

AI-driven Business Innovation for POSCO A Steel Manufacturing Company

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POSCO, a steel manufacturing company

POSCO grows into the most competitive steel company based on sustainable management

Over 45 overseas operations in 16 countries



Gwangyang Steelworks

(the largest in the world)



Pohang Steelworks

(the 2nd largest in the world)



The most competitive steel company

First place for 14 consecutive years ('10~'23)

- World Steel Dynamics -

Leading company in sustainable management

Top Sustainability Member Company ('24)

- World Steel Association -

Selected as the first **lighthouse factory** in the country ('19)

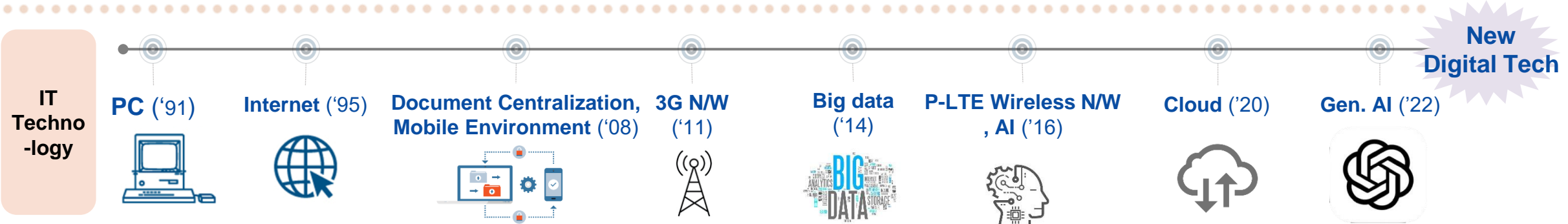
- World Economic Forum -

Leap to become a leading company in eco-friendly future materials

The launch of POSCO Holdings company ('22)

Journey of POSCO's Digital Transformation

Driving company's growth through timely adoption of the latest IT Technologies and continuous innovation

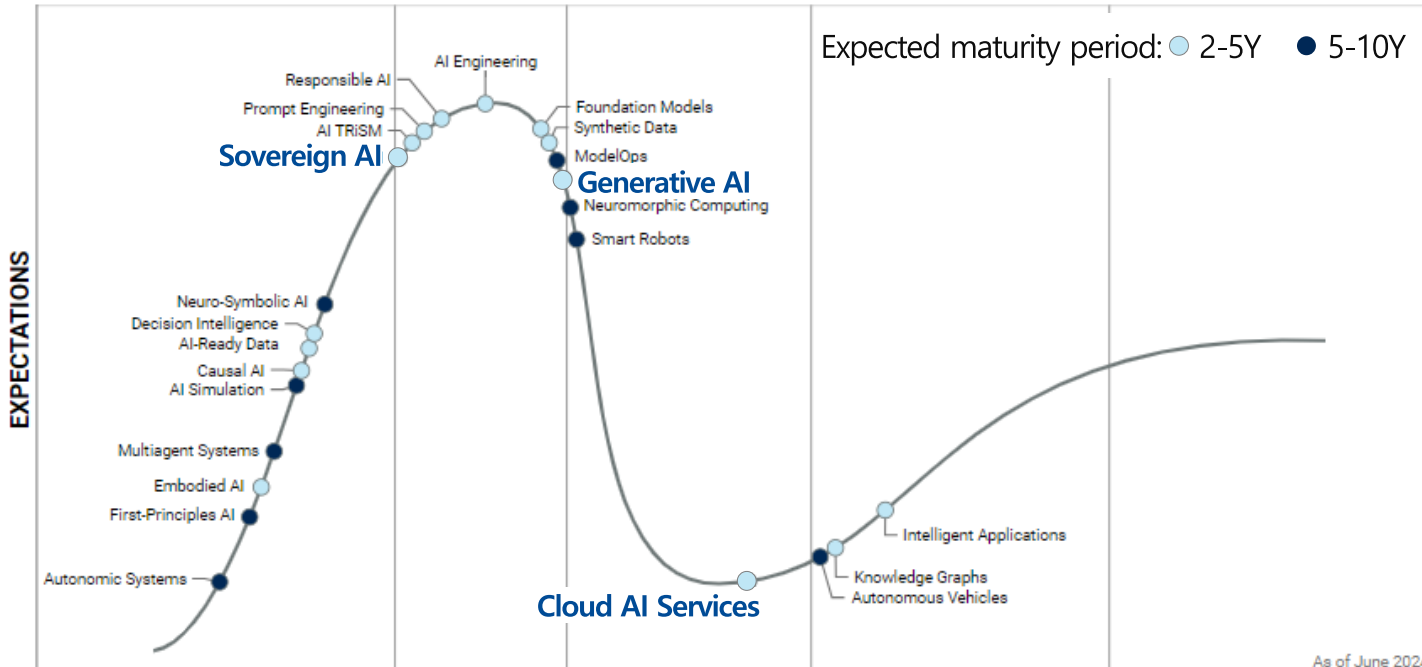


Key Trends in Digital Transformation(DX) Technologies

Emergence of practical use cases of Gen AI, along with an increase in AI projects, also leads to a rise in cloud AI services

