



Operational Excellence Services

Operation Automatics Operation



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