

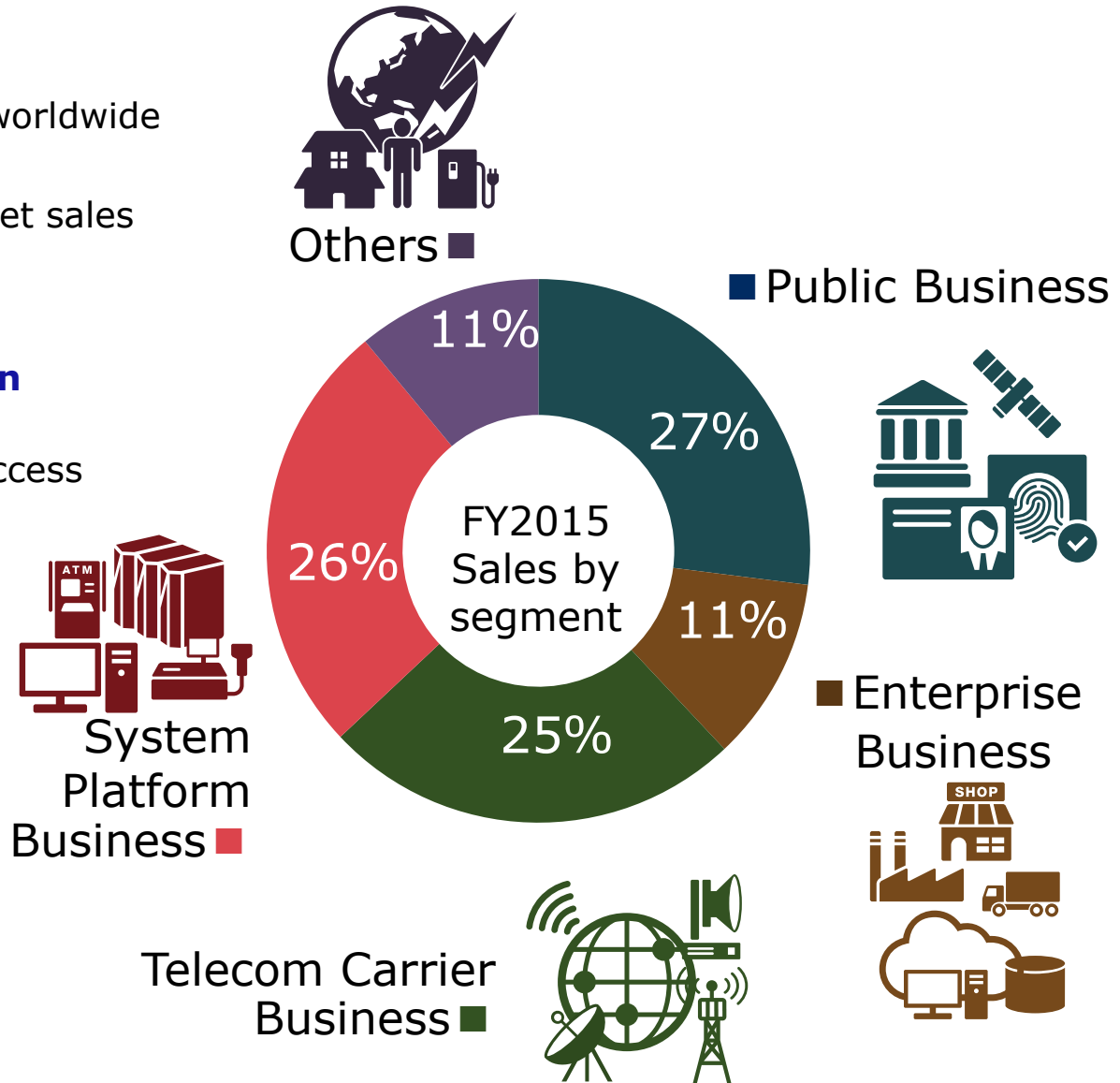
Challenges toward “Society 5.0” - ICT vendor’s view

