

ISAAC ENGINEERING PROFILE

ENGLISH



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Chapter 1

ISAAC ENGINEERING
COMPANY



GREETING

Since its establishment in 2006, ISAAC Engineering Co., Ltd. has grown to be a company specializing in the Design, Manufacturing, Installation, Commissioning, and Maintenance of Process and Factory Automation.

In addition, we are securing the special technologies for Smart Factory and Energy in response to the 4th Industrial Revolution.

ISAAC Engineering Co., Ltd. will never stop becoming the best company in the era of a new paradigm through persistent innovation, securing new technologies, and customer-oriented management.

Please keep an eye out for the new future that ISAAC Engineering will make and stay with us as we grow into a company that satisfies customers.

Thank you!



HISTORY

SINCE ITS FOUNDATION IN 2006

From Process & Factory Automation To Smart Factory & Energy

2020

- 06. Carrier Korea System Distributor
- 08. Business Partner with Hawe Korea
MOU with KEPCO KEPRI
- 09. Siemens Large Drives Applications-
System Integrator Agreement
- 12. MOU with IGI Korea

2019

- 07. Capital Increase
Partner Agreement with Software AG
- 11. Partner Agreement with OSISoft

2018

- 05. Moving in new company building
(Gunpo City)
- 05. Big Data AI R&D Center Opening
- 10. ISO 14001
- 11. Established affiliated company
(ISAAC PDS Co., Ltd.)
Smart HV Electric Power Equipment
Preventive Diagnostics System Solution

2017

- 06. Main-Biz
- 11. TNR Co., LTD. was merged
into ISAAC Engineering. Co., LTD

2014

- 01. Established affiliated company
(ISAACE&I Co., LTD.)

2012

- 04. Acquired Electrical Construction
Business Certification

2011

- 04. ISO 9001
- 09. INNO-BIZ

2009

- 02. Capital increase

2008

- 06. Established
Manufacturing Plant
- 08. Siemens Solution Partner
- 11. Established R&D Center

2007

- 01. Established



OVERVIEW

Company ISAAC Engineering Co., LTD.
President C.S. Kim, B.S.KIM
 113-86-10021

Location 15, Gunpocheomdansaneop 1-ro, Gunpo-Si
Webpage www.isaac-eng.com

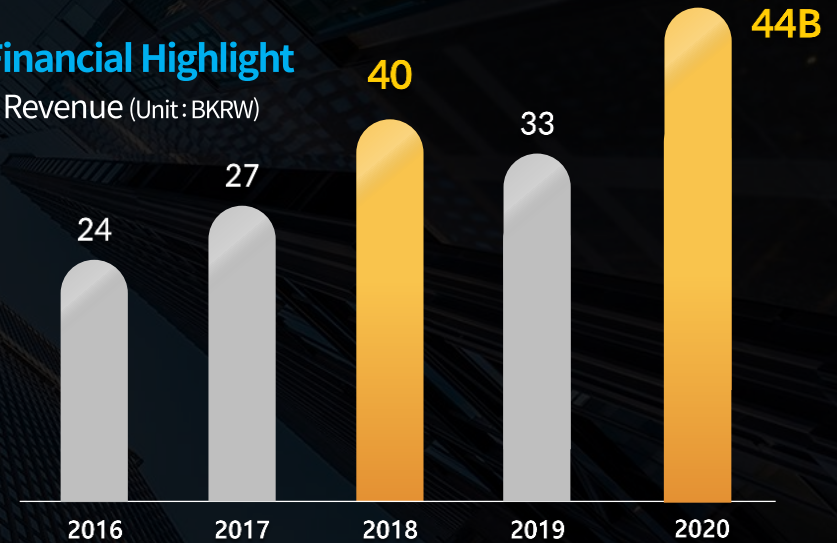
Business Type

- System Engineering
- Computer programming
- System integration & Management
- Control Measuring Equipment
- Electric parts
- System Software
- Control Panel Manufacturing



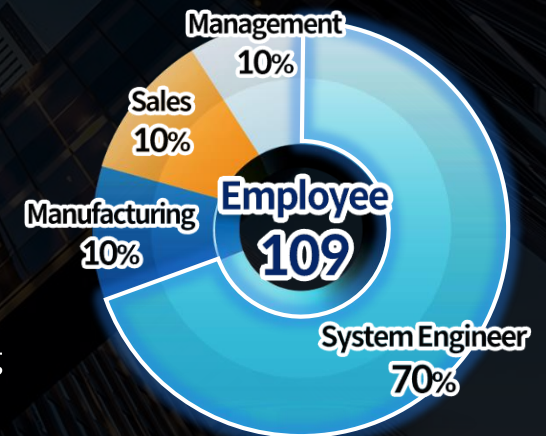
Financial Highlight

• Revenue (Unit: BKRW)

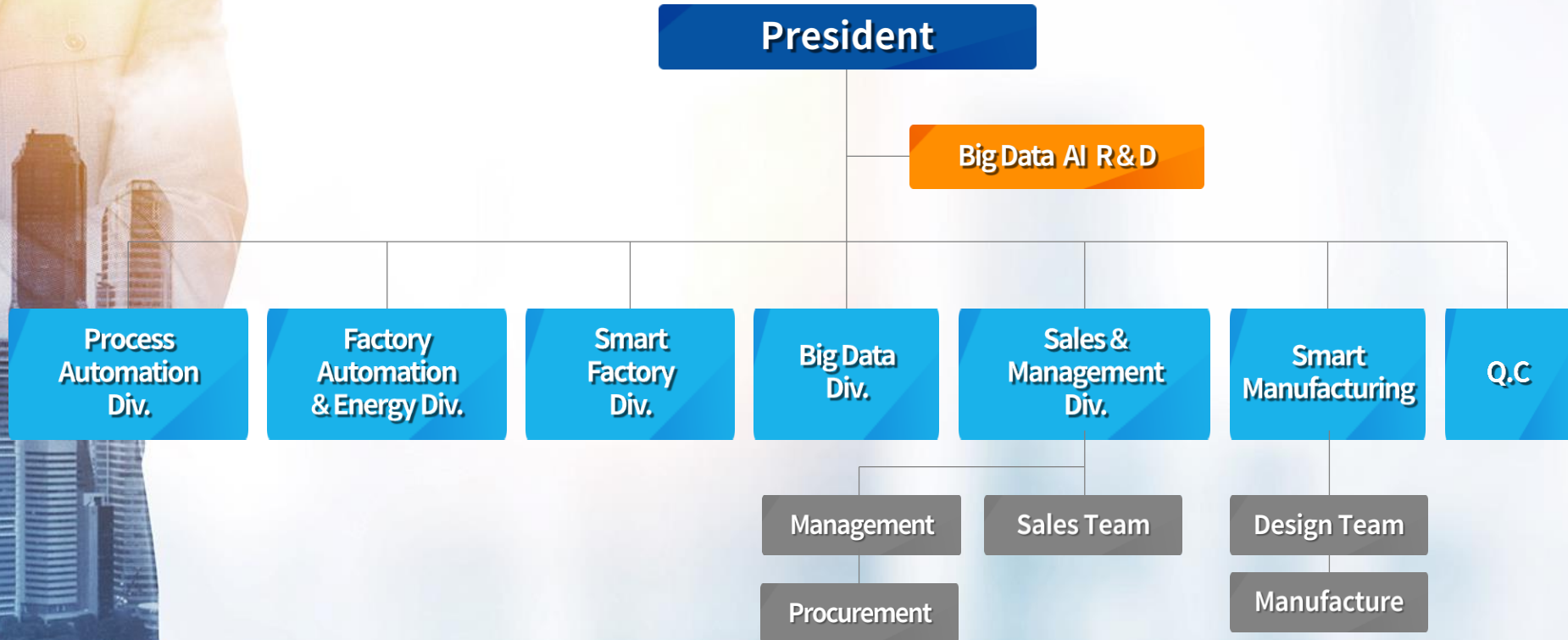


Man Power

- Project Management
- **System Engineer**
- Commissioning
- Technical Planning
- Procurement
- R&D
- Sales & Marketing
- Design/Manufacturing
- Administration



Organization Chart



Roles and Responsibilities

■ Factory & Process Automation

- System Engineering
- PLC/HMI/DRIVE Programming
- Commissioning
- Test & Inspection
- Maintenance

■ Smart Factory

- PLM
- Digital Manufacturing
- 3D CAD
- Visualization
- SCADA

■ Renewable Energy

- System Engineering
- PLC/HMI/DRIVE Programming
- Commissioning
- Test & Inspection
- Maintenance

