Korea-India Strategic Dialogue Symposium

AI for Inclusive Development and the Future of Work

Shaping Corporate and Industrial Transformation in the Age of AI

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AI as a Driver of Industrial and Corporate Transformation

❖AI as a tool of efficiency and a platform for innovation

SAMSUNG

AI for predictive maintenance and yield optimization

HYUNDAI

AI in smart mobility and logistics

LG

EXAONE foundation model supports design and R&D creativity

amazon

AI logistics

NVIDIA

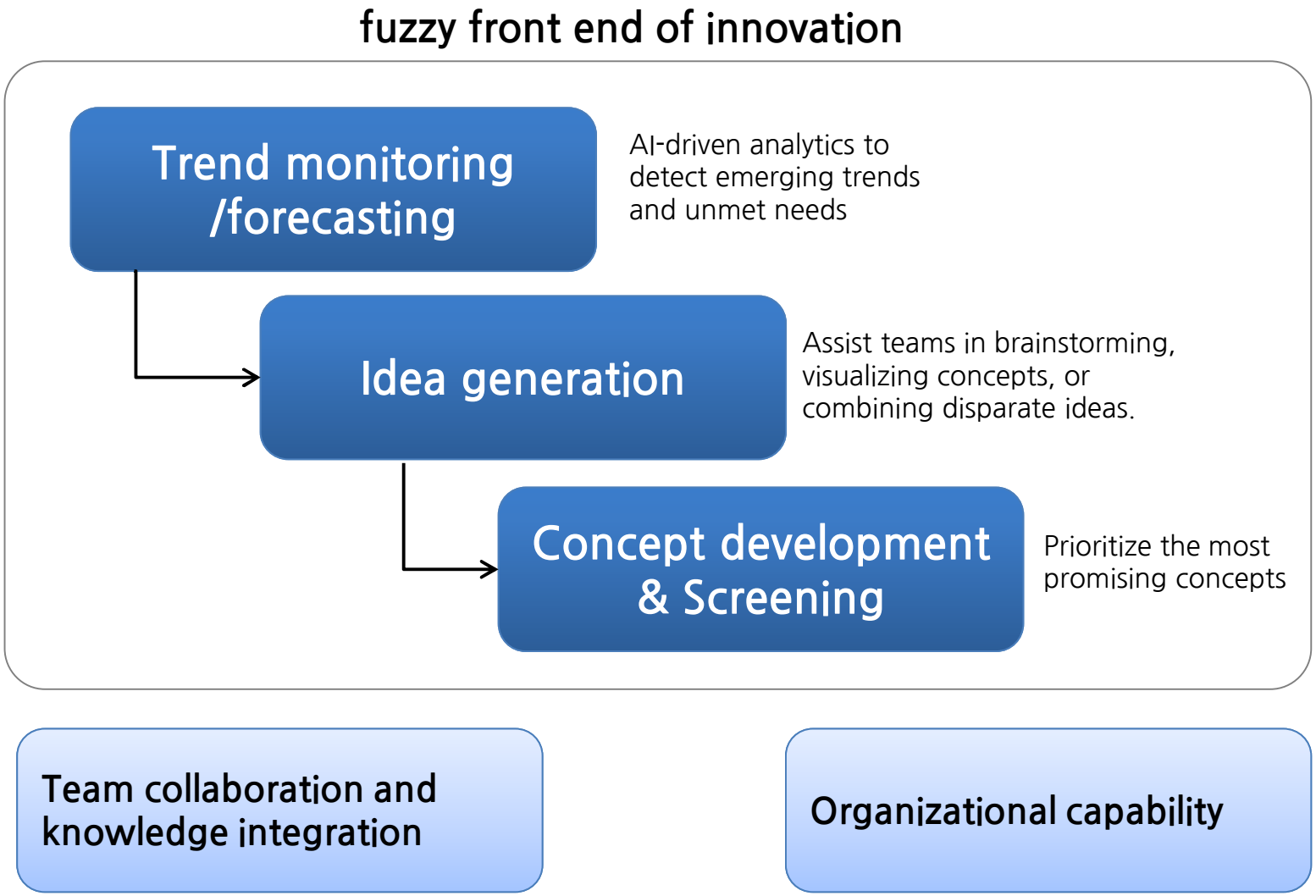
AI-powered design tools

GE

Predix platform in industrial IoT

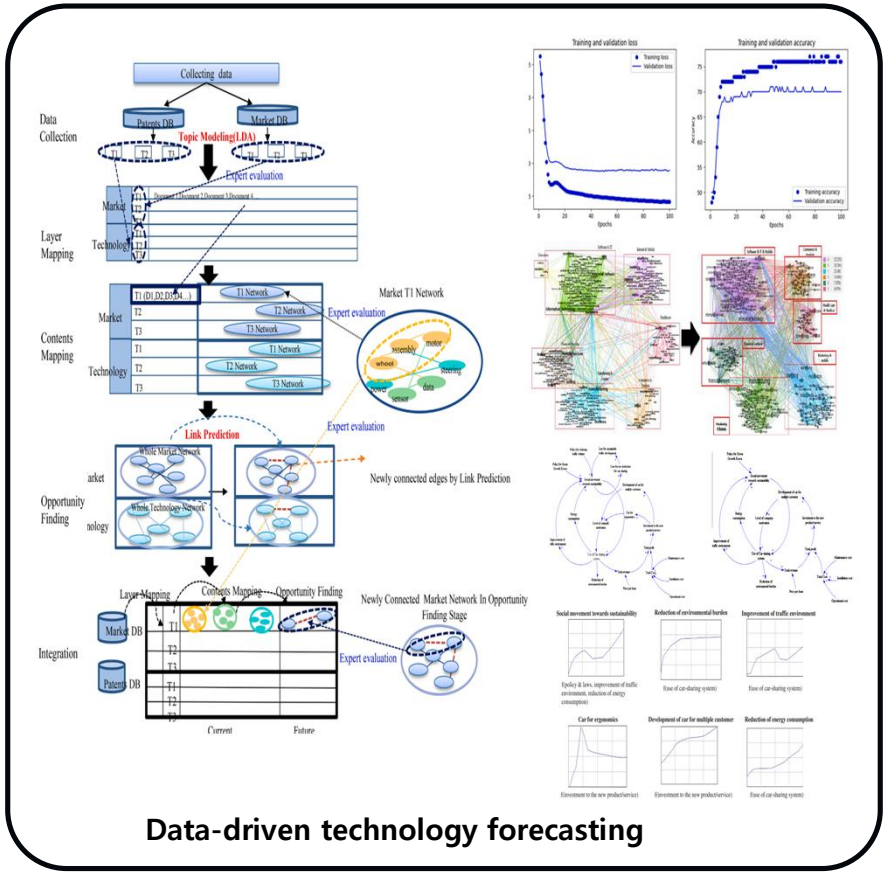
AI is no longer confined to digital sectors — it's becoming a core infrastructure for manufacturing, energy, and services.

