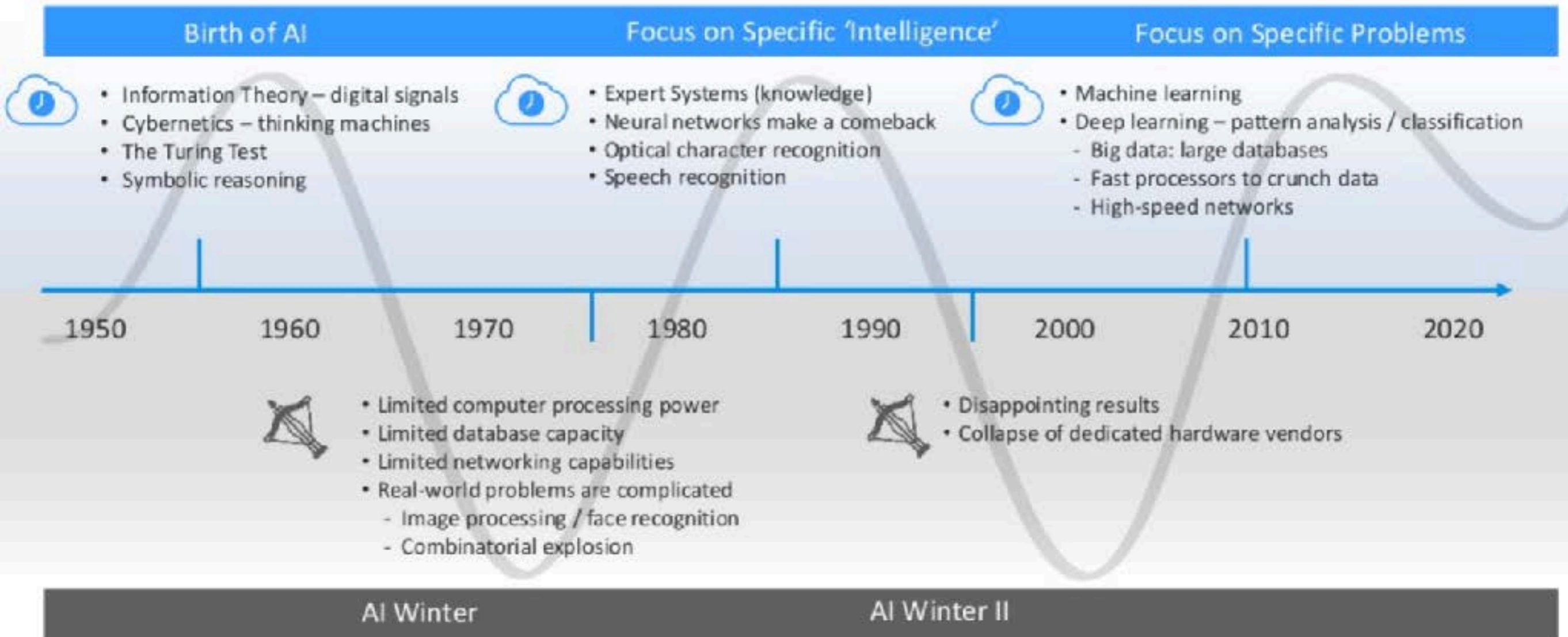


# Smart City and Smart Community : Korea's Approach and Experiences



# AI History



<https://www.slideshare.net/dlavenda/ai-and-productivity>

An aerial photograph of a city, likely Seoul, South Korea, viewed through a rain-streaked window. The rain is depicted as numerous white and grey droplets of varying sizes, creating a textured, blurred effect over the cityscape. The city buildings are visible in shades of brown, grey, and blue, with some lights glowing from the windows. The overall atmosphere is moody and atmospheric.

# Smart City Winter in Korea

# The Fourth Industrial Revolution

## & Smart Technology



World Economic Forum, 2016

### **First industrial revolution : 1760-1840**

- railroad, steam engine, mechanical production

### **Second industrial revolution : late 19c-early 20c**

- electricity, assembly line, mass production

### **Third industrial revolution : 1960s-1990s**

- semiconductor, computer, Internet, automate production

### **Fourth industrial revolution : now**

- fusion of technologies, blurring lines between physical, digital, and biological spheres

# Meanings of the Fourth Industrial Revolution

Connectivity  
Revolution

Intelligence  
Revolution

Platform  
Revolution

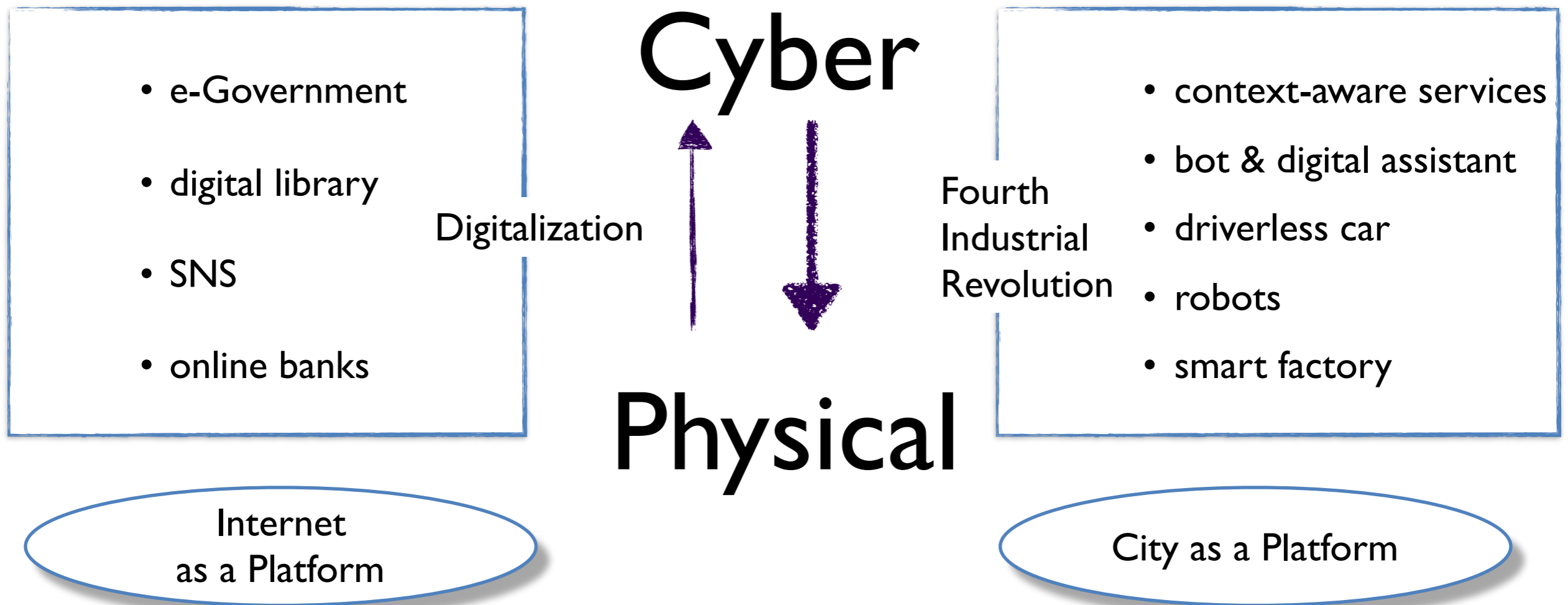
Social  
Revolution

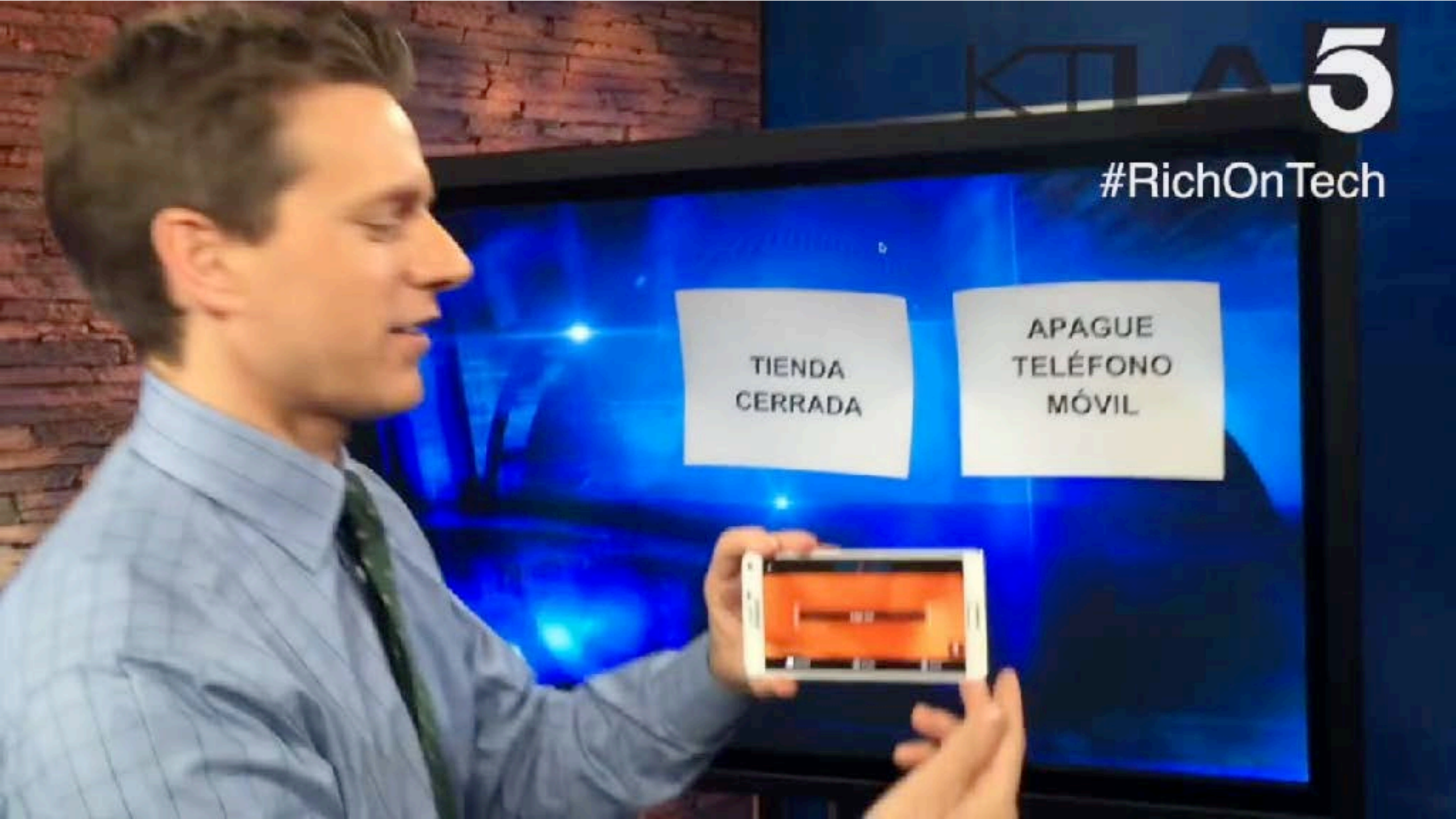
Internet of Things  
Internet of Service

Artificial Intelligence  
Robotics

Smart City  
Electric Car

Gig Economy  
Government 3.0





5

#RichOnTech

TIENDA  
CERRADA

APAGUE  
TELÉFONO  
MÓVIL

google translator

# Smart Technology in 2012



Ishikawa Watanabe Lab, 2012

# Smart Technology in 2017



# Why Data and Platform Matter?

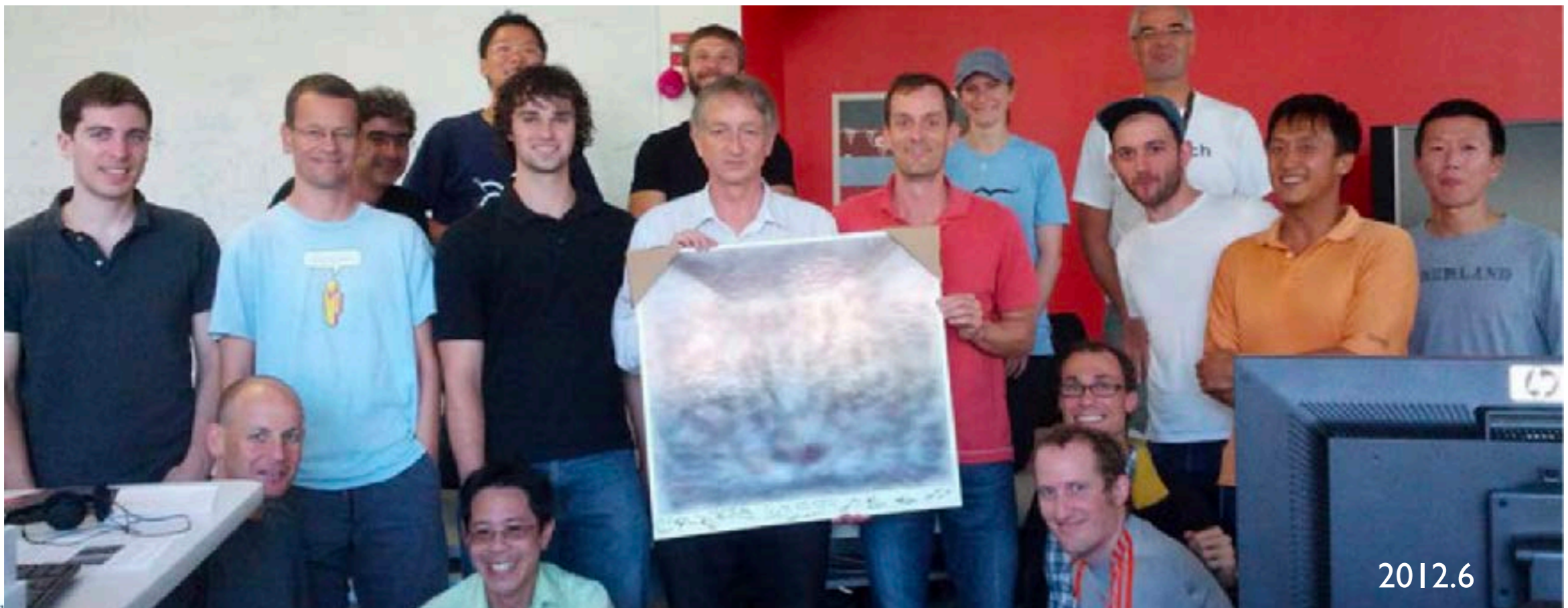
Why Data and Platform Matter?