Gartner¹⁾ Hype Cycle²⁾ for Artificial Intelligence, 2024

1) Gartner : U.S. IT research specialist company / 2) Hype Cycle : visual tool to express the maturity of technology



Innovation Trigger	Peak of Inflated Expectations	Trough of Disillusionment	Slope of Enlightenment	Plateau of Productivity
Emergence of technology Phase	Expected peak phase	Disillusion phase	Technical maturity phase	Stability phase

Gen AI enters the stage of actual verification use cases

- The bubble bursts and actual verified use cases emerge
- Despite significant investments, distinctive results are lacking
- 3) A strategy for countries or companies to build independent AI capabilities by utilizing its own infrastructure and data

The growing use of Gen AI highlights the importance of sovereign AI

- Gov'ts and companies concerned about value subordination to U.S.-centered BigTech are stepping up investment in Sovereign AI
- Gov'ts around the world are also working hard to strengthen Sovereign AI

Increase in cloud AI services

- Continuous increase of the number and scale of AI projects
- Continuous increase of various AI services running on cloud services

Direction of POSCO's DX

Securing sustainable competitive edge through the advancement of manufacturing and office sites using AI

Strategy

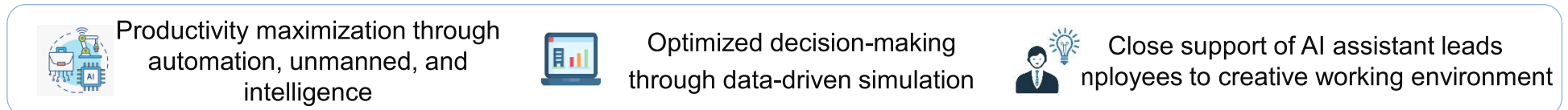
Automate and intelligentize all tasks to ensure the highest quality and cost competitiveness in any environment



Objective



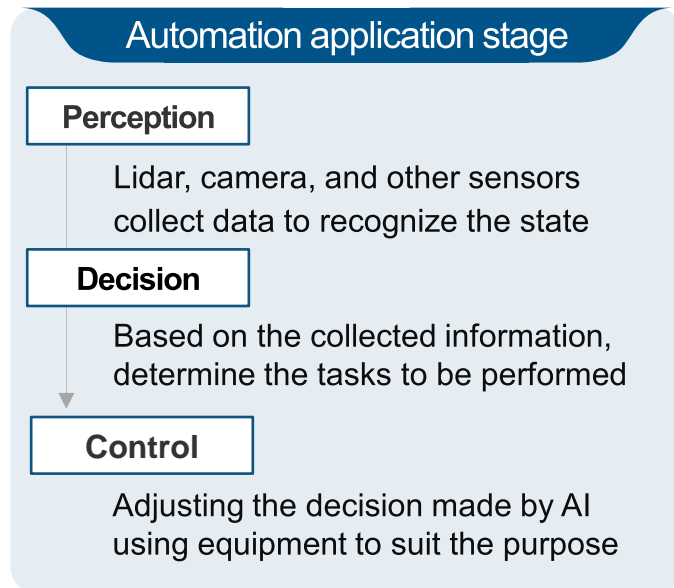
Way of working



1 Autonomous Manufacturing

A safe manufacturing site that is automated and intelligent, where AI and robots optimally control processes and equipment

- ▶ **【Standalone equipment automation】** Improving productivity through the implementation of automation for high-risk standalone equipment and low-efficiency repetitive manual tasks
- ▶ **【Minimize safety risk】** Recognize potential hazards in advance and implement prevention measures to create a safe manufacturing site
 - Establishment of a video-based comprehensive safety control system that detects and automatically alerts hazardous actions and situations of workers from CCTV footage



Case of Automation Application

Cognitive AI

Molten material **Impurities** **Surface crack**

【 Surface defect detector 】
Detection and classification of surface defects in carbon steel slabs

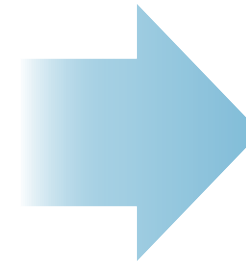
Action-oriented AI

【 TLC transport locomotive autonomous driving 】
Perception~Decision~Control-based POSCO-type autonomous driving platform

1 Autonomous Manufacturing

A safe manufacturing site that is automated and intelligent, where AI and robots optimally control processes and equipment

