

Impactful AX for Your Digital Success



Contents

Global Bio Pharma Trends

Challenges in Bio Pharma Industry

Offerings

1. R&D

- PLM
- AI-Assisted IPMS Patent Search System
- Multiomics Platform
- Smart Lab (Self-Driving Lab)
- Clinical Development AI Guide

2. Manufacturing

- iPharmMES
- PhysicalWorks
- SINGLEX Equipment Management System
- QC Assistant AI
- AI Inspector

3. Regulatory Affair

- CT Report AI Assistant
- Report Generation AI – APQR
- Pharma Ad Compliance AI

4. Logistics

- Smart Logistics Service
- Fleet Dispatch & Route Optimization

5. Enterprise

- ChatGPT Enterprise
- Agentic Works
- a:xink
- A+CE
- LG CNS GPUaaS
- Hybrid GPUaaS

6. Consulting

- AX Discovery
- AX Consulting
- Smart Factory Consulting
- NPI Consulting
- Optimization Consulting

About LG CNS

Global Bio Pharma Trends

The 2030 patent cliff, CDMO market expansion, wider adoption of AI-driven drug discovery, and rising AI regulatory demands are accelerating data- and AI-based digital transformation across pharma and biotech.

Patent Cliff & Growth of AI-Driven Drug Discovery

The 2030 patent cliff is intensifying global pharma competition for new pipelines, with the AI drug discovery market projected to grow 29.1% annually

BioSecure Act & CDMO Capacity Competition

CDMO demand has expanded since the U.S. BioSecure Act, with Lotte Biologics investing KRW 4.6 trillion and Samsung Biologics securing 17 global big-pharma clients

Scale-Up of AI Drug Discovery & Smart Labs

Nineteen drug programs are underway on the AWS–Pfizer AI platform VOX, alongside broader adoption of AI-based smart labs and automated research environments

Regulatory, Data, and Talent Challenges of Scaling AI

62.3% of Korean bio plants still run primarily on ERP, driving the need for data standardization, AI regulatory compliance, and sensitive-data security

Challenges in Bio Pharma Industry

Fragmented data, limited manufacturing digitalization, regulatory complexity, and AI capability gaps are making AX transformation increasingly urgent for pharma and biotech.

turn AI into real
advantage **5%**

"AI adoption is not about accelerating existing processes; it requires redesigning the entire workflow."

- McKinsey Life Sciences Insights

Bio Data Silo

Fragmented data limits AI-driven drug discovery
"AI can compress drug discovery from years into months." — Demis Hassabis, CEO of DeepMind

Global Compliance Complexity

Regulatory readiness for AI-based development
"Where AI informs drug safety, efficacy, or quality decisions, data reliability is critical." — U.S. FDA AI guidance

Manufacturing Digitalization Gap

Limited data-driven digitalization on the plant floor
"AI has the potential to improve the quality and efficiency of drug development and manufacturing." — U.S. FDA (AI in Drug Development report)

AI & Digital Capability Gap

Technology and talent gaps in AI-driven drug discovery
"AI has the potential to bring safe, effective medicines to patients faster." — U.S. FDA AI/ML Drug Development Discussion Paper

Impacts of Bio Pharma AX

The change AI makes possible —
here is what it looks like with LG CNS.

Powered by proven AX capabilities and experience,
LG CNS delivers the optimal services and solutions for pharmaceutical and biotech companies.

① R&D

- PLM
- AI-Assisted IPMS Search
- Multiomics Platform
- Smart Lab (Self-Driving Lab)
- Clinical Development AI Guide

② Manufacturing

- iPharmMES
- PhysicalWorks
- SINGLEX Equipment Management System
- Equipment Document AI Digitalization
- QC Assistant AI
- AI Inspector

③ RA

- Report Generation AI – APQR
- CT Report AI Assistant
- AI Agent for Product & Ad Copy Legal Review

④ Logistics

- Smart Logistics Service
- Fleet Dispatch & Route Optimization

⑤ Enterprise

- ChatGPT Enterprise
- Agentic Works
- a:xink
- A+CE

⑥ Consulting

- AX Discovery/Consulting
- Smart Factory Consulting
- NPI Consulting
- Optimization Consulting

Impacts on

R&D

LG CNS Service Offering

- PLM
- AI-Assisted IPMS Patent Search System
- Multionics Platform
- Smart Lab (Self-Driving Lab)
- Clinical Development AI Guide



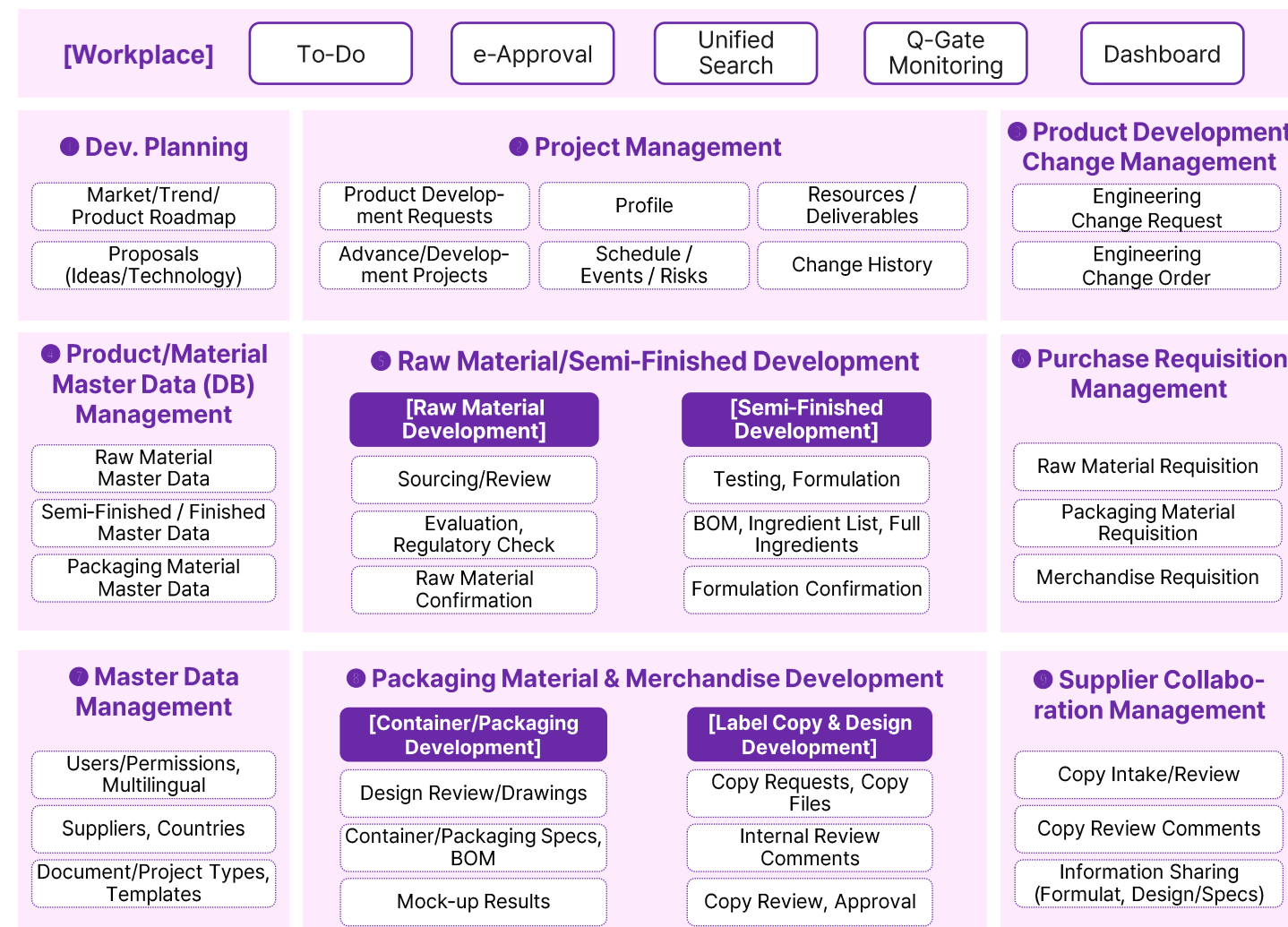
Unified management across the entire product development lifecycle

PLM (Product Lifecycle Management)

Cosmetics company L consolidated its industry-specific development processes onto one connected platform, gaining stage-level visibility and using accumulated development history to shorten timelines and lift productivity.

Before

- Loosely integrated systems and manual handoffs make change history and traceability hard to maintain
- Frequent early changes push the specification freeze to the end of development
- Labeling copy management is critical in cosmetics and household chemicals, yet the review process remains complex



Created Value

- Standardized development workflow for finished and semi-finished products
- Higher productivity through shorter timelines and streamlined cross-functional work
- Traceability and transparency
- Single audit trail for labeling copy reviews

“ PLM gives us a single view of the entire development process, minimizing lead time between stages and improving productivity.

— Company L, Head of OOO

”

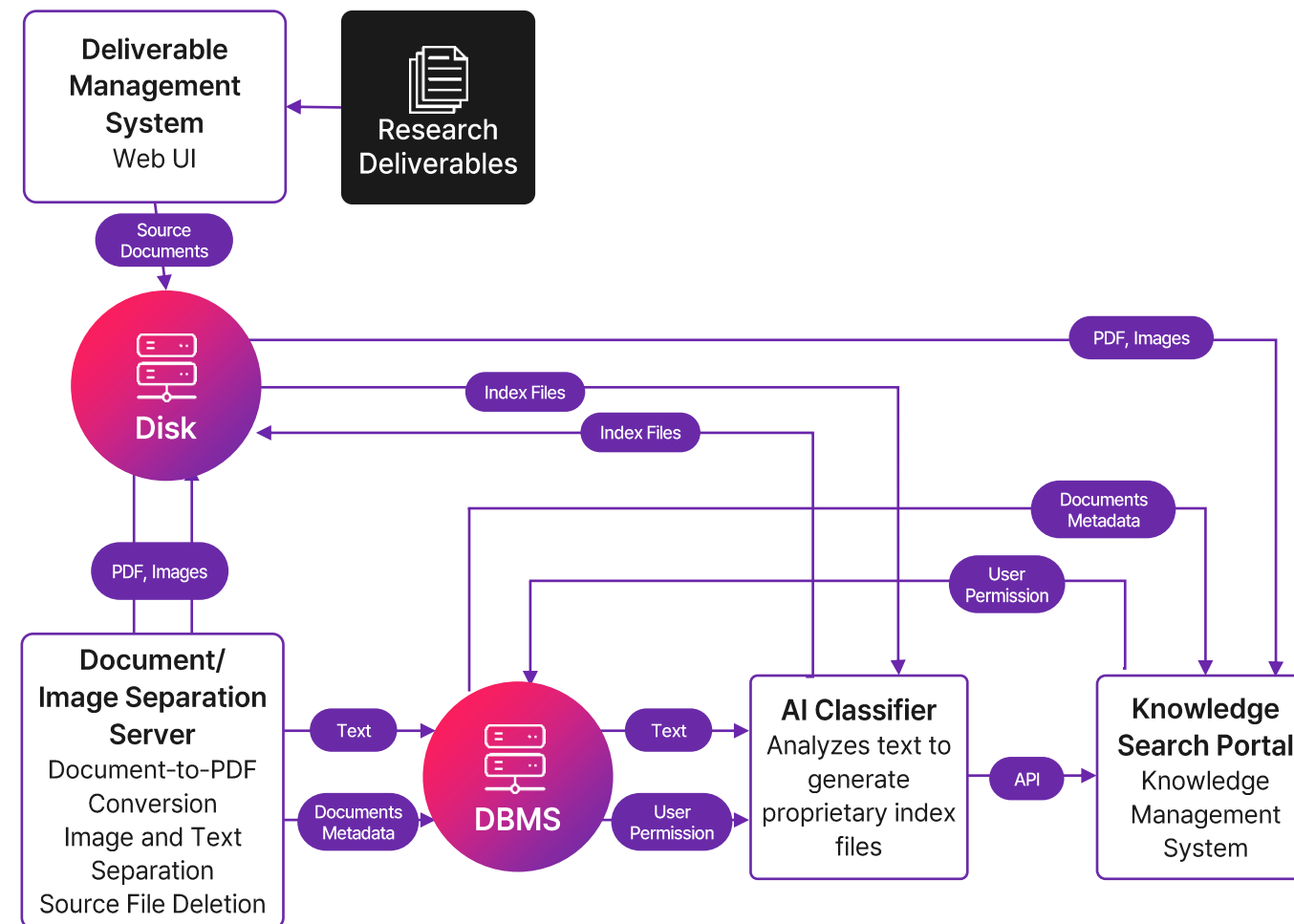
Efficient management of knowledge assets and patent trend analysis

AI-Assisted IPMS Patent Search System

The AI-based patent management system adopted by Group B combines text AI with Deep Document Understanding to analyze R&D issues quickly, classify knowledge and patent data, and automate everything from report writing to technology trend analysis and new business ideation.

Before

- Ideation search sets the direction of follow-on research
- Growing volumes of unstructured knowledge assets degrade search and drive up patent analysis cost and time



Created Value

- Deep Document Understanding classifies and organizes knowledge assets automatically
- Lower outsourcing spend on patent trend analysis, reports, and supporting material

“ With the trained corpus we can spot technology and patent trends and turn them into new business ideas far faster.

- Company B, Head of OOO

”

Accelerating drug discovery through AI-based protein analysis

Multomics Platform

Using the LG CNS BIO AI Platform, which includes AlphaFold, pharmaceutical company A accelerated genomic data analysis and protein structure prediction while optimizing experimental design to identify drug candidates.

Before

- Long timelines and low success rates persist from candidate discovery to market
- Open-source models still demand infrastructure, deployment, and engineering skills that limit adoption in pharma

End-to-End Drug Discovery Pipeline (AI Agent Automation)

① Target Discovery & Analysis
scRNA-seq-based target discovery

② Hit Discovery
Compound and antibody library screening

③ Virtual Screening
High-speed DTI-based binding prediction

④ Lead Optimization
Boltz-2-based precision affinity optimization

⑤ Preclinical/Clinical & Collaboration
Federated learning for secure training

↓

Pre-built Agent Dashboard

AlphaFold2
3D structure prediction · Mol* View · Automated GPU cost tuning

RFAntibody
RoseTTAFold-based design · Bispecific (tandem) antibody · Sequence optimization

DTI
High-speed Drug-Target- Interaction prediction

Federated learning platform
Built on NVIDIA FLARE · Training without data sharing · Better global model accuracy

Cell x Gene
Single-cell transcriptome analysis · Expression pattern exploration · Target candidate identification

REINVENT
State-of-the-art algorithms for compound generation and efficacy prediction

Boltz-2
Precision binding affinity prediction and ADM/ET prediction support

Dashboard
Integrated pipeline management across the discovery process · Candidate discovery views

Foundation

Google Cloud Landing Zone · Vertex AI · GPU / TPU Infra · Integrated Workflow

Created Value

- Prebuilt agents run predictions on demand, compressing development timelines
- Faster structure determination, earlier target validation, and insights for personalized drug development

“

Applying AI to genomic analysis and protein structure prediction kept our government-funded diagnostics and drug discovery projects on track.