■ R & D

- Digital Twin
- Big Data
- Cloud-based Industrial IoT

■ Smart Manufacturing & Design

- Control Panel Manufacture
- Production Management
- Quality Control
- Circuit & H/W Design
- AutoCAD, EPLAN, EEC-ONE
- Specification Review

■ Management

- Financing & Accounting
- Tax & Administration
- Procurement
- Business Support
- Overseas Logistic
- H&R Management

■ Sales Team

- Technical Sales
- Sales Strategy
- Proposal (Offer)
- Project Review
- Overseas Business
- Services
- Marketing

■ Big Data

- Big Data & AI
- Ingest, Store, Analyze and Present
- IoT Integration
- Data-driven Smart Factory
- Solution & Consulting
- Hands-on Training



Process & Factory Automation

- Steel Plant Control System
- Semi-conductor Plant Utility Control System
- HVAC Overseas Plant Control System
- Pharmaceutical, Paper, Food & Beverage



Renewable Energy

- Energy Storage System
- Renewable Energy Control System



Smart Manufacturing

- Circuit & H/W Design
- Control Panel Design & Manufacturing



Smart Factory

- Product Life-cycle Management
- Digital Manufacturing
- Visualization
- SCADA
- 3D CAD
- Big Data



Big Data

- Big Data & AI - Ingest, Store, Analyze and Present
- IoT Integration
- Data-driven Smart Factory
- Solution & Consulting
- Hands-on Training



Chapter 2

ISAAC ENGINEERING BUSINESS



01 **Process & Factory** Automation

- / Semi-conductor Plant
- / HVAC Overseas Plant
- / Steel Plant
- / Others



1) Service Process

1. System Composition Design

- PLC SYSTEM Specification
- HMI SYSTEM Specification
- PLC, HMI Communication
- Other LOCAL PLC Communication Configuration Method

2. I/O LIST

- I/O calculation based on P&ID
- Classify I/O (AI, AO, DI, DO, RTD, Communication, DRY, WET, 2WIRE, 4WIRE etc.)
- I/O TAG NAME Set-up
- I/O TAG RANGE Set-up
- I/O TAG DESCRIPTION Set-up

3. H/W Design

- PLC PANEL Design
- HMI RACK PANEL Design
- Other Communication Equipment RACK PANEL Design

4. S/W Design

- DB Design based on I/O LIST and P&ID
- PLC PROGRAMMING
- HMI PROGRAMMING

5. Approval Document

- | | |
|----------------|--------------|
| • I/O LIST | • DATA SHEET |
| • VENDOR LIST | • Others |
| • PANEL Design | |

6. H/W Manufacturing

- PLC PANEL Manufacturing
- Other PANEL Manufacturing

7. Inspection

- Self Testing
- FAT (Factory Acceptance Test)

8. Supply

- PLC SYSTEM Supply
- HMI SYSTEM Supply
- Other Instrument Supply

9. Commissioning

- LOCAL I/O CHECK
- Individual TEST
- Intergrated TEST

10. Training

- PLC, HMI OPERATION Training
- PLC, HMI MAINTENANCE Training
- Other Training

11. Vendor Print

- I/O LIST
- VENDOR LIST
- PANEL Design
- OPERATION MANUAL
- MAINTENANCE MANUAL
- TEST REPORT
- Other



2) Semi-conductor Plant



Application

- **PGMS** (Process Gas Monitoring System) Monitoring
- **TGMS** (Toxic Gas Monitoring System) Monitoring
- **CCSS** (Central Chemical Supply System)
- **WWTS** (Waste Water Treatment System)
- **HVAC** (Heating, Ventilation, Air-Conditioning) Monitoring

Conducted the overall projects related to HVAC, PGMS, and TGMS specializing in the production facilities of memory chip and semiconductor.

HVAC System & Monitoring

- Builds a system with the stable solutions of the world-class **SIEMENS PLC/HMI**.
- It increases energy efficiency, decreases error rate, and saves the maintenance cost of a client by uploading information of circulation systems systematically such as cooling source, heating source, and power source and thus **providing an accurate solution at the optimum time of data analysis**.

GAS Monitoring System

- Builds the optimal industrial information and communication network such as **CISCO, IBM, DELL, HP**, and related environments.
- Builds an overall monitoring system of GAS for inflammability, non-inflammability, toxicity, non-toxicity based on **Siemens HMI Solution**
- Builds an intelligent monitoring system that helps a **stable operation and emergency shutdown** by monitoring and optimizing the conditions of tens to hundreds of thousands of gas supply devices and gas detectors.

Effectiveness

- **The engineering base (EB)**: central data that provides an ideal collaborative platform enables various designs
- **EB's excellent integration capability** provides a better precision than a general engineering and a solution for the overall operation of a company.
- The description of a power control and modifications, and a certain tracking and modification technology
- Easy importing to and exporting from the engineering data that has a function to safely integrate and control external suppliers

Technology for Future

- The development of **design and configuration technology** in steps with the trend of a faster industrial facility and architectural technology.
- Provides precision to an overall system that requires various compliance, efficiency and saves time
- **A user-friendly system** that everyone can use with ease, non-exclusive solution, and flexible configuration

3) HVAC Overseas Plant Utility



HVAC

Application

- Desalination Plant / Petro Chemical & Heavy Chemical
- Cement & Iron Industries
- Mines & Tunnels
- Power Plant (Nuclear / Thermal / Engine)
- Power Plant Equipment Refrigeration System / Water Chiller Heat Exchanger (Tubular / Plate) Cooling / Heating System
- Industrial Air Equipments
- General Use HVAC System
- Clean Room System

Scope of work

HVAC is the abbreviation of heating, ventilation and air conditioning. It is a system to control the temperature, humidity, cleanness, airflow distribution required in a certain space and includes in general ventilation in its concept. Air conditioning is aimed to control the quality and quantity of air in the certain space by harmonizing its functions with a building so as to satisfy the temperature, humidity, airflow, and cleanness of the space.

In particular, realizing the HVAC system in such regions as Middle East, Africa, and Africa, where the climate is harsh, is a tough job because it asks for design requirements that are difficult to meet.

Therefore, it is essential to provide hardware and software proven for performance and durability. Among HVAC services for an industrial plant, Isaac Engineering Co., Ltd. **designs, supplies, and conducts a Commissioning for the electric and control system of HVAC.**

We target to provide a perfect solution based on the accumulated technology through a number of collaborations with EPC Inc.

① Power Distribution Board

PDB consists of a power supply circuit and a driving circuit of equipment (AHU, Fan, etc.). As for rotary machines such as a motor, it includes the circuit that can control in remotely by interfacing with its control panel.

② HVAC Control Panel

Using PCL (programmable logic controller) or DDC (Direct Digital Controller), HVAC control panel programs the manual operation, automatic run, scheduled operation, etc. of each equipment to meet user's driving requirements and enable optimal driving conditions.

③ BMS (Building Management System)

Using HMI (Human Machine Interface) software, BMS processes the data collected by such controllers as PLC, DDC, etc., and enables a user to monitor and control the building on a user-convenient GUI. It consists of data archiving, alarm, trending, etc. to manage data history.

④ Instruments & Valves

It is essential to have reliable driving indicators of temperature, humidity, and pressure to monitor the states of HVAC system and meet the operational requirements. Accordingly, proper sensors are applied to measure the temperature, humidity, and pressure of a room, a duct, and a pipe. In addition, reliable valves are also necessary to control the amount of water and steam.

⑤ Engineering for Erection

We provide such engineering services as installation, cable planning, cable routing, hook-up, etc. for precise construction of electric and control parts.



Application

- **Sinter Plant Process Control** (HMI, PLC, DDC, INSTRUMENT, BULK etc.)
- **Raw Material Handling Plant Process Control**
- **CCM(Continuous Casting Machine) Process Control System**
- **HRM(Hot Rolling Mill) Process Control System**
- **CCL(Color Coating Line) Process Control System**
- **CGL(Continuous Galvanizing Line) Process Control System**
- **EGL(Electric Galvanizing Line) Process Control System**
- **TLL(Tension Leveller Line) Process Control System**
- **APL(Annealing & Picking Line) Process Control System**
- **SPM(Skin Passing Mill Line) Process Control System**
- **RCL(Recoiling Line) Process Control System**
- **STL(Slitting Line) Process Control System**
- **HDL(Hot Dividing Line) Process Control System**
- **System Commissioning**
- **Maintenance & Service**

For the processes adopted in the steel and paper industry, the base of all industries, Isaac Engineering Co., Ltd.

improves **the productivity and efficiency** of our customers by providing expertise customized to market characteristics and technology-based services.