Artificial Intelligence has suddenly leapfrogged





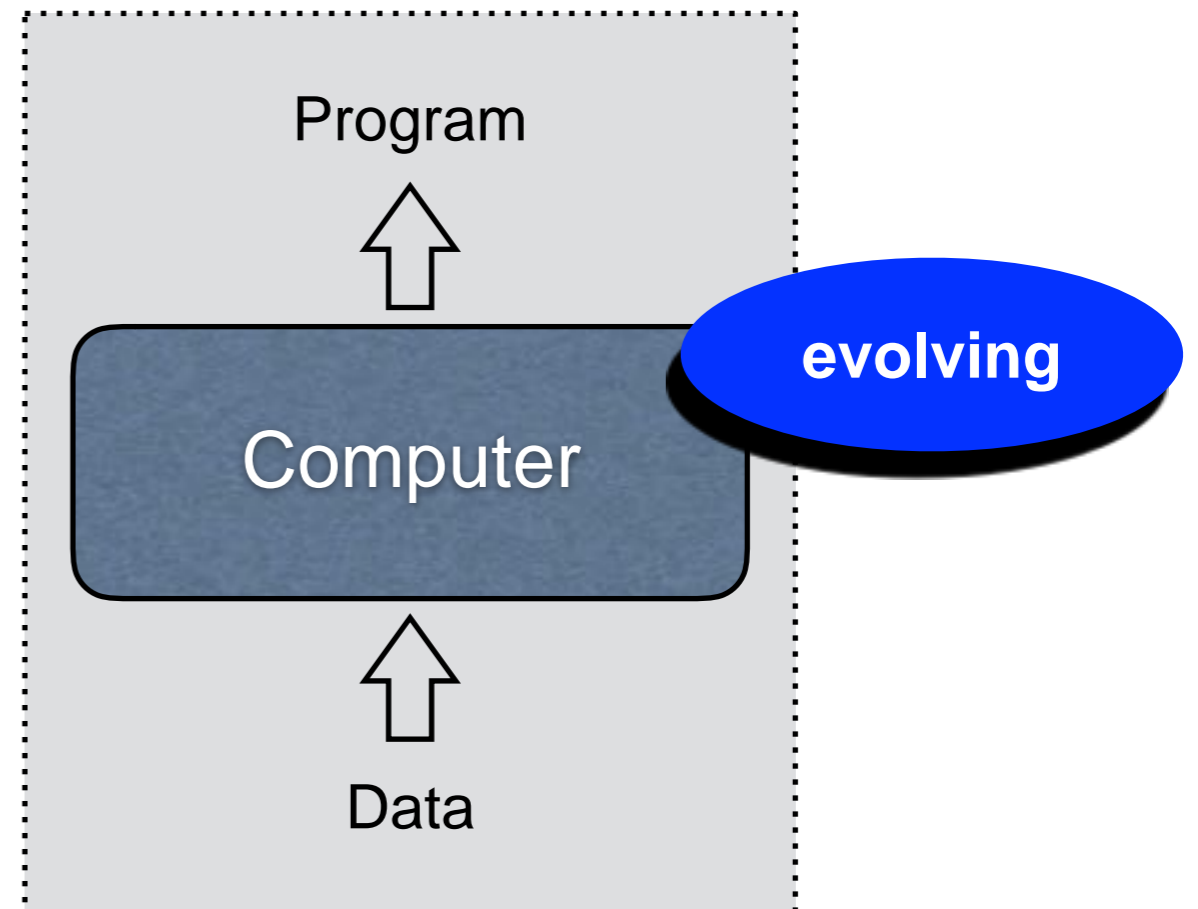
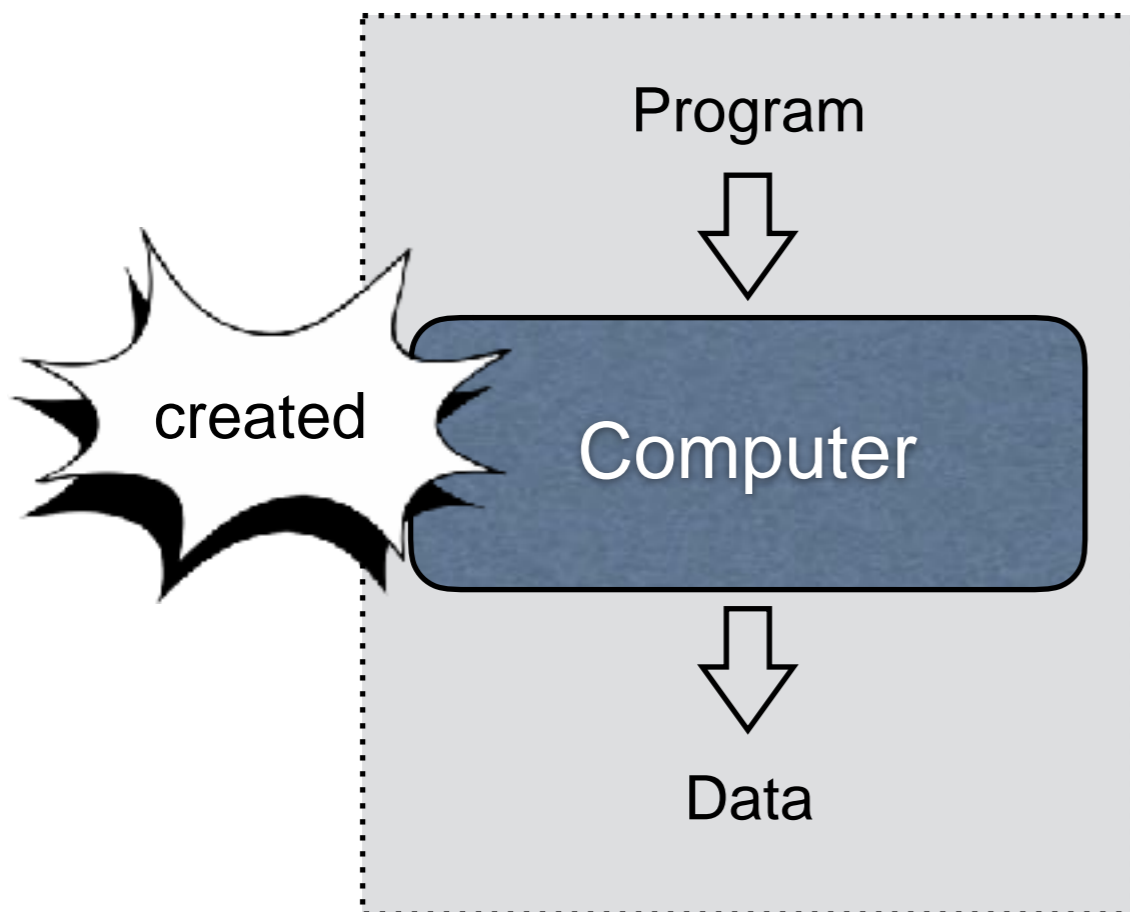
“Nobody taught a computer about a cat.  
However, a computer figured out what is  
a cat once we provided lots, lots of data  
about cat”



# Reasons behind such Sudden Progress

Past : Input from the top down

Now : Input from the bottom up

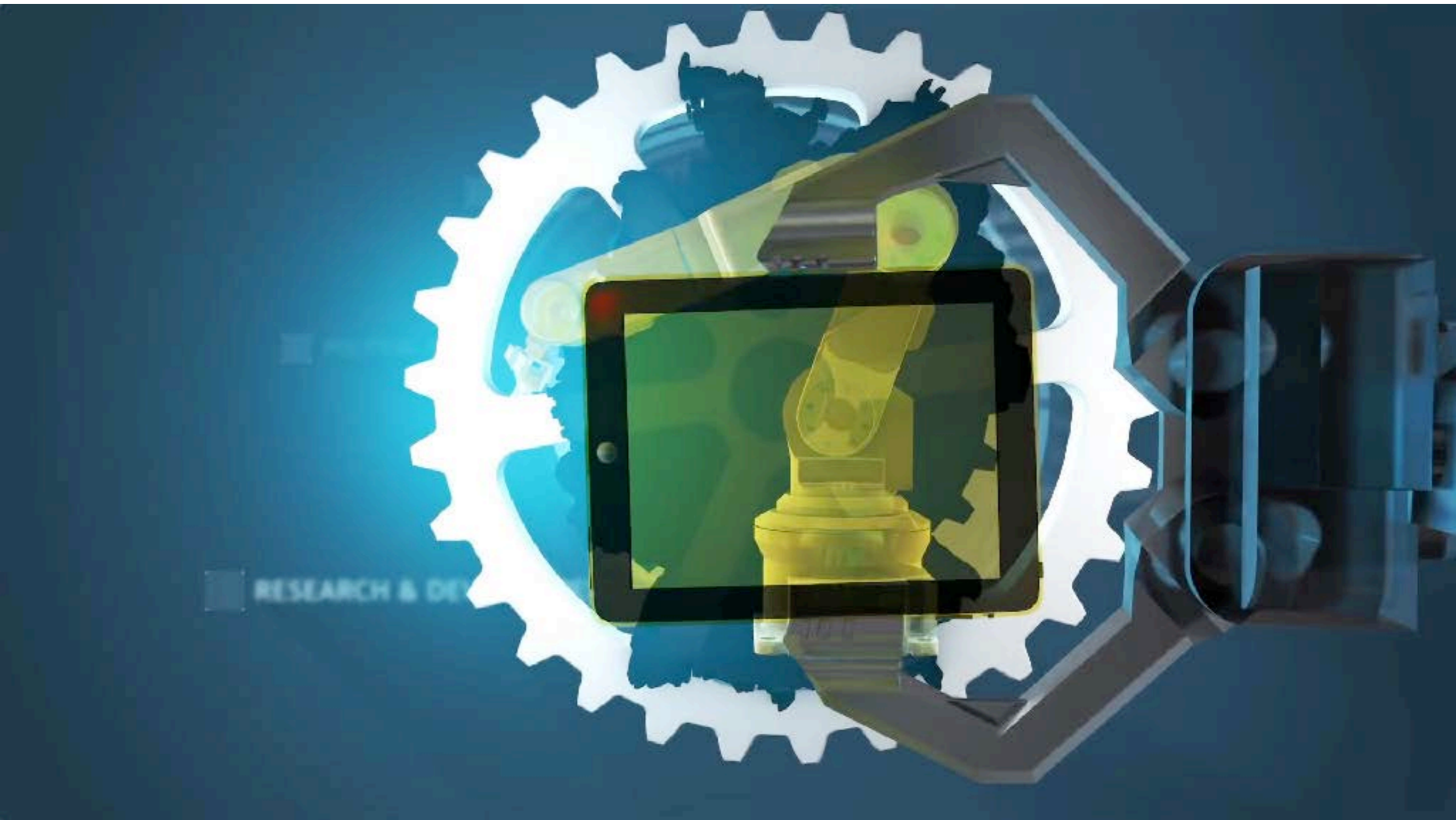


# Platform is key to AI



Two Workers - 2.5 hours - Ep2 1.5x

# Platform is Key to Smart Technology



RESEARCH & DEV

<b>Industrial Society</b>	<b>Information Society</b>	<b>Intelligent Society</b>
<ul style="list-style-type: none"> <li>• Production Capacity</li> <li>• Do Things</li> <li>• Machine + Energy</li> <li>• Physical Goods</li> </ul>	<ul style="list-style-type: none"> <li>• Information Capacity</li> <li>• Do Things Right</li> <li>• Computer + Internet</li> <li>• Digital Goods</li> </ul>	<ul style="list-style-type: none"> <li>• Decision-making Capacity</li> <li>• Do the Right Thing</li> <li>• Data + Algorithm</li> <li>• Knowledge Goods</li> </ul>

e-Government →

Smart  
Government

Do Things Right

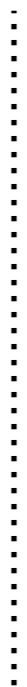
process innovation

network organisation

Do the Right Thing

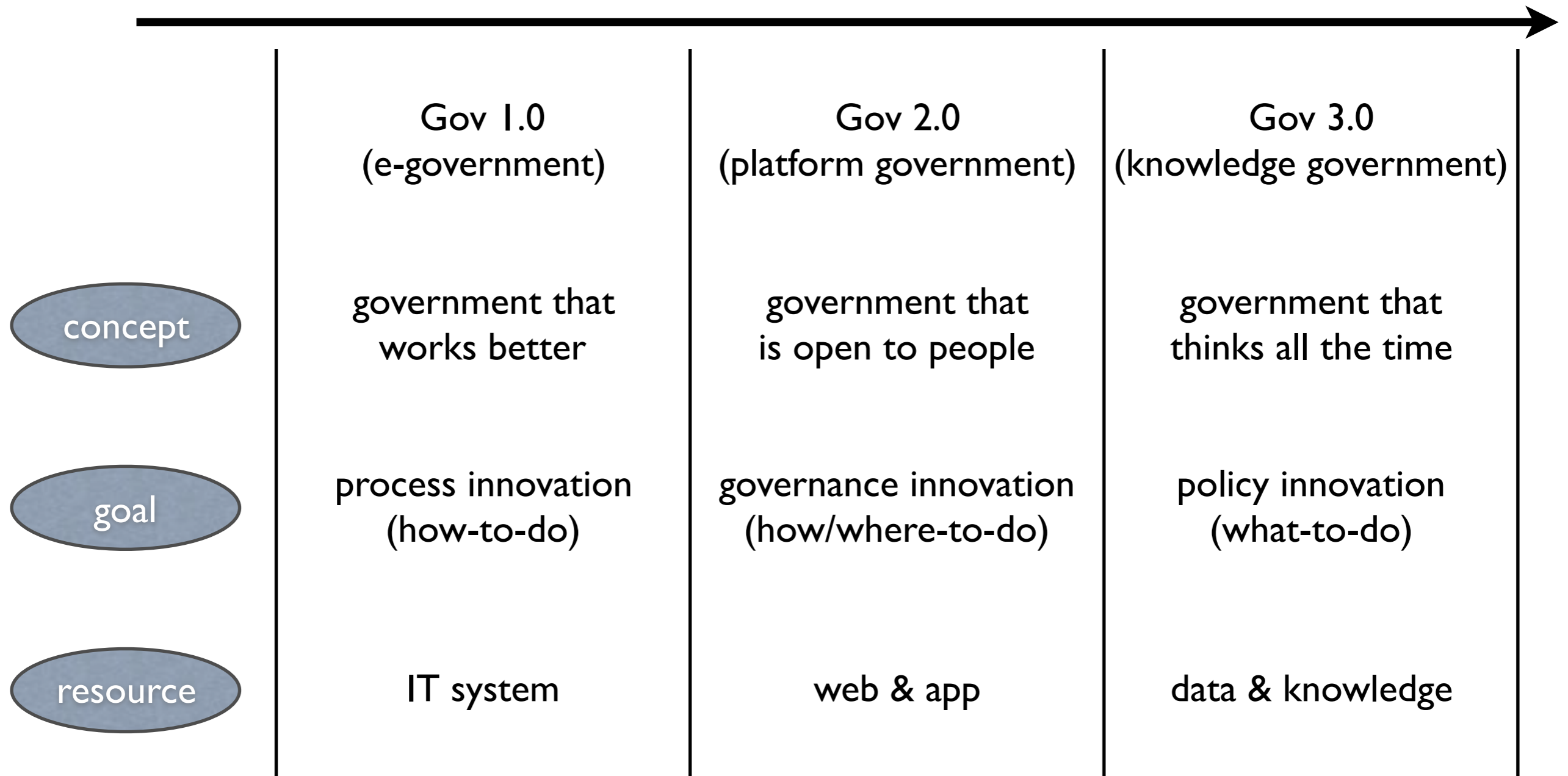
policy innovation

platform organization



# Government 3.0

The Korean government launched the Gov3.0 initiatives in 2013



# Government 3.0

GOVERNMENT 3.0

searching for a new relationship between government and citizen

# Gov3.0 paradigm

- Data-driven Government
- Open Government
- Whole-of-Government
- People-Centric Service