— Pharmaceutical Company A, Head of OO

”

A Self-Driving Lab platform that unites AI and robotics across the full R&D cycle

Smart Lab (Self Driving Lab)

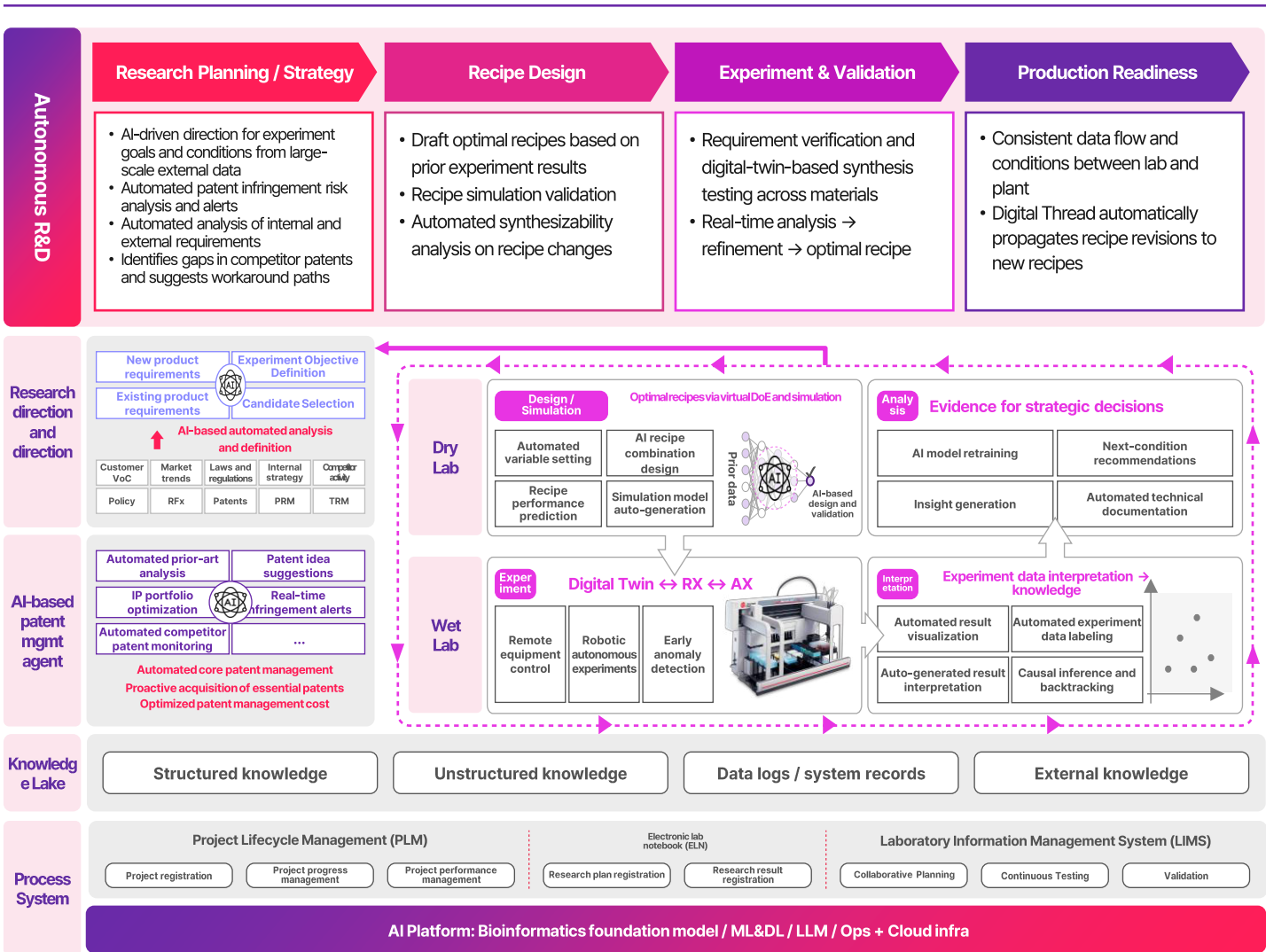
By adopting Smart Lab (SDL), company A implemented every required capability end to end, from experiment design and data analysis to equipment automation and advanced operations, sharply improving research productivity and data reliability.

Before

- Manual, labor-dependent experimental processes
- Data errors and poor reproducibility
- Slow onboarding of new experimental processes

Created Value

- Maximum throughput with 24/7 operation
- 100x precision gain, reliable data
- Research cycles cut by over 50%
- Safer work as robots handle hazards



“ AI-enabled SDL has dramatically improved both the speed and the accuracy of our experiments, and concerns about run time and data quality are gone. - Company A, Head of R&D ”

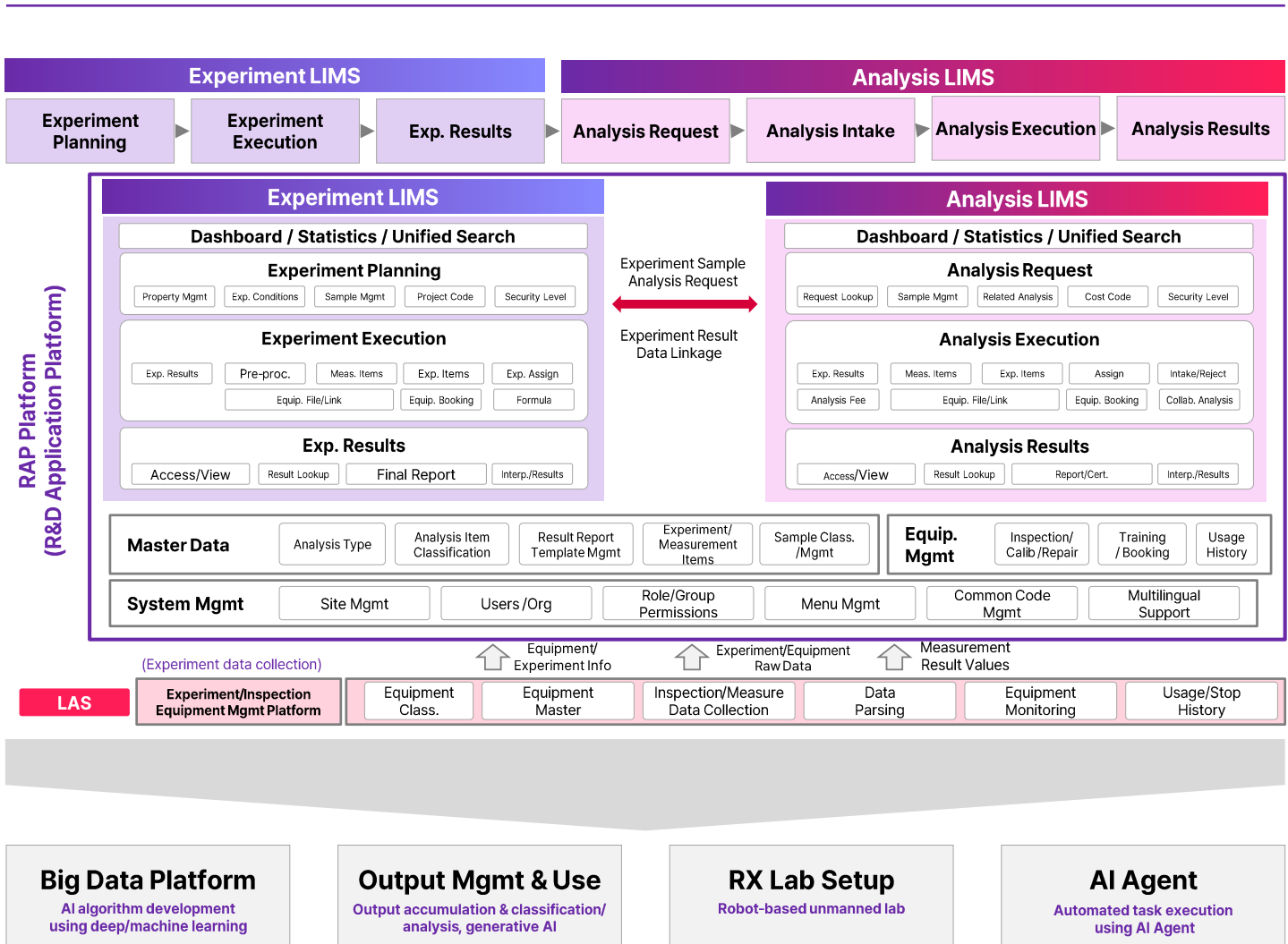
Unified management of the entire experiment lifecycle on one platform

LIMS (Lab Information Management System)

LIMS manages experiment and analysis work — from planning to execution and evaluation — on a single RAP platform, and raises the traceability and usability of experiment data through LAS equipment integration and AI-based analysis.

Before

- Experiment and analysis data are managed across separate systems and manual work, making data traceability and history hard to maintain
- Equipment raw data are aggregated and calculated by hand — time-consuming and error-prone
- Accumulated experiment and output data is scattered, making reuse and knowledge-building difficult



Created Value

- Analysis and Experiment data unified on one RAP platform, securing end-to-end data traceability
- Automated calculation, analysis, and visualization of large Raw Data raises research productivity
- Big-data and gene AI extend to optimal recipe recommendation, property prediction, and output utilization

“ With experiment and analysis data connected on one platform, we spend less time aggregating results and repeating calculations, and researchers can focus on analysis and judgment. —R&D Lab, Research Lead ”

Grounding clinical development decisions in current regulations, guidelines, and SOPs

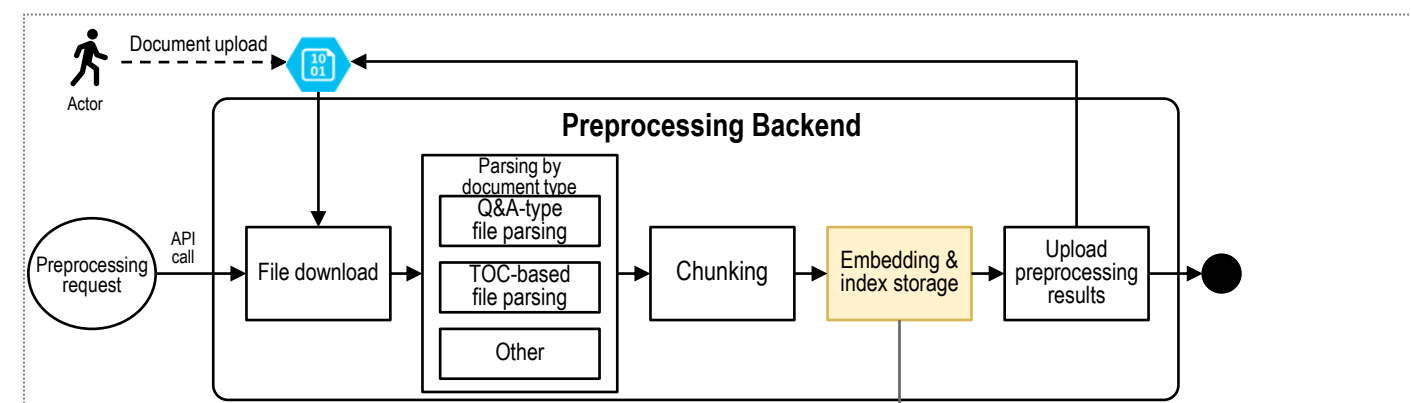
Clinical Development AI Guide

With the Clinical Development AI Guide, pharmaceutical company C retrieves the regulations, guidelines, and SOPs behind each study through simple Q&A, receiving category-specific answers with cited source documents so teams spend less time deciding which reference to trust.

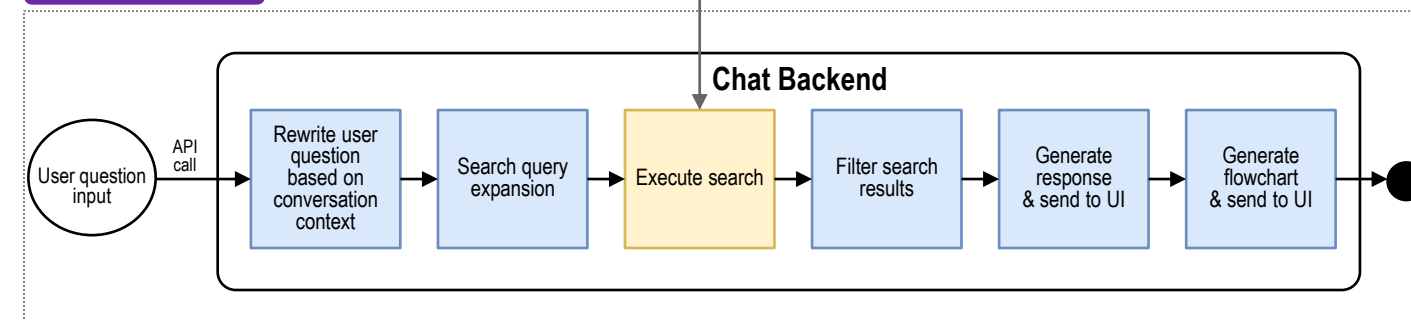
Before

- Teams navigate vast libraries of regulations, guidelines, and SOPs largely from personal experience
- Verifying which document applies, and whether it is current, takes considerable time
- Mixed document sets make it hard to choose the right reference and slow retrieval

Data Preprocessing



User Q&A



Created Value

- Context-aware document search reduces the decision burden
- Unified search with low-latency responses speeds document discovery
- Continuous indexing of new documents keeps content current and accurate

“ We no longer comb through and compare endless regulations and SOPs; we confirm the standard we need and decide far faster.

- Pharmaceutical Company C, R&D QA Team Lead

”

Impacts on

Manufacturing - Quality

LG CNS Service Offering

iPharmMES

Physical Works

SINGLEX Equipment Management System

Equipment Document AI Digitalization

QC Assistant AI

AI Inspector



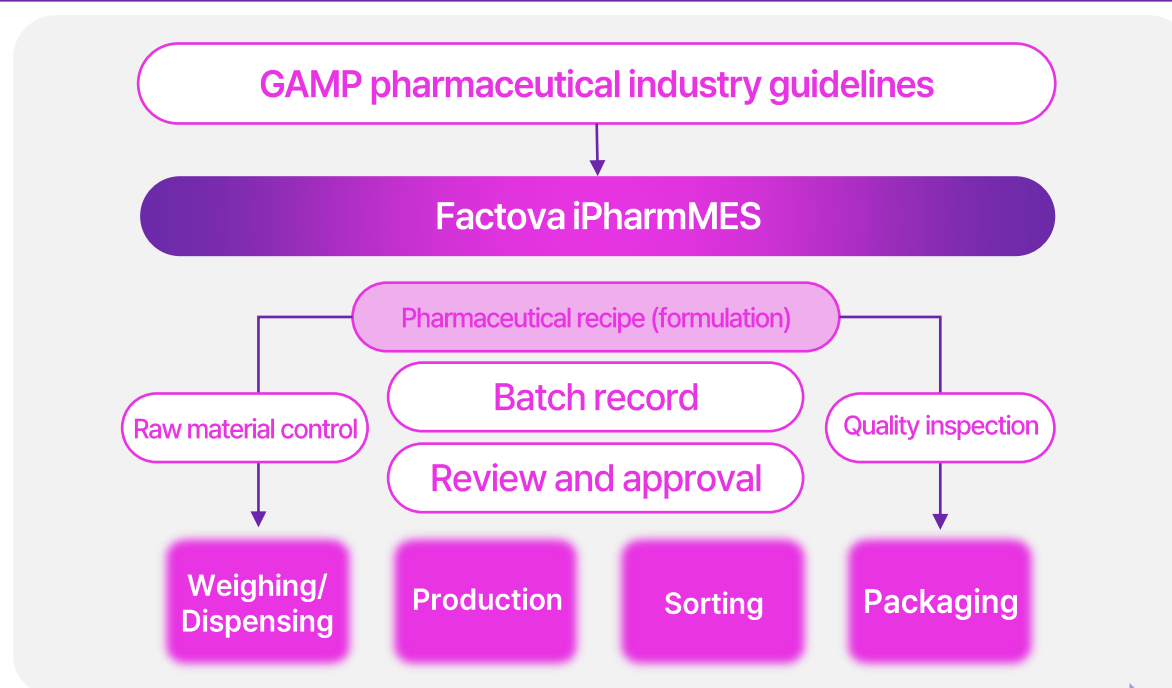
Purpose-built for quality management aligned to pharmaceutical regulations and process standards

iPharmMES

Pharmaceutical company D built an MES with industry regulations embedded directly in the solution, meeting both domestic and global standards for quality and batch history.

