

# Expanding Open Innovation at Hitachi

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1

**Hitachi to create three values:  
social, environmental, and economic.**

2

**R&D to lead social innovation with  
digital x co-creation through *Kyōsō-no-Mori*.**

3

***Kyōsō-no-Mori* to accelerate open innovation.**

## **Our mission**

**“Contribute to society through the development of superior, original technology and products”**

**Hitachi Founding Spirit**

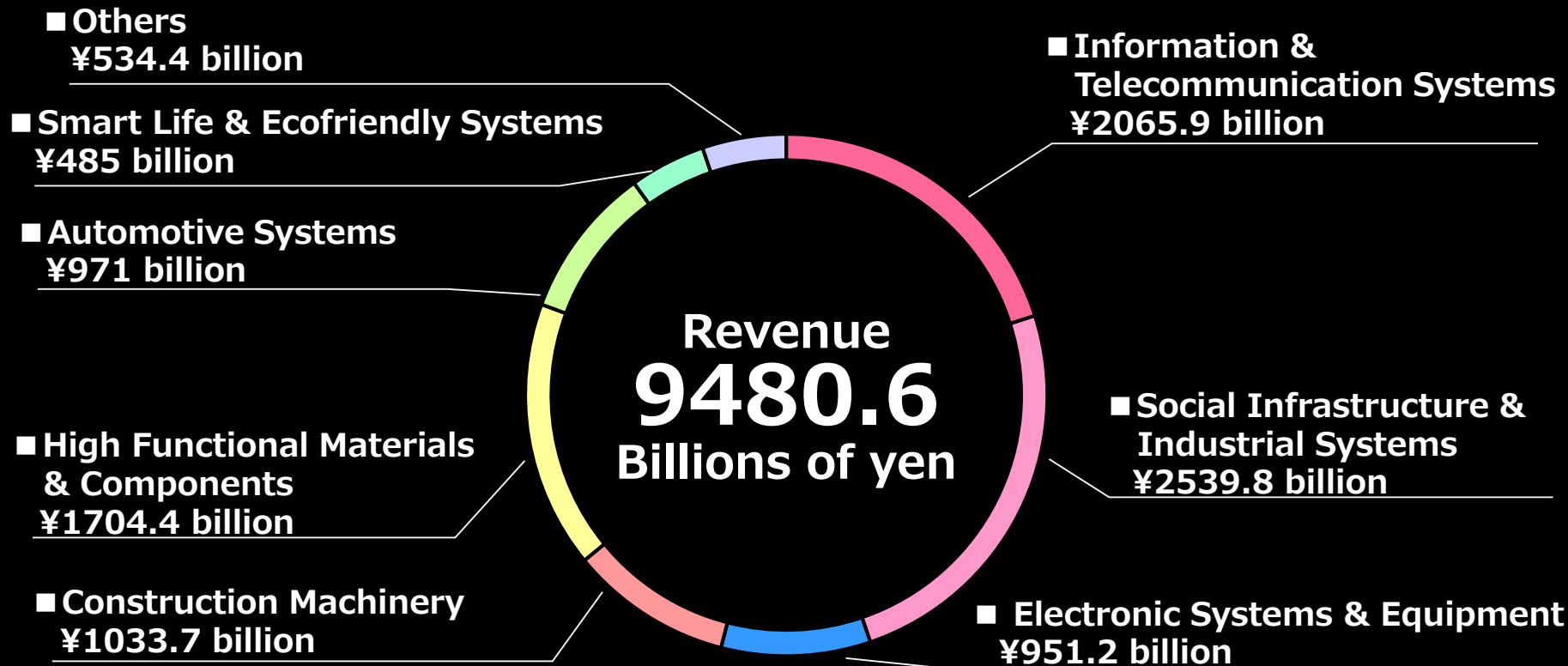
**Harmony • Sincerity • Pioneering Spirit**