To materialize our devotion, we provide a wide scope of business, from design, manufacturing, and servicing which are necessary for a company, based on automation technology, industrial control systems, drive technology, and industrial software.

Especially, Isaac Engineering Co., Ltd. has the experience and expertise enriched enough to build **optimum process and equipment in the field of steelmaking and continuous casting**. Furthermore, we will be an ideal partner that can help you **improve productivity**.

Moreover, Isaac Engineering has the expertise to improve product quality and productivity, reduce operating cost, and minimize downtime in the continuous process line.

It also provides solutions including engineering efficient start-up, and Commissioning.



Application

- Pharmaceutical Industry
 - Pulp Plant
 - Paper Plant
 - Food & Beverage Industry
- Paper Machine / Coater Machine / Calender / Rewinder / Slitter

Pharmaceuticals

Expiration of patent, price drop, and fierce competition:
The pharmaceutical industry is facing drastic changes due to those unfavorable conditions. It needs an innovative idea to turn the risk into an opportunity.
Isaac Engineering Co., Ltd., as a reliable partner, provides **creative solutions** and applies our in-depth knowledge to the industry.
Our ideas of the future of the pharmaceutical industry will impress you.
We develop individual solutions along with our customers and make it sure that the developed processes and products satisfy all of the requirements of your future.

PCS 7 program is a comprehensive process control system.
PCS monitors data values, checks the dosage of drug administered, and stores data in the process historian server in real time by interfacing with the equipment on the site.
Batch system is one that a user can control and use the dosage in the process of manufacturing a drug and therefore, it can increase the productivity through the division of the process.

Paper

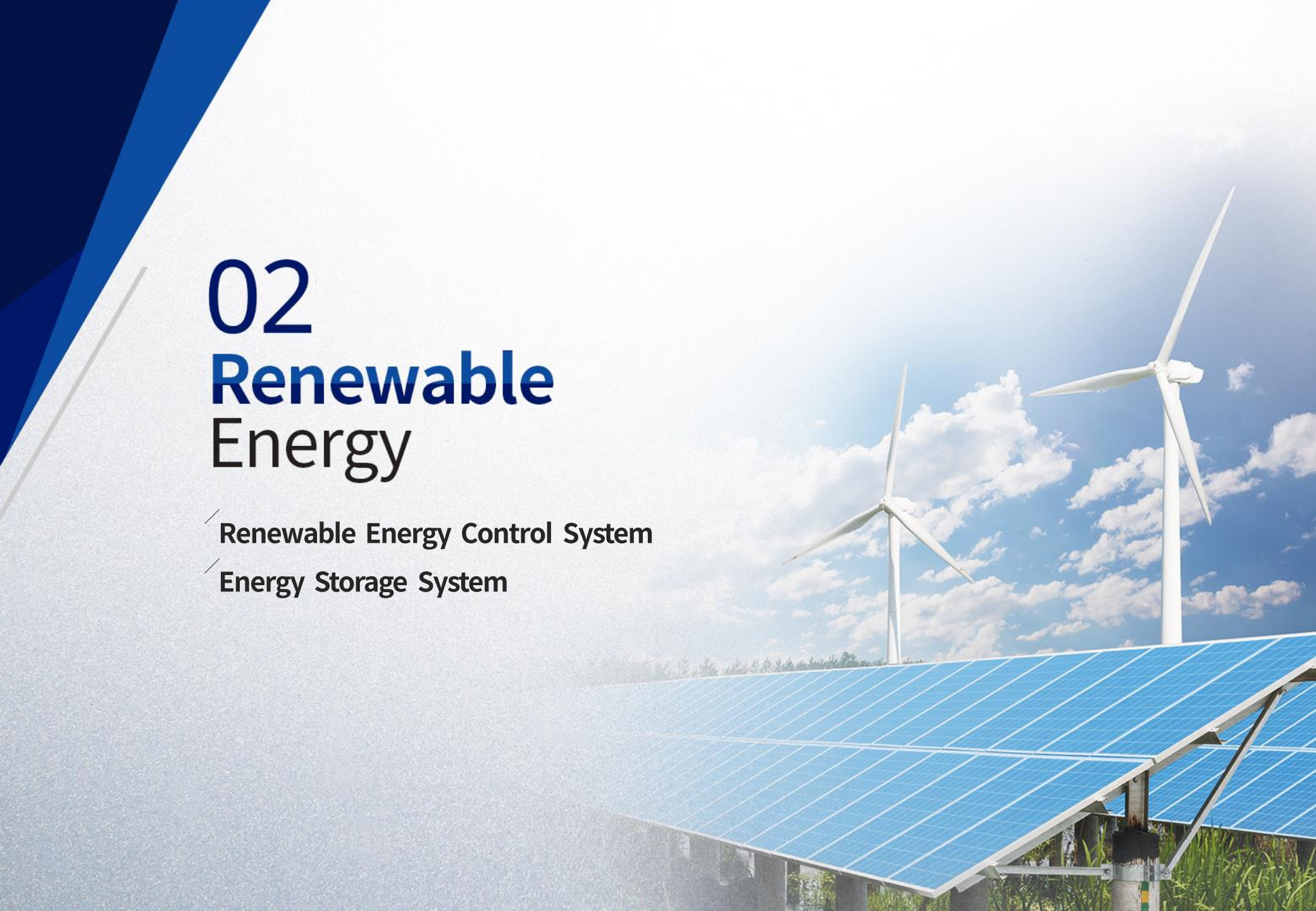
There is a way to continually improve the competitiveness of a plant.
It is to adopt a well-thought and a well-integrated concept of replacing individualized components. Isaac Engineering Co., Ltd. can solve all the challenges facing today and the future thanks to the experiences of more than 10 years with paper and pulp partners and the verified module-type solutions.

Food & Beverage

F&B manufacturers have to continue considering how to keep a high level of product quality, maximum plant availability, and optimal resource efficiency, and be as flexible as possible to respond to the requirements of individual customers. It is only possible by digitization to tackle the problems of both today and tomorrow. Isaac Engineering Co., Ltd. provides the products and solutions necessary to gradually integrate and digitalize entire systems into one.

02 Renewable Energy

- Renewable Energy Control System
- Energy Storage System



1) Renewable Energy Control System

Application

- Waste-To-Energy Plant
- Bio Mass

Isaac Engineering Co., Ltd. builds a system that supplies, distributes, and controls power in **the incinerating facility** for living waste, sludge, industrial waste, etc., and makes an effort to satisfy our customers by providing a facility of high stability.

Providing all the data necessary for operation, we supply the best system so that an operator and manager can run the facility stably.

We manufacture a system that **optimizes a facility** and **guarantee safe operation** by supporting the basic and detailed design and provides a stabilization process that supports no error in the system conducting on-site Commissioning so that it can exert the best performance.

2) Energy Storage System

Application

- Wind
- Solar



Energy Storage System (ESS) is a system that saves in batteries the excess electricity from a generator or from a renewable energy generation and releases the saved energy when power is in a temporary need. With it, an energy producer who acquires REC (Renewable Energy Certificate) can supply energy at the unit cost of electric power plus REC weight. Therefore, ESS is a promising and very essential business, which can solve serious environmental issues and secure a stable supply of electricity.

Power Converting Conditioning System (PCS), which is one of the important components of ESS, is the unit where generated energy is saved in batteries. It is composed of Stack that converts AC to DC and PMS (Power Management System) that receives commands from EMS (Energy Management System) and adjusts the volume of energy (wattage). PCS of Isaac Engineering Co., Ltd., which is highly efficient all from a large to a small unit, can save customers' operating costs by reducing energy consumption.

Our ESS and PCS are universal: they can be applied to any power generations as well as renewable energy generation including wind (inland and offshore) and solar photovoltaic power station.