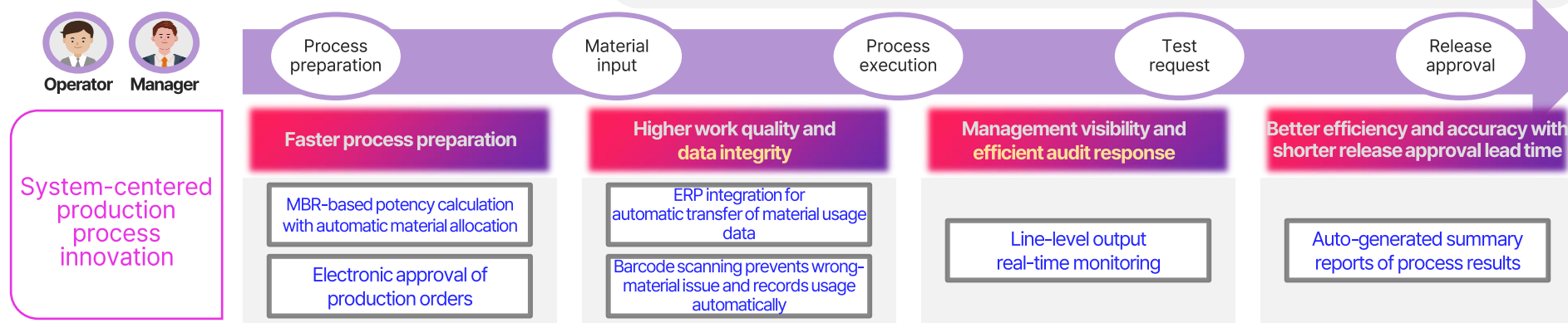
Before

- Complex, tightly regulated process standards make pharmaceutical production management highly demanding
- Automating expertise-heavy quality management is difficult and hard to justify at scale



Created Value

- Automation across every pharmaceutical process, from raw material control to packaging
- Compliance with FDA 21 CFR Part 11, GMP, and other international standards supports production and quality management at global standards



* MBR (Master Production Record)

“ Functionality is updated continuously to GMP requirements, so findings from audits reach production quickly.

- Company H, Head of OOO

”

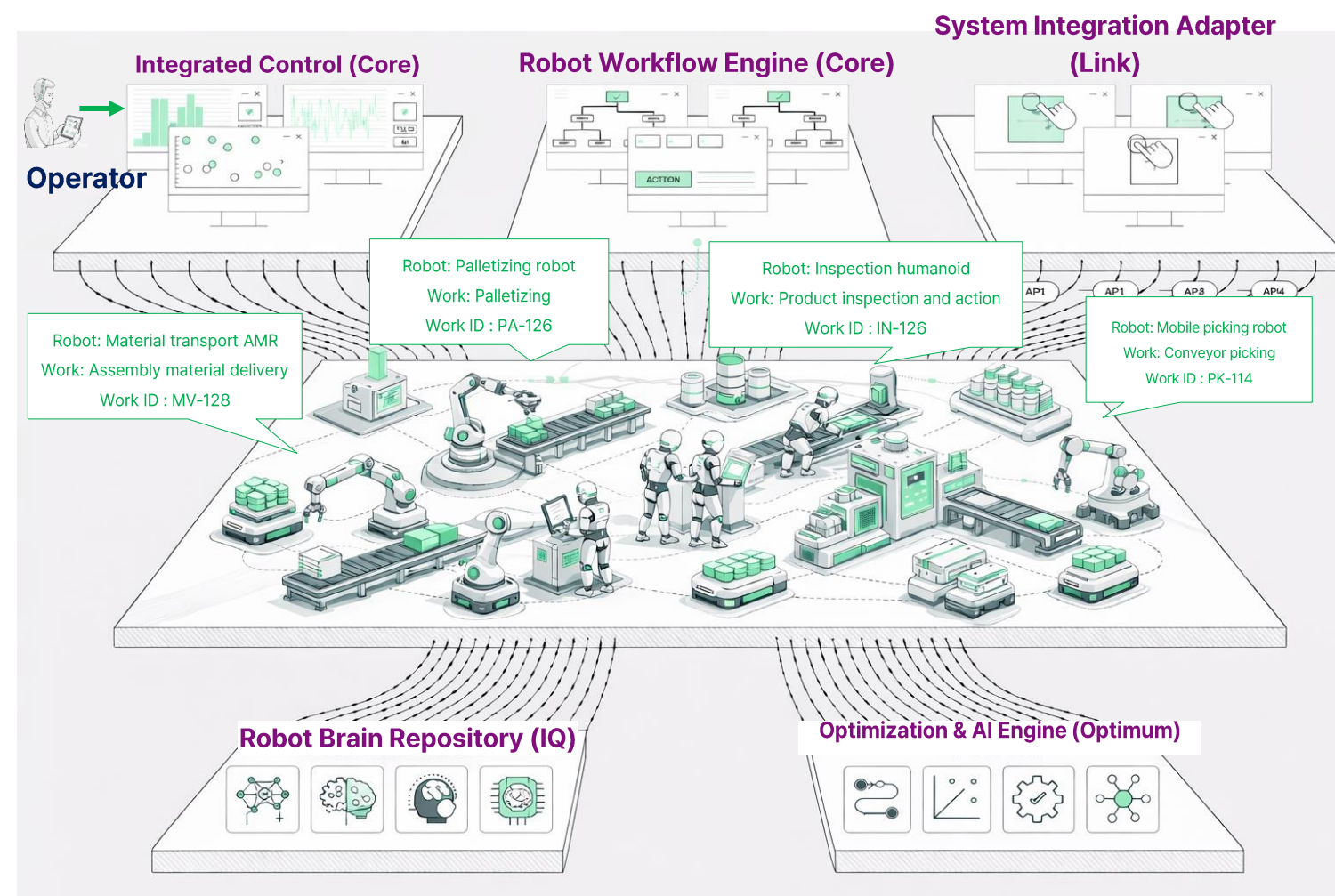
An autonomous operations platform in which AI plans, coordinates, and continuously improves how robots and equipment run

Physical Works

A robot operations platform that integrates large multi-vendor, heterogeneous fleets with production and logistics equipment for efficient, reliable operation at scale.

Before

- End-to-end automation is needed so robot-to-robot and robot-to-equipment collaboration cuts manual labor in practice
- New robots must connect to existing robots and legacy systems quickly, without a separate integration project
- Mixed robot fleets must stay optimized as site conditions change, maximizing productivity



Created Value

- Unified operation of multi-vendor, heterogeneous robots and equipment
- Fast integration of new robots with existing systems
- Flexible operational optimization as sites change
- Maximum productivity through higher efficiency and stability

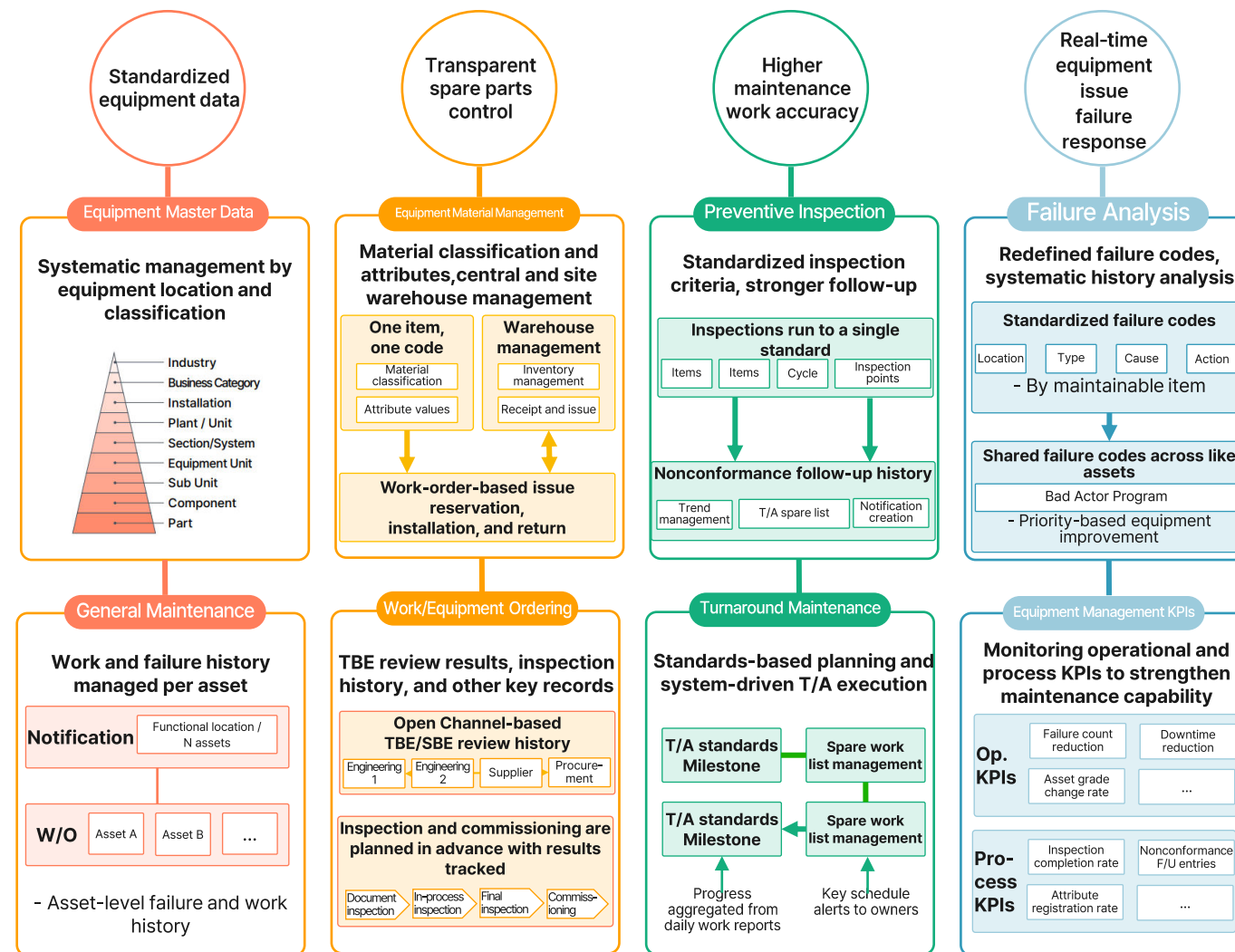
Keeping equipment at peak performance in uptime, maintenance quality, and core function

SINGLEX Equipment Management System

Chemical and energy company E eliminated much of its manual field work and built a foundation for system- and data-based PM planning and efficient spare parts operation.

Before

- Inspection items and nonconformance criteria differ across plants, making preventive inspection slow and costly
- Without real-time visibility into equipment data and inspections, setting and pursuing targets is difficult



Created Value

- Failure, root-cause diagnosis, corrective action, and history tracking handled in one step on site through a mobile platform
- Real-time integration with domestic and overseas MES, with automatic work order creation so no failure or action is missed

“Equipment management strengthened our daily inspection routines and made quality issue analysis on accumulated data straightforward.

- Company E, Head of OOO

”

Lights-out inspection built on image preprocessing, Vision AI, and imager replacement technology

AI Inspector

Company C automated substrate inspection with Vision AI preprocessing and automatic defect classification, replacing review imagers and sharply reducing inspection labor and equipment cost.

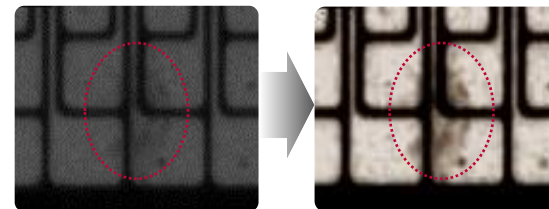
Before

- New models and rising volumes require additional review-inspection capacity
- Legacy visual inspection assigns one operator per review imager to confirm defects after scanning
- The capital required for added capacity and supplier expansion calls for automation that minimizes new equipment and inspectors

Review imager replacement

- Colorization and super-resolution development
- Verified equivalent to legacy review imager images

Colorization + Super-Resolution



Automated Imager development

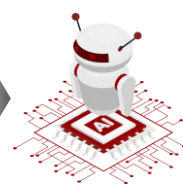


Vision AI-based automatic defect classification

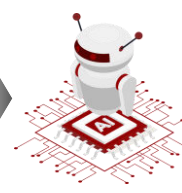
- AI-based automatic defect classification minimizes manual review
- Automated imagers minimize investment in review inspection equipment



Visual inspection scanning



AI Preprocess



AI Classify



Automated imager



Remote inspection (office)

Created Value

- KRW 4.0 billion in avoided imager investment (48 manual units to 8 automated) and inspection staff cut from 96 to 16
- Extended to four more plants and to OLED panels and optical modules

“

The automatic defect classification system let us streamline inspection staffing and cut equipment investment.

- Company C, Inspection Team Lead

”

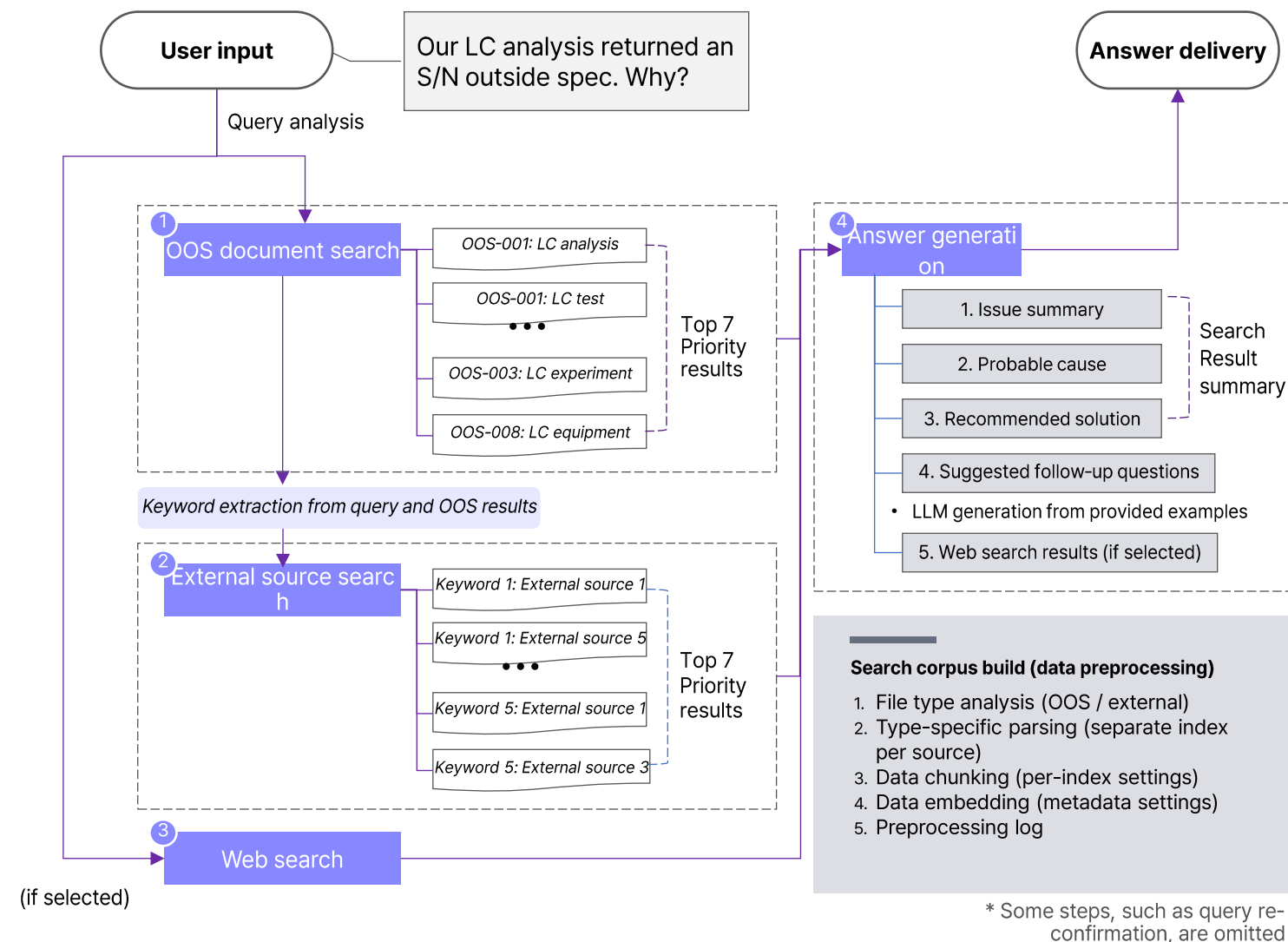
Analyzing causes and recommending solutions for issues that arise in quality control testing

QC Assistant AI

With QC Assistant AI, pharmaceutical company D analyzes causes quickly and derives appropriate solutions for QC testing issues, drawing on past OOS (Out of Specification) cases and external sources.