버스 확대 운행

을지로1가 Euljiro 1(il)-ga  
신촌로터리 Shinchon Rotary  
세종대로사거리 Sejong-daero Sagi  
안국동사거리 Angukdong Jct

N26 망우 방화동  
심야버스 사거리

Big Data for Midnight Bus Route Planning in 2013, Seoul

중량차금지

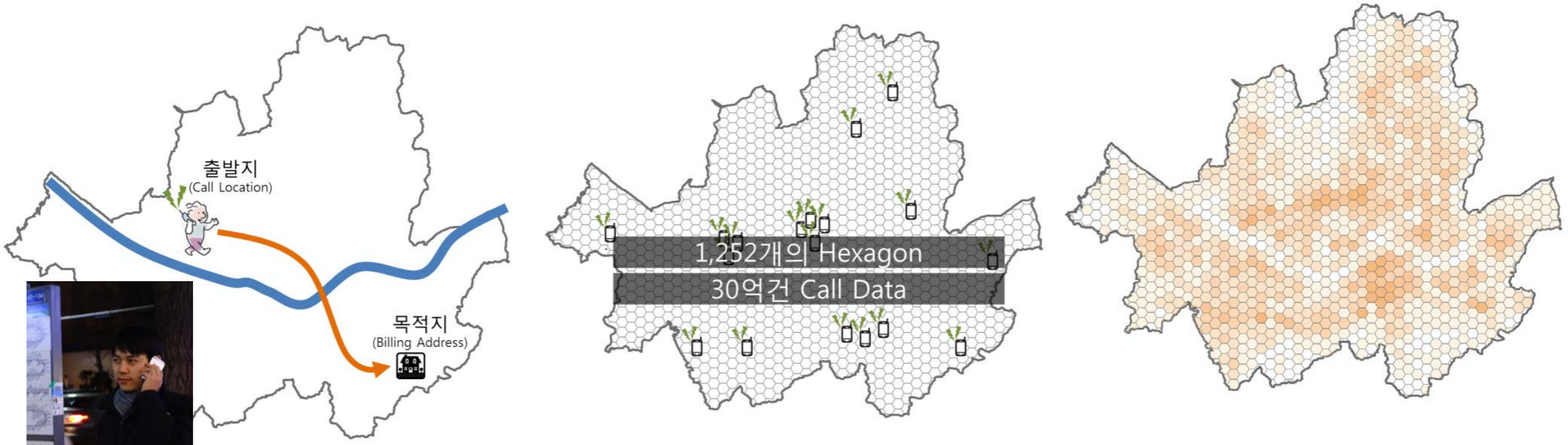
N26

《N26번 심야권물버스 개통》

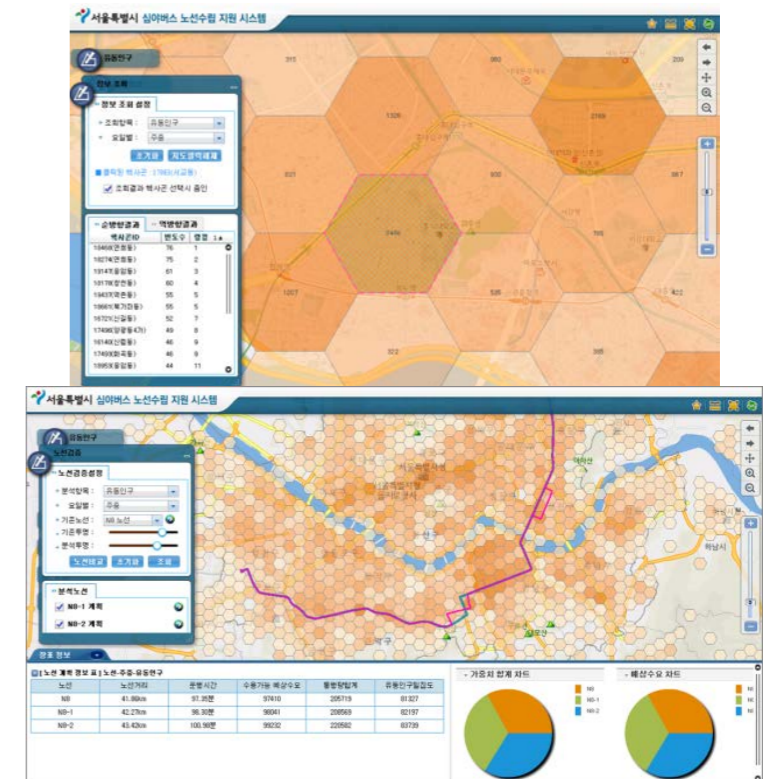
CNG

시도 74 시 9522

# Midnight-bus lines were designed based on big data analysis

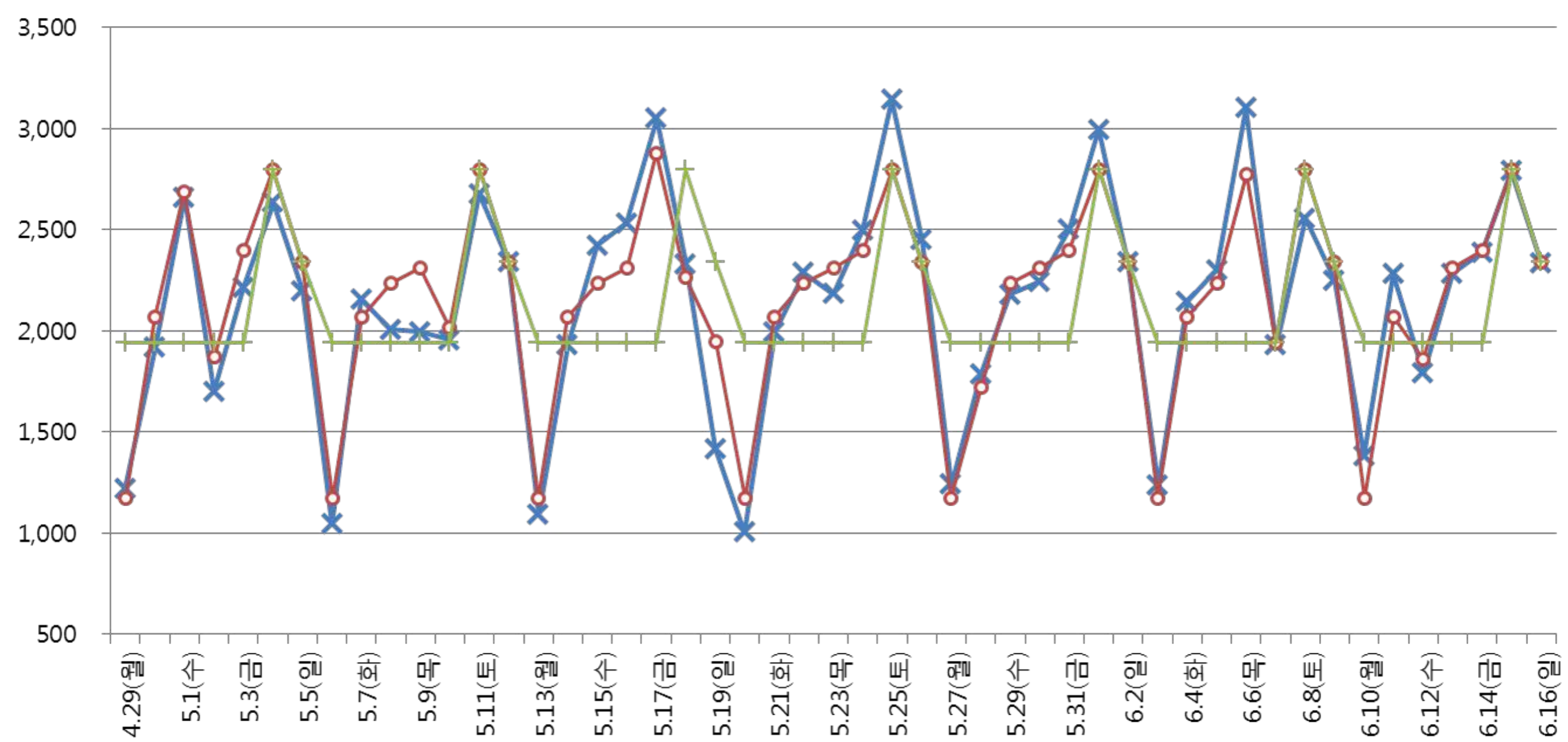


## Analyse 3 billion Call Data



# Accuracy of Midnight-Bus Passenger Prediction

✕ Real   
 ○ Adjusted Prediction   
 + Original Prediction



# Gov3.0

- Data-driven Government
- **Open Government**
- Whole-of-Government
- People-Centric Service