03 Smart Factory

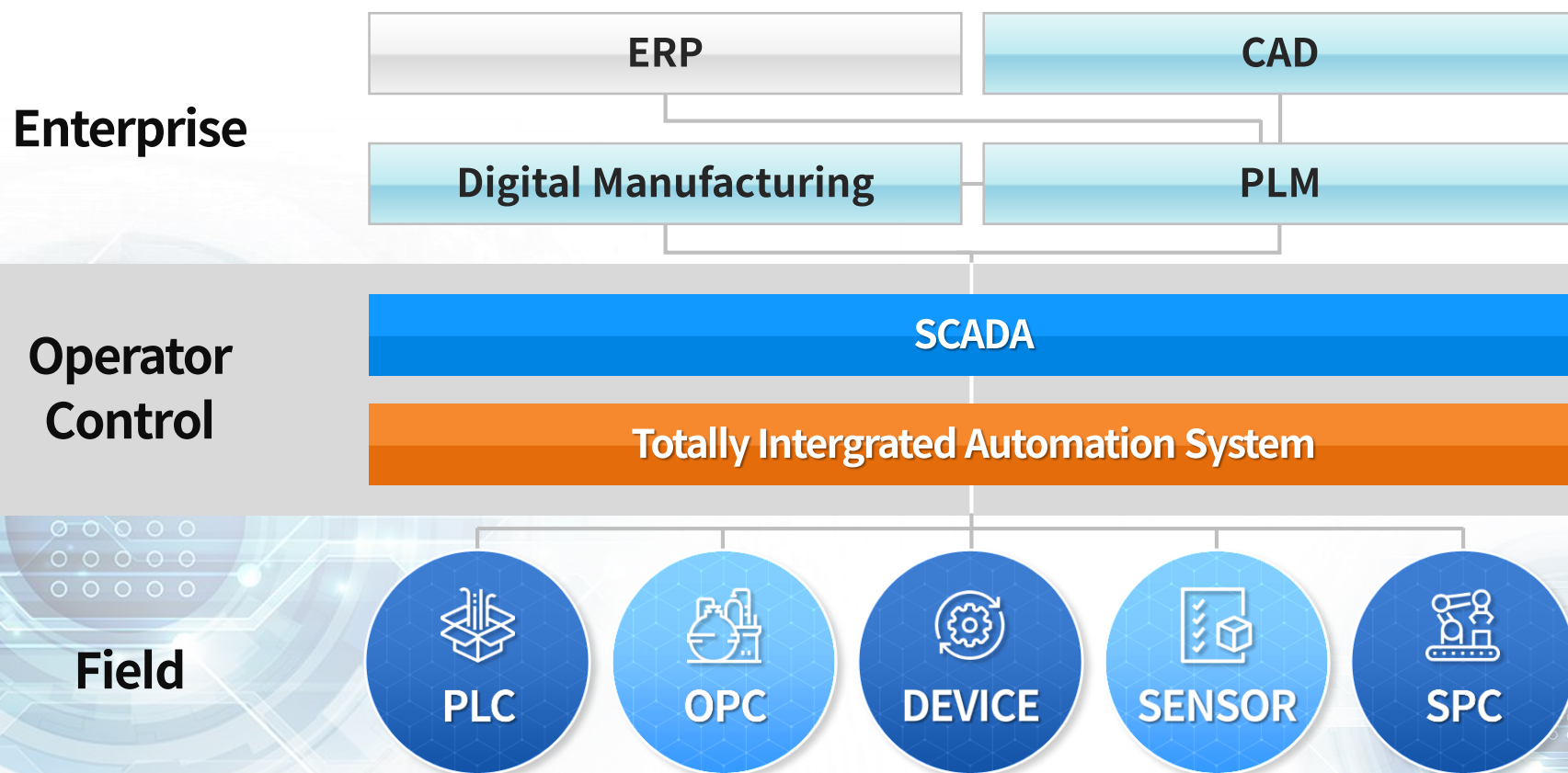
- / Product Life-cycle Management
- / Visualization
- / Digital Manufacturing
- / 3D CAD
- / SCADA Open Architecture
- / Big Data



**Totally Intergrated
Automation System**

1) Smart Factory Overview

Smart Factory **Essential Component** as well as **Customized Total Solution**



2) Product Life-cycle Management

Developing a Strong PLM Platform (Teamcenter)

Process management from product development, preparation, distribution and operation to maintenance throughout the product lifecycle

Legacy Interface



PLM Basic

Data consistency and accuracy
 Changed Parts history management/ Product information
 BOM management/ Standard management
 Technical document management
 Integrated design management/ Workflow management

PLM Extension

Collaborative product development
 Outcome management/ Original target price
 Problem solving/ Project management

Management Innovation

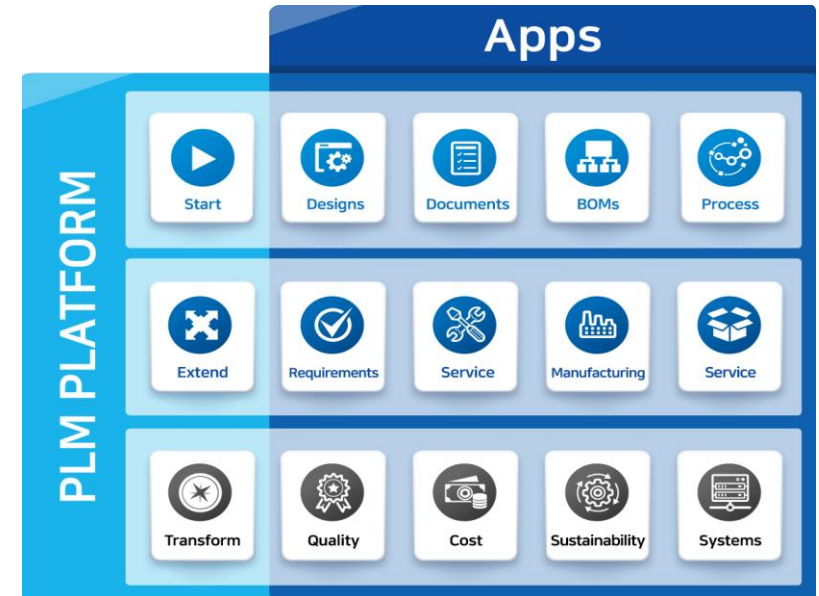


2) Product Life-cycle Management

ISAAC ENGINEERING CO., LTD.

Due to the globalization of the management and diversification of development and production, we have organized the Teamcenter design collaboration system which operates with the existing PDM to meet the needs of information sharing and collaborative environment

Also, we have expertise in 3D PDM environmental development part based on the Teamcenter which manages the overall design process. In addition, it shortens the designing process period and progress product quality by using the existing information.