Before

- When issues arise in QC testing, interpreting data and pinpointing causes takes considerable time
- Judgment based on individual experience leaves room for human error
- QMS search requires exact matches, so relevant cases are hard to find, and unclear causes or solutions lead to repeated experiments and wasted resources



Created Value

- Case-based recommendations shorten search, analysis, and decision time and enable consistent, data-driven responses

“ The time spent finding past cases and organizing causes has dropped sharply, so we assess issues faster and respond consistently.

- Pharmaceutical Company D, QC Team Lead

”

Impacts on

Regulatory Affair

LG CNS Service Offering

AI Annual Product Quality Review

CT Report AI Assistant

AI Agent for Product & Ad Copy Legal Review



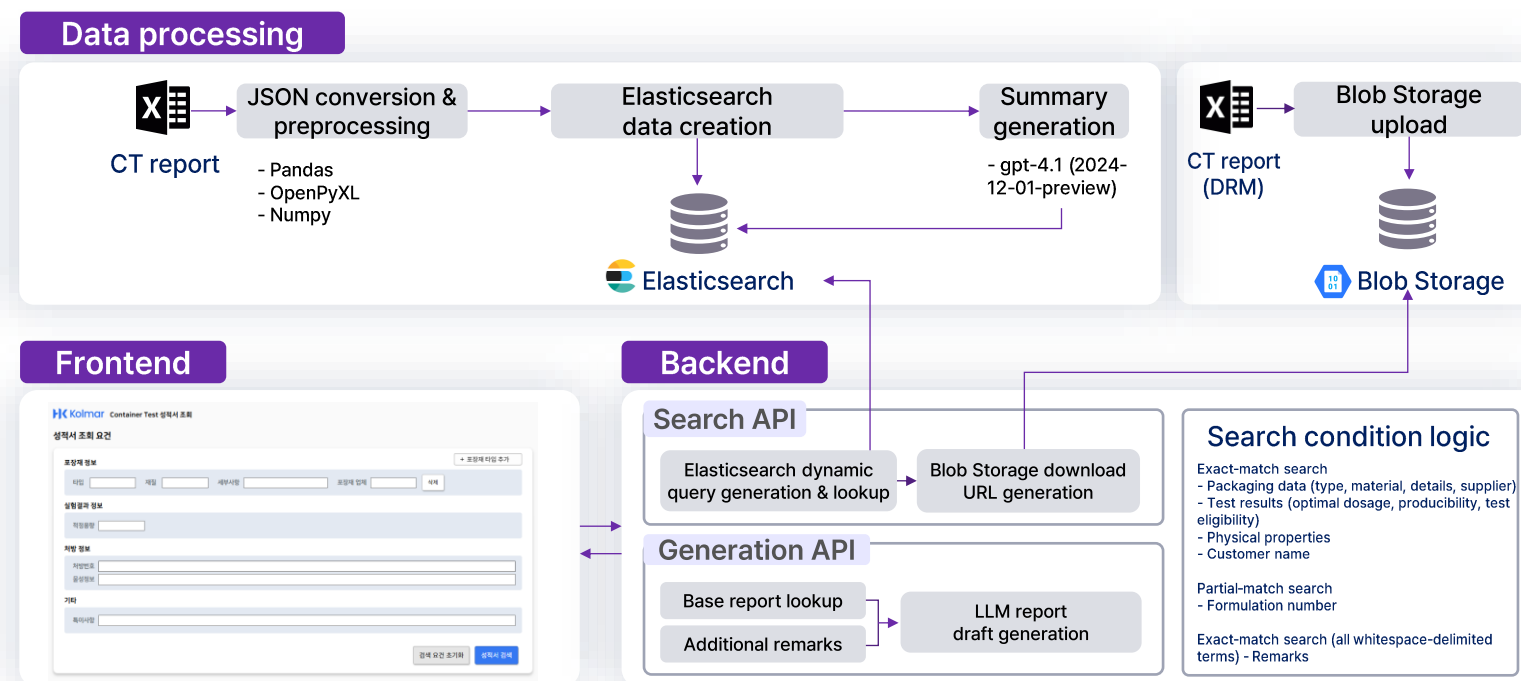
From CT (Clinical Trial) report search to draft generation — raising research productivity

CT Report AI Assistant

Pharmaceutical company B searches existing report data instantly and generates drafts with remarks applied automatically, cutting document search time, standardizing report quality, and shortening sales response lead time for its CT research team.

Before

- Authoring a test report means combing through prior documents and re-checking similar remarks, while spec confirmation and sales support consume more time
- Sprawling report and reference libraries create a search burden that keeps researchers from core work



Created Value

- Less time spent writing CT reports, with consistent quality and drafting standards
- Shorter sales response lead time and less repetitive work, improving research team focus and productivity

“With less repetitive searching and remark handling, our research team can focus on core work such as review and judgment.

— Pharmaceutical Company B, Research Team Lead

”

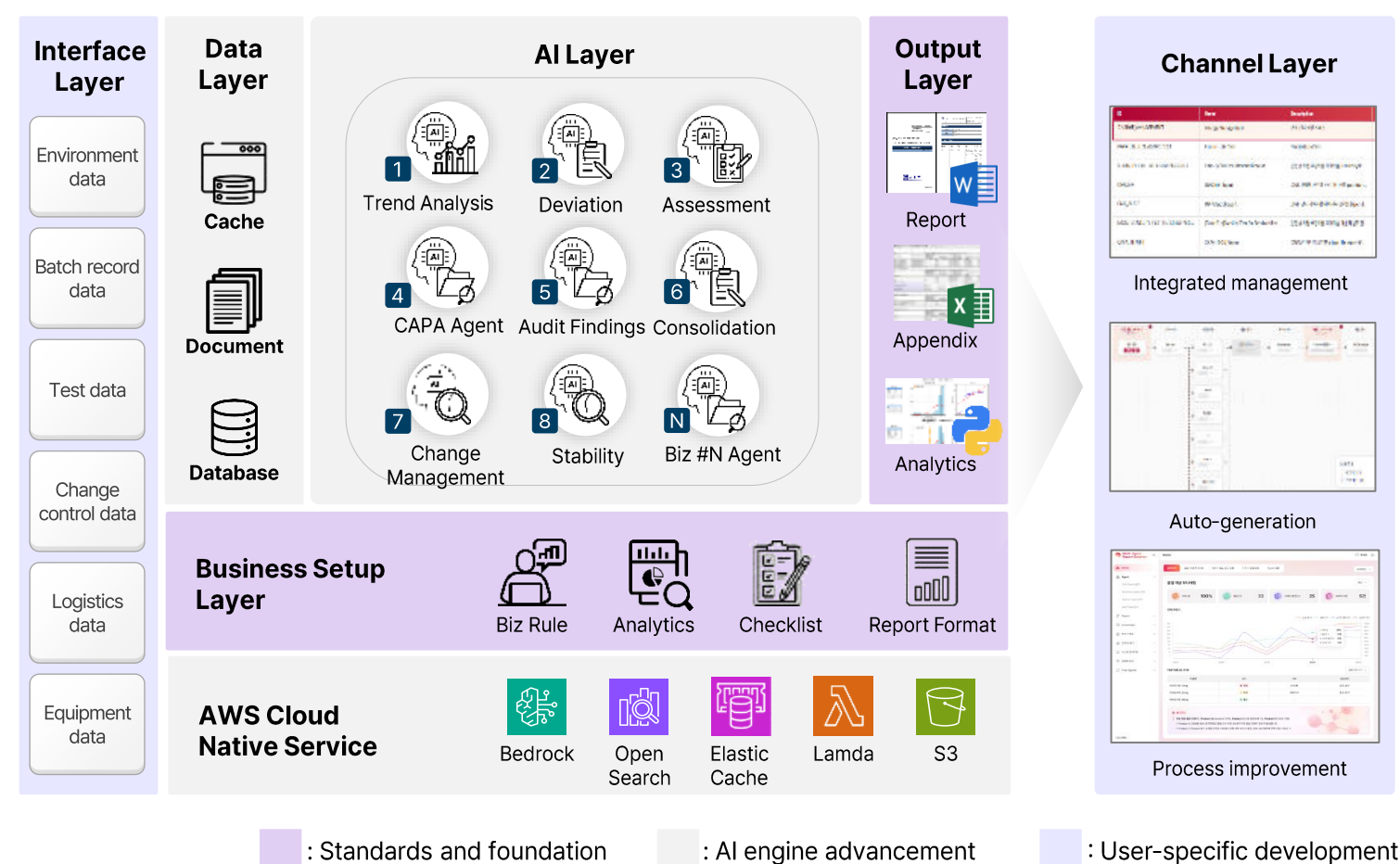
Generating expert-grade reports from unstructured data with generative AI

Annual Product Quality Review

Pharmaceutical company A automated its manual APQR process with generative AI, cutting authoring time by 90% while streamlining demanding R&D and product quality reviews and strengthening lifecycle quality management.

Before

- APQR for periodic quality review relies on experts manually compiling large volumes of unstructured data, consuming time and staff
- Automating APQR is technically difficult, making large-scale investment hard to justify



Created Value

- Multi-agent AI automates APQR across unstructured data
- A global standard reporting structure makes it deployable in overseas markets

“APQR once required a specialist; with AI it takes a single click and under ten minutes.”

- Pharmaceutical Company A, Head of QA

”

AI pre-screening of advertising and compliance risk for member companies

Pharma Ad Compliance AI

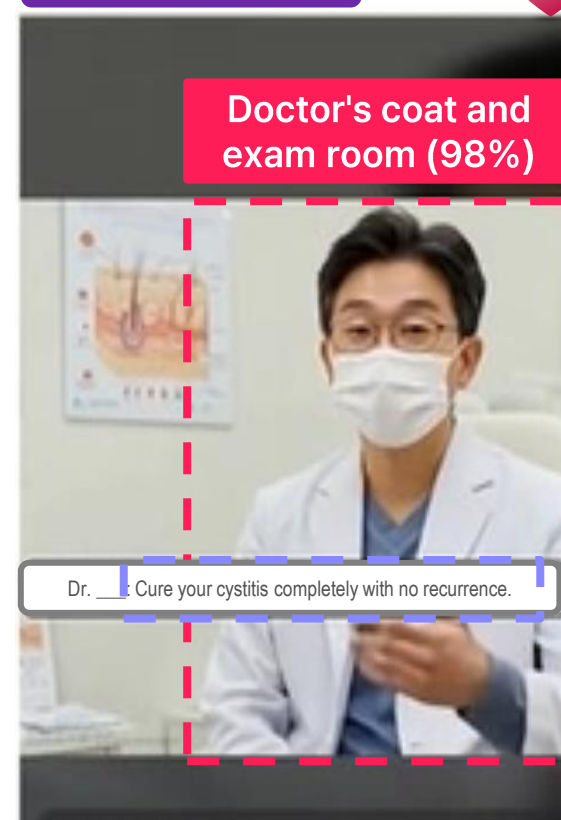
AI pre-filters advertising risk for prescription and OTC drugs, improving review efficiency for the association and its member companies.

Before

- Social media and short-form video have sharply increased the volume of ads requiring pre-review
- Standards differ by product class (ETC/OTC/food) and channel, creating inconsistent reviews
- Reviewers manually flag physician or pharmacist endorsements, before-and-after imagery, and exaggerated claims

Demo image (mock-up)

Ex)



"a complete cure for cystitis" and
"recovery from benign prostatic hyperplasia is possible"

OCR Text Extracted

AI analysis output

Ex)

[Step 1] Vision object and context analysis

- Detected objects: white lab coat, exam-room setting (anatomy poster)
- Inference: context of a medical professional giving medical advice
- RAG cross-check: review required under Pharmaceutical Affairs Act Article 6 8(6)
(prohibits implying physician or pharmacist endorsement of a specific drug)

[Step 2] Text (OCR) caption keyword analysis

- Extracted keywords: "professor," "cystitis," "enlarged prostate," "cured with out recurrence"
- Context analysis: guarantees treatment of a specific disease and uses the absolute claim "cure"
- RAG cross-check: review required under Food Labeling and Advertising Act Article 8
(misleading disease prevention or treatment claims and exaggerated advertising)

[Final determination]

- **99.9%** Critical Risk (immediate block and permanent rejection)
- Judged a clear and critical case of illegal exaggerated advertising: it guarantees a "cure" for a specific disease and enlists a medical professional.

Created Value

- High-risk expressions are detected before launch, with revision guidance
- Association and member reviews standardized on the same rules and reports
- Reviewers spend less time on repetitive checks and more on high-risk calls, while accumulated approval and rejection cases keep improving AI accuracy

“ With less repetitive ad review, our staff can focus on core work such as high-risk judgment calls.