How AI contributes to the Fuzzy Front End of Innovation

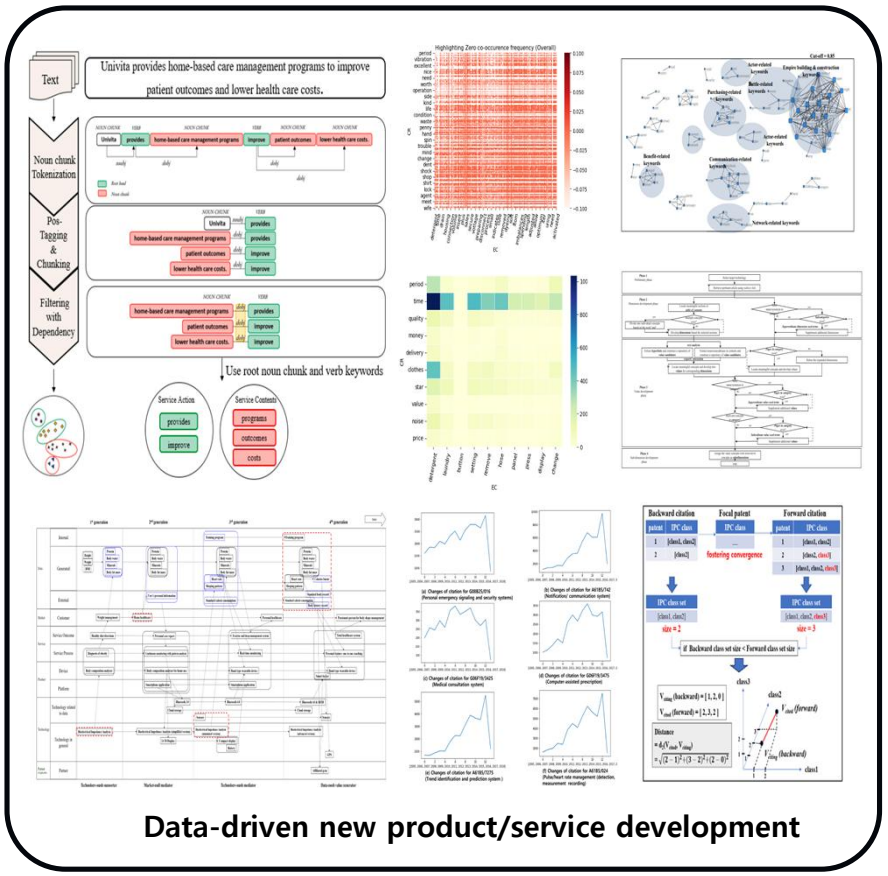


How AI contributes to the Fuzzy Front End of Innovation

❖ Fuzzy-front end in new product development



Data-driven technology forecasting

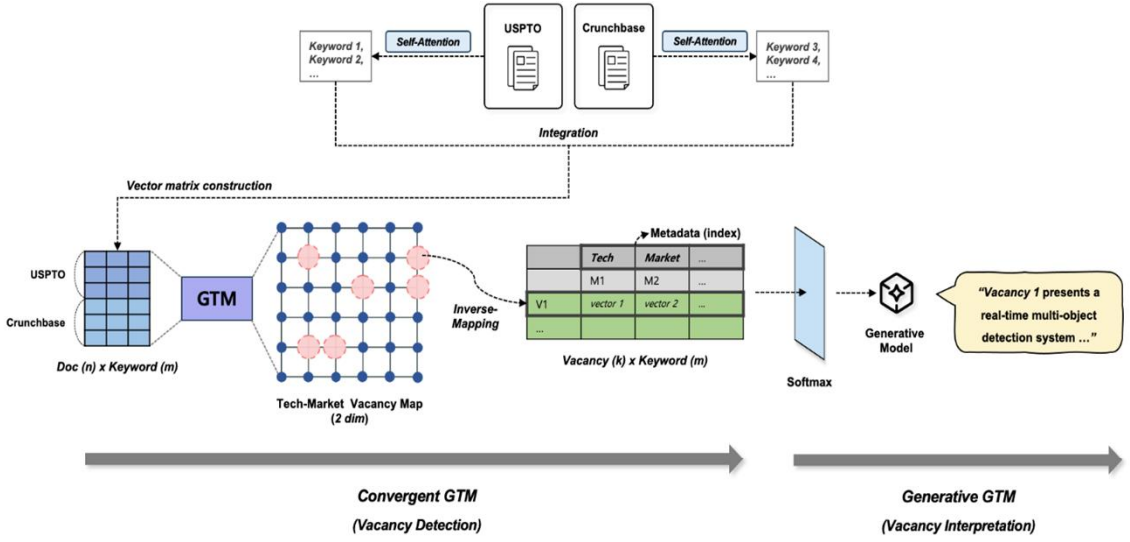


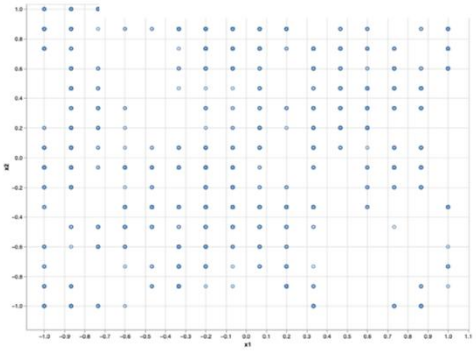
Data-driven new product/service development

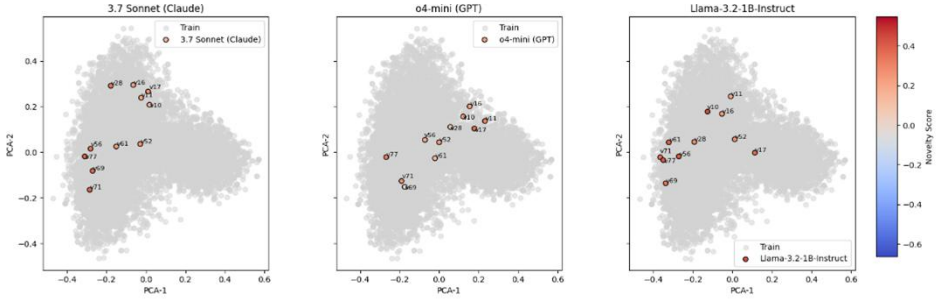
How AI contributes to the Fuzzy Front End of Innovation