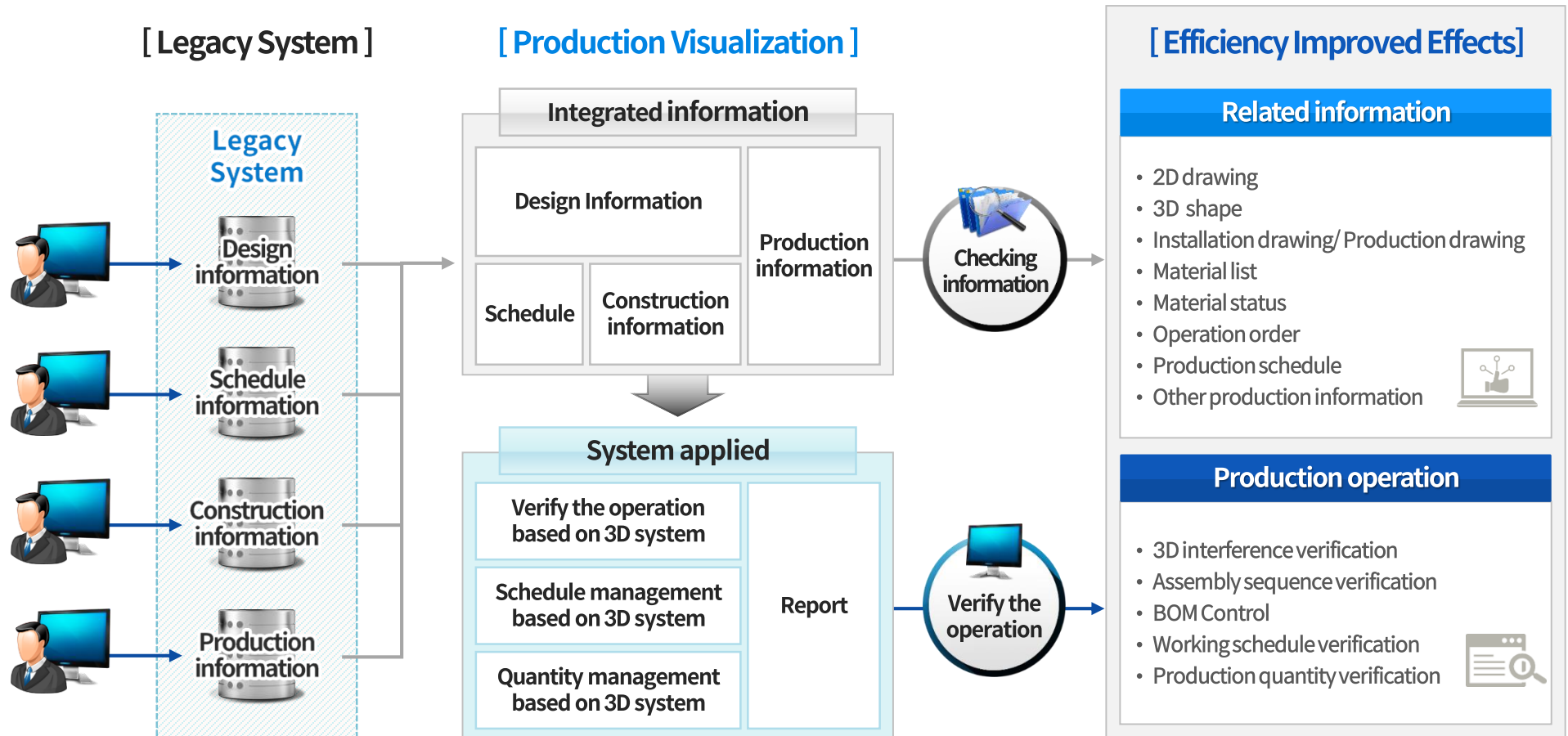


주요 특징

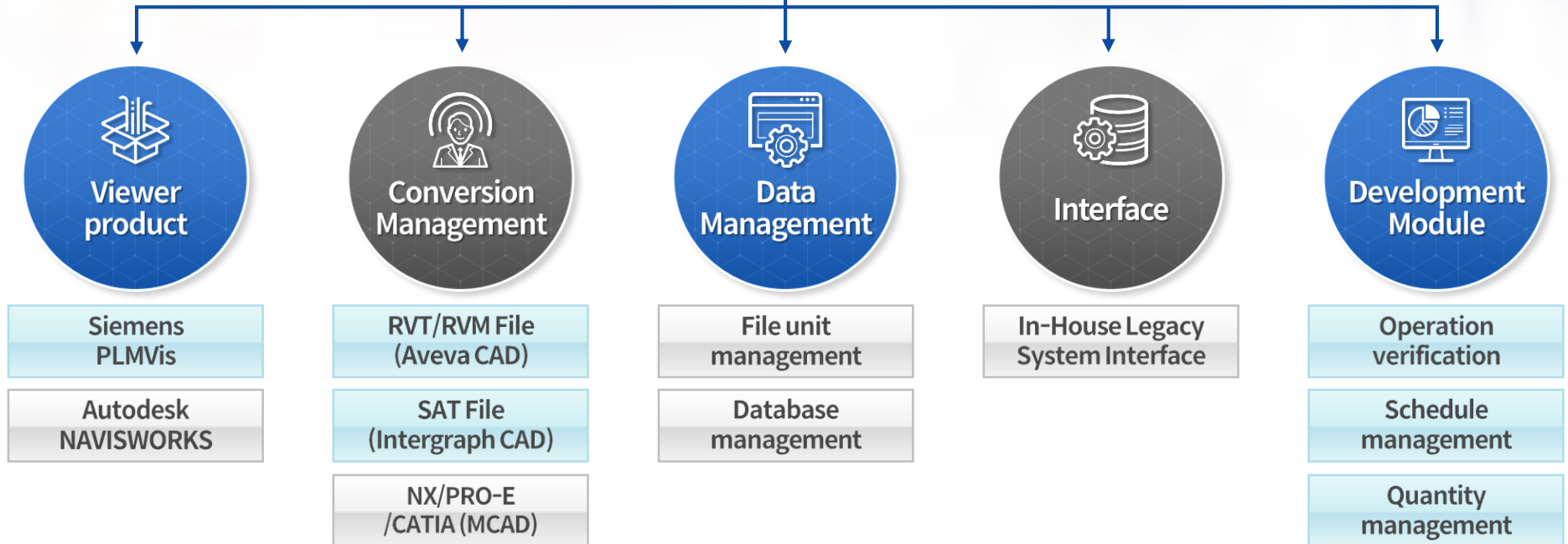
- Design data and simulation management/ Technical documentation and content management
- BOM management / PLM Process execution / Requirements management
- Service LIW cycle management/ Supplier Integration
- Project quality control using CAPA/ Product cost management
- Environmental Compliance and Product Continuity / System Engineering
- Integrated material management / reporting and analysis / PLM Visualization
- Active Workspace / Teamcenter on the Cloud
- Teamcenter Rapid Start / Community Collaboration
- Featured Videos / 10 minutes hot topic
- Teamcenter Resource Library

Visualization System

Provide integrated Legacy System information, such as 2D/ 3D design information and schedule/ production/ construction information to production workers Improve production efficiency through visualization system



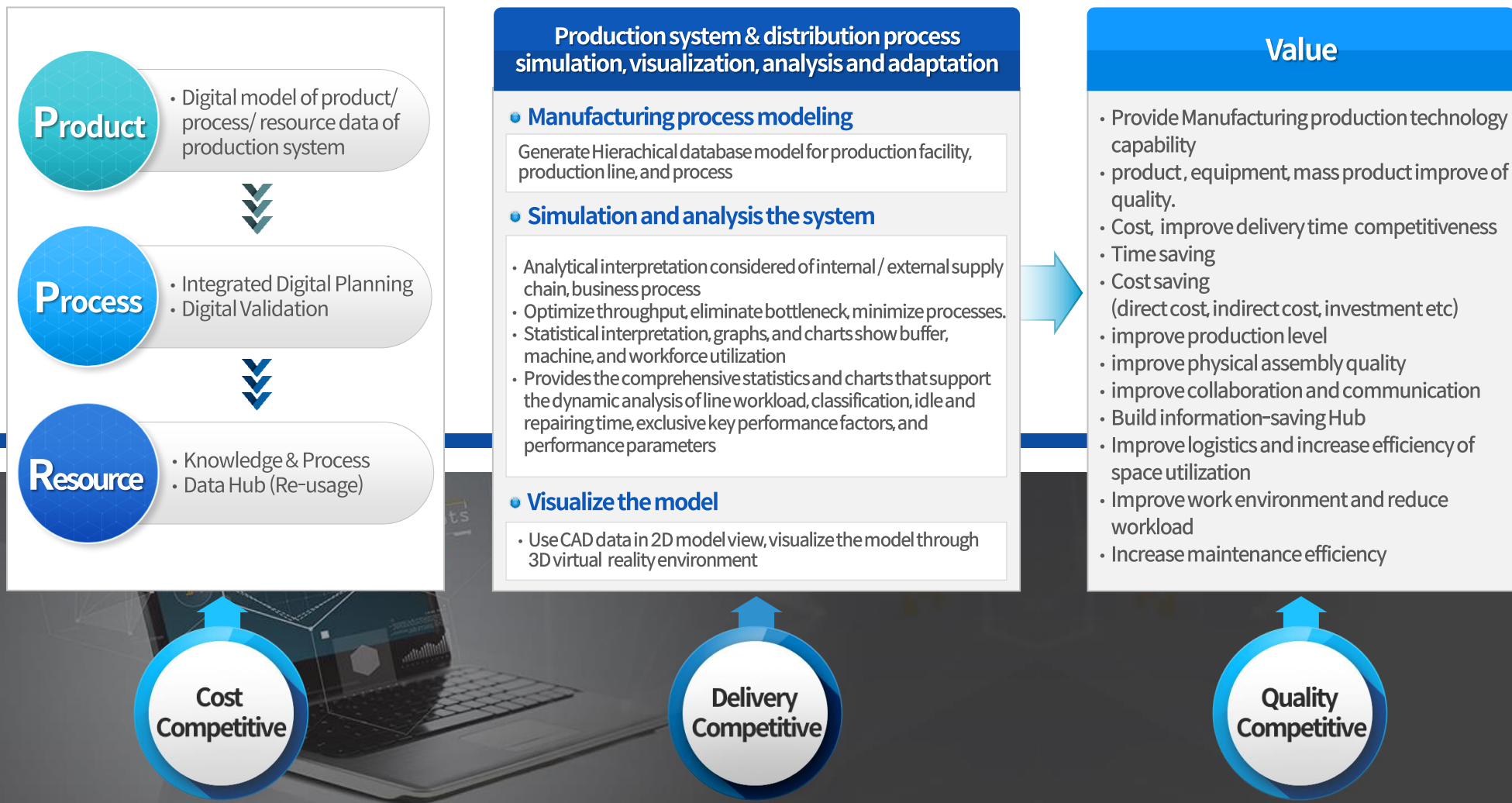
Visualization configuration



4) Digital Manufacturing

Digital Manufacturing (Tecnomatix Plant Simulation)

Perform mass production, construction, production method, planning and process in a digital environment



4) Digital Manufacturing

Product Process Resource

HUB



By Integrating the data of products, processes, resources, and plants, manufacturers can take a full advantage of the pivotal functions for a process, which are recognized as the technologies to lead digital manufacturing. Tecnomatix, which is a key component of a powerful PLM strategy, manages the design and implementation of every manufacturing process with the completely integrated data and bridges product design with production.