 Building



 Traffic Accident



 Health



 Local Business



 Marine



 Water



 Agriculture Price



 Mountain



 Real Estate



 Public Finance



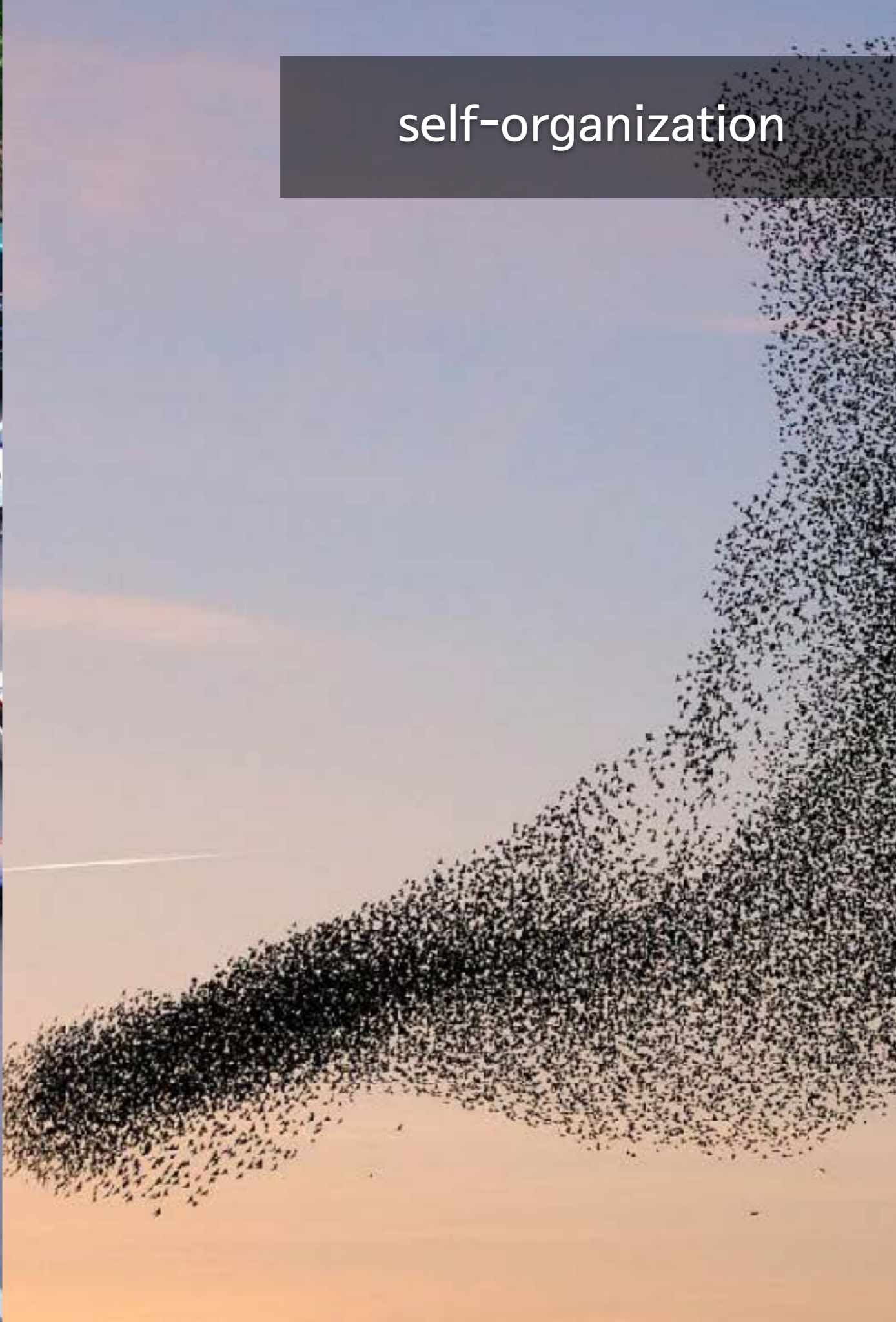
 Local Administration

Focus on opening 36 key public data

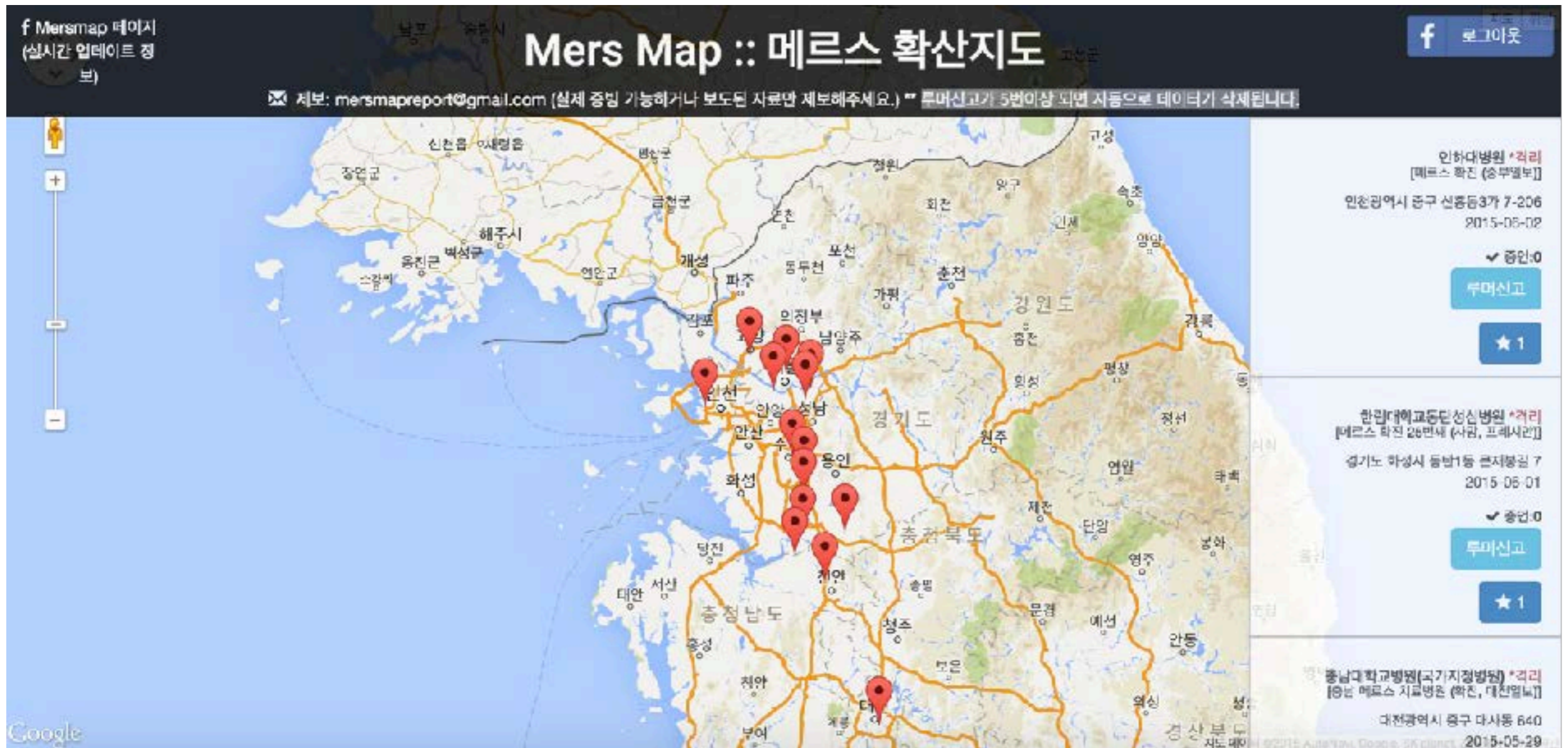
command & control



self-organization



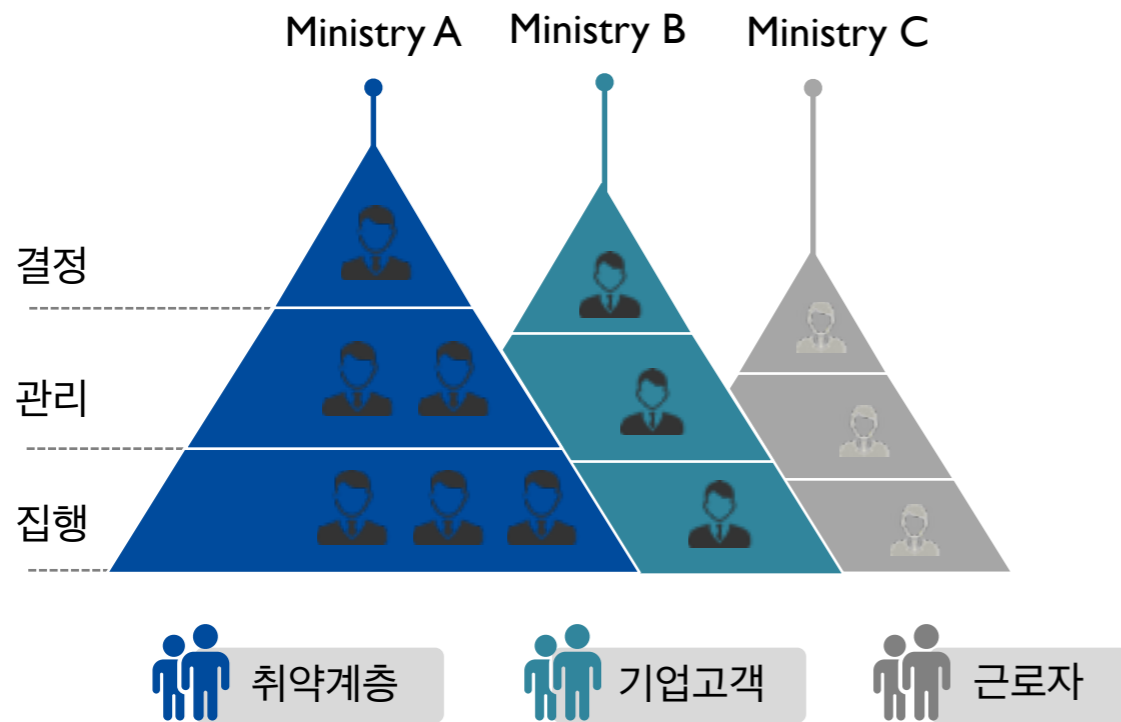
# Open data is not just for transparency, but also for problem solving



# Gov3.0

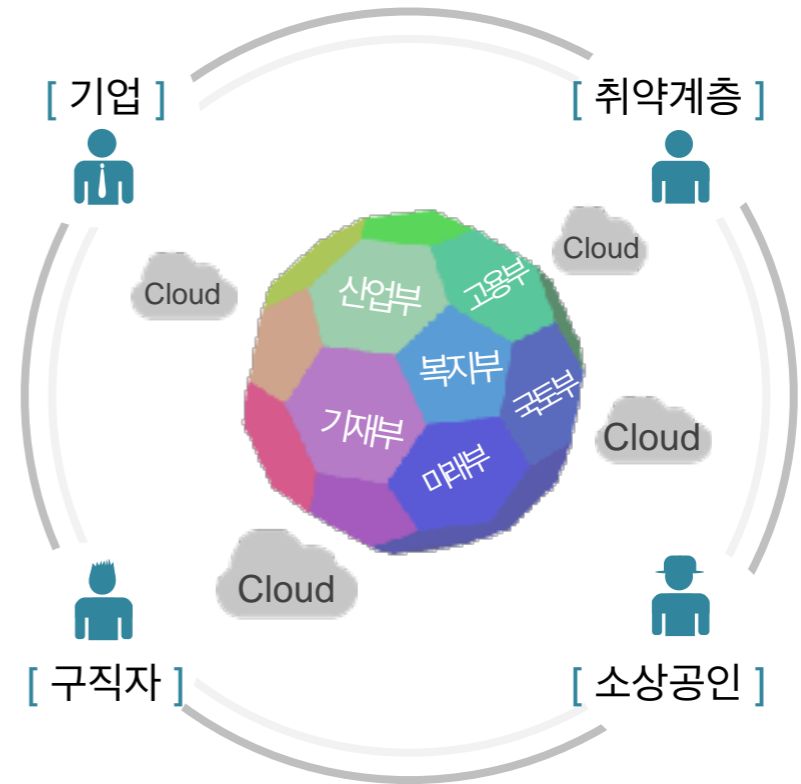
- Data-driven Government
- Open Government
- **Whole-of-Government**
- People-Centric Service

## Current Government



<p><b>"일방향적" 서비스</b></p> <p>정부서비스는 이용하기가 어려워요</p>	<p><b>"일선기관만" 국민과 접점</b></p> <p>여러 부처에 가야해서 불편합니다</p>	<p><b>"계층적 · 경쟁적" 사일로</b></p> <p>부처 간에는 협업이 잘 안됩니다</p>
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## Future Government

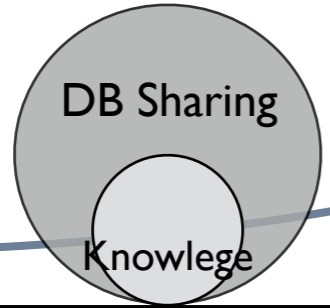
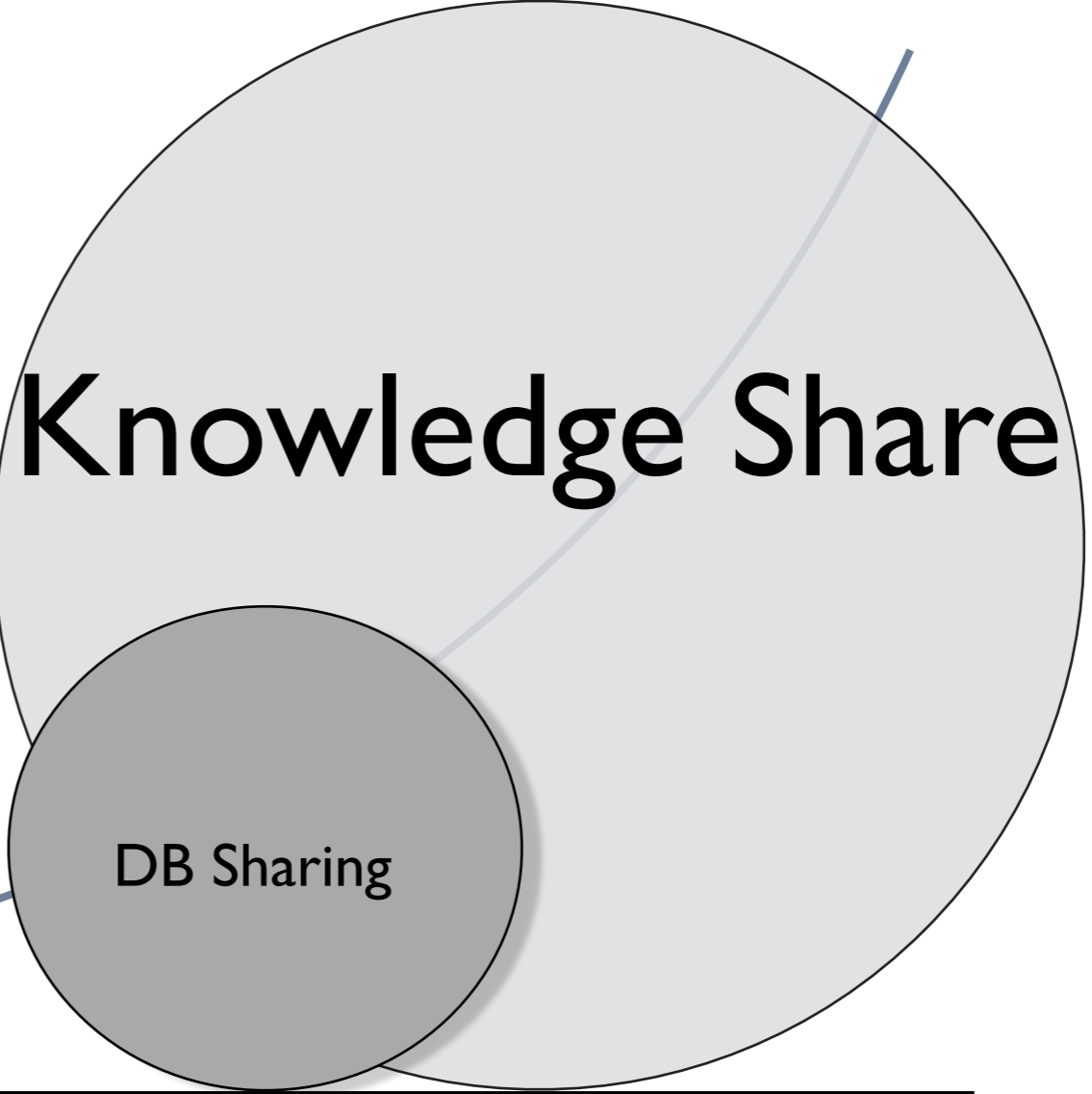


<p><b>"양방향적" 서비스</b></p> <p>정부가 알아서 서비스를 제공해주네요</p>	<p><b>국민과 "다양한 접점"</b></p> <p>한번에 일이 해결되니 좋아요</p>	<p><b>"수평 · 협력적" 매트릭스</b></p> <p>타 부처가 도와줘서 일할 맛 납니다</p>
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One Government

