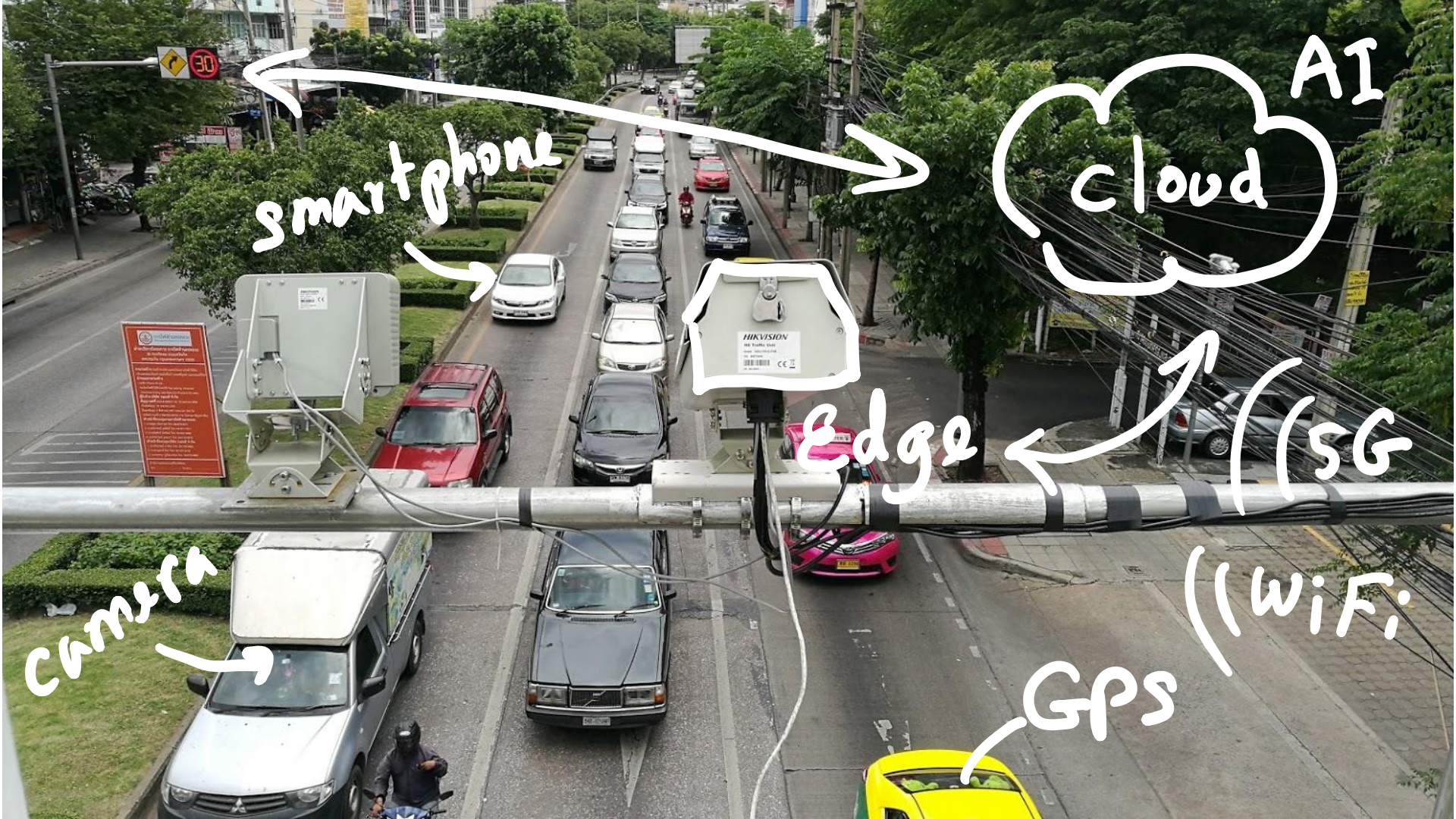
A  
C  
E  
S  
G  
I

Accessibility  
Convenience  
Efficiency  
Safety  
Green  
Innovation



Citizen Centric  
and Engagement  
Pain points?  
Sustainable?  
Technology enabler  
Leadership/manpower





smartphone

AI  
cloud

HIKVISION  
1080P Full HD  
1080P  
CE

Edge

(5G)