Tecnomatix is a software that helps manufacturers take an advantage of the competence of a global manufacturing work, improve productivity, maintain quality, and increase profitability as well as support them to secure a core digital continuity and launch an innovative product faster than competitors.

Scope

- Quality management
- Tecnomatix manufacturing information management
- Part planning and validation
- Production management
- Production process management
- Assembly planning and validation
- Robotics and Automation Planning
- Plant Design and Optimization

3D CAD Customize

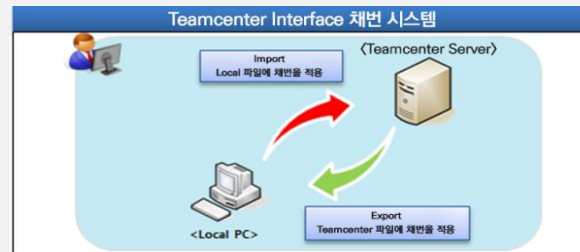
Open API customization from design standardization to application system Improve design quality and product development speed

[Design standardization]



- Model standardized
- Shape standardized
- Specification standardized
- Parts/element library

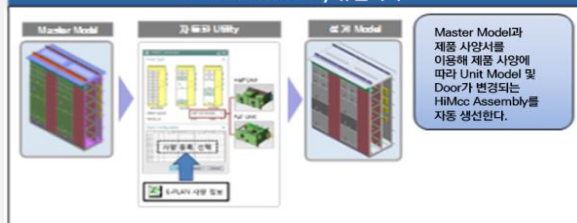
[System applied]



- Integrated system according to each product
- PLM/ERP connection

[Design

modularization/Automation]



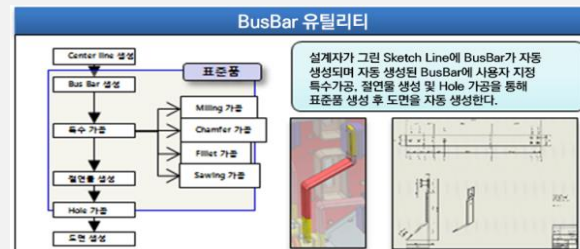
Design modularization

- Standard feature automation
- Assembly Automatic placement
- Customized program

Design modularization

- 3D models are automatically provided
- Update automatically
- Designed model simulation

[Drawing automation]



- 2D drawing are automatically produced
- 3D PMI produced
- Document-drawing connection
- Print and distribute

NX Open API
Customize

Minimize
Production
error

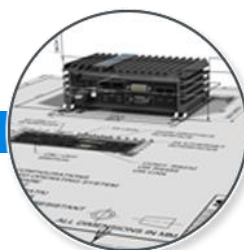
Avoiding
user errors

Shorten
designing
time

Total data
management



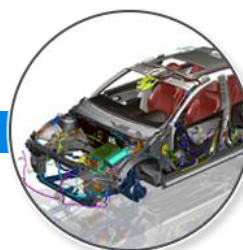
Concept layout &
Styling



Drafting &
Documentation



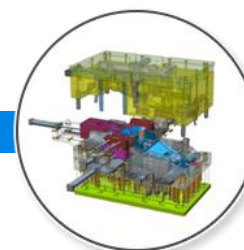
CAM
Programming



Detail
Design



Simulation &
Analysis



Tooling & Fixture
Design

- Isaac Engineering CO., Ltd. solves complexity and provides high performant and most advanced techniques using NX™Solution.

NX enables collaboration between designers, engineers, and large enterprises through tools that embody integrated data management, process automation, decision support, and development processes.

- **Advantages**

- ① Advanced solution for conceptual design, 3D modeling and documentation
- ② Multi-field simulation for structure, motion, heat, flow, multi physics and optimized application
- ③ Complete parts manufacturing solution for tooling, machining, and quality inspection

- **Teamcenter® software coordinates all stages of development**

- Standardize process
- Single item and single process information (shorten the decision making time)
- Increase new product quantity, shorten development time by 30%, shorten design-analysis time by 70%, shorten CNC(Computerized Numerical Control) programming by 90%

Scope

- Concept layout & Styling
- Drafting & Documentation
- CAM Programming
- Detail Design
- Simulation & analysis
- Tooling & fixture design


6) SCADA – OPEN ARCHITECTURE


Based on the Open Architecture, Isaac Engineering co.,Ltd, supports and designs Siemens WinCC OA SCADAS/W.
The WinCC OA is optimized for large unit system solutions and has following characteristics and advantages.

WinCC OA is the perfect solution for Large Scale Applications

SIEMENS

- For geographically wide distributed systems
- For big and/or complex systems
- Freely scalable and expandable – no limits
- For the highest security requirements
- The worldwide only SCADA system with SIL 3-certification





Supports > 10.000.000 data points

Main Function of WinCC OA

- Object-oriented engineering
- Modular “Manager”-architecture
- Multiplatform – provides Windows, Linux, and Solaris
- Seamless redundancy
- Support millions of datapoint communication
- Support 2,048 distributed system
- Practicing Hot-Standby Redundancy upto 30km away
- Online change & parameterization
- High performant native S7 Driver
- Disaster Recovery System
- Acquired SIL3 certification for Mission critical application
- Capability to run the program on mobile device

Add-On Module of WinCC OA

- | | |
|------------------------------|---------------------------|
| • Recipe | • Web server / Web Client |
| • Comm Center | • RDB |
| • Advanced Maintenance Suite | • Remote installation |
| • Scheduler | • Video(CCTV interface) |
| • Secure | • ETool |
| • BACnet | |

6) SCADA – OPEN ARCHITECTURE

WinCC OA is the perfect solution for Supervisory Layer

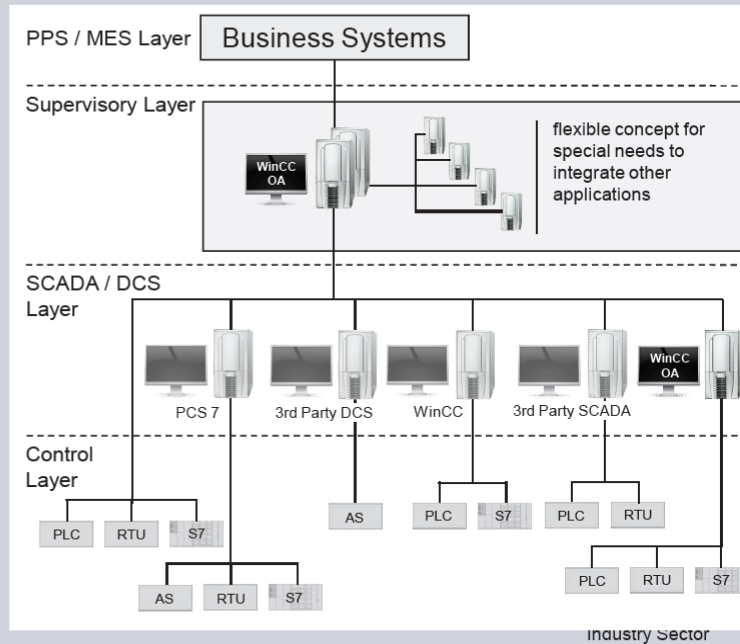
SIEMENS

Features of WinCC OA:

- many I/O's
- Distributed Systems
- Redundancy
- Connectivity

Supervisory control centers for:

- Water plant networks
- Pipelines
- Undergrounds
- Traffic management
- Building management
- Passenger information systems
- Oil & Gas production



WinCC OA S/W covers a wide range of vertical automation: it functions SCADA through interfacing with such central hierarchies at the bottom as **PLC, sensors, and control devices**, and manages data, plans production, and interlocks with ordering and manufacturing through the top-layer business system such as **PPS and MES**.