August, 2017
NEC Corporation



NEC at a glance

- **98,726** employees worldwide
- **USD 24.5 Billion** net sales
- **237** branches
- Headquarters: **Tokyo, Japan**
- **117** years of brand success



J-GAAP(FY2015)

History of Economy stages

1700

1800

1900

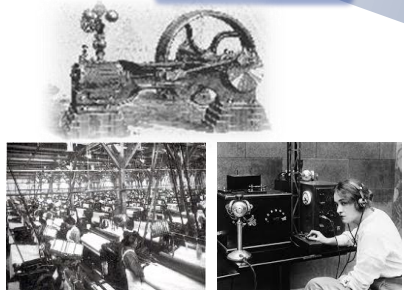
2000

2010

Coal

Oil

Digital Economy



Digital Economy infrastructure

Every Economy relies on the availability of the corresponding infrastructure for its growth

- Coal Economy : Steam Engine, Railroad, Telegraph
- Oil Economy : Electricity, Road, Telephone

“Data is the new oil” in Digital Economy

- Internet of Things (IoT) to dig out data from physical world
- Standardization for manipulation of data from various sources
- Broadband network to transfer data
- Cloud Computing to process or store data
- Big Data analysis to refine data for higher value
- Cyber Security to protect privacy and integrity

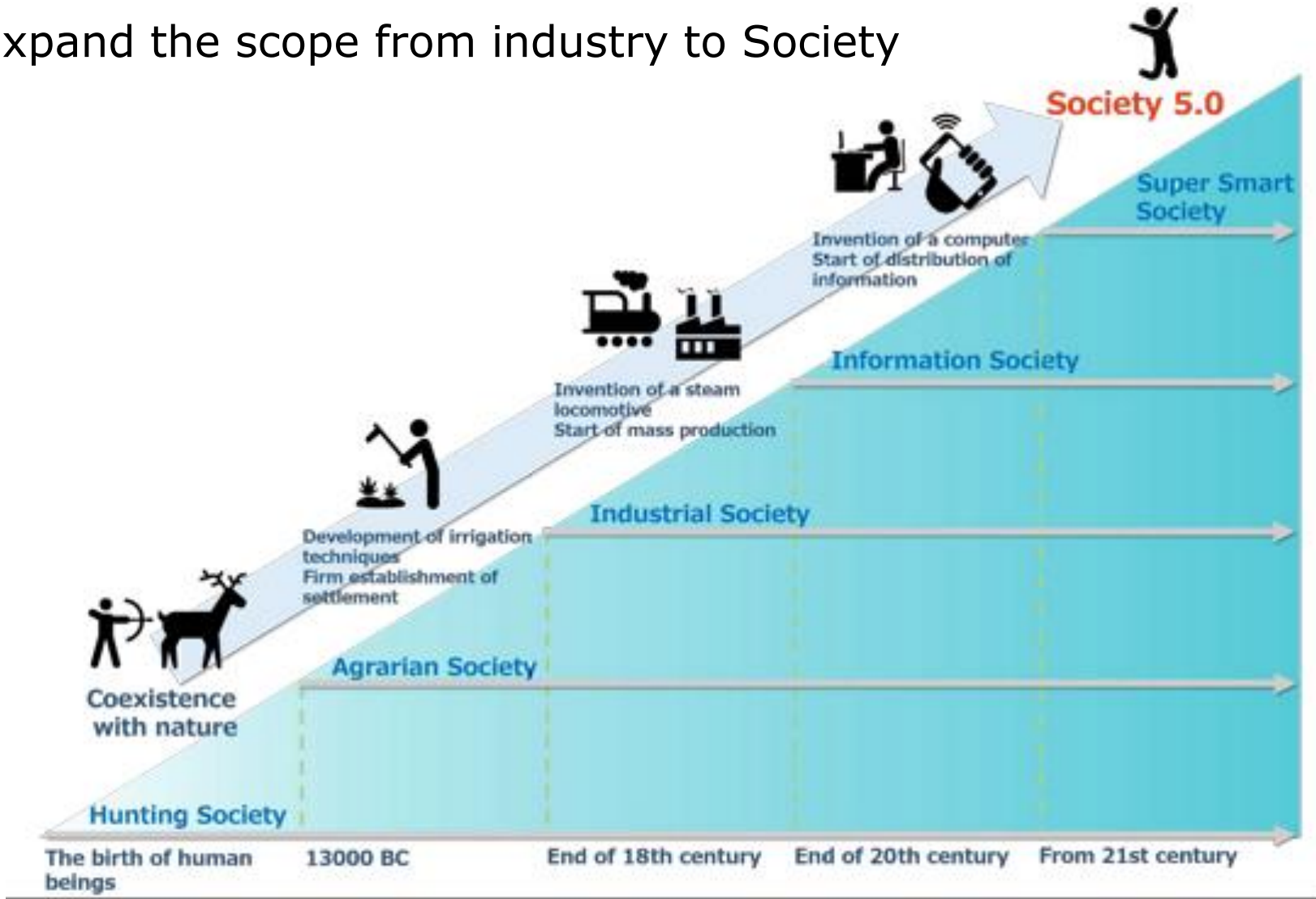
Digital Transformation



**EduTech, RetaiTech,
MarTech, HRTech,
LegalTech, ...**

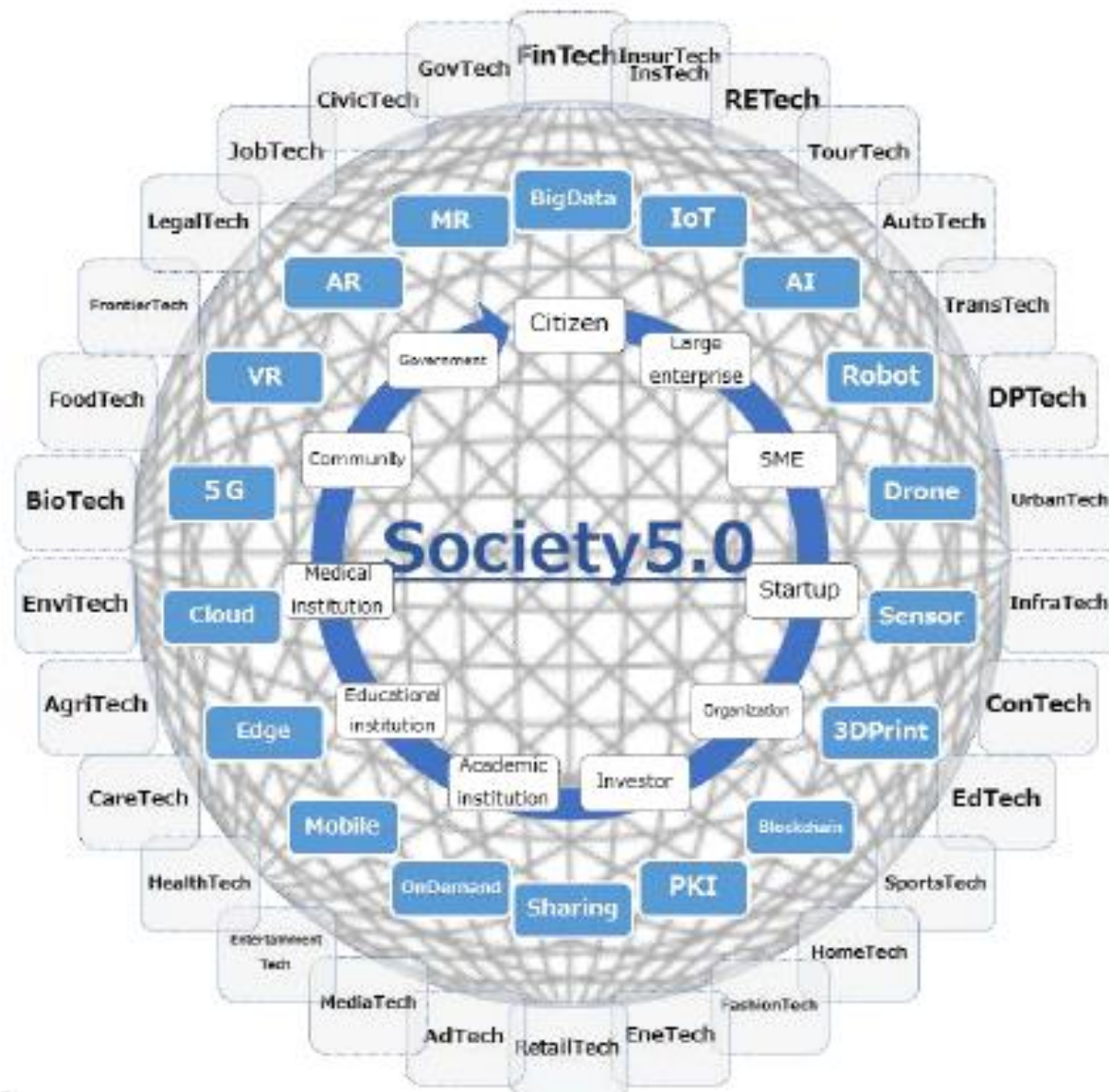
Japan's Initiative : "Society 5.0"