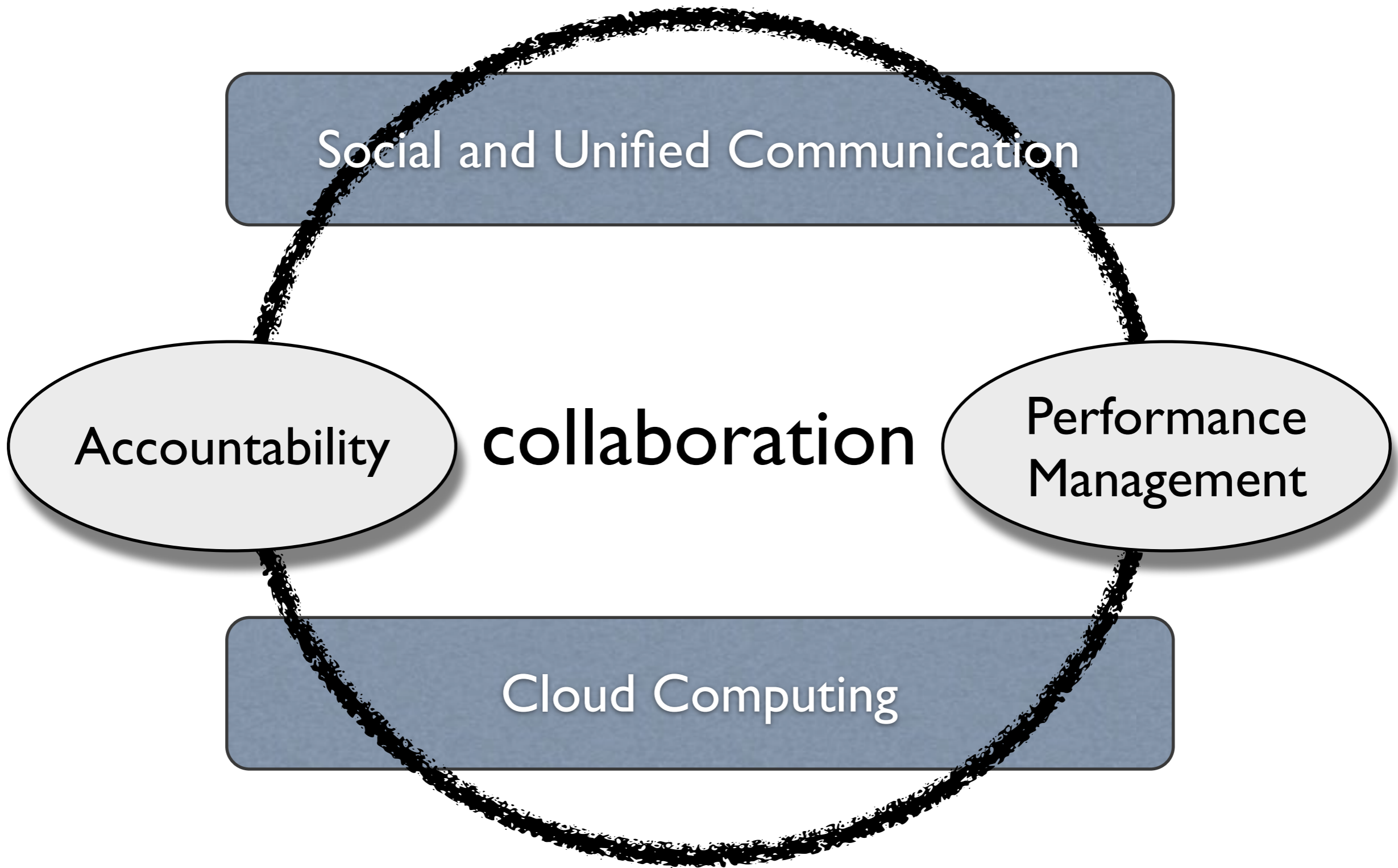


Platform Government



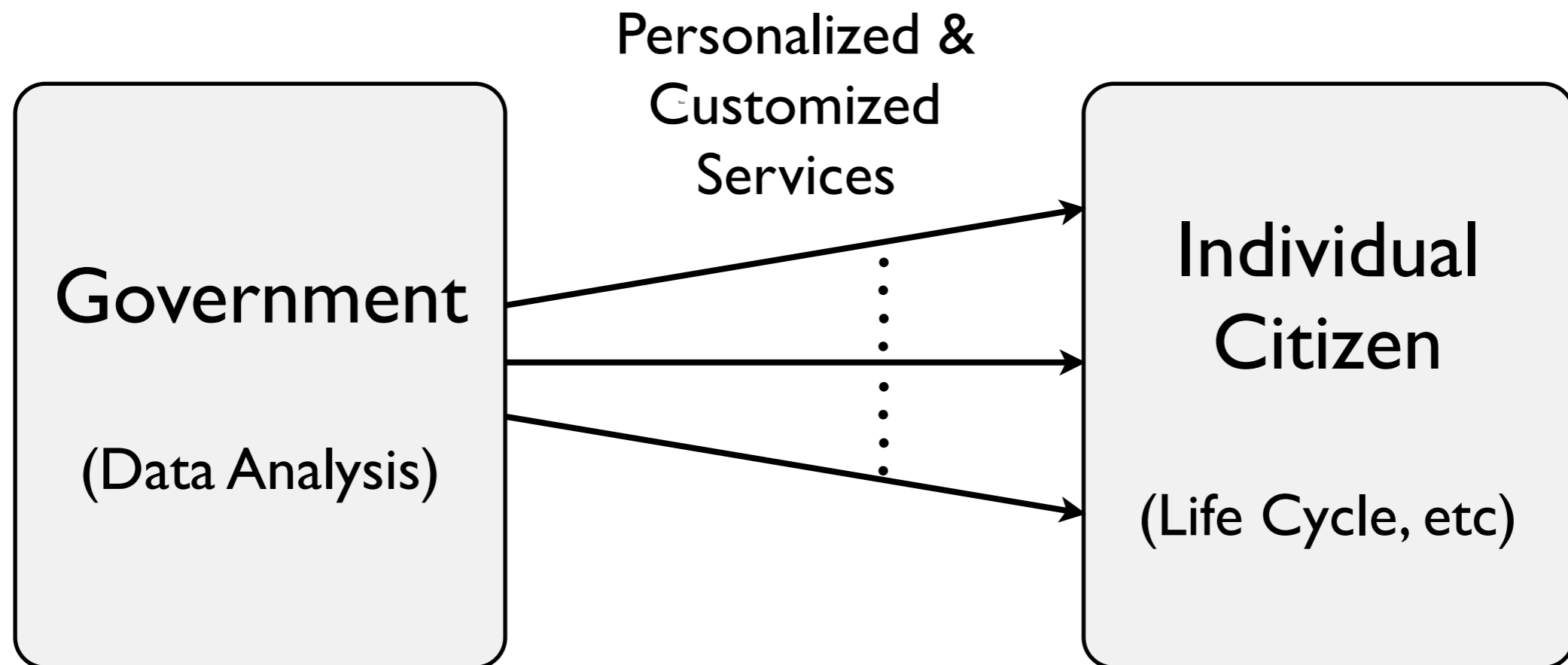
PC based

Cloud based



# Gov3.0

- Data-driven Government
- Open Government
- Whole-of-Government
- **People-Centric Service**



Personalization : services based on citizen attributes and needs  
Customization : ability of citizen to modify government services

# Income Tax Return

국민연금공단 (N) 개인정보 (P) 보기 (V) 즐겨찾기 (A) ...

HOME My NTS 시험2조님 TEST0002 ...

Home Tax, 국세청홈택스

조회/발급 민원증명 신청/제출 신고/납부 상담/재보

편리한 연말정산

근로소득자 소득·세액공제 내역조회

조회한 항목 한번에 내려받기 조회한 항목 한번에 인쇄하기

귀속년도 2015년 전체선택 선택해제

1월	2월	3월	4월	5월	6월
7월	8월	9월	10월	11월	12월

국민연금수급

국민연금	의료비	교육비	신용카드	주택자금	연금환수금
4,208,544	933,600	2,188,000	5,159,164	16,468,340	2,678,500

Citizen ← Government

Review Report

12

귀속년도 2015년 가입자 시험2조(590608-\*\*\*\*\*)

공제계약번호 또는 증서번호 FF28B278997E3209F2AD1CD71C78A96A

대상기간 2015-01-01~2015-12-31

월	납입일자	납입금액	월	납입일자	납입금액
01월	2015-01-23	250,000	07월	2015-07-23	250,000
02월	2015-02-25	250,000	08월	2015-08-23	250,000
03월	2015-03-25	250,000	09월	2015-09-23	250,000

공제대상자: 중소기업/소상공인 공제대상자(사업소득자)

공제대상금액: 연간 불입액

공제한도: 연 300만원

이용 시 유의사항(대표적인 사례 배시)

# Smart City

Smart City

# Smart City 1.0

Digital,  
Amsterdam  
(1994)

<Key Technology>

Internet



# Smart City 2.0

Songdo Incheon  
Busan  
(2004)

<Key Technology>

Sensor  
+  
Internet



# Smart City 3.0

Smart City  
After 2012

<Key Technology>

Big Data  
+  
Sensor  
+  
Internet



Yinchuan, China

# 스마트시티 4.0

Singapore(2015)  
 Pittsburgh  
 Colombus(2016)

<Key Technology>

AI/Robot  
 +  
 Big Data  
 +  
 Sensor  
 +  
 Internet



# Smart City Key Components

Smart  
Technology + Innovation + Citizen

# Smart city is

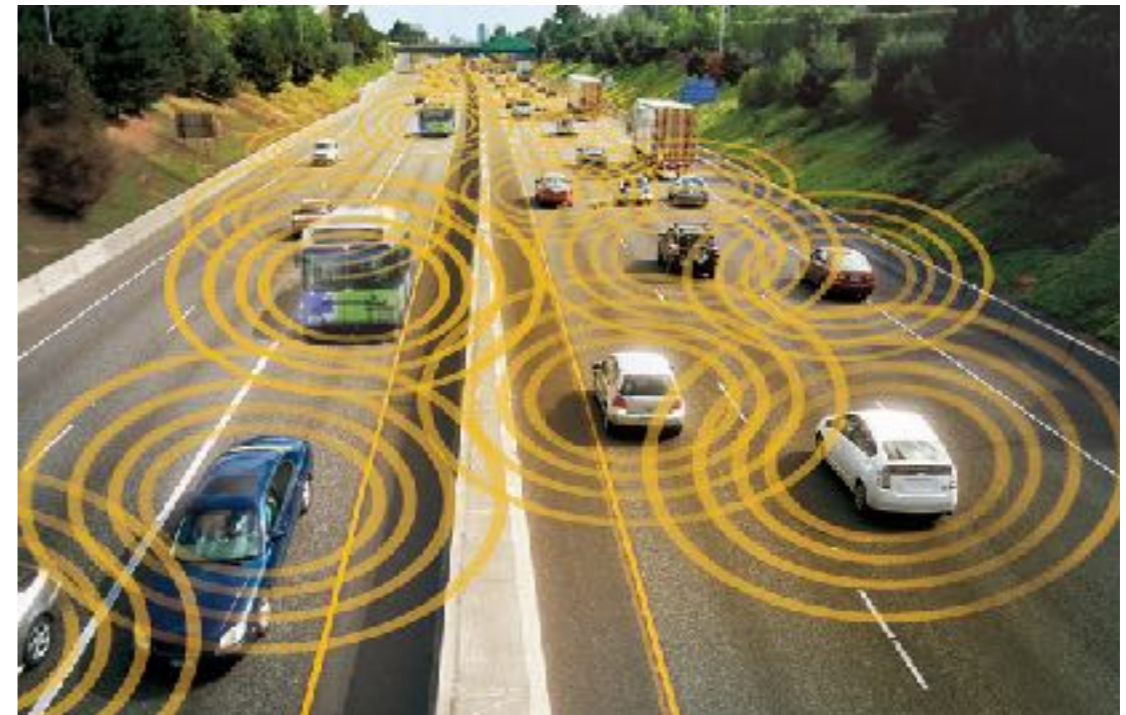
## Organic City

where city and all its parts are connected and exchange impacts each other



## Self-organizing City

where citizen and machines are able to solve city problems and create order without central control



# Smart city is

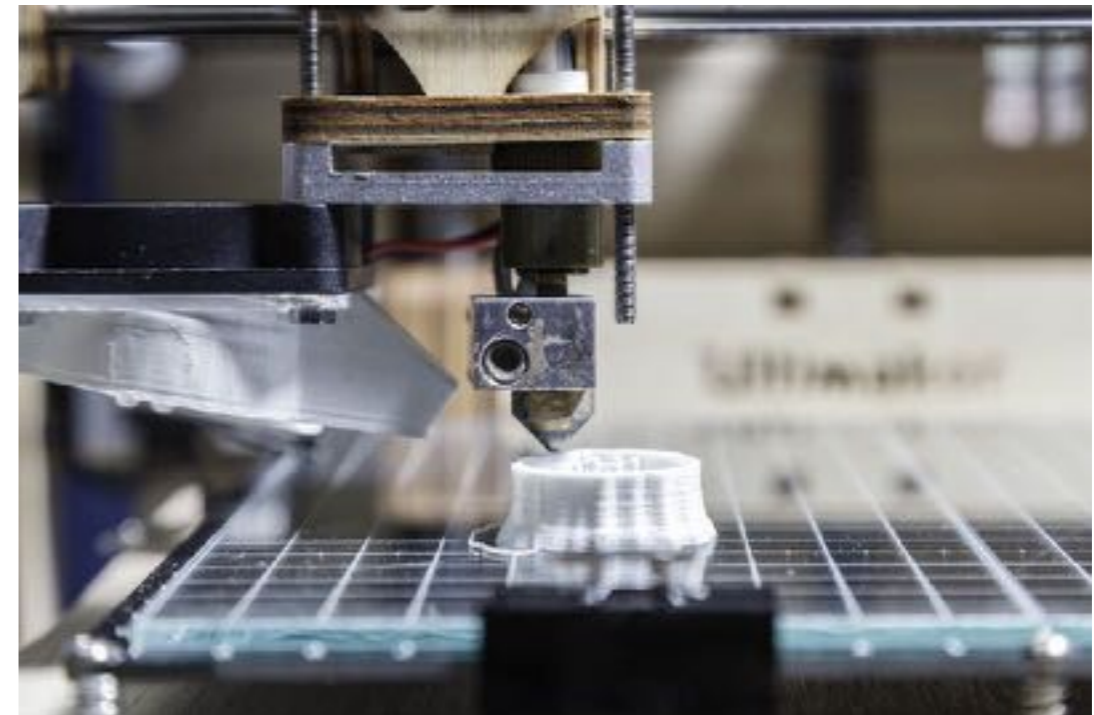
## Mixed Reality City

where physical and virtual spaces are merged and physical aspects will not be so decisive



## 3D City (additive city)

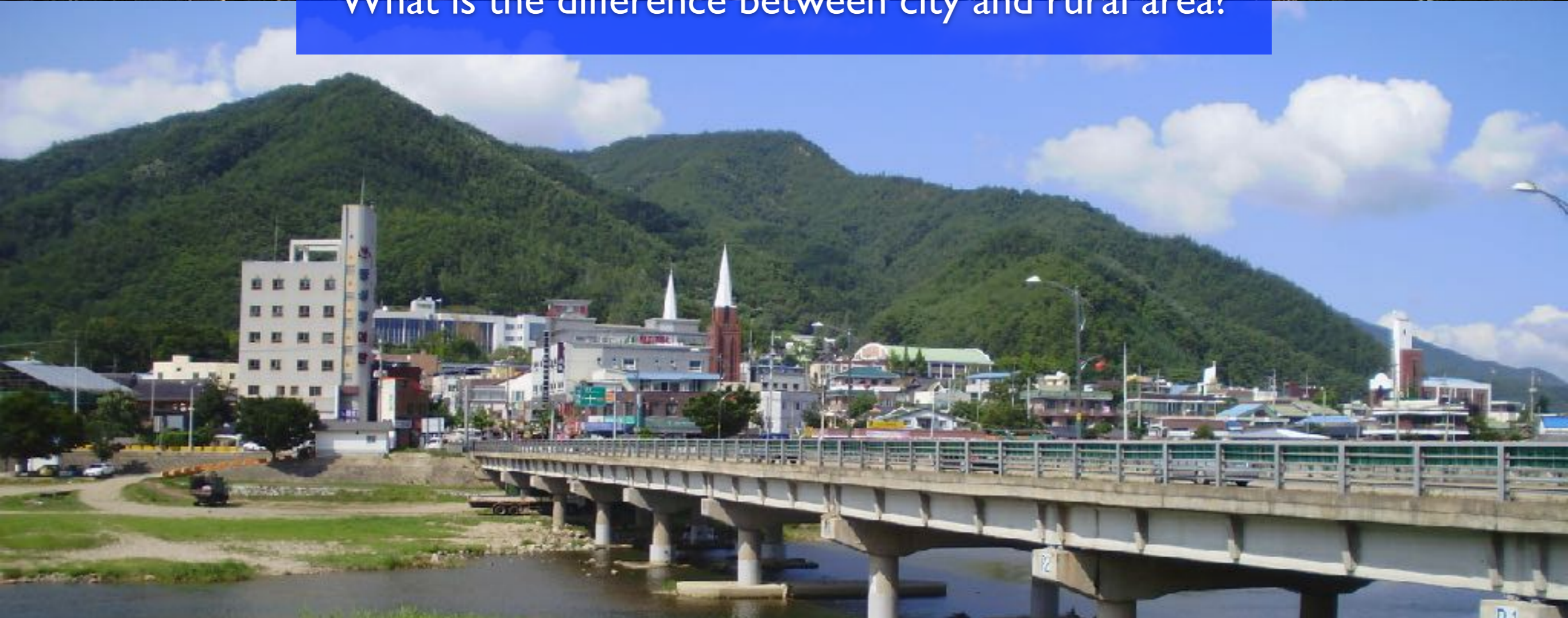
where new functions and services can be virtually added based on city platforms without structural changes



**Smart City is not a product!**



What is the difference between city and rural area?