- Pharmaceutical Company B, Reviewer

”

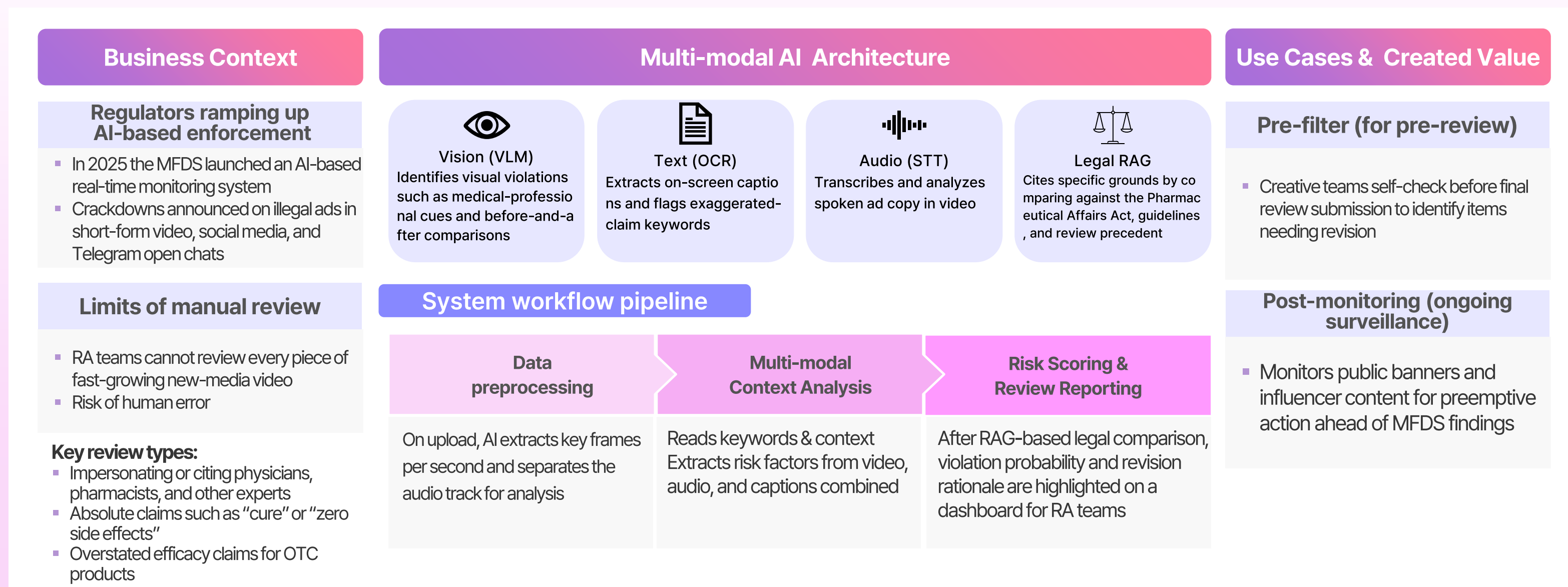
* This is an illustrative scenario. AI output is a preliminary review aid, not a final legal determination; final decisions rest with association review, legal, and RA teams.

* Source: Ministry of Food and Drug Safety (mfds.go.kr),
Casebook of Improper Online Food Advertising

AI pre-screening of advertising and compliance risk for member companies

Pharma Ad Compliance AI

AI pre-filters advertising risk for prescription and OTC drugs, improving review efficiency for the association and its member companies.



Impacts on

Logistics · Optimization

LG CNS Service Offering

Smart Logistics Service

- Smart Logistics Platform
- Logistics Automation Solution
- Smart Logistics Center
- 3D Mobile shuttle

Optimization Solution – Fleet Dispatch & Route Optimization



Maximizing operational and cost efficiency through automation, lights-out operation, and AI

Smart Logistics Service

As the market leader in Korea's smart logistics sector, LG CNS runs a structured delivery process spanning SCM and logistics consulting, design, installation, and aftercare, backed by projects for leading companies across industries.

SCM/logistics strategy through IT consulting

Some 500 projects delivered in Korea and abroad
by SCM and logistics specialists



Experience from
similar
projects at
many firms



INDUSTRY

Boundary-free
benchmarking
at home
and abroad



Deliverables
detailed
enough to move
straight into
execution



OUTPUT

Precise
solutions
built on large-
scale data
analysis



strengthen
SCM
and logistics
capability



PEOPLE

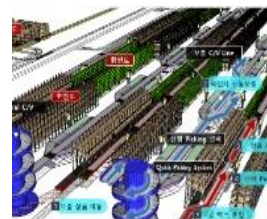
Top-tier
specialists
in the field to
Knowledge
Sharing



Automated logistics center layout design and build

Design driven by operational data analysis and simulation
Build experience across a broad logistics automation line-up

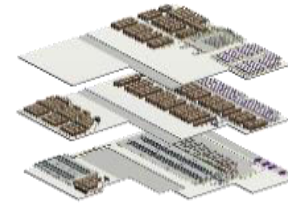
• Extensive experience with Korea's largest online centers



Largest online center:
132,000 m²



Asia's largest mega
hub: 298,000 m²



Tri-temperature online
dawn delivery: 76,000 m²

• Numerous centers built with advanced technologies



KIVA Type
(AMR)



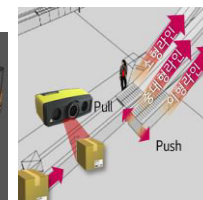
HAIPICK Robot
(ACR)



Cube Storage
Robot



Mixed
De-Palletizing



AI Vision
Inspection

Proactive maintenance using emerging IT

Smart Logistics Platform
DX-driven operational innovation



IoT predictive
maintenance



Robot operations
platform



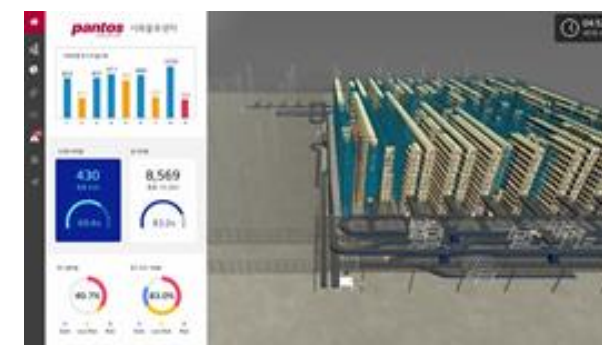
AI/Big Data

Digital Twin

Monitoring

Optimization

Optimization algorithms



[Implementation cases]

Leading a shift in the
maintenance paradigm

- 3D Visualization
- Real-time data analysis
- Available 24/7 View
- Productivity simulation

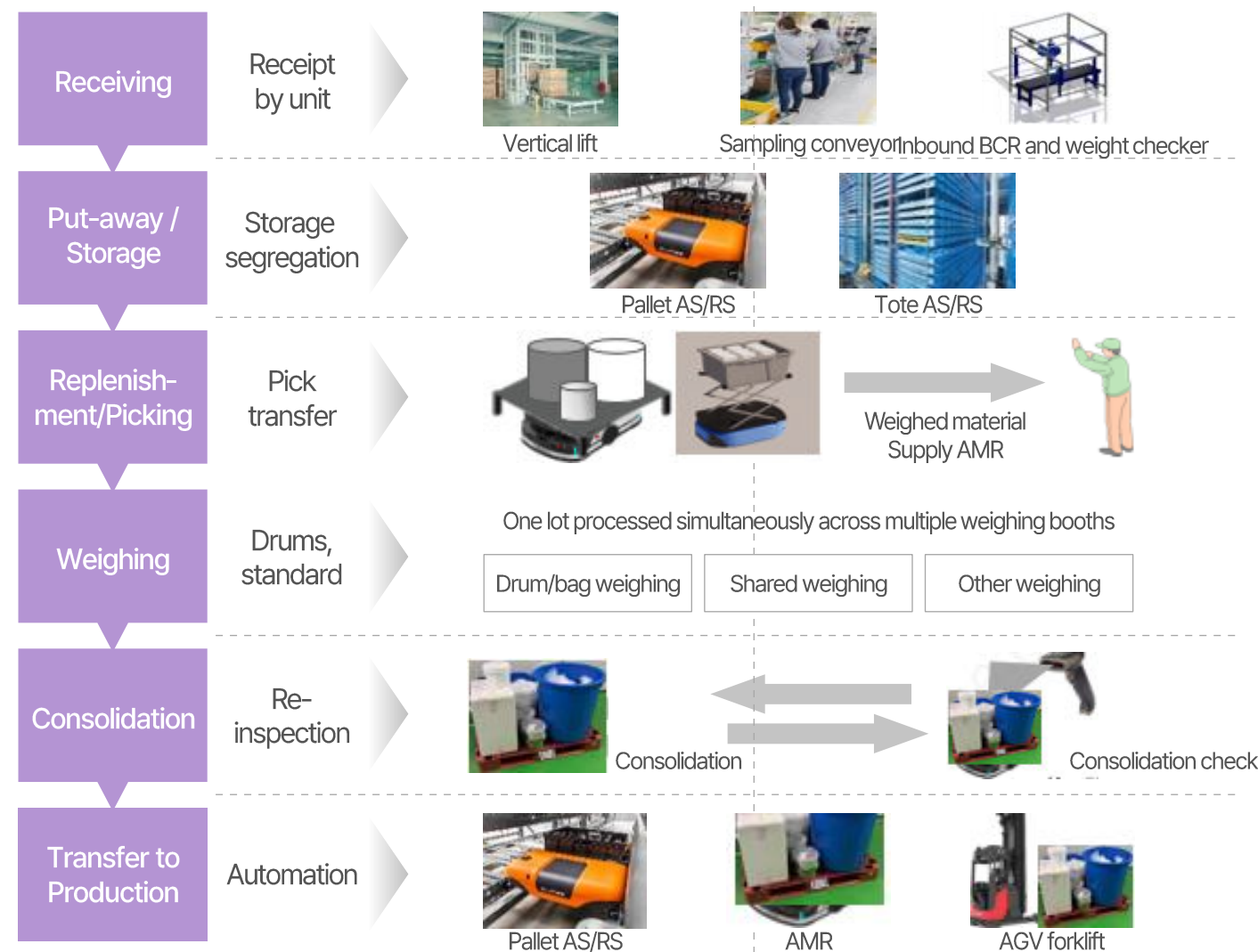
Rigorous product control with fast, accurate customer logistics service

Smart Logistics Center (Automated Warehouse)

Company K automated its raw material warehouse to maximize space efficiency and minimize material movement, reshaping how weighing and sampling are performed to cut labor cost and speed up operations.

Before

- Quality risk from dispensing errors, overdosing, and hygiene issues with leftover material
- Rising labor costs increase the need to automate high-risk, high-cost tasks
- Scattered material storage, low storage efficiency, and space shortages as output grows



Created Value

- Maximum storage and weighing capacity with minimal staging space for receipt and production
- Automated weighing and cycle counting improve inventory accuracy
- AMRs link weighing booths flexibly, connecting AS/RS, AMR, and AGV forklifts into automated transport

“ Full automation from production receipt to shipping — including temperature-controlled and low-volume SKUs — maximizes logistics efficiency.

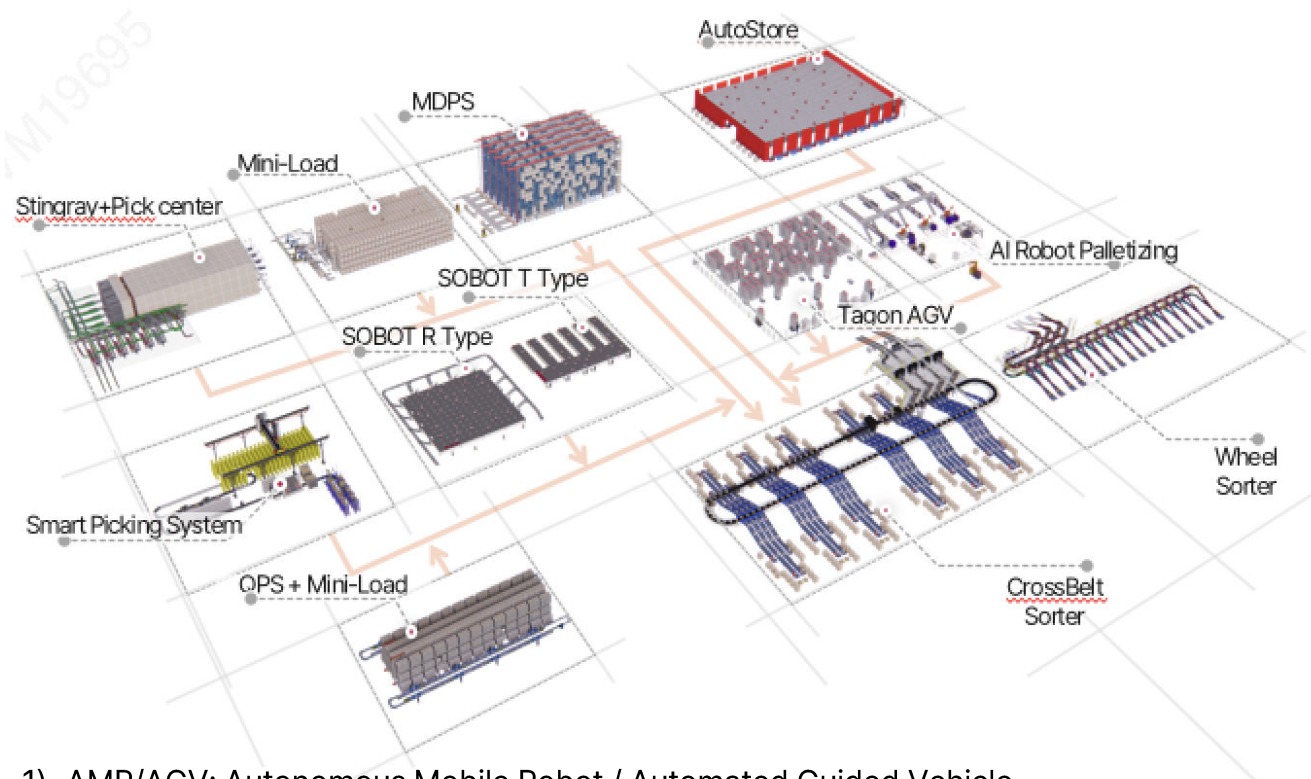
— Company A, Head of OOO

”

AI-Powered Automation for the Next-Generation Logistics Center

Logistics Automation Solutions

We design logistics centers around AI-driven sorting, picking robots, and automated inspection, configured to each customer's operating requirements.



- 1) AMR/AGV: Autonomous Mobile Robot / Automated Guided Vehicle
- 2) AGF: Automated Guided Forklift
- 3) AS/RS: Automated Storage and Retrieval System
- 4) MDPS: Multi-Deep Pallet Storage
- 5) MLS: Multi-Level Shuttle
- 6) QPS: Quick Picking System
- 7) DPS/DAS: Digital Picking System / Digital Assorting System

Robotic Equipment



- AMR/AGV ¹⁾
- AGF ²⁾
- Sorting Robot

Storage Systems



- AS/RS ³⁾
- MDPS ⁴⁾
- MLS ⁵⁾
- Mini-Load
- AutoStore

Picking Systems



- QPS ⁶⁾
- Smart Gantry
- Automated Picking System
- DPS/DAS ⁷⁾

Stable, Reliable Operations



- Crossbelt Sorter
- Tilt Sorter
- Wheel Sorter
- Smart Conveyor
- Smart Singulator
- Line Belt Sorter
- Rotary Sorter

“

Automation designed around your operations: a logistics system that fits your industry and scales with it.

- Company A, Head of OOO

”

Optimizing Space Utilization and Operations

3D Mobile Shuttle

The 3D Mobile Shuttle adapts to a wide range of building conditions and travels freely in multiple directions, keeping operations continuous and maintenance simple.

Before

- Limited Scalability: A fixed rack structure constrains space utilization and makes equipment changes or expansion difficult.
- High Operational Risk: Maintenance in hard-to-access areas can bring the entire material flow to a halt.
- Low SKU Flexibility: A rigid configuration narrows the range of SKUs the system can handle.

- High-capacity battery
- Modular & standardized internal configuration
- Optimized travel path
- Slim design

Shuttle

- Standardized parts for easier assembly
- Mass-production ready
- Simplified on-site installation

Rack

- Simplified manufacturing and installation
- Chain-type internal structure for reliability
- Jam-resistant design

Lifter

Advanced Mobile Shuttle Solutions powered
by LG CNS engineering expertise

Created Value

- Higher storage density from a flexible multi-deep structure
- Continuous operation: failed shuttles are rerouted and recovered automatically
- Greater throughput across the system thanks to high shuttle mobility

“

A blocked section once stopped the whole line. Now shuttles reroute themselves, so operations keep running with far greater stability.