In addition, it enables a user to supervise and controls combined clients simultaneously by integrating a large-scale I/O communication with scattered and many servers. Also, it is of an open architecture, which is suitable to interlock with separate external applications.

In particular, this software has been applied to a comprehensive range of manufacturing including water treatment, gas supply pipeline, various traffic control systems including subway, building automation, airport control system, and plants and key industries like oil and gas production facilities.

**Assist and guide our clients to become
data-driven global enterprises**

04 **Big Data**

Our Services

Consulting and Customization

Solution



System Integration

- On-site and cloud-based cluster service
- Big Data hardware and software
- Big Data Ecosystem support
- Big Data/AI turn-key service
- Trouble-shooting



Consulting

- Enterprise Big Data Analysis
- Cluster maintenance, expansion and support
- Big Data & AI utilization and application
- Data-driven Enterprise support



Solutions

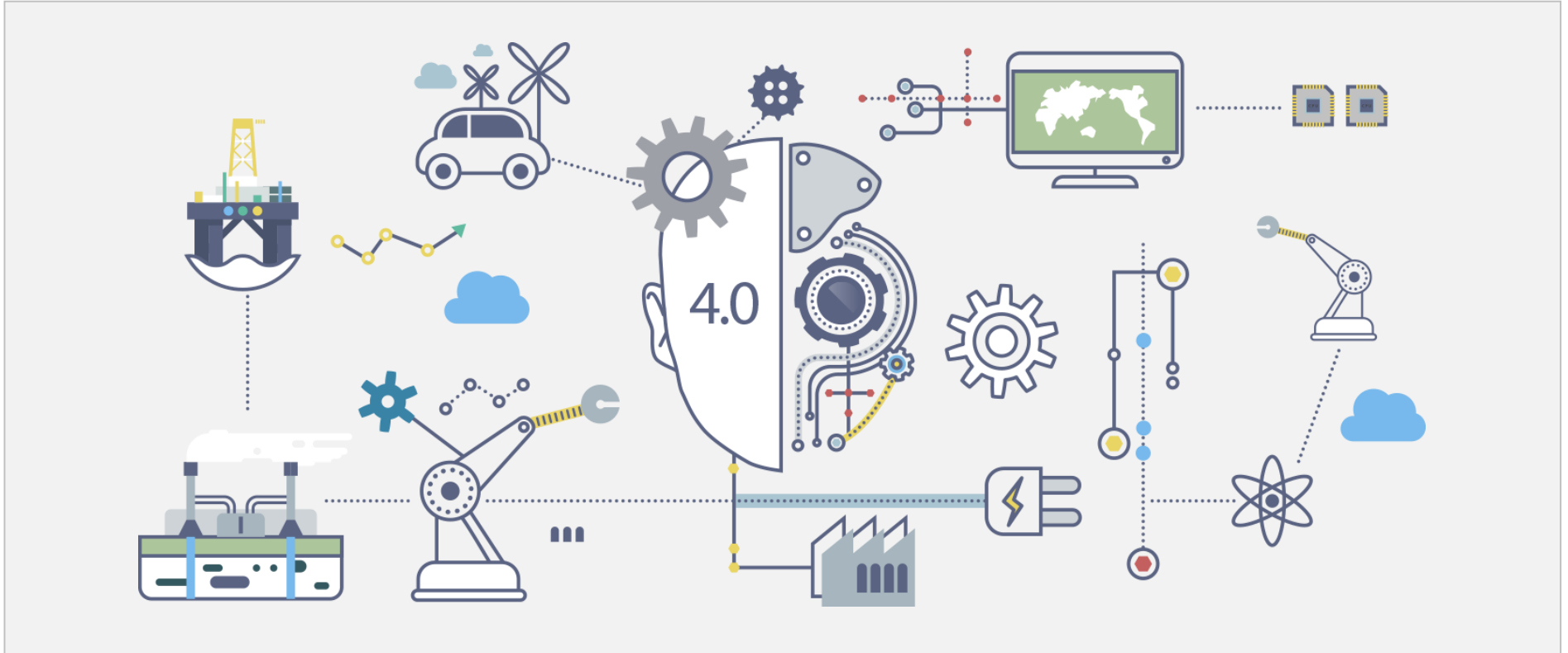
- Cloudera, Hortonworks, Amazon AWS, MS Azure, IBM Cloud, Oracle Cloud, Elastic Search
- Plug & Tap Distributed Streaming Data System
- SAP Pluggin Data Lake Glue
- Sentimental Analysis
- Data Visualization dashboard



Education

- Hadoop Administrator
- Spark Developer and Data Scientist
- Data Analysis
- Machine learning, AI
- Hands-on training

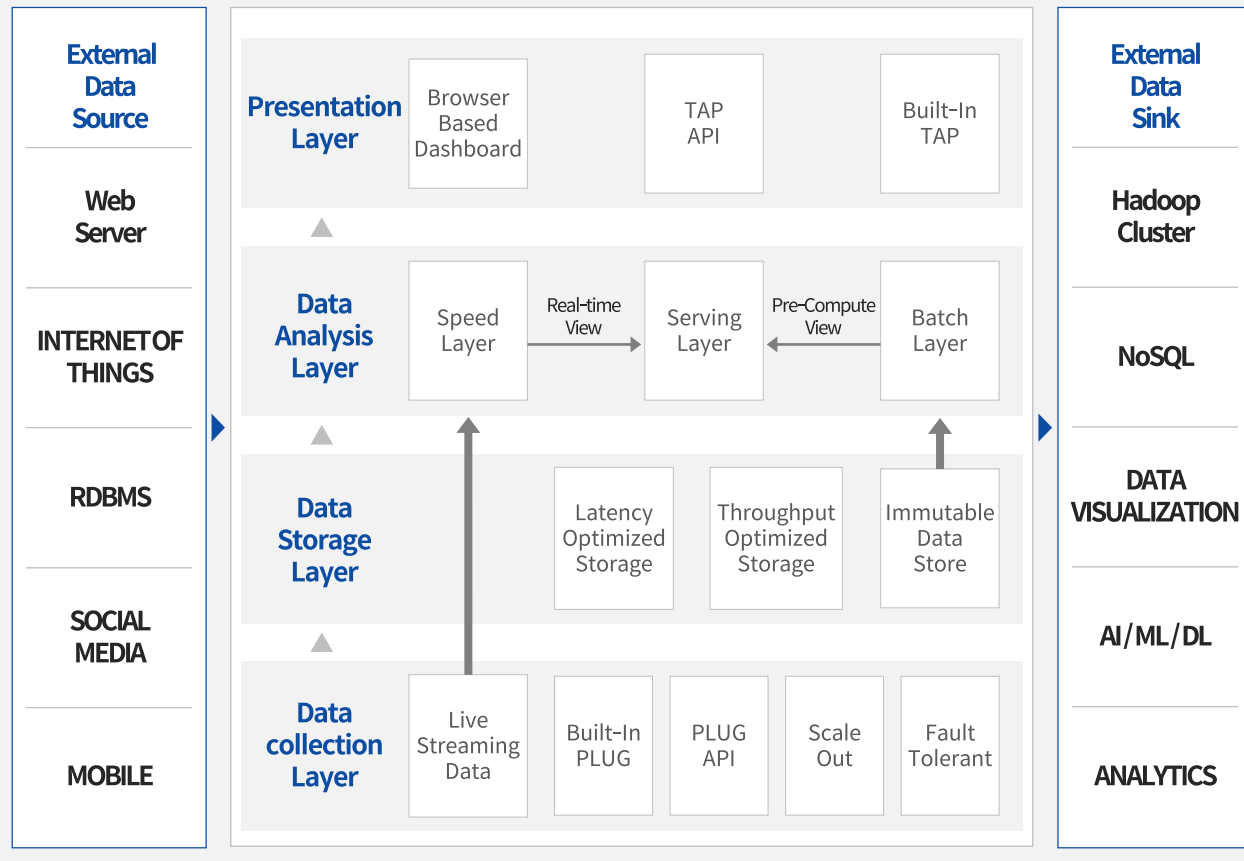




We provide consulting and custom solutions that help our clients become global data-driven enterprises. We analyze their current data and how they are either stored or discarded. From this analysis, we recommend and integrate turn-key solutions as well as custom development that provide tools to analyze and gain insight into their business.