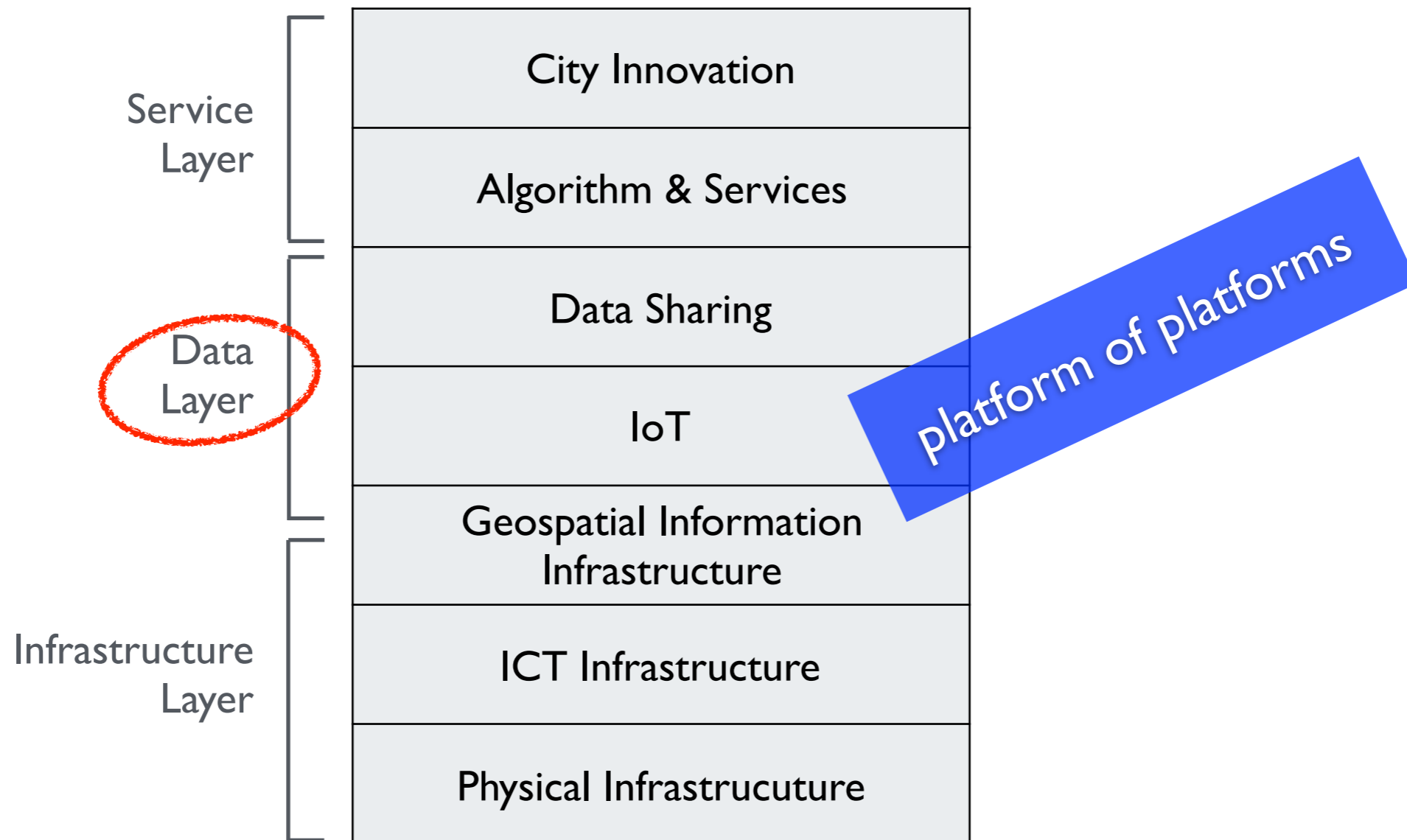


Cities  
with  
Platform

vs

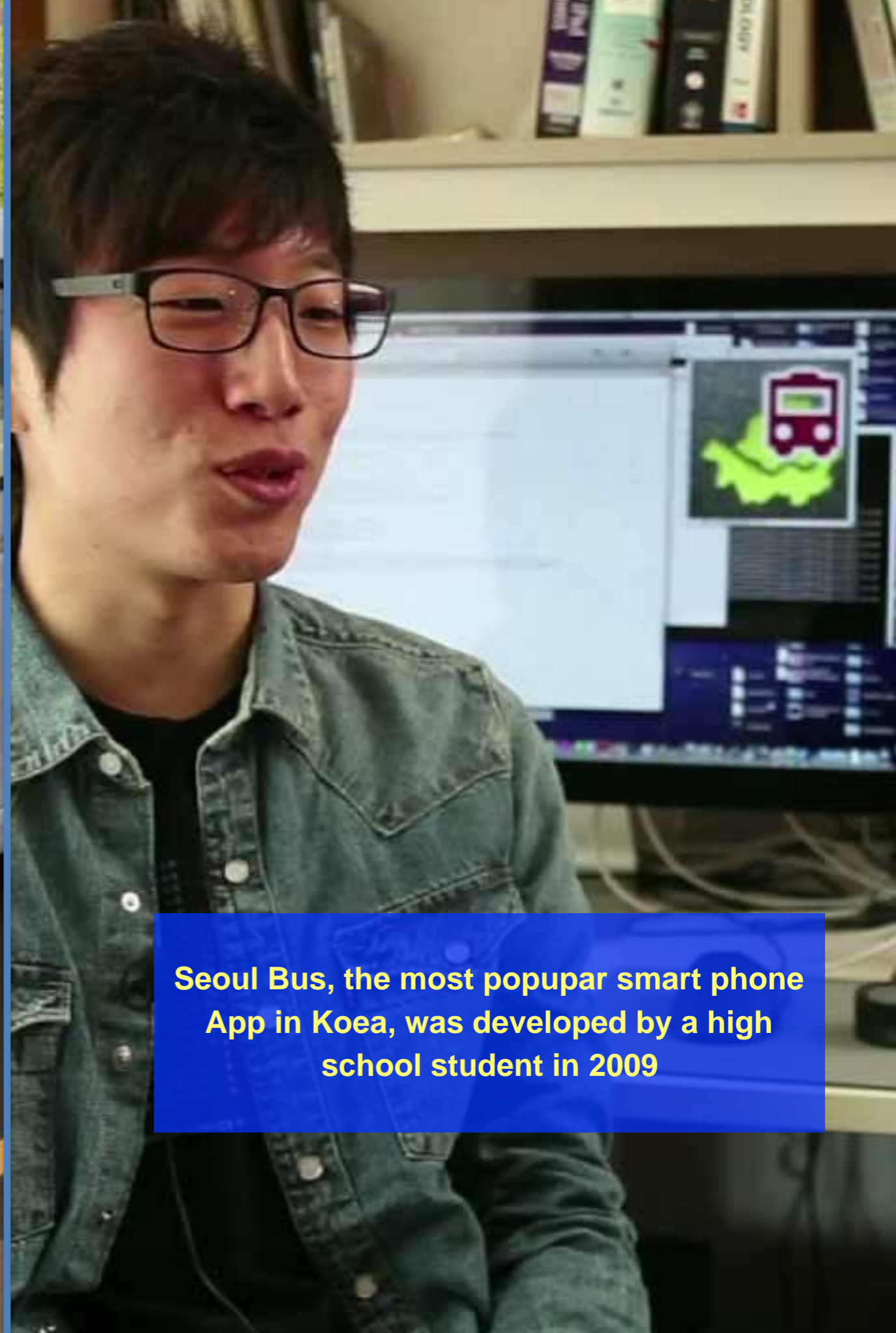
Cities  
without  
Platform

# Smart City Platform





**“Self-driving cars probably won’t operate where you live, unless you’re the denizen of a very particular neighborhood in a big city like San Francisco, New York, or Phoenix”Wired(2018.1.3)**



**Seoul Bus, the most popular smart phone App in Korea, was developed by a high school student in 2009**

# Korea's Experience and Lessons for Smart City

Korea's Experience and Lessons for Smart City

## 46 u-Cities in total (as of 2016)

u-pilot city	14 cities (2009~2013)
u-city plan	25 cities (2009~2015)
u-city construction	37 cities (2004~ )
u-city platform	4 cities (2015~ )

# Ansan u-City Center

안산 U-City 통합관제센터



“Show Me”

Supply-driven

Easy Choices

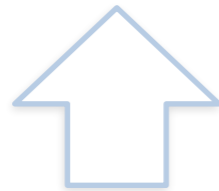
Technology First

Commercial Projects

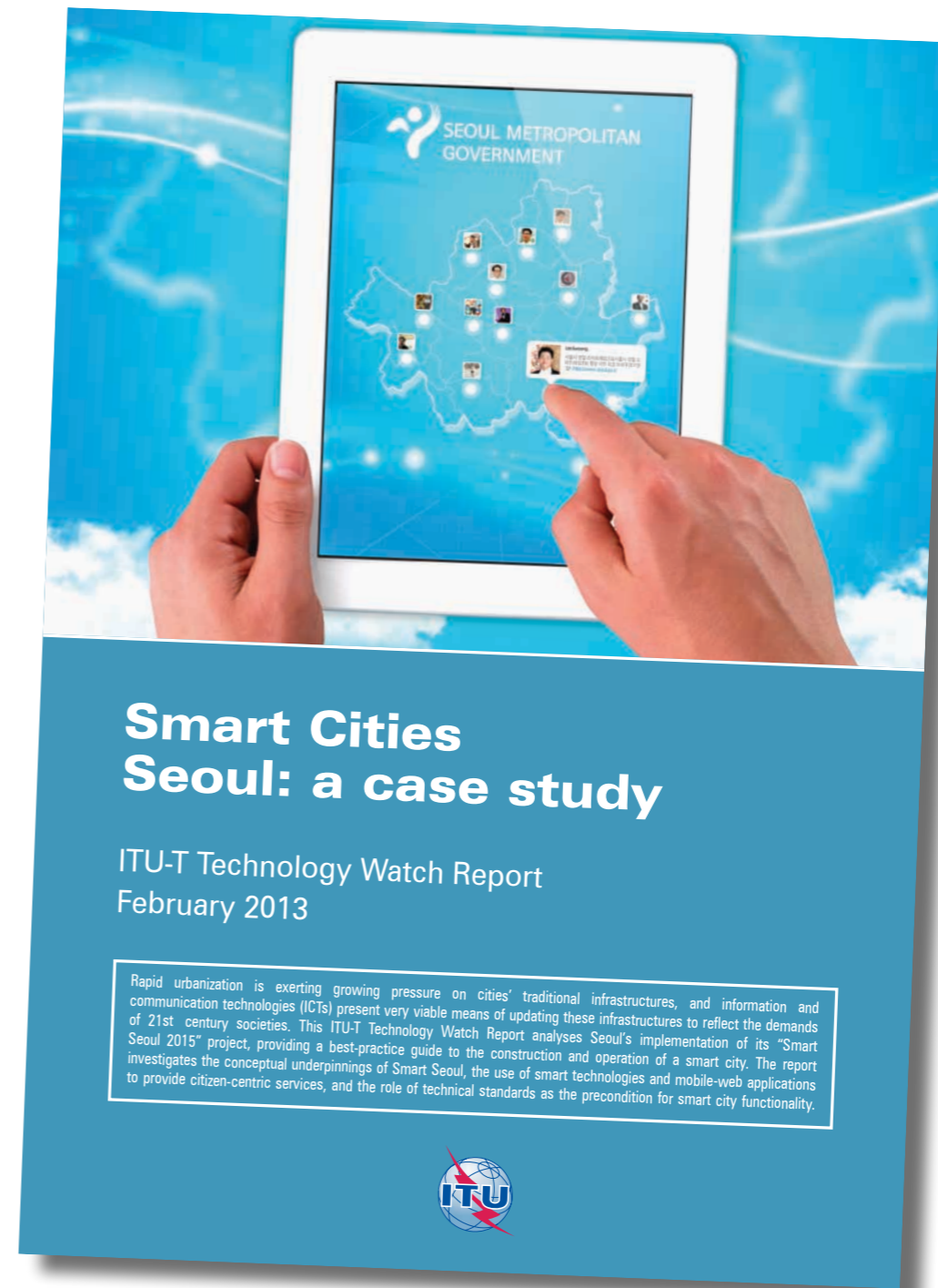
2016, Digital Seoul 2020



2011, Smart Seoul 2015



2004, u-City



Seoul is one of the best smart city in the world

NIA



# Toward Smart Community

Toward Smart Community



Richard Baldwin

“Cities are to the twenty-first century what factories were to the twentieth century.