Expand the scope from industry to Society



Source : https://www.keidanren.or.jp/en/policy/2016/029_outline.pdf

"Society 5.0"



"NEC the WISE"



NEC the WISE

AI technologies from NEC
for enriching human intellect and creativity

Visualization Analysis

Guidance

No.1^{*1} Face Recognition

Only 1 Self-learning
super resolution

Only 1 Crowd Behavior
Analysis

Only 1 Object Fingerprint

Only 1 Optical Vibration
Sensing

Speech,
Emotion Recognition

Only 1 Invariant analysis

Only 1 Heterogeneous
Mixture Learning

No.1^{*2} Textual Entailment
Recognition

RAPID machine learning

Only 1 Automated
Security Intelligence

Only 1 Profiling Across
Spatio-Temporal Data

Only 1 Autonomous and
Adaptive Control

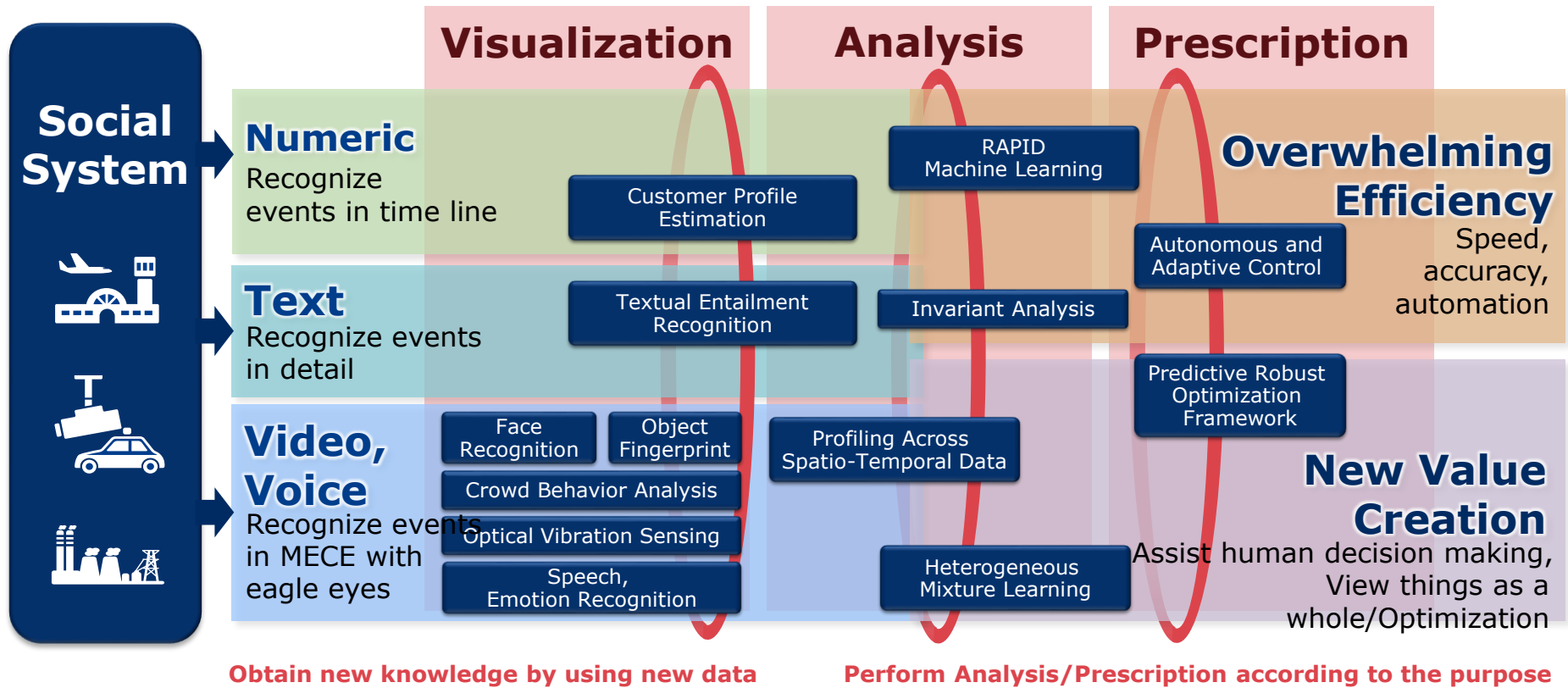
Only 1 Predictive Robust
Optimization
Framework

*1 : Ranked 1st three consecutive times in task assessment sponsored by the U.S. National Institute of Standards and Technology (NIST)

*2 : Ranked 1st in task assessment sponsored by the U.S. National Institute of Standards and Technology (NIST) (2012)

Strength of NEC's AI and Big Data Analytics

Optimized result based on detail recognition of events in quick and e



NEC's Powerful AI Technologies

Top Ranked technologies around the world

Visualization

Word's No. 1 in accuracy and speed

Face Recognition



Ranked 1st three consecutive times US Government* - sponsored technical contests



No.1 in recognition accuracy

- No.1 in actual operational data test
- No.1 in positional variation test
- No.1 in aging variation test
- No.1 in multiracial test

No.1 in recognition speed

- 1.6-million-entry DB searched in 0.3 seconds

* U.S. National Institute of Standards and Technology (NIST)

Analysis

Appropriate method selected based on purpose of analysis

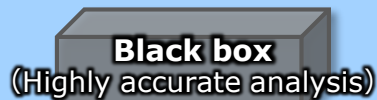
Heterogeneous Mixture Learning

Applied to problems that require explanations (Social system operations, etc.)



RAPID Machine Learning (Deep Learning)

Applied to problems that can be entrusted to AI (Image recognition, etc.)