- Company A, Head of OOO

”

Reducing cost and improving customer service at the same time

Optimization Solution – Fleet Dispatch & Route Optimization

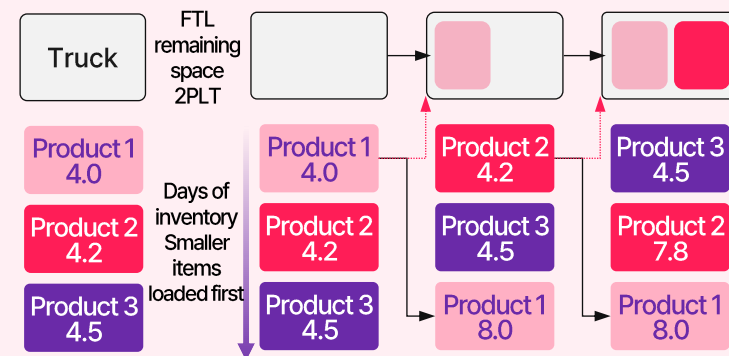
For a food manufacturer, LG CNS built a mathematical optimization engine that generates replenishment requirements and transport plans while reflecting optimal routes and freight cost conditions across varied scenarios.

Before

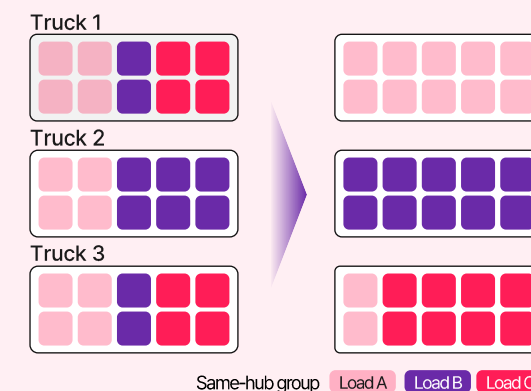
- Supply and dispatch planning based on individual experience creates staffing inefficiency
- Rising inventory costs and complex dispatch constraints put transport savings out of reach for experience-based planning
- Frequent exceptions such as demand spikes and limited editions degrade planning service levels

Supply plan optimization

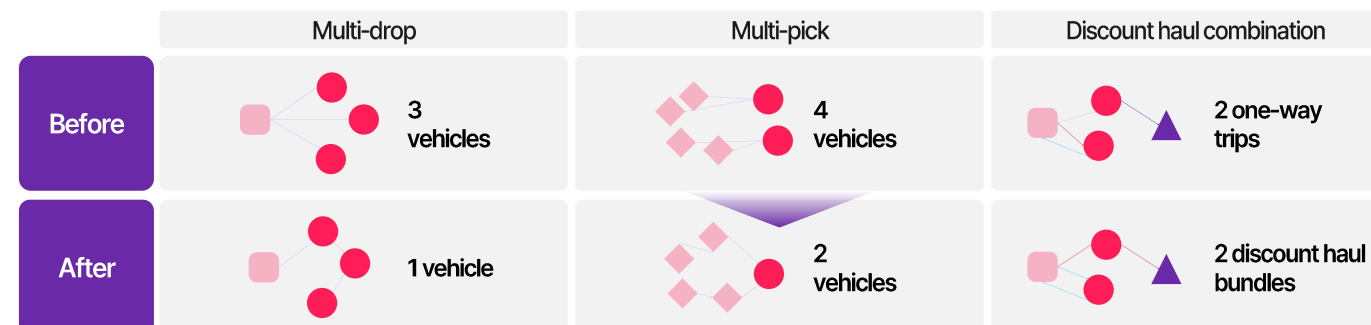
1. Optimizing selection of additional products to fill an FTL



2. Reordering loads so each vehicle carries matched freight



Dispatch plan optimization



Created Value

- Supply and dispatch planning time cut from 4–6 hours to 1–10 minutes
- Replenishment meeting reorder-point rules rose from 1.6% manually to 69% of total volume
- Linked hauls reduced dispatch trips, lowering total transport cost by about 2.2%

“ Demand forecasting that adapts to varied needs has cut our costs and improved customer service.

– Company A, Head of OOO

”

Impacts on

Enterprise

LG CNS Service Offering

A+CE

Agentic Works

Secure Intelligent AI

a:xink

ChatGPT Enterprise



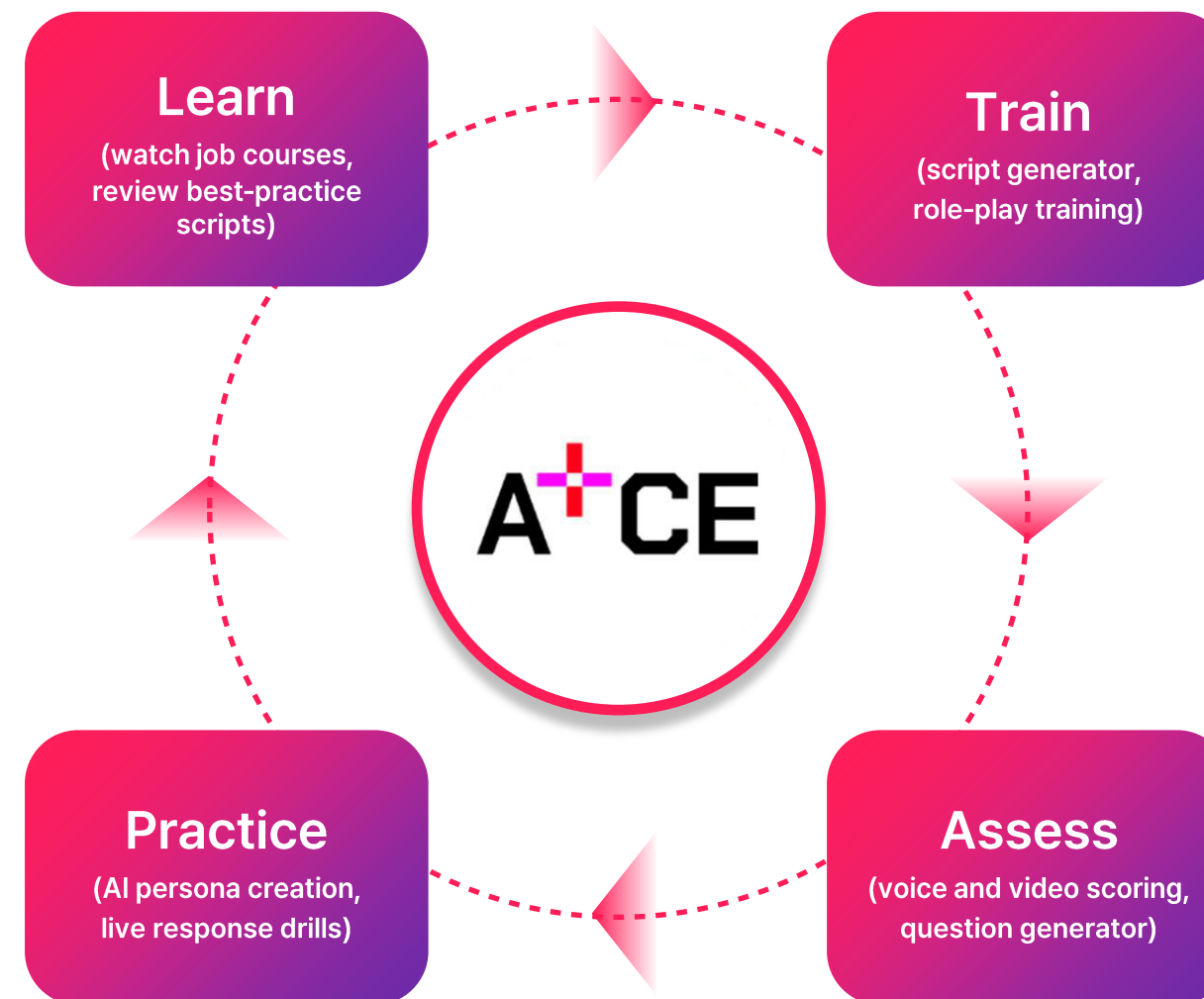
AI training, assessment, and sales support for customer-facing employees

A+CE (Advanced AI Communication Excellence)

Company O combined role-play simulations, script generation, and KPI-based automated scoring and reporting in A+CE, standardizing and advancing employee communication skills across learning, training, practice, and assessment.

Before

- High-turnover industries face rising training costs
- Hard to transfer know-how consistently across a dispersed workforce
- Training content cannot keep pace with fast-changing business conditions
- An objective, data-based assessment system is needed



Created Value

- Live training from any location eases the burden of classroom sessions, with digital humans delivering tailored practice
- AI generates situation-specific customer scripts and learning material tailored to the business context
- Management framework built on automated AI assessment

“ A+CE has reduced the time spent on repeat training and assessment, and automated scoring with individual reports has clearly improved training operations.

- Company O, HRD & Training Operations Team Lead

”

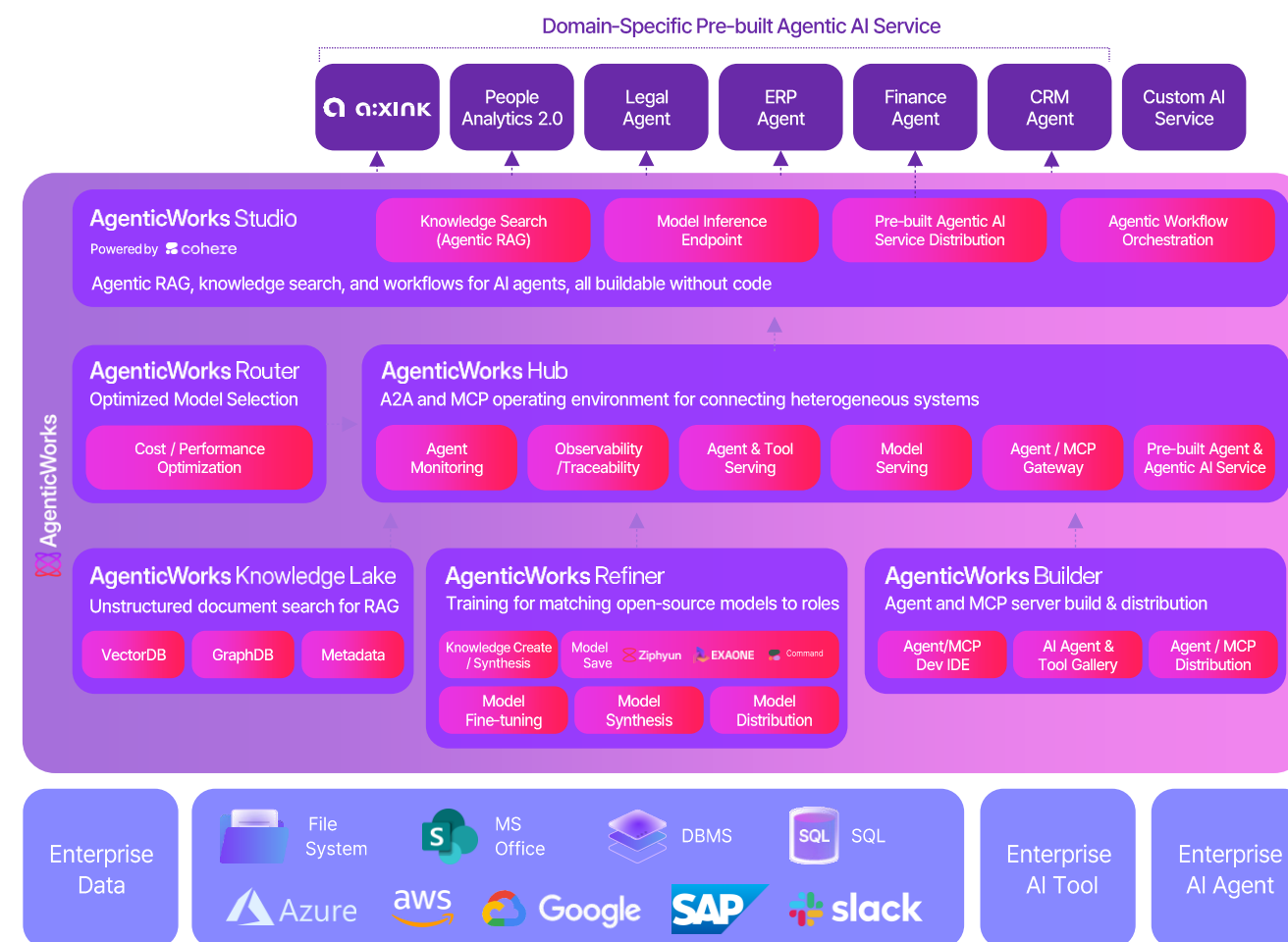
A platform that unifies core agentic AI modules to transform the full AI lifecycle — flexible design, automation, operation, and search

Agentic Works

With Agentic Works, Company C brought data management, model advancement, agent creation, and agentic AI service delivery in-house end to end, with clear productivity gains.

Before

- Defining the problem and estimating ROI is difficult at the AI planning stage
- Specialized, complex industrial data makes data quality hard to sustain after go-live
- Data leakage and hallucination pose reliability and security risks that are critical in manufacturing
- Infrastructure and in-house AI skills fall short of what adoption requires



Created Value

- Scalability through open, hybrid environments, and a composable structure
- Every capability and lifecycle stage from agent development to operation, delivered end to end
- No-code and low-code design lets business users build and use agents, accelerating adoption

“ Beyond routine office work, anyone can apply AI agents to the tasks they choose based on their own knowledge and expertise, maximizing efficiency.

- Company C, Head of HR

”

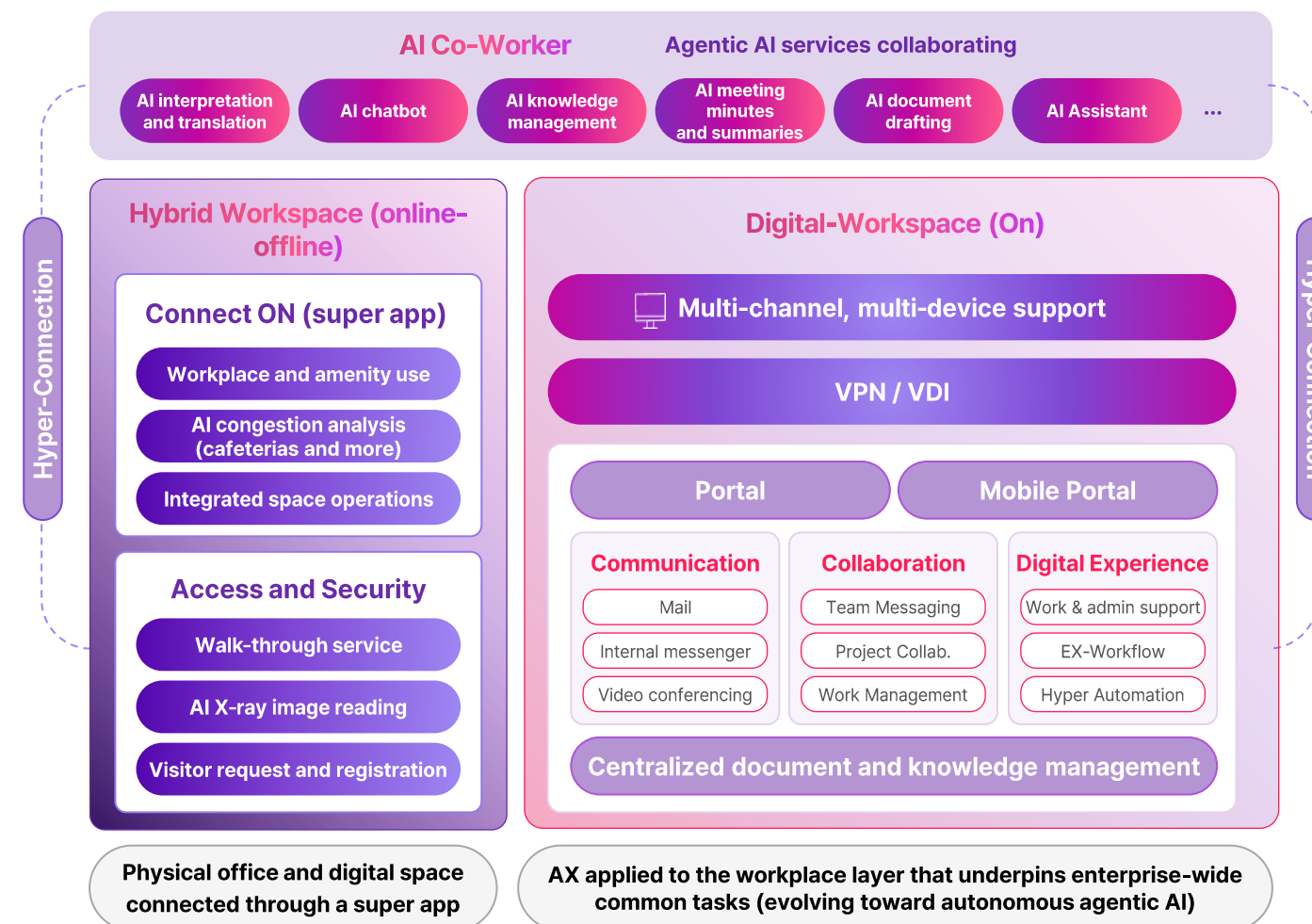
An intelligent work environment that applies agentic AI across all workplace functions

a:xink (AX Sync)

Company W applied AI agents across mail, calendars, approvals, and other enterprise tasks, automating work as briefing, execution, feedback, and refinement while transforming employee experience and productivity.