❖ Fuzzy-front end in new product development

- Some example: opportunity maps



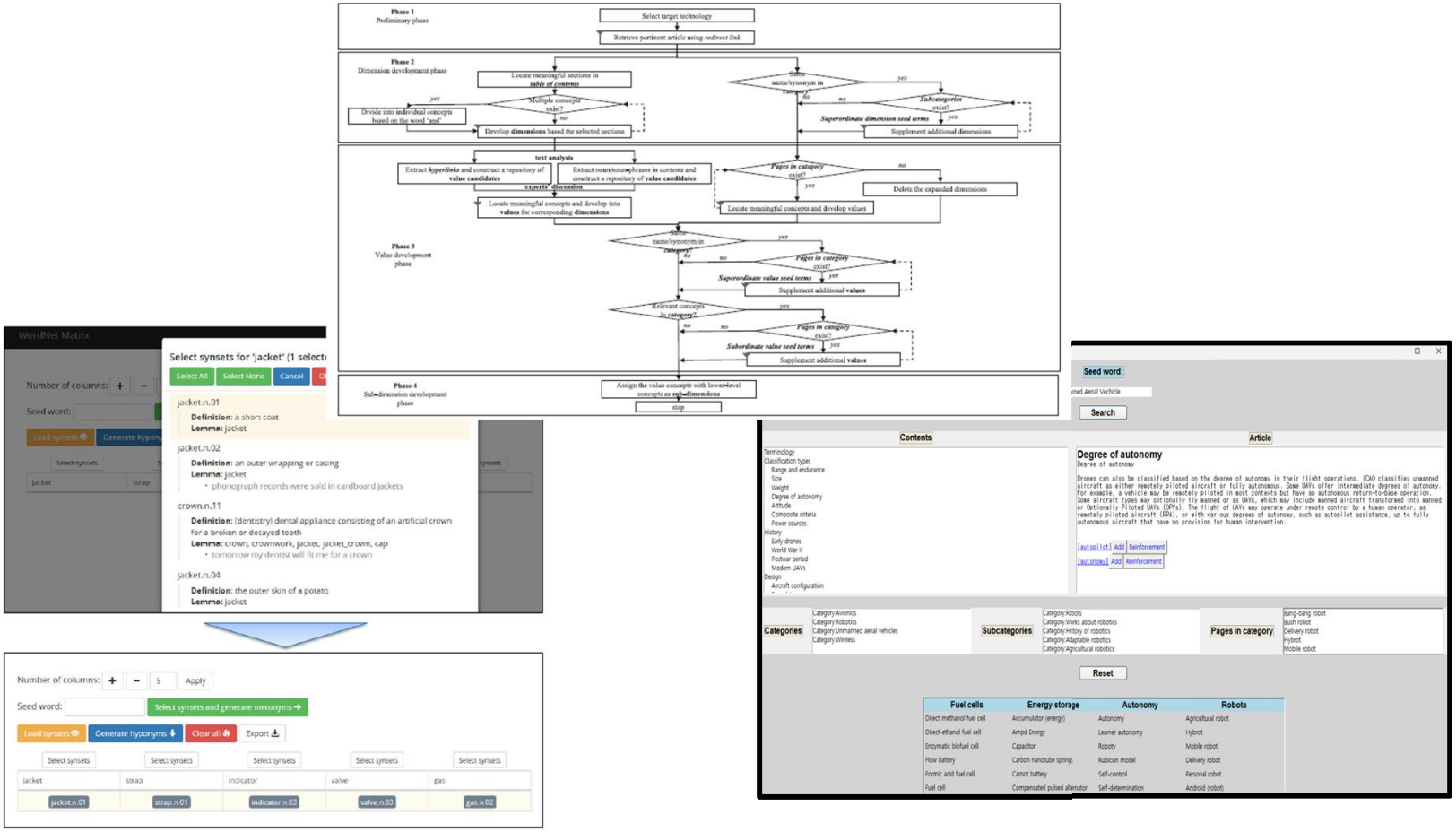




How AI contributes to the Fuzzy Front End of Innovation

❖ Fuzzy-front end in new product development

- Some example: data-driven ideation tools



How AI contributes to the Fuzzy Front End of Innovation

❖ New product development and AI

▪ Data-driven decision making

- AI enables real-time market research, customer insight generation, and trend forecasting, significantly shortening traditional research cycles