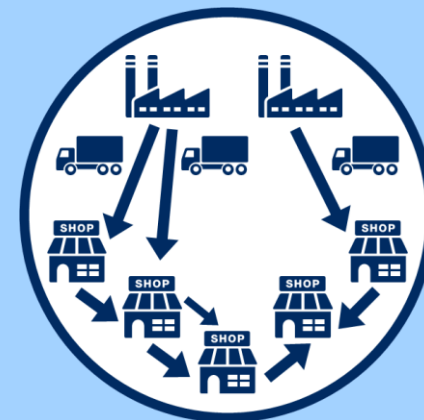


Prescription

Generate highly efficient and low-risk plans

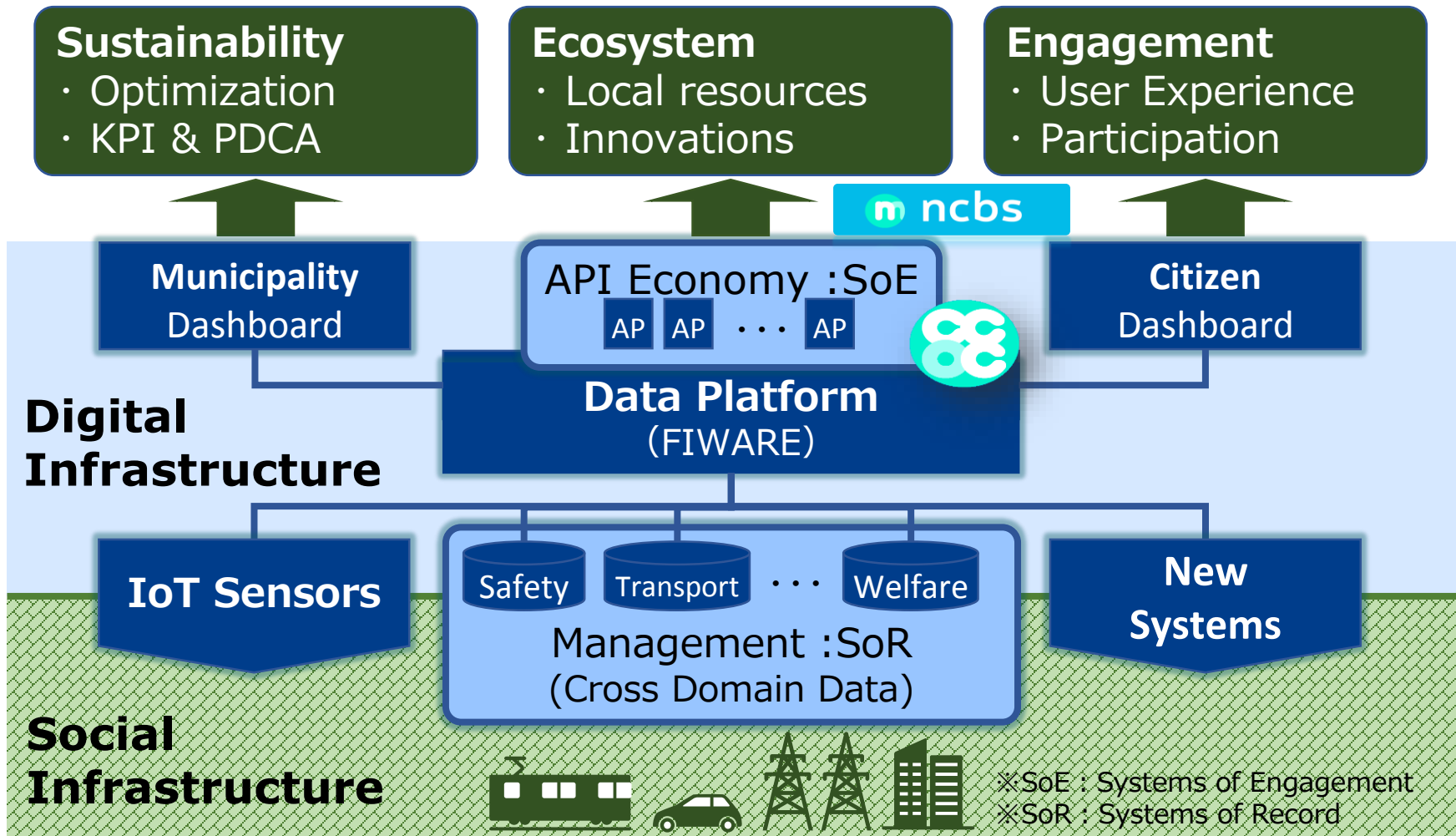
Predictive Robust Optimization Framework

Sophistication and automation of formulation of strategies and plans using machines



Smart City architecture

Creating the value out of Data in a creative manner



 **Orchestrating** a brighter world

NEC