Urban policy will be the new industrial policy”

“if there is something like a factory this is now the big city where talents, ideas, and services can be combined”

from *Factory Free Economy*(2017)

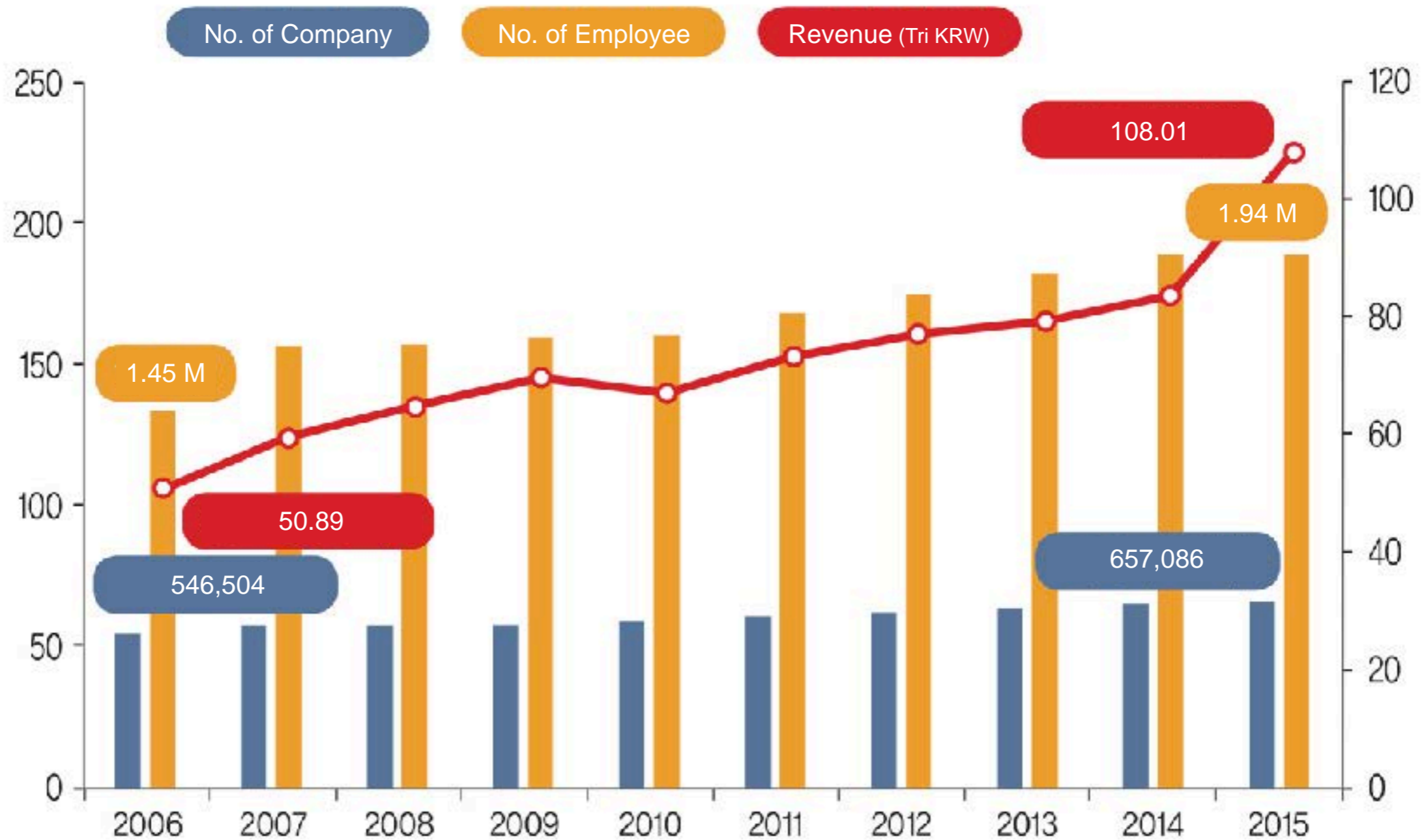
In the past,  
city support  
factories



In the future,  
city will create  
more value than  
factories



## Growth of Food Service Industry in Korea



# Citizen in Smart City?



**VS**



# Traditional Community



Street festival as social innovation, Samdeok Town, 2014

DR. BLAŽ KRIŽNIK | HANYANG URBAN FORUM

SOURCE: SHARING FOR FUTURE, S.M. 2017

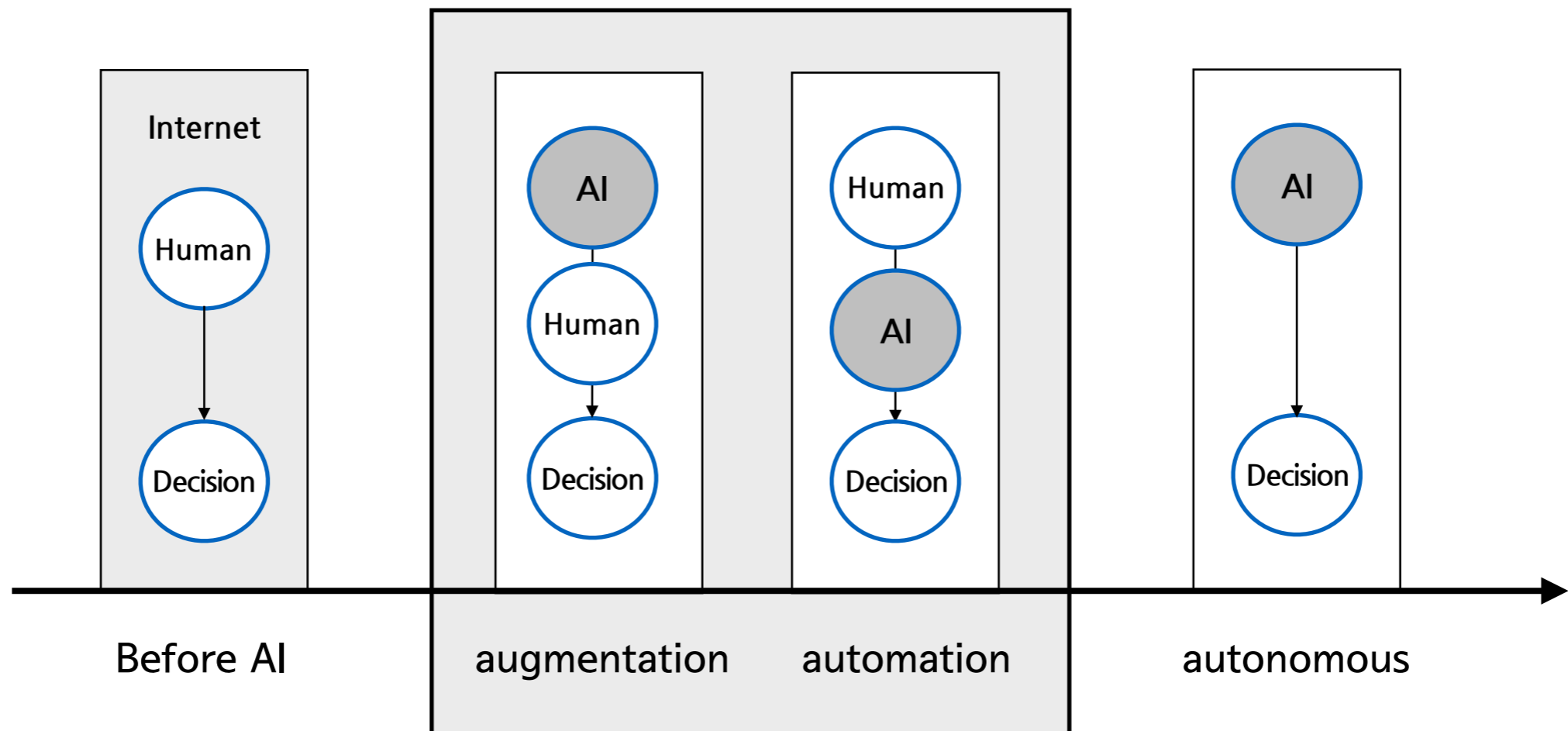
# Community for Mind



TEMPLESTAY

# Wisdom vs Intelligence

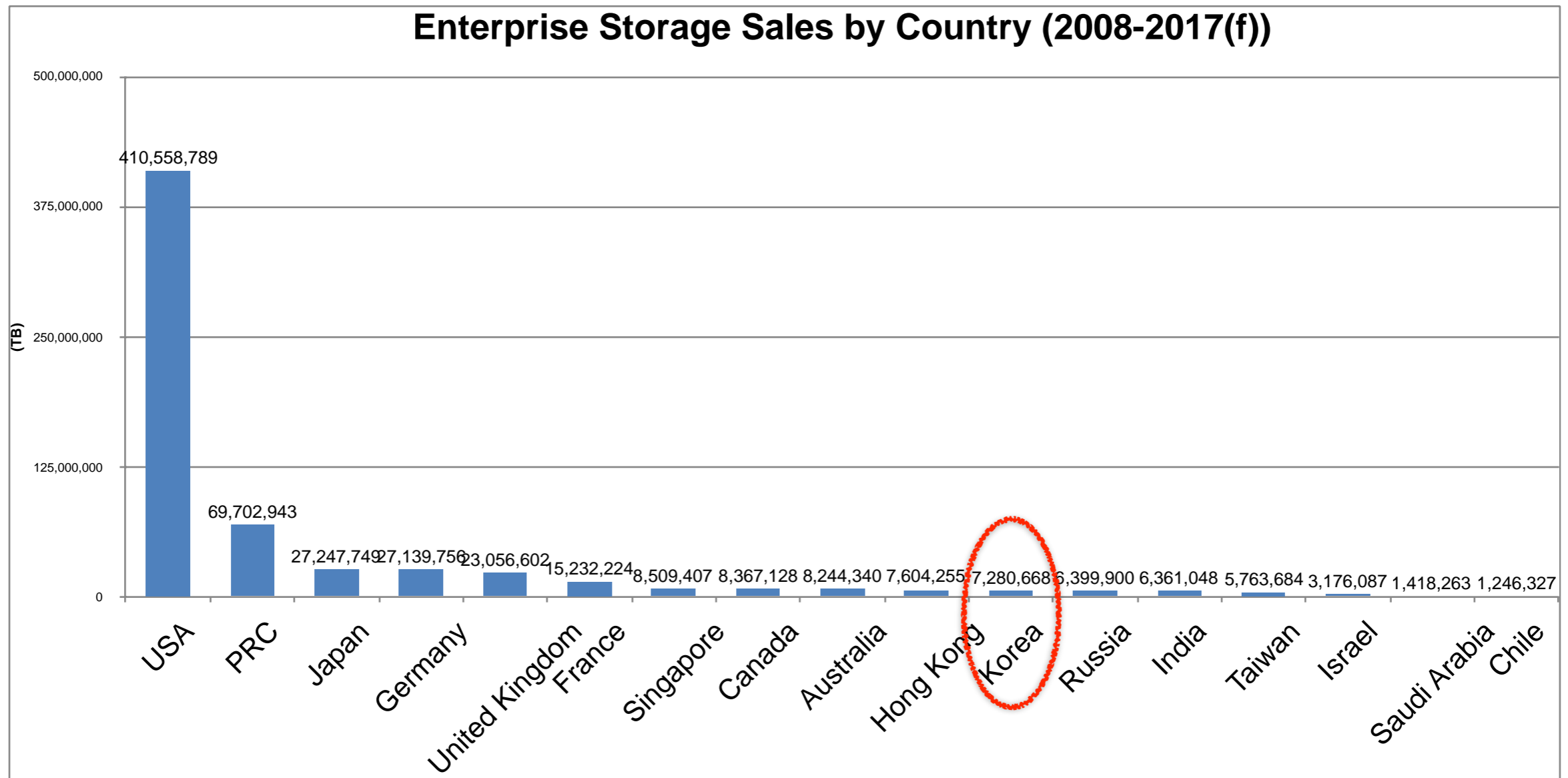
# Human-AI Relationships



# Policy Issues

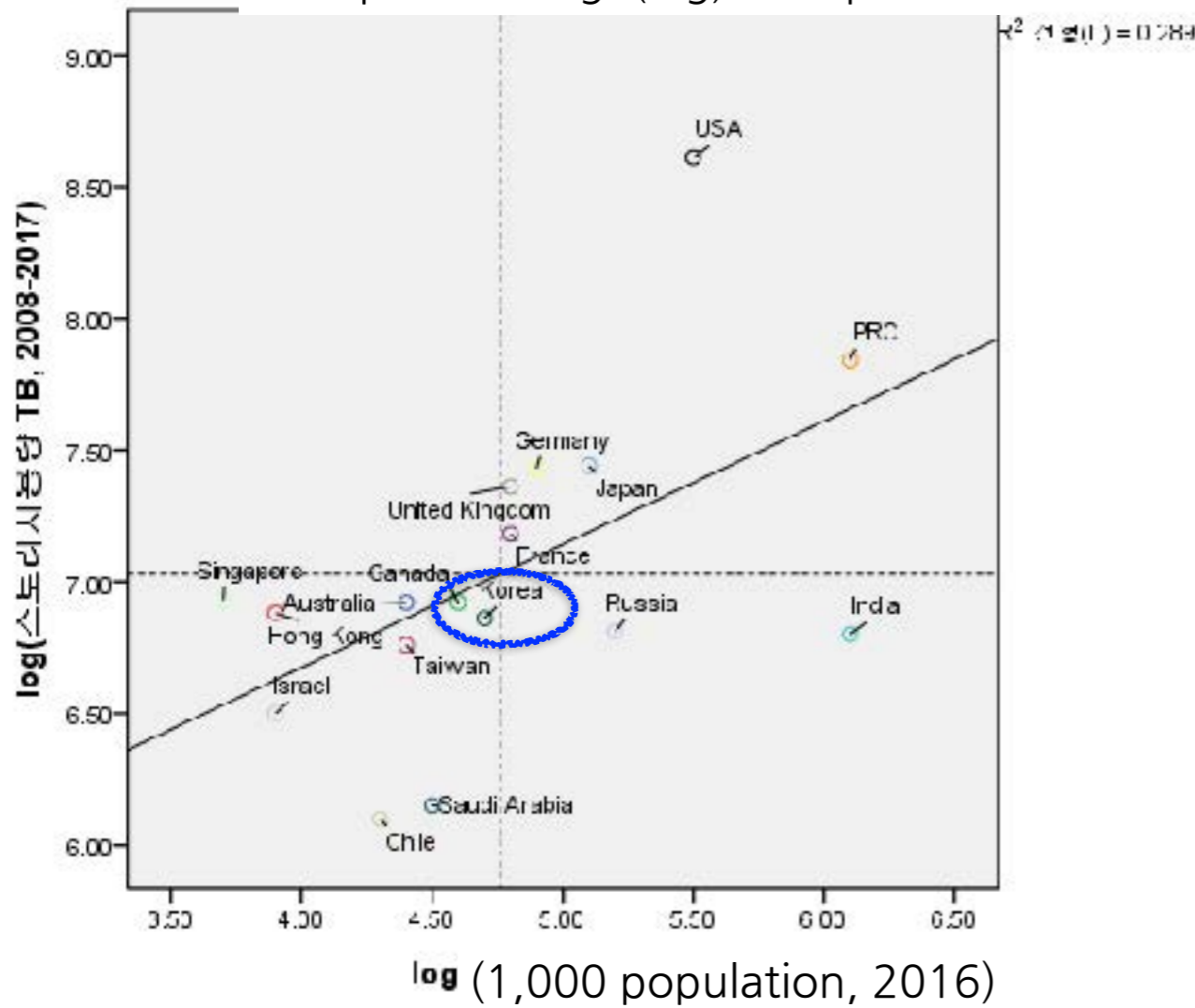
Policy Issues

# Datafication

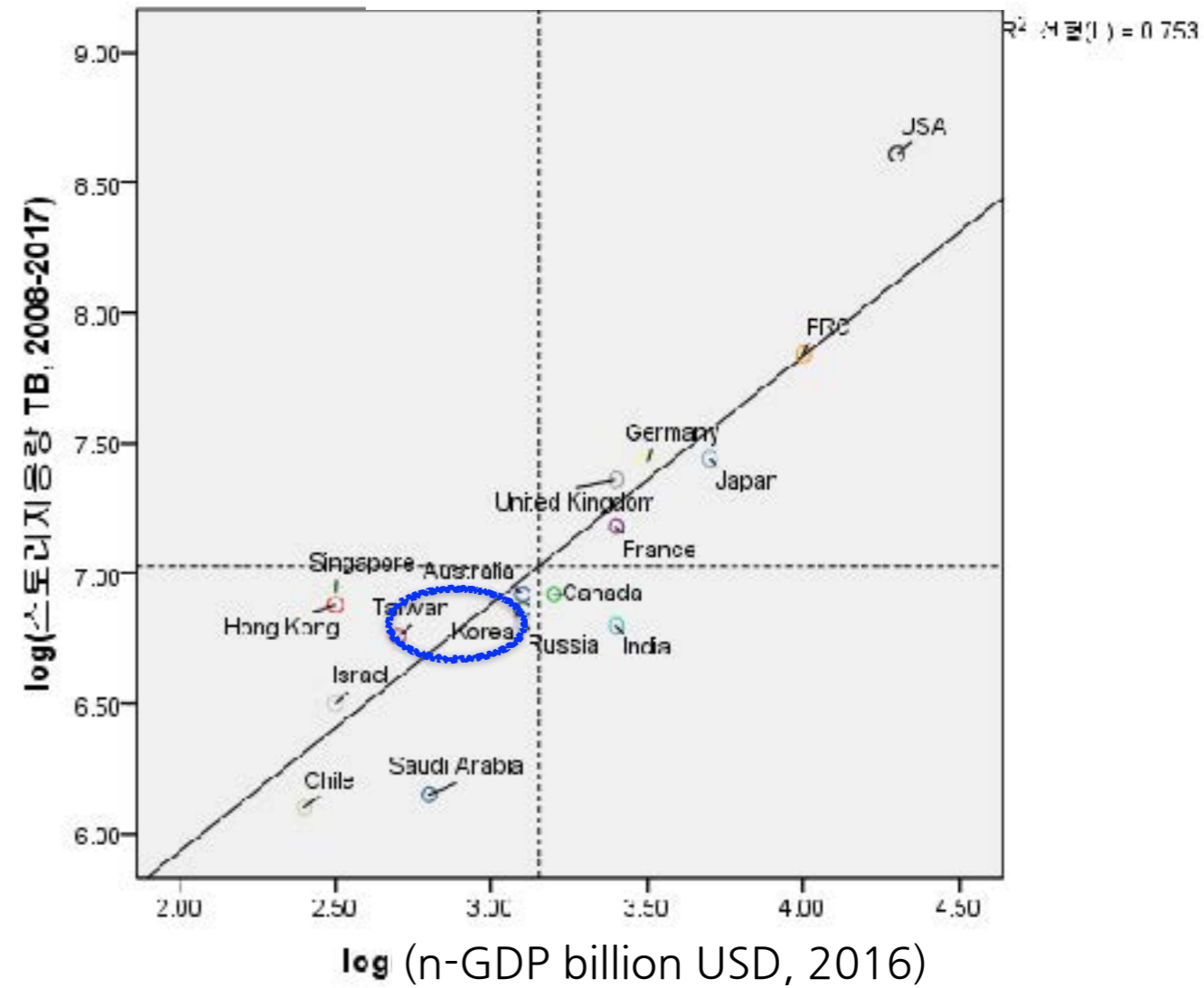


# Data Density

Enterprise Storage(log) vs Population