▪ Enhanced Development Agility

- By automating design, simulation, and testing processes, AI dramatically reduces the NPD cycle time and accelerates time-to-market

▪ Blurring Organizational Boundaries

- Open innovation platforms empower collaboration with external AI startups, customers, and academic institutions
  - Fostering a more dynamic and interconnected innovation ecosystem

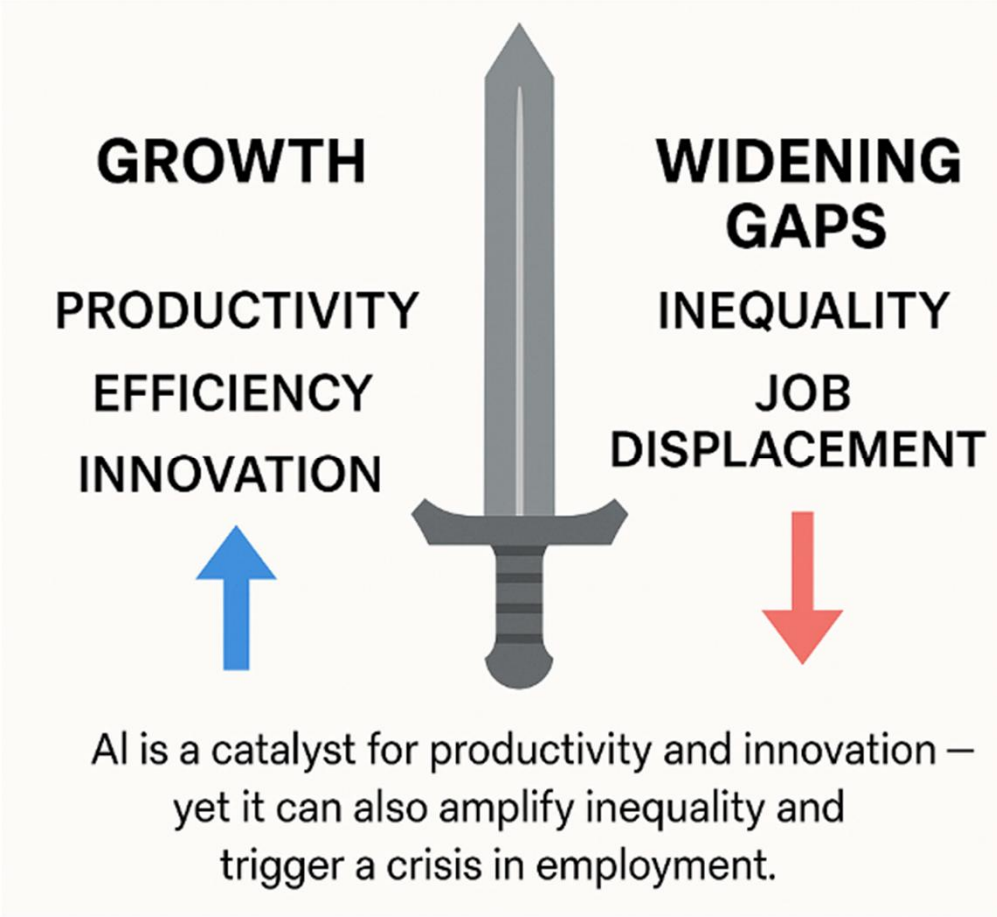
How AI contributes to the Fuzzy Front End of Innovation

❖ New product development and AI

NPD Stage	Key AI Applications	Transformation Points
Idea Generation	Generative AI for creative ideation, patent and market data analysis	Expands the diversity and speed of idea creation
Concept Development	Predictive modeling for demand fo recasting and scenario analysis	Accelerates market fit validation and concept testing
Product Design & Development	AI-driven simulations and digital tw in technologies	Reduces failure costs and enhances design accuracy
Prototyping & Testing	Machine learning for anomaly dete ction and performance optimizatio n	Decreases testing cycles and improves product quality
Launch & Commercialization	Marketing automation, customer s egmentation, and price optimizatio n	Enables data-driven go-to-market strategies and personalized launches

AI as a Double-Edged Sword

❖ AI as an engine for productivity/innovation, but…



AI-driven Inequality

Economic Inequality

- Different demand: Reduced demand for routine labor but increased demand for AI engineers and data scientists

Social Inequality

- Unequal Surveillance and Policing: AI-powered CCTV systems are more frequently installed in low-income neighborhoods

Technological Inequality

- Facial recognition systems often misidentify women and people of color more frequently than white men
- Eg. Amazon's AI hiring tool: discriminated against female applicants because it was trained on male-dominated historical data

AI-driven Inequality in corporate context

❖ New form of AI-based corporate inequality

▪ Large Corporations

- Have massive proprietary datasets (customer behavior, transactions, logistics, etc.) that fuel machine learning.
- Can afford to build dedicated AI R&D departments, cloud infrastructure, and hire top-tier AI talent.
- Partner easily with global AI vendors (Google, AWS, OpenAI, etc.) and access cutting-edge technologies.