Before

- Since generative AI emerged, demand for an agent-centric AI-driven workplace has grown
- Legacy portal solutions need to evolve into an AI-driven workplace



Created Value

- Better employee experience and maximum productivity across the whole workday
- Context-aware AI features tailored to the screen or function in use

“ AI surfaces the day's priorities and takes the necessary actions, so we can concentrate on the judgment calls and collaboration that matter.

- Company W, Head of Digital Innovation

”

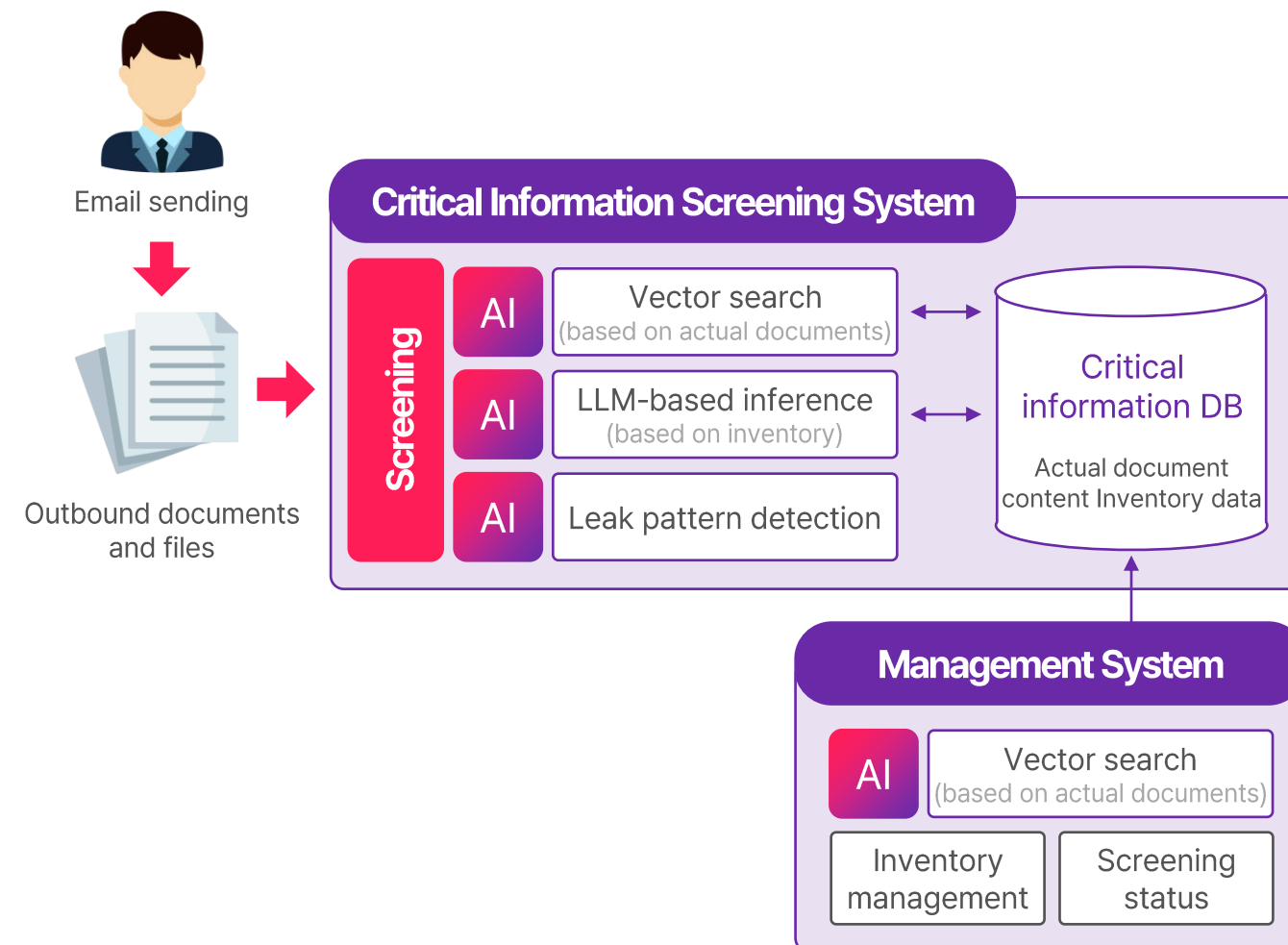
Blocking security risk upfront with AI-based critical information management and screening

Secure Intelligent AI

An AI-based platform for managing and screening critical information blocks leakage risk upfront, providing intelligent security that prevents document leaks at the source.

Before

- Consistent criteria remove reliance on individual judgment
- Real-time classification at send time enables immediate response
- Stronger preemptive response to leaks and faster tracing when incidents occur



Created Value

- Employees classify and share documents at their own discretion, risking exposure of critical technical data
- Current monitoring cannot screen security content inside outbound documents, leaving sophisticated exfiltration attempts undetected

“ Because every outbound email is classified as it is sent, we can block risks a person would otherwise miss.

- Company A, Head of OOO

”

An enterprise generative AI platform that accelerates productivity and innovation together

ChatGPT Enterprise

Company C standardized report drafting, research summaries, and internal document review on ChatGPT Enterprise, sharply reducing document lead time and quality variance.

Before

- Enterprise-wide AI is increasingly necessary, yet security, data governance, and ROI measurement remain difficult
- Scattered department-level AI use lacks standardization and efficiency
- Repetitive, multi-step work consumes time and produces uneven quality

Enterprise-grade security and privacy

- Company data, including prompts and conversations, is never used for training
- Encrypted in transit (TLS) and at rest
- Meets enterprise audit and compliance requirements such as SOC 2
- Enterprise access controls including domain verification and SSO

Unlimited, high-performance model access

- Unlimited or very high usage limits on GPT-4 and later models
- Very large input capacity per request (context window)
- Handles long documents, files, and follow-up conversations effectively
- Faster responses and higher throughput

Organization features for admin & collabo

- Admin console: bulk user and account management, activity analytics dashboard
- Shared chat templates and organization-wide custom GPTs
- API credits in some plans widen integration with internal systems

Data analysis and file handling

- Upload and analyze complex datasets such as spreadsheets, CSVs, and documents
- Includes the infrastructure and support needed to run AI at enterprise scale

Created Value

- Enterprise-grade security: no training on your data, SOC 2 certification, SSO and RBAC access control
- Unlimited GPT access with large context handling and fast responses
- Administration and collaboration: management console, custom GPT sharing, API integration

“ Sharing templates and custom GPTs across teams had the biggest effect: consistent tone and quality in everything we produce.

- Company C, DX Innovation Team Lead

”

GPU and AI infrastructure consumed as a service instead of purchased

LG CNS GPUaaS

An enterprise-grade service that lets you consume GPU and AI infrastructure rather than buy it, with strong security, the latest GPU line-up, and a tailored service catalog matched to each AI workload type.

Before

- High capital cost makes buying or leasing GPU and AI infrastructure a difficult call
- Rapid AI advances make GPU demand and timing unpredictable, risking over- or under-investment
- In practice GPUs sit idle or become unevenly loaded, while separate training and inference environments hinder standardization and control
- Without visibility into GPU usage, total cost rises through duplicate investment and wasted resources

Key strengths of LG CNS GPUaaS



Usage-based billing

Consumption-based Billing

GPUs are delivered flexibly as a service (OPEX) rather than a purchased asset (CAPEX), minimizing upfront investment.



Workload optimization

Workload Optimization

High-performance GPU and network infrastructure configured for each workload type, from training to inference.



Enterprise security

Enterprise Security

Dedicated customer environments and Secure enterprise infrastructure that meets strict security requirements.

GPU Instance Catalog

Four instance types matched to workload characteristics



Large-scale distributed training cluster

Training-Focused

B300 HGX BM NVSwitch, InfiniBand

- LLM training with multi-node optimization
- Fine-tuning of 70B-400B+ frontier models
- Large-scale compute requiring multi-node scaling



Enterprise inference infrastructure

High-end Inference

H200 NVL Pass-Through VM

- Optimized inference for LLMs and complex models
- Real-time service for large user bases
- Ultra-low latency requirements



General inference and graphics

Inference & Graphic

RTX Pro 6000 VM

- Cost-efficient AI inference services
- Models under 30B, video analytics, digital twins
- High-resolution video processing and simulation



AI development and research infrastructure

Dev & R&D Focused

H200 NVL MIG VM

- Sandbox for researchers and developers
- Development and testing of models under 8B
- Fractional GPU use for maximum value

Created Value

- GPU infrastructure optimized per AI workload
- Full infrastructure visibility with no investment uncertainty and minimal upfront cost
- Dedicated environments and secure enterprise infrastructure that meets strict security requirements
- Right-sized GPU allocation for efficient AI use

“

The hardest parts of building AI infrastructure are handled, so we can focus on model development and service innovation.

- Company A, Head of OOO

”

Cost efficiency, simple administration, and elastic scalability in one service

Hybrid GPUaaS

Kakao Cloud Hybrid GPUaaS integrates GPU server procurement, build, operations support, and resource management into a single service that is cost-effective, convenient, and scalable.

Before

- Intensifying AI competition makes securing GPUs for training and inference extremely costly
- A shortage of in-house AI specialists complicates build-out, development, and service operations
- Limited flexibility for demand growth and next-generation GPUs constrains service expansion

Service



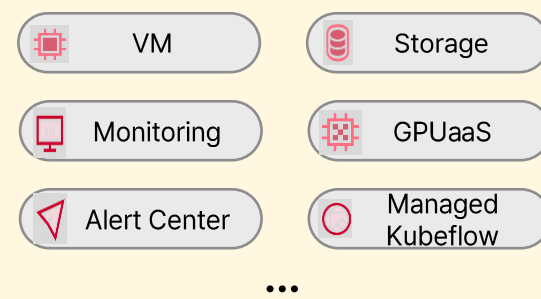
A customer-owned GPU farm inside Kakao Cloud connects to cloud services, giving stable long-term use of on-premises GPUs with easier operations and flexible, cost-efficient capacity expansion.

Service

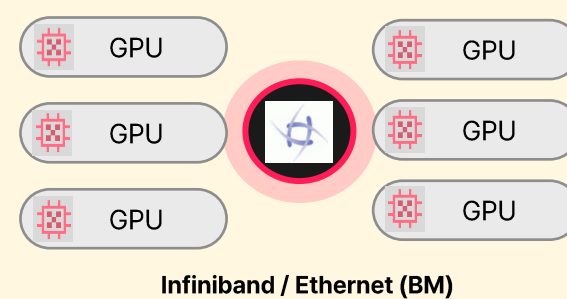
- High-performance instances for massively parallel workloads such as data analytics, scientific computing, deep learning, video encoding, and game graphics
- For high-performance AI analytics and training
- VPC environment
- Simple setup environment
- Multiple storage integrations
- Internet service connectivity
- Instance security management

Kakao Cloud environment

Cloud services



Customer GPU farm



Created Value

- Lower investment than standard leasing or on-premises, with long-term cost efficiency
- A management console and development environment within Kakao Cloud simplify use and administration
- Scales as demand grows or next-generation GPUs are required

“

Adoption was easier, data sovereignty is preserved, and running Kakao's cloud services has made operations and management far simpler.

- Company A, Head of OOO

”

Impacts on

Consulting

LG CNS Service Offering

AX Discovery

AX Consulting

Smart Factory Consulting

NPI Consulting

Optimization Consulting



Consulting services from LG CNS

LG CNS consulting helps clients keep pace with a fast-moving AI and digital landscape, identify initiatives that deliver measurable impact against real business needs and pain points, and sustain technology adoption over the long term.

Smart Factory Consulting

By aligning OT, IT, AI, and connected devices, we deliver automation, digitization, and intelligence at every technology touchpoint to establish an advanced manufacturing and operating cycle.

AX Discovery

From use case discovery and validation through enterprise and value-chain rollout to AI agent deployment, our AI and industry specialists support every stage of prototyping, build, and steady-state operation.

NPI Consulting

Industry-specific cost reduction expertise combined with AI-based account analysis uncovers hidden inefficiencies, enabling sustainable savings through root-cause resolution and process change.

AX Consulting

AI-driven innovation is a long journey requiring integrated review rather than a series of isolated events, so we build a tailored approach grounded in AX maturity from leadership to the front line and in enterprise IT innovation and operating plans.

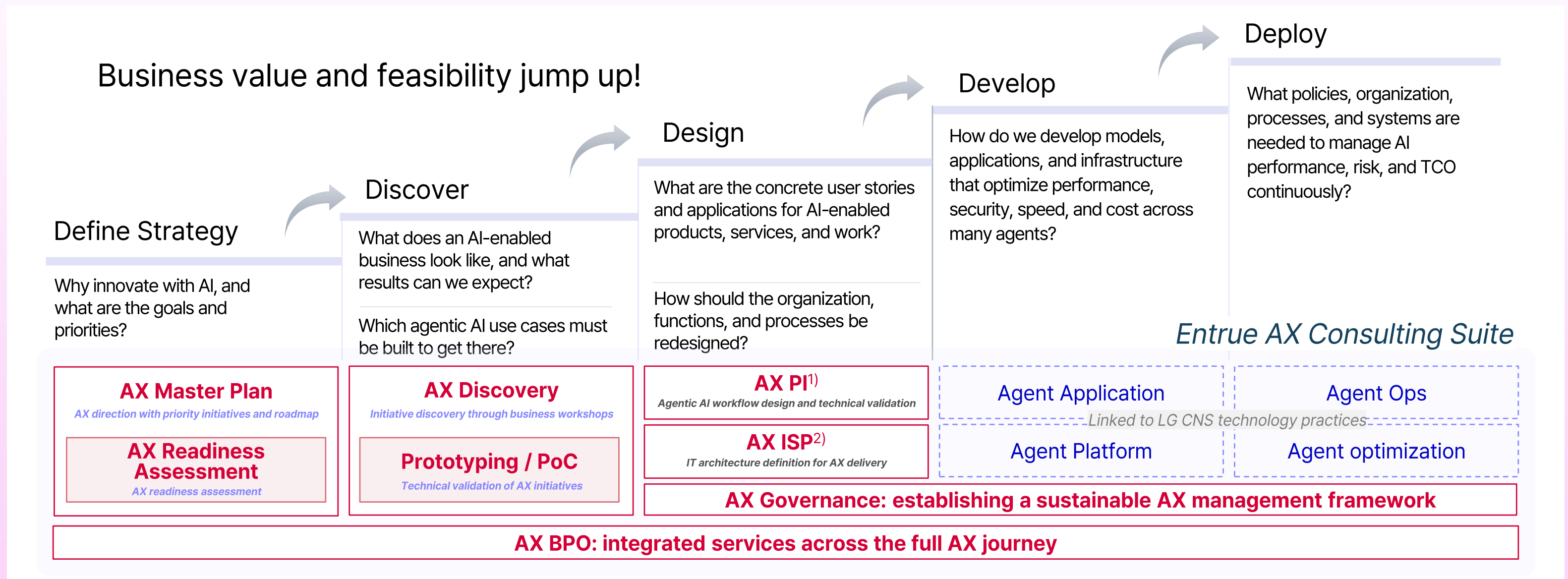
Optimization Consulting

Across industries and value chains, we surface latent needs and opportunities and apply mathematical optimization to reach the most rational decisions — maximum impact from limited resources.