Enterprise Storage(log) vs GDP



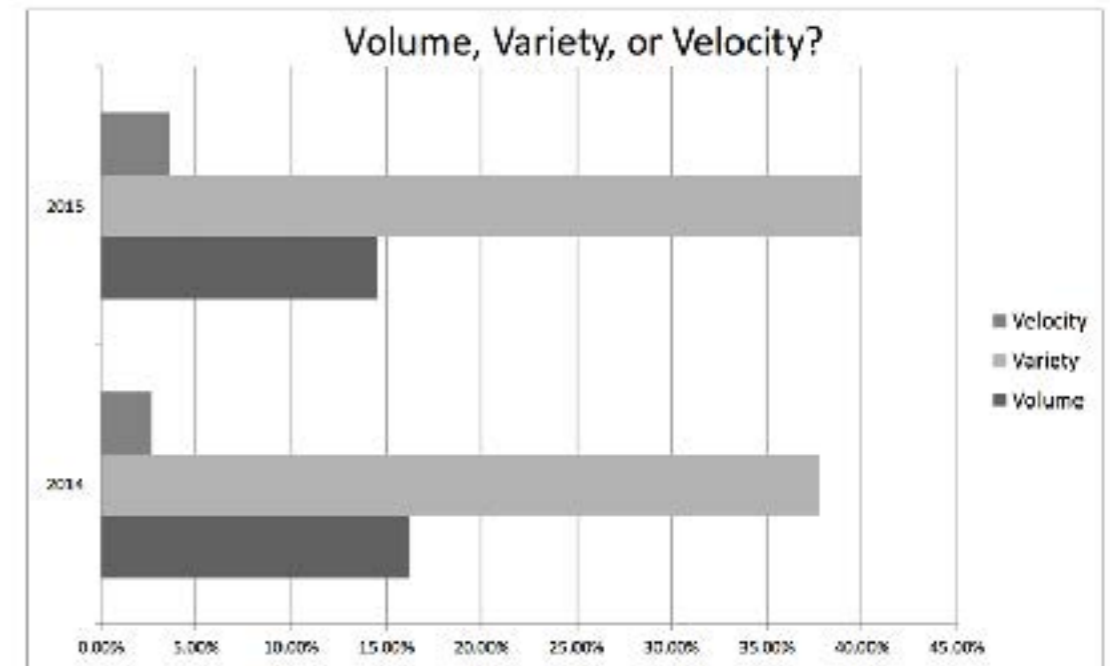
# Data Sharing

## Data Economy

Volume of Data < Variety of Data

But, in Korea

Privacy Protection → Data Island



Volume, Variety, or Velocity?	2014	2015
Volume -- more data	16.2%	14.5%
Variety -- more sources	37.8%	40.0%
Velocity -- real-time	2.7%	3.6%

NVP, Big Data Executive Survey 2016

# Resolving Conflicts

Traffic Payment (2007)



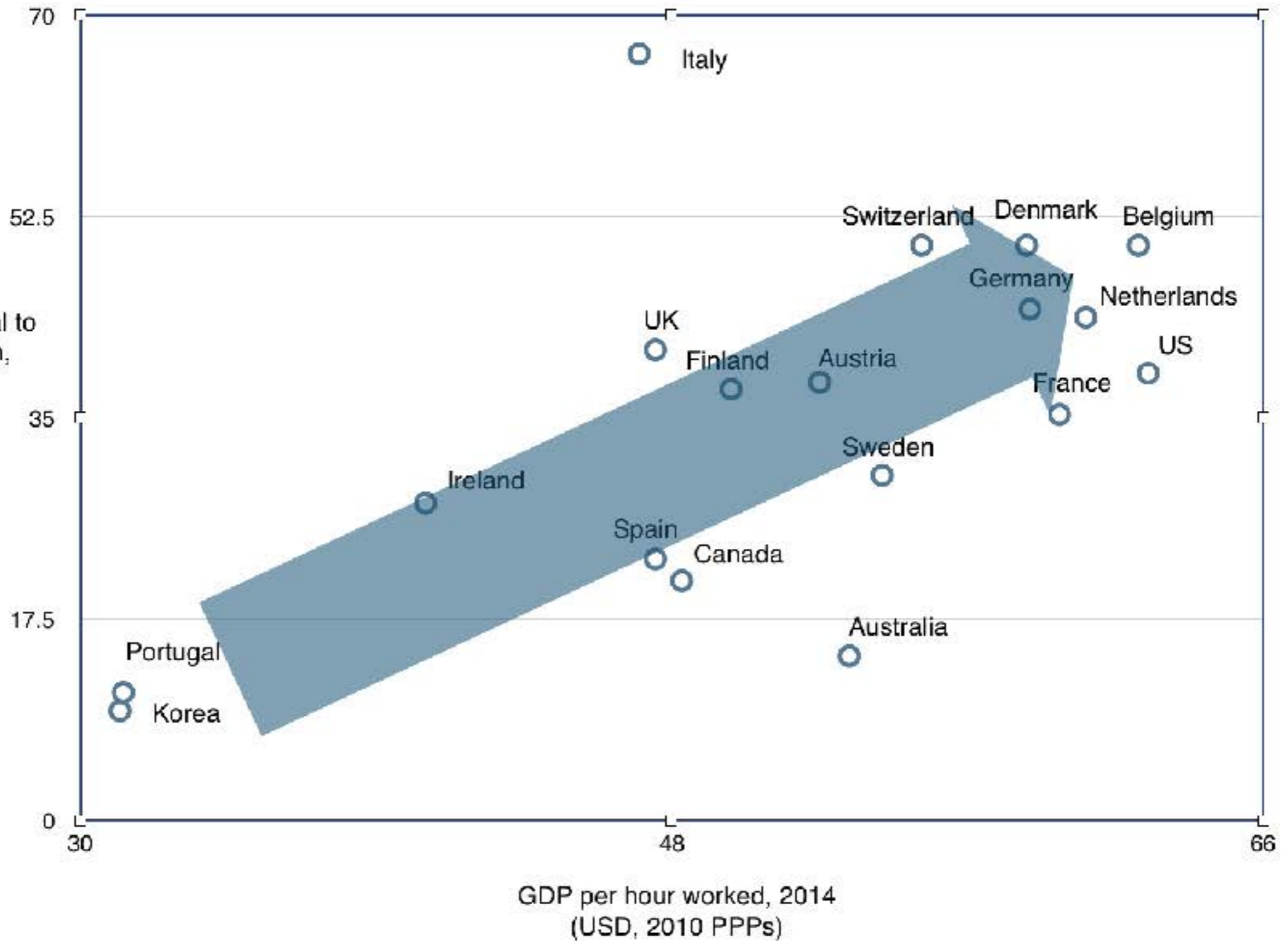
Uber



VS

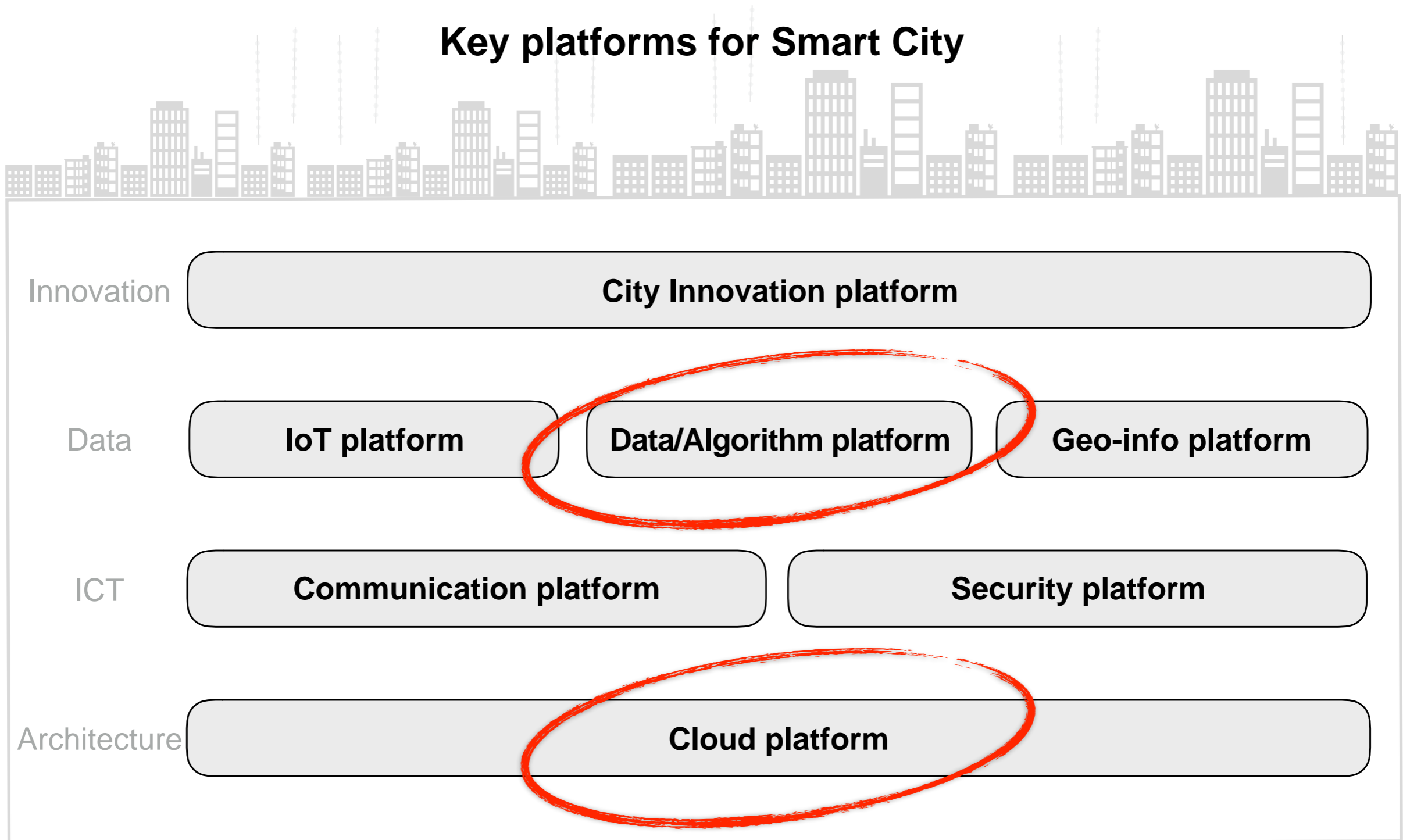
# Innovation

Ratio of ICT capital to total capital growth, 2009-2013



# Building Platform

## Key platforms for Smart City



## Data Hub Project in 2018

# Data Hub + Standard API

enables to use data  
for smart city  
services from a  
variety of sources and  
with different formats

makes API of different  
cities standardized

Thank you

Hwang, Jong-Sung, Ph.D

National Information Society Agency  
[js.goodworld@gmail.com](mailto:js.goodworld@gmail.com)