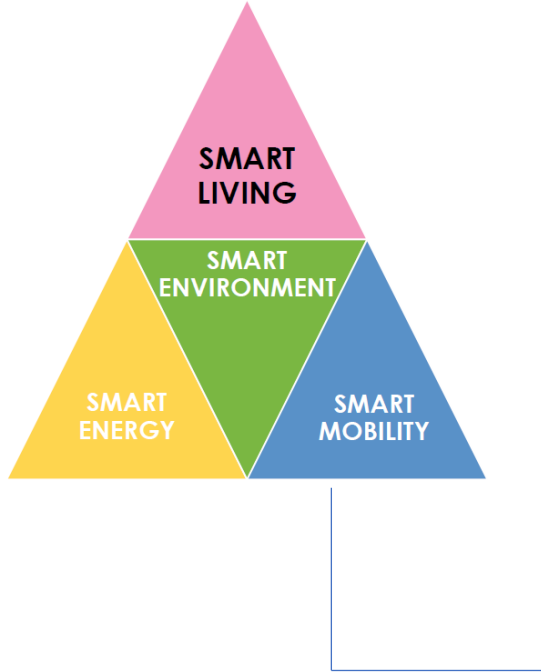
camera

(WiFi)

GPS



## Green and Sharing



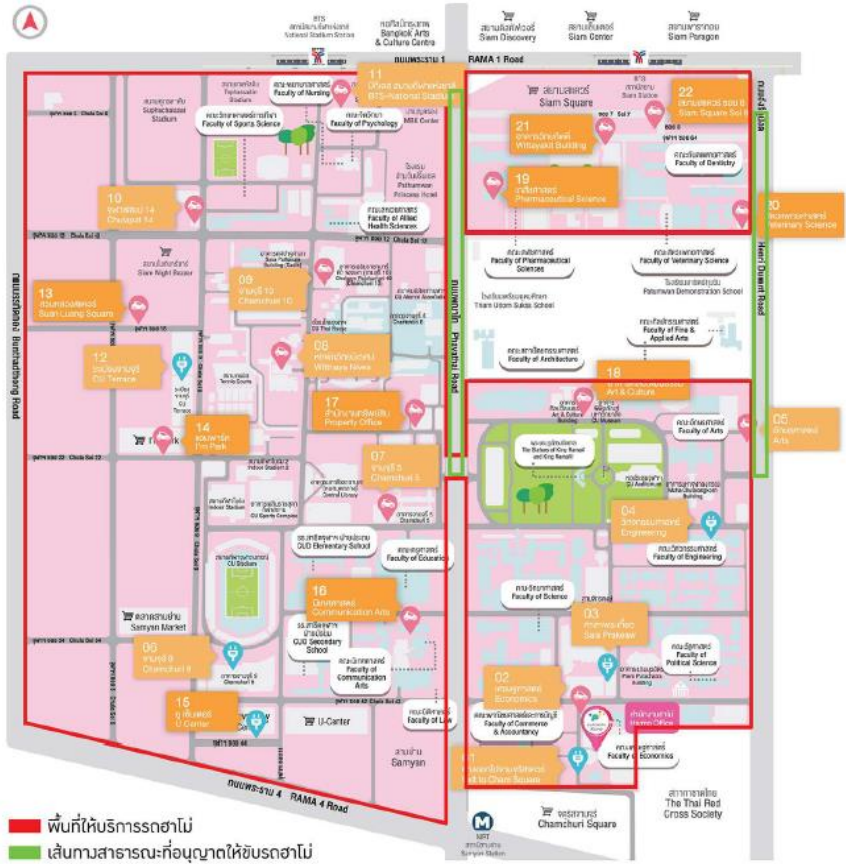




# Ha:mo

Car Sharing

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



พื้นที่ให้บริการรถฮาโม  
 เส้นทางการวิ่งที่อนุญาตให้ใช้รถฮาโม



A I

# Haup Car

Car Sharing

3 Cars  
2 Stops





# Accessibility



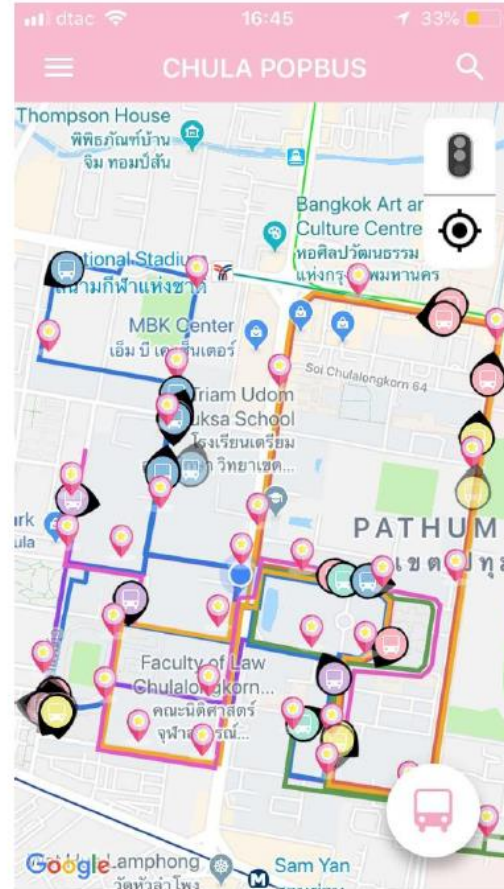
## CHULA POPBUS

28 Buses

Chula West  
Chula East  
Chula Hospital



# AGC





# Innovation

ACGI



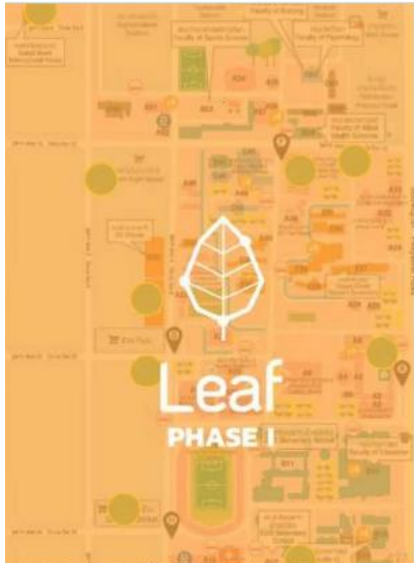
## MUVMi

EV Tuk Tuk Sharing

10 cars  
64 stops

Suanluan-Samyran  
Chula West  
Chula East  
Chula Hospital





# Leaf

E-Scooter Sharing

Test Run Phase  
**30 Scooters**  
**10 Stops**  
Suanluan-Samyam  