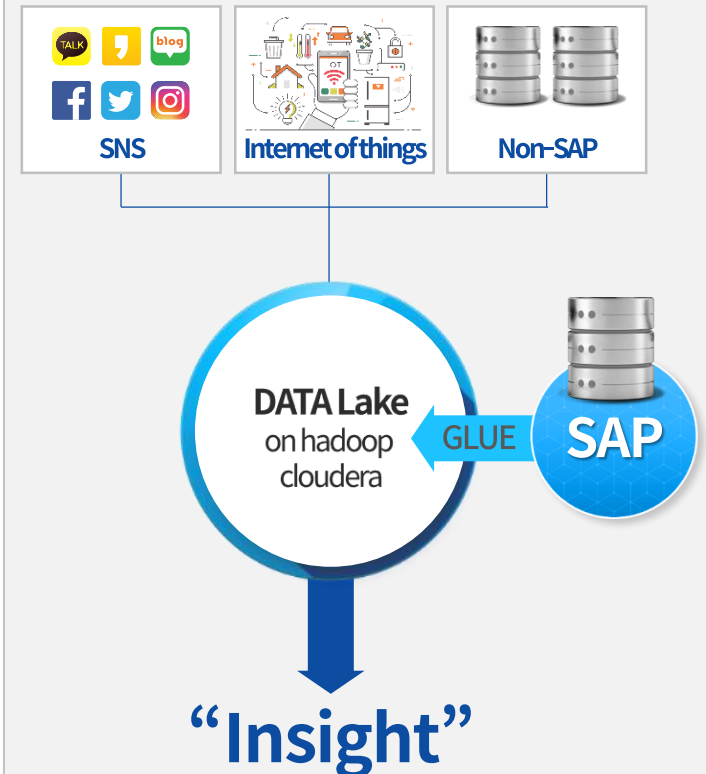
Plug & Tap

- Real-time data ingestion, storage, analysis and insight
- Self-service data analytics and data science
- Batch and streaming data analysis based on Lambda Architecture



SAP Plugin (Data Lake Glue)

- Integration of Big Data and SAP
- Hadoop as Near Line Storage solution for SAP
- Unified analysis of SAP structured data with external Big Data



05 Smart Manufacturing

/ Design

/ Manufacturing





- In 2012, this company introduced EPLAN Electric P8, which is a solution that optimizes drawing and engineering process, and realizes and provides the interfaces of CAD, ERP, PDM, and PLM. Since then, we have swiftly responded to customers' needs and requirements and accomplished the productivity of drawings whose quality is much higher than competitors while complying with related international standards. Riding the innovative waves of change in the electrical design environments, we added EEC-ONE (Eplan Engineering Center ONE), which is an automated electrical design program, to EPLAN Electric P8, and additionally developed EPLAN Pro-Panel in 3D design which can check part interference, calculate the length and path of a wire automatically, and create process NC data. Thanks to the wise effort, this company has been able to secure a superior competitiveness to our competitors from design (to save manufacturing lead time) to manufacturing.
- EPLAN is a DB-based platform for a high-speed design work.
With this, we can exclude the errors that can take place when a manual work with CAD is applied, establish an efficient process for electrical design, and thus present our clients with the best drawings and products optimized to their needs.

■ Design competitiveness
using EPLAN

**Design Automation**

BOM, wiring diagram, nameplate, cross reference, cable and terminal diagram

Design Quality

It automatically creates all the drawings and reports necessary for design through production and maintenance/repair

High Performance

It quickly verifies the errors in a drawing (hundreds to thousands of pages) and updates them.

Design Efficiency

It automatically checks the errors of a drawing and makes accurate reports.

Project Management

It manages the drawings and reports that are updated several times

Standardization

It is forced to apply international standards, KS, and this company's internal standard.

Informatization

It interfaces with ERP, PLM, quotation solution, a wire machine, excel, etc.

Overseas Project

It has a function of changing the standard of a drawing and translating a language into target language.

Management

It supports a project cooperation based on authorization control and manages division of labor and supplies.

■ Manufacturing Strengths

01

Equipped with process and production management capability accumulated through various projects: SK Hynix, POSCO and Hyundai Steel.

02

Secures competitive price, mass production system in a short time, and guarantee uniform quality

03

Possesses material procurement system by ERP, mass production system in a short time, a stable quality management system, and compliance with a delivery date.

04

Produces or manufactures products by consistent processing control and throughout an entire process.

05

Proud of capable human assets with the enriched experiences of numerous manufacturing projects.

06

The standardized out coming (shipment) inspection makes it possible to ship out a lot of control panels quickly.

07

We keep introducing process automation facilities to save the time of manufacturing and manage quality.

08

Our process control follows the block-typed parallel modulization (supported by accumulated experience with many project constructions)

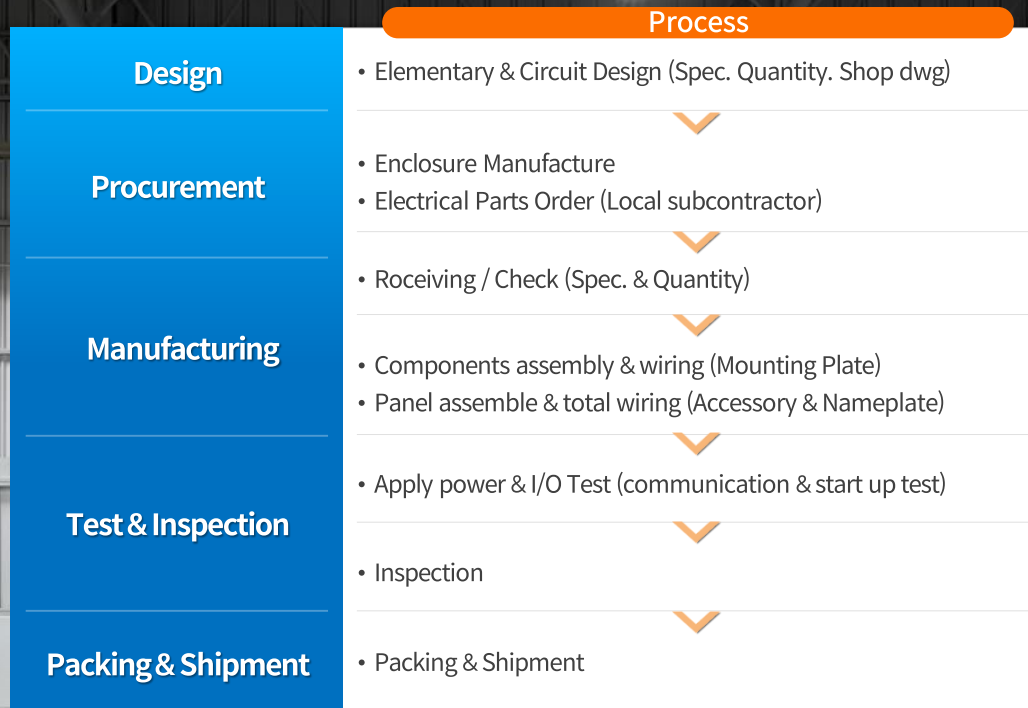
09

We do not follow sequential manufacturing system that another (next) process starts only after one has completed but divides similar processes into blocks so that they can be worked at the same time and those individual processes are then combined (assembled) at the last stage.

10

Since most of the panel orders that we handle require mass production in a short time period, we apply block-type parallel modulization.

2) Manufacturing



Smart Manufacturing

- Arranges IO list and creates PLC circuit diagram / creates power circuit diagram and communication circuit diagram/ equipped with the technology to select the specifications of electronic units placed in an external and internal box, the technology to calculate the required amount, the technology to design a manufacturing design/technology to simulate the placement (arrangement) of electronic units.
- Equipped with material procurement system by ERP, the capability of mass production in a short time, the compliance with a delivery date, the automatic lost up of the required amount and relevant models at the same time as circuit design, and much saving time of material ordering and manufacturing lead time.

Manufacturing Management

- Equipped with the technology to calculate critical mass, the technology to control manufacturing process (to set manufacturing speed), and the technology of mass production (wiring and block-based process control using automation machines)

Q.C

- Equipped with the technology to check false wiring using PLC and the technology for field signal and sensor simulation (Digital I/O, Analog I/O Test).

Thank you