- **【Line process automation】** Completion of "One Man Supervising" with AI-based seamless monitoring and optimal control



Accurate Data Acquisition

Advanced mathematical model

AI technology development

One-person operation monitoring

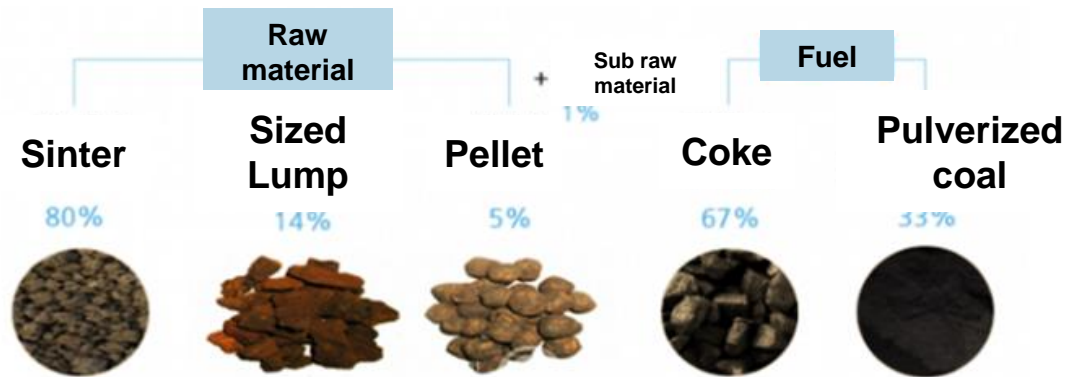
2 Optimized Decision-making

Situation prediction based on internal & external data for optimal decision-making

Decision-making support for minimum cost and optimal blending of raw materials (PosPLOT*)

* PosPLOT : POSCO Process based Lowest-cost-oriented Optimization Technology, system developed by POSCO to find the optimal fuel mixture at the lowest cost

- Constantly adjust the input and blending of raw materials in accordance with changes in the management, such as raw material price volatility and carbon emission issues to use efficient raw materials
- Implementing process information digitally to calculate the optimal value within minutes (8 days → 3 mins)



【 Blast Furnace Operation - Composition of Raw Materials 】



【 Digital Twin PosPLOT 】

3 1 person, 1 AI Assistant work environment

Smart work environment where AI assistant helps you stay focused on your tasks

➤ Reduction of work hours by substituting or closely supporting the tasks performed regularly

Automatic report generation

Automatic creation of meeting results, draft report, translation/summary, etc.

Policy/Guideline Q&A

HR and labor policy, company regulations and work guidelines, IT inquiries, etc.

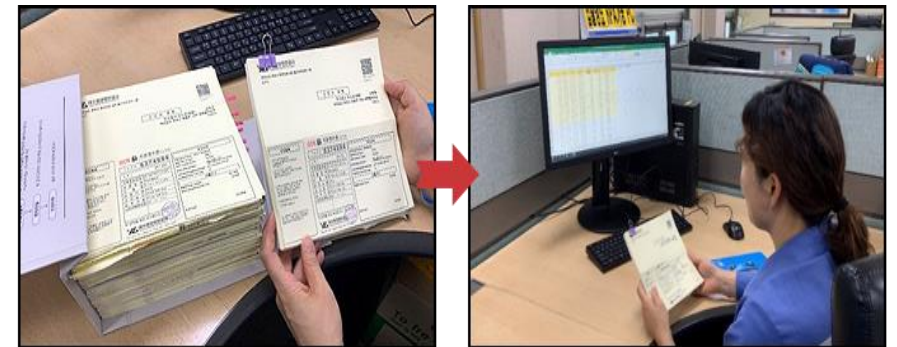
Individual work support

Email summary and reply recommendations etc.

➤ Repetitive task automation by utilizing IPA* beyond RPA

- Ex) Automation of manual tasks for payment of cargo entry and exit fees reduces work time to 1/10

* Intelligent Process Automation(Intelligent RPA)



【 Case of Reducing Cargo Entry and Exit Fee Payment Operations 】

3 1 person, 1 AI Assistant work environment

Smart work environment where AI assistant helps you stay focused on your tasks

➤ Introduction of the 「AI Coding Automation Platform」 supports the coding tasks of IT developers and engineers

- Non-experts can improve productivity without the support of experts, while experts can enhance productivity through faster and error-free code generation

IT

- System development and maintenance

Model

- Algorithm development (python, etc.)

Control

- Control logic (PLC), mathematical model, etc.

➤ Immediate customer and supplier support and 24/7 inquiry response using AI chatbots

- [Marketing] Product information, order inquiry (input/production/shipment) support, etc.
- [Purchasing] Contract procedures, contract progress status inquiry support, etc.

4 Strengthening Digital Infrastructure

DX-based infrastructure that accelerates AI development, dissemination, and maintenance

Open data platform
(DataLake)



Integrate internal and external data into a single repository, and support data-driven decision-making by immediately accessing and utilizing the necessary data

AI development and operation platform
(Machine Learning Operations)

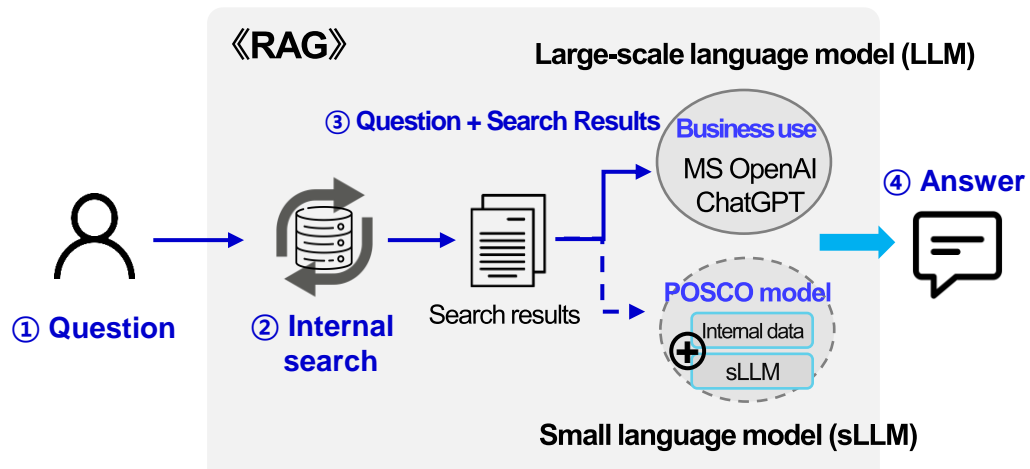


Facilitate the maintenance of AI models and expand the sustainable use of AI

4 Strengthening Digital Infrastructure

DX-based infrastructure that accelerates AI development, dissemination, and maintenance

In-house generative AI platform (Private GPT)



Applying security measures to prevent data leaks and supporting work safely and agilely through internal data training

App development support platform (Low/No Code)

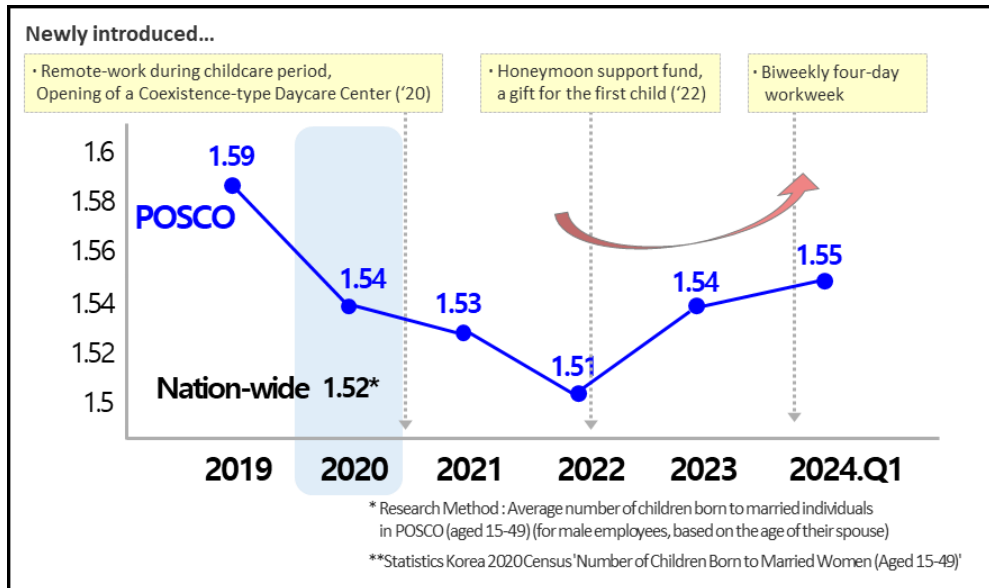


Users can create the necessary apps themselves to improve their work and respond agilely to changes in the business environment

* Low/No Code : A tool that allows employees to create apps even without programming background

What POSCO aims to achieve through DX

With processes and facilities' automation and intelligence, we identify and prevent risk factors in advance to create a **safe working environment**. With the help of AI assistants, employees **immerse themselves in creative tasks**, thereby creating a **"safer and better workplace."**



【 POSCO married employees' average number of children ('19~'24.1Q) 】

【 2024 POSCO Concert Childcare Classroom, '24.6.9 Gwangyang 】

"The average number of children of POSCO employees has been increasing for two consecutive years since 2022"

*Thank
you*