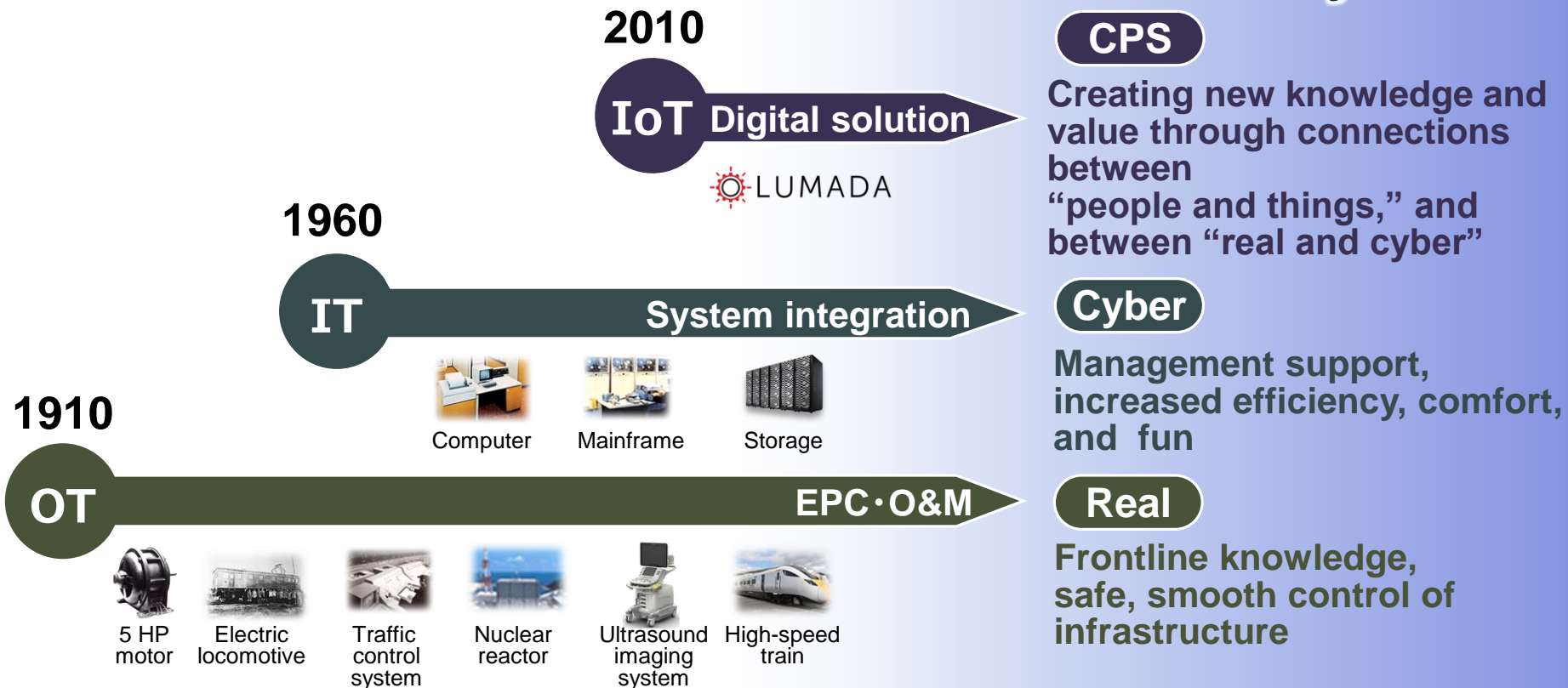
**Founded in 1910 as a machine repair shop at  
Kuhara Mining Company in Hitachi city, Ibaraki-ken, Japan  
(Incorporated in 1920)**

**Founder  
Namihei ODAIRA**

# Consolidated results for FY2018



## Society 5.0





A value creation platform that combines front-line knowledge



“illuminate” + “data”