Chula West



# ACGI





# coBike

Dockless Bike Sharing

Test Run Phase

**20 Bikes**

**10 Stops**

Chula West

CU Terrace





# LILUNA

ประสบการณ์ใหม่ในการเดินทาง

ประหยัด  
พลังงาน  
ลดปัญหา  
รถติด

ประหยัดค่าเช่ารถ  
ค่าค่าน้ำมัน

สิ่งแวดล้อมในการเดินทาง

ประหยัดเงินในกระเป๋า



# Liluna

Car Pool  
Ride Sharing



#ChulaSharing

ร่วมเดินทางด้วยกันนะชาวจุฬาฯ



# LILUNA

ทางเดียวกัน ไปด้วยกัน ประหยัดค่าใช้จ่าย

## Less Traffic

ทางเดียวกัน  
ไปด้วยกัน  
ช่วยลดปัญหา  
รถติด

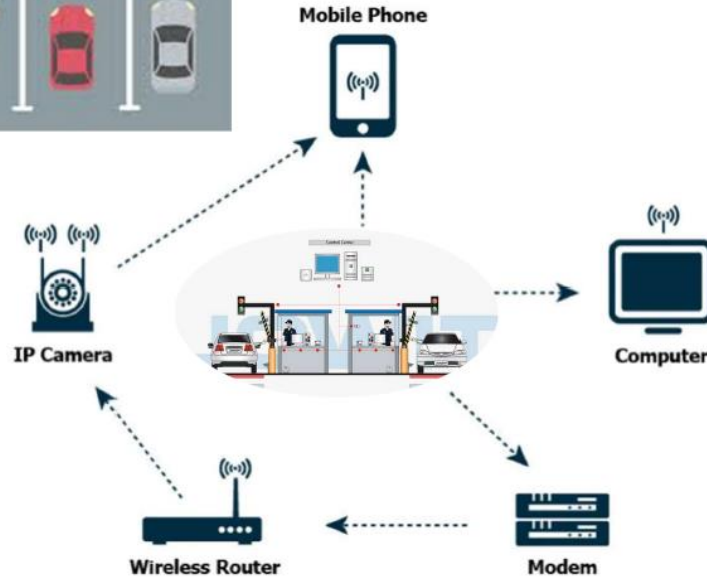
LILUNA

# ACI

## Convenience



## Smart Parking





# Key success of digital transformation

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



# Thank you

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