Supporting the entire AX journey to make transformation succeed

AX Consulting

A tailored approach grounded in AX understanding from leadership to the front line, and in enterprise IT innovation and operating plans, moves past vague technology adoption to a structured path that creates real enterprise value.

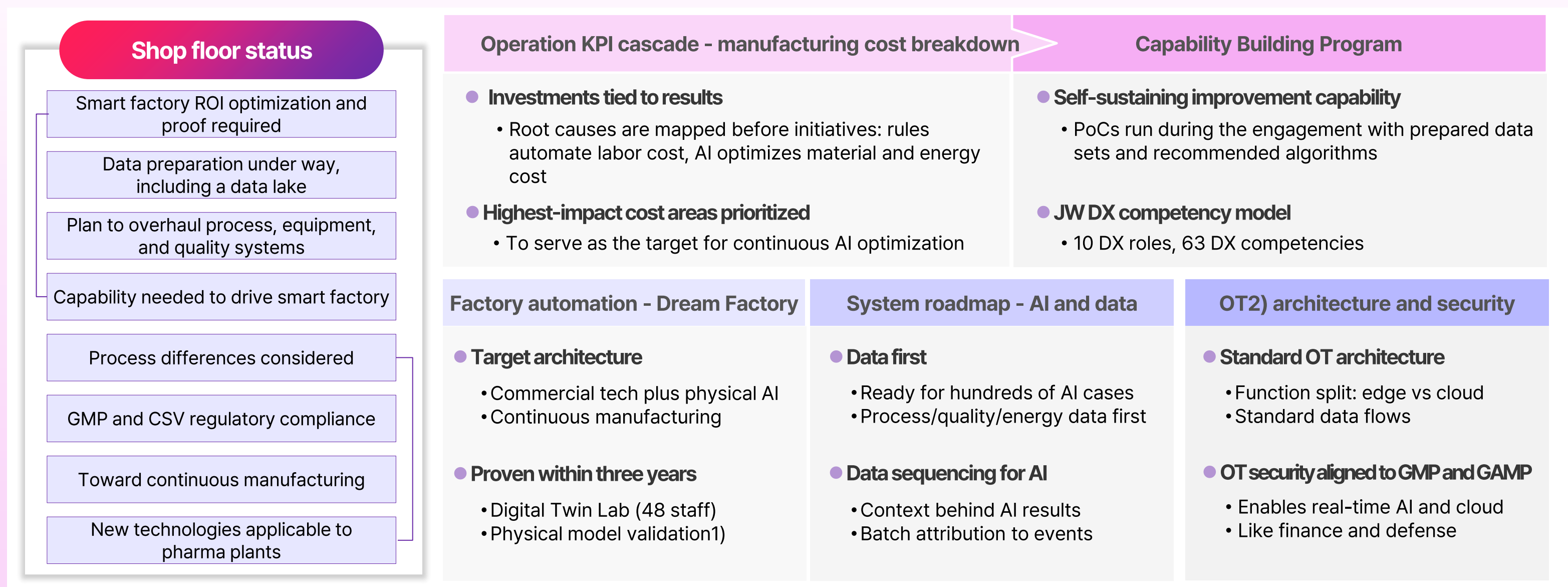


1) PI: Process Innovation 2) ISP: Information Strategic Planning

An AX-based smart factory that delivers financial results and new ways of working

Smart Factory Consulting

Defining five change drivers for enterprise-wide execution brings decision clarity and alignment, sets structural direction for equipment, data, and systems, and builds lasting workforce capability.



1) Using NVIDIA Omniverse Isaac Sim and similar 2) Operation Technology

Sustainable, real cost reduction with no separate consulting fee

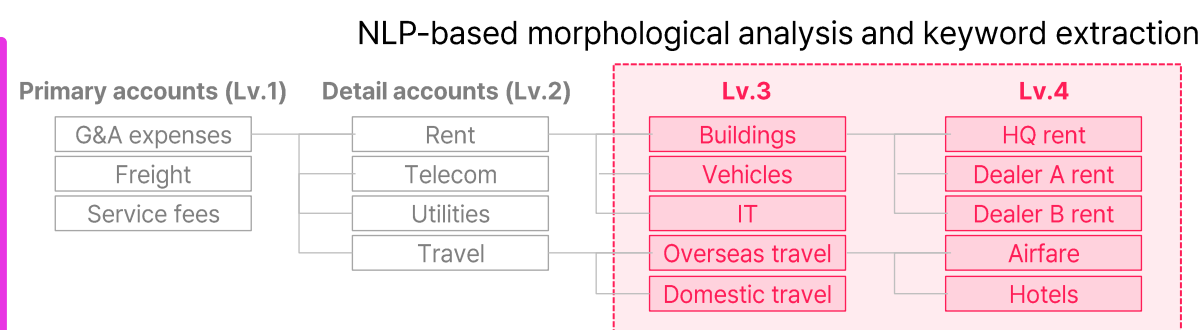
NPI Consulting

NPI Consulting reviews the full population of SG&A spend, then derives savings initiatives through NPI methodology and priority design, with no upfront fee — fees apply only to savings realized, for zero risk and high return.

Before

- Blunt cost control fixated on short-term gains, such as headcount cuts or reduced investment and output, erodes competitiveness, trust, and morale over time
- Contest-style idea collection and one-off savings are hard to sustain and rarely executed
- Without follow-up on committed spend, savings cannot be improved

AI-based general ledger analysis



Top-Down

Division-led plans across the value chain



The optimal savings plan for maximum impact in the shortest time



Bottom-up

Items from 200+ practices and 24+ levers

Cost reduction Approach

Created Value

- Quick wins first, executed immediately to lift financial metrics
- Process optimization converts unnecessary cost into investment capacity
- Cost know-how becomes internal capability

“ It surfaced inefficiencies we had never identified internally, enabling sustainable savings and a marked improvement in our metrics.

— Company A, CFO

”

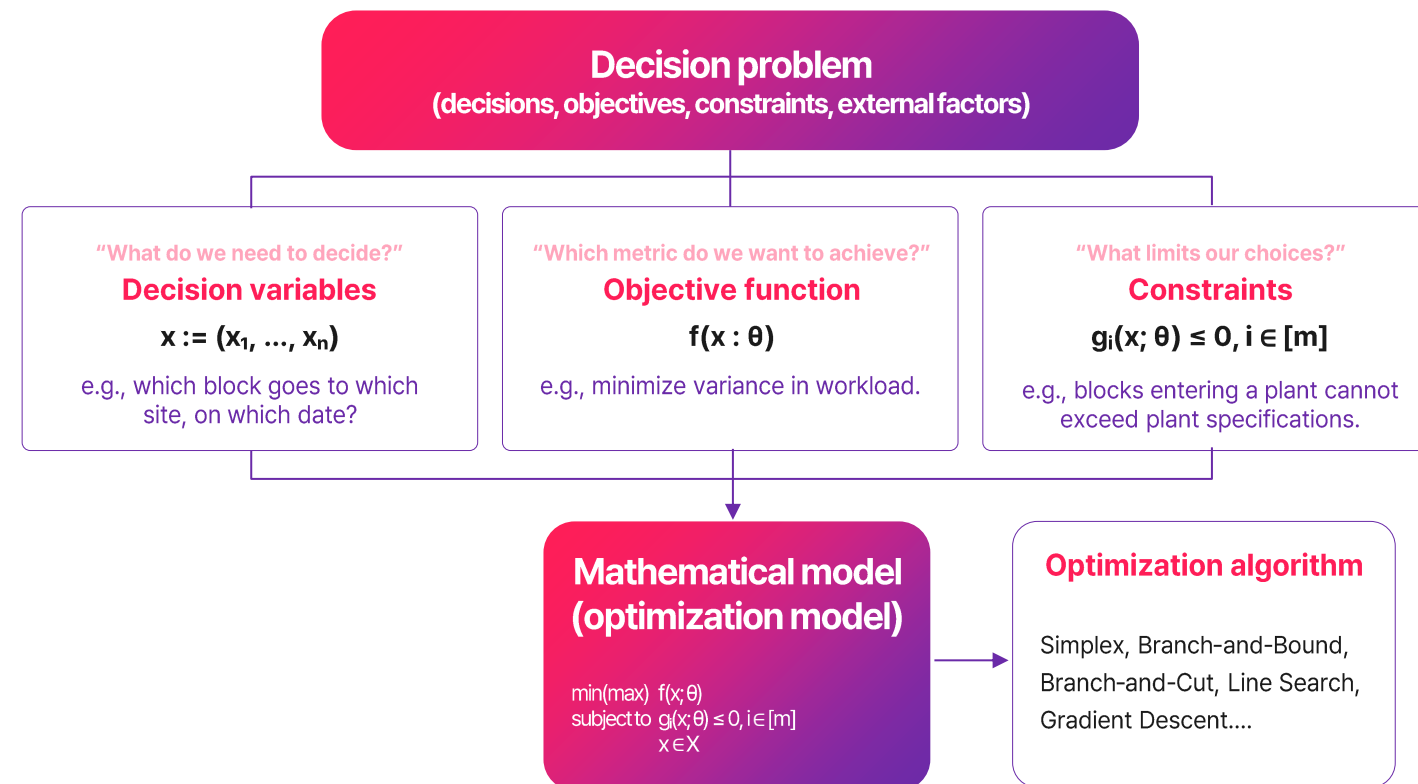
Finding the option that maximizes business objectives among countless alternatives

Mathematical Optimization (MO) Consulting

Mathematical optimization converts a decision problem into a mathematical model and solves for the optimal solution, identifying the alternative that best maximizes business objectives.

Before

- When limited resources must deliver maximum impact, the sheer volume of data and variables makes the best decision hard to identify
- Reliance on a few experts working manually with heuristics and spreadsheets makes repeated decisions labor- and time-intensive



The business problem expressed as equations to deliver numerically proven optimal decisions

Created Value

- Every alternative is analyzed quantitatively on a mathematical model, providing clear guidance for rational decisions
- Mathematical optimization applied across manufacturing, retail, and logistics problems reduces cost and improves resource efficiency

“A problem that looked complex now has a mathematically clear answer, so the alternatives are obvious and decisions come easily.”

— Company C, Head of SCM

”

About LG CNS

The remarkable change that AI transformation will bring—
LG CNS, the AX specialist, will build it with you.

Digital Business Innovator LG CNS

Our Service Landscape

Successful AI Transformation

Global Presence

Digital Business Innovator LG CNS

LG CNS has raised client business value through unmatched DX expertise and differentiated services and now aims to become a global AX company by creating client value with AI.

Tangible
business
value for
clients

First mover in
emerging
technologies

Evolution into
a global
player with
sustainable
growth

Key figures (2025)

Revenue

KRW 6.13 trillion

Operating profit

KRW 558.5 billion

Employees

7,000+

LG Science Park, Magok
Sangam DDMC · Jeungmi DXP Center · Data
centers (Sangam/Gasan/Incheon/Busan)

Our Service Landscape

LG CNS delivers services across the entire value chain, from R&D through production and service.

R&D

PLM

Laboratory Information Management
Product Data Management

Laboratory Automation System

Laboratory Automation
Laboratory Data Management

AI based Virtual Test

R&D Recipe Simulation
Multiomics Platform

IPMS

Patents Tech Sensing Platform
R&D Knowledge Management

SCM

SCM

End-to-end SCM process optimization
AI-based demand forecasting
Material, WIP, product, and inventory optimization

Supplier risk management
Transport optimization
External fleet monitoring

Plant

Manufacturing Execution

PetroMES
iPharmMES

Operation Optimization

Operation Intelligent Platform
Pilot Dynamic Simulation
Flare Stack Smokeless Optimization
AI Process Trouble Shooting

Asset Management

Field Log Data Digitalization
Asset Intelligent Platform
Predicting Plate Failure
Integrated Pipe Management
AI Sensor for Instrument Fault Detection
154kv Substation PdM
Acoustic Emission for Pipe PdM

Logistics Automation

LPR Automation Weighing System
Product Quality Inspection Automation
Optimized CY Operation Digital Twin
AMR/AFL
4-Way Shuttle System

Sustainability

Safety Solution

PSM Process Innovation
Quick Accident Mngt Gen AI
Environment & Safety Control System
Smart LOTO

AI Risk Assessment

Gen AI HAZOP
Gen AI JSA

ESG

ESG consulting
ESG Intelligence Platform
Product Carbon Footprint
Net Zero Portal

Workplace

CX Data Marketing

Digital CRM
Optapex
Customer Data Platform
Content Optimization Platform

Regu Compliance AI

APQR for Bio Pharma
MSDS Extract Agent
ChemReguGuard AI
Audit Report Agent

AI Professional Training

Sales/Marketing/Engineer/Fieldman

Modern Workplace Platform

Service

Plant AX Platform

Plant AX Portal
DAP Gen AI Platform
DAP MLDL Platform

SecureIntel AI

Core Information Security AI Platform

Smart Logistics Service

Logistics Consulting
Smart Logistics Platform
Material Handling Equipment

Private 5G

Cloud MSP

AICC

Successful AI Transformation with LG CNS

LG CNS brings not only the technology for DX and AX but also the culture, methodology, and organization. From assessment and consulting through workshops, prototyping, and live deployment, we support the entire AX journey.

With LG CNS, AX succeeds.

1,700+

Industry-specialized AX experts

700+

AI specialists

1,000+

Cloud professionals



Collaboration with LG AI Research and use of EXAONE, our in-house language model



Core technology capability built with the three global hyperscalers and leading AI innovators

Global Presence

LG CNS builds and operates more than 200 plants at over 100 sites across 17 countries for LG affiliates and manufacturers in a wide range of industries.



Reference

Battery

 LG Energy Solution

Chemical/ Cosmetic/ CPG

 LG Chem  LG H&H
 LX Hausys  LX MMA

Display

 LG Display

Home Application

 LG Electronics

Semiconductor/ Wafer/Solar

 SK hynix  SK siltron

Electronic Components

 LG Innotek
 JAHWA  LS ELECTRIC

Automotive

 HYUNDAI  LG-MAGNA
 HYUNDAI MOBIS  Mando  MAHLE
 Pars Khodro  DOOSAN 두산인프라코어

Pharmaceutical Biochemical

 LG Chem  HAN/DOK
 DAEWOO PHARMACEUTICAL CO., LTD.  ILDONG
 Hanmi Hanmi Pharm.
 Hanmi Hanmi Fine Chemical

Contacts

Homepage : www.lgcns.com

Get in Touch : inquiry@lgcns.com

Address : LG Science Park, E13/E14, 71 Magokjungang 8-ro, Gangseo-gu,
Seoul, Republic of Korea



[Explore LG CNS's
Bio & Pharma Tech](#)