# Hitachi's solutions to increase values

**HITACHI**  
Inspire the Next

## To improve the Quality of Life and add values for customers



## To increase the three values of social, environmental and economic by five-sector business and technology solutions



Product

Product

Product

Product

Product



# Kyōsō-no-Mori

For sustainable human-centered society with high quality of life



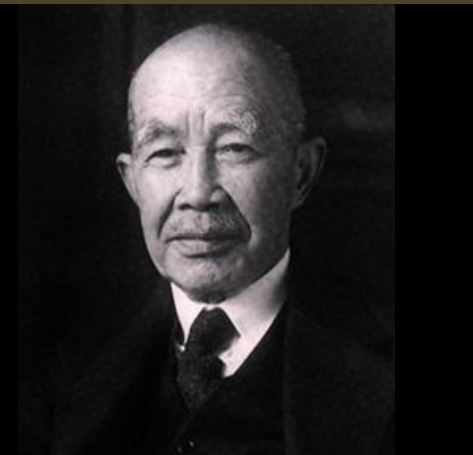
# Establishment of CRL and Its Concept

Establishment

April in 1942 (Showa 17)

Concept

Dealing with current issues and basic research  
(targeted for life after 10 – 20 years) at the same time



**Namihei Odaira**  
Founding President



**Research Buildings at Establishment**



**Kumeo Baba**  
First General  
Manager

# To realize sustainable human-centered society with high quality of life

Social value

Environmental  
value

Economic value



## Kyōsō-no-Mori



## Partners



# Kyōsō-no-Mori

We will incubate social innovation  
with Digital × Co-creation



Mobility



Smart Life



Industry



Energy



IT



# Smart Life: IoT sensing

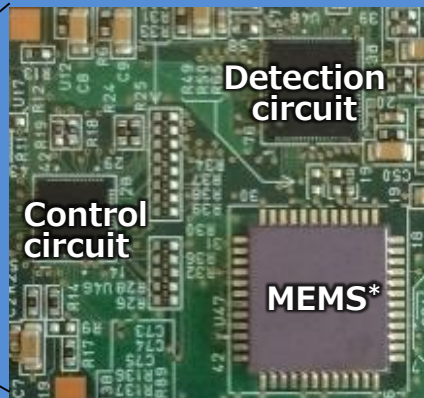


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## Attractive and safe city leveraging digital urban monitoring

### IoT sensing for urban monitoring

#### Ultra-sensitive vibration sensor

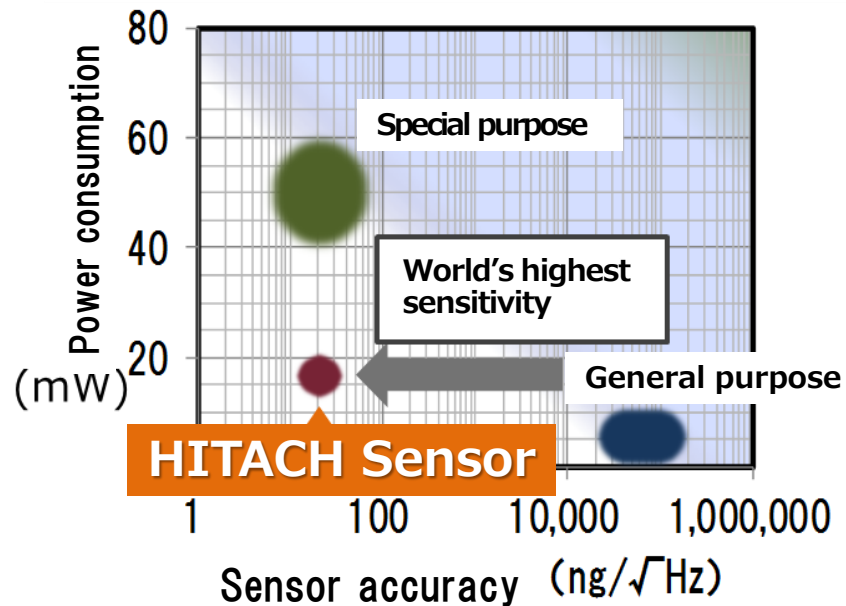


**Partner**

**Local government  
Construction  
companies**

- World's highest sensitivity ( $30\text{ng}/\sqrt{\text{Hz}}$ )
- Detectability in a wide area ( $> 100\text{m}$ )

### Core Tech. : Ultra-sensitive vibration sensor (MEMS)

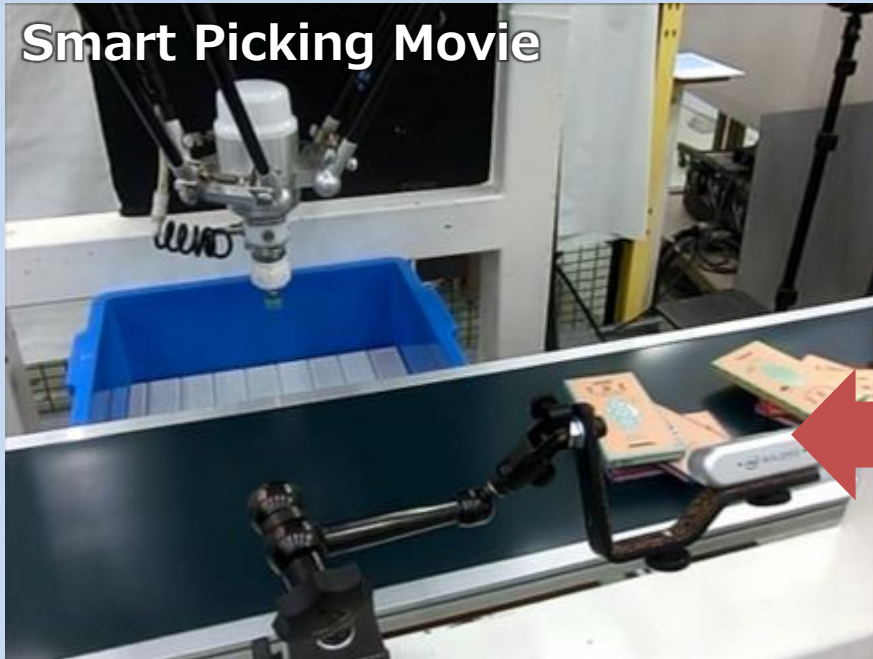


\* MEMS : Micro Electro Mechanical Systems

## Robotics automation leveraging edge acceleration

### Edge acceleration for Smart Picking

#### Smart Picking Movie



Core tech.: Real-time 3D object  
Recognition by edge acceleration

### Accelerate Bottleneck Processing

Graph Structuring

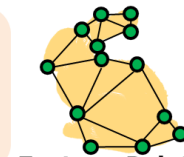
Object recognition

FPGA

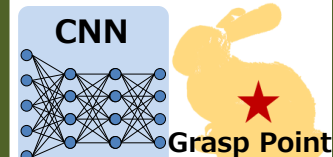
GPU

Sorting Net

CNN



Feature Points



Grasp Point

## Improving office work efficiency using human interface AI

### Meeting Support

Reform workstyle  
and Activate discussion

Partner

Office Equipment Manufacturers

Microphone

Core Technologies: Speech Recognition, Text Analysis

AI Technology  
Improvement Strategy

Speech Recognition  
for Multi-Persons

Automatic Minutes  
Generation

Idea Creation Support

Attending  
Int'l Competition  
DCASE  
(Acoustic Scene Recognition)  
1<sup>st</sup> place



A material of last year...

That was...

Certainly I recall ...



Lumada has a  
video surveillance  
solutions, and ...

Automatic Indication  
of Related Information

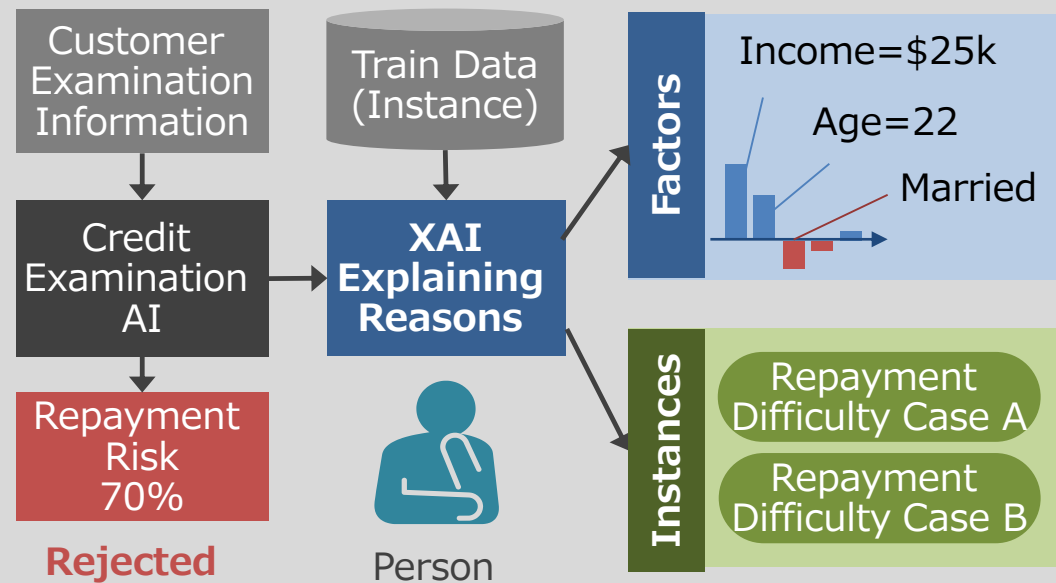




# Explainable AI (XAI)

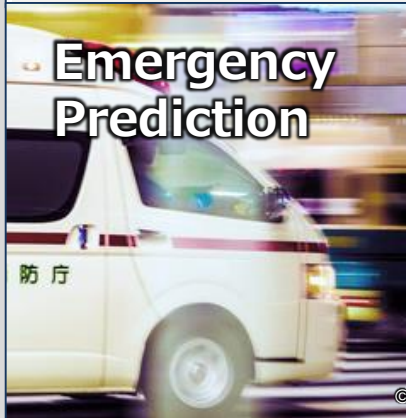
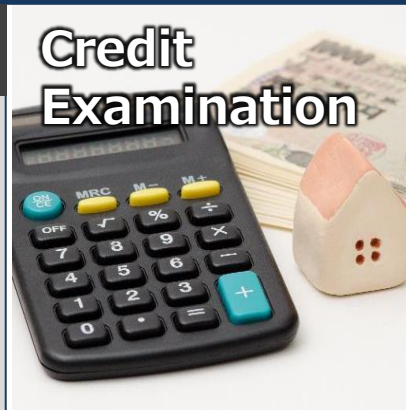
## Support society by trustworthy AI

### Core Technologies: Explainable AI



**Partners**

**Net Bank, Fire Department,  
Police Agency**



# Social Innovation from Kyōsō-no-Mori

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## Creation of new value with our partners by digital

**Smart Life**



QoL Improvement  
Medical Cost Reduction

**Industry**



Productivity Improvement  
Labor Shortage Elimination

**Energy**



Cooperative  
Stable Supply

**Mobility**



On-demand  
Operation

**New Concept  
Computing**

High-speed  
Low-energy

**Reliable Data Distribution  
Social Acceptability of AI**



**Kyōsō-no-Mori**

Design × Technology × Science

**AI Tech.  
Reliable AI**

**IT**



Creativity  
Strengthening

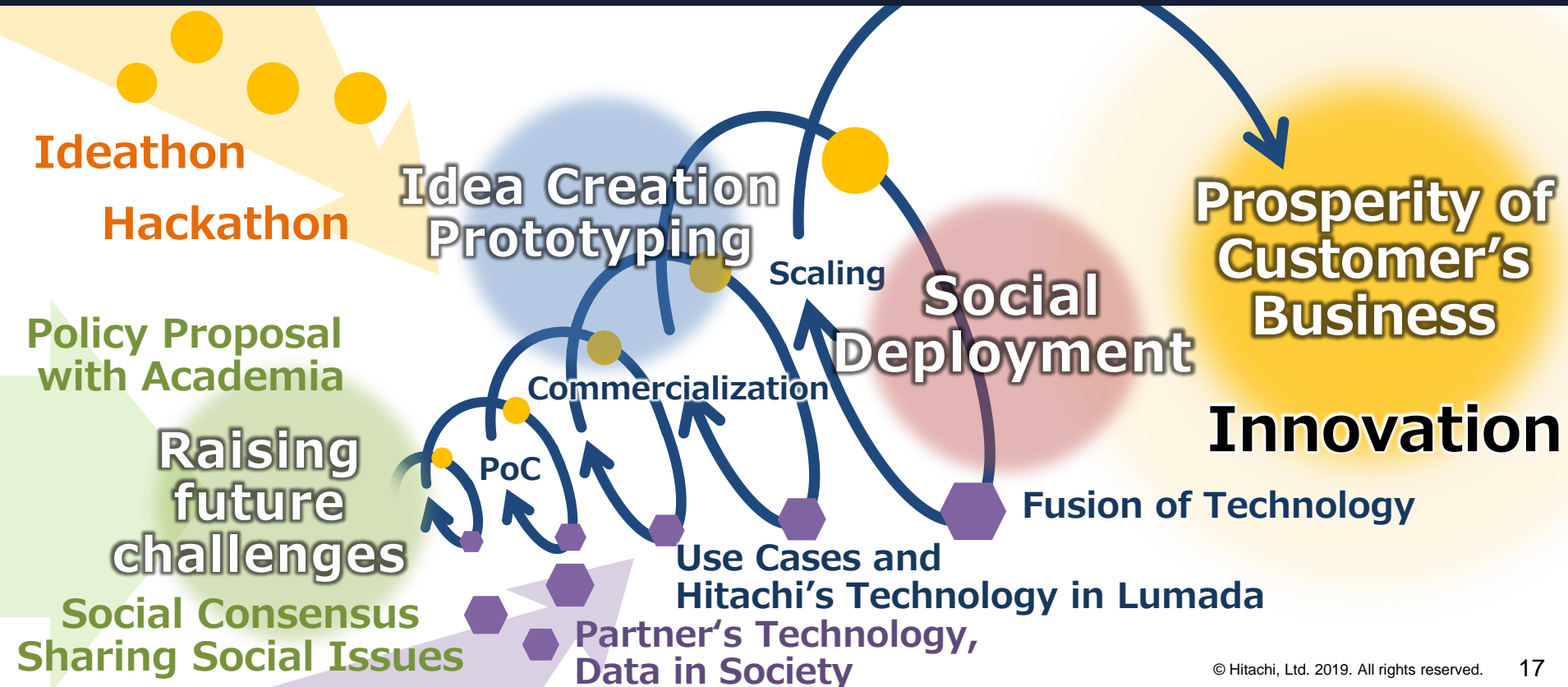
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# ***Kyōsō-no-Mori* to Accelerate Open Innovation**



# Open Innovation Ecosystem

To solve social issues and to create big business by co-creation



# The Case of CMOS Annealing

## CMOS Annealing Machine for IoT Devices



A part of this result is based on results obtained from a project commissioned by the New Energy and Industrial Technology Development Organization (NEDO).

*Hitachi Social Innovation is*  
**POWERING GOOD**



**HITACHI**  
Inspire the Next 