▪ SMEs

- Struggle with limited, fragmented, or low-quality data that is insufficient to train robust AI models
- Often rely on third-party AI platforms without customization
- Lack financial capacity to invest in data governance, computing infrastructure, or AI experts

Why the Gap Is Growing

❖ Infrastructure and Data Readiness

- Successful AI implementation requires more than algorithms; data quality, governance, and cloud infrastructure are critical for scaling value creation.

❖ Organizational Culture and Systems

- AI adoption must be accompanied by changes in organizational culture, labor systems, and knowledge structures

❖ Strategic Focus

- Should concentrate investment on high-impact areas
  - But, many firms remain stuck at the pilot stage

❖ Firm Size and Digital Maturity

- SMEs face resource constraints and legacy systems that limit AI implementation and expansion.

Challenges of AI Adoption in SMEs

❖ Limited Resources and Infrastructure

- Lack the financial and technical capacity: Cost and infrastructure
- Lack of Data and Technical Expertise
  - limited access to high-quality data and insufficient internal expertise

❖ Weak Strategy and Organizational Readiness

- AI transformation is not only about technology—it requires organizational change, leadership commitment, and strategic clarity.
- Lack of clear vision or business case

❖ External Environment and Governance Issues

- Vulnerable to regulatory uncertainty, data protection challenges, and ethical risks associated with AI : lack of AI ecosystems designed for SMEs

How to Support SMEs in AI Transformation

❖How to Support SMEs in AI Transformation

- Start small, Learn fast
  - Encourage small-scale, high-impact pilot projects such as automation or prediction tasks that deliver quick results and build confidence.
- Build capability, not infrastructure
  - Focus on developing human/organizational capabilities by AI training& mentoring
  - Access to shared AI platforms or cloud tools
- Collaborate through ecosystems
  - Foster partnerships among SMEs, universities, and AI startups to co-develop and test practical AI solutions
- Tailor by industry: Provide sector-specific AI playbooks

“Start small, collaborate broadly, and tailor by industry”

Implications for Korea's Industrial Future

❖ Now we stand at a strategic crossroads

- If the AI adoption gap continues to widen, the country could see a dual economy — with tech-intensive firms accelerating innovation while others fall behind
- Closing this gap will require to ensure inclusive industrial transformation
  - Cross-sector collaboration
  - Human-centered innovation
  - Public-private data partnerships

The social contribution of technology

❖ Questions that we have to focus on

Technology level	Firm level	Inter-firm level	Industry level	National level
How is AI technology designed, and who has access to it?	**What kinds of internal inequalities emerge when a company pursues AI-driven innovation?**	**Does AI intensify or mitigate power imbalances between firms, particularly between large corporations and SMEs?**	**How does AI reshape industrial structures and alter equity within industries?**	**Do AI policies achieve not only economic growth but also social inclusion and sustainability?**
- Data access - Model structure/performance - Transparency - Sustainability	- AI strategy capability - Talent/Technology gap - Organizational culture - Internal fairness	- Data access - Collaboration model - Standardization - Profit sharing	- Industry change - Productivity gap - Standards - Industry transition - Eco-friendly innovation	- National strategy Digital gap - Regulation/ethics - Public-private cooperation - Global cooperation

Moving forward: Strategic Alignment

❖ An Integrated Framework for Innovation and Preparedness

- A cohesive strategy to promote AI-based industrial innovation that is both sustainable and socially inclusive

Technology-Talent integration

- Build National AI Skills Stack
- Embedded AI fellows rotating through SMEs to build first production use cases

Innovation-Ethics integration

- AI Impact & Safety Review
- Green-by-Design Checklist
- Bias & Robustness Tooling

Public-Private Collaboration

- Joint Development of the AI Industrial Ecosystem
- Mission-Driven Consortia
- Regulatory Sandboxes

Global Cooperation Platform

- Sharing AI Capabilities through the AI initiative
- Cross-Border Data & Compute Federations
- SME Export Accelerator for AI

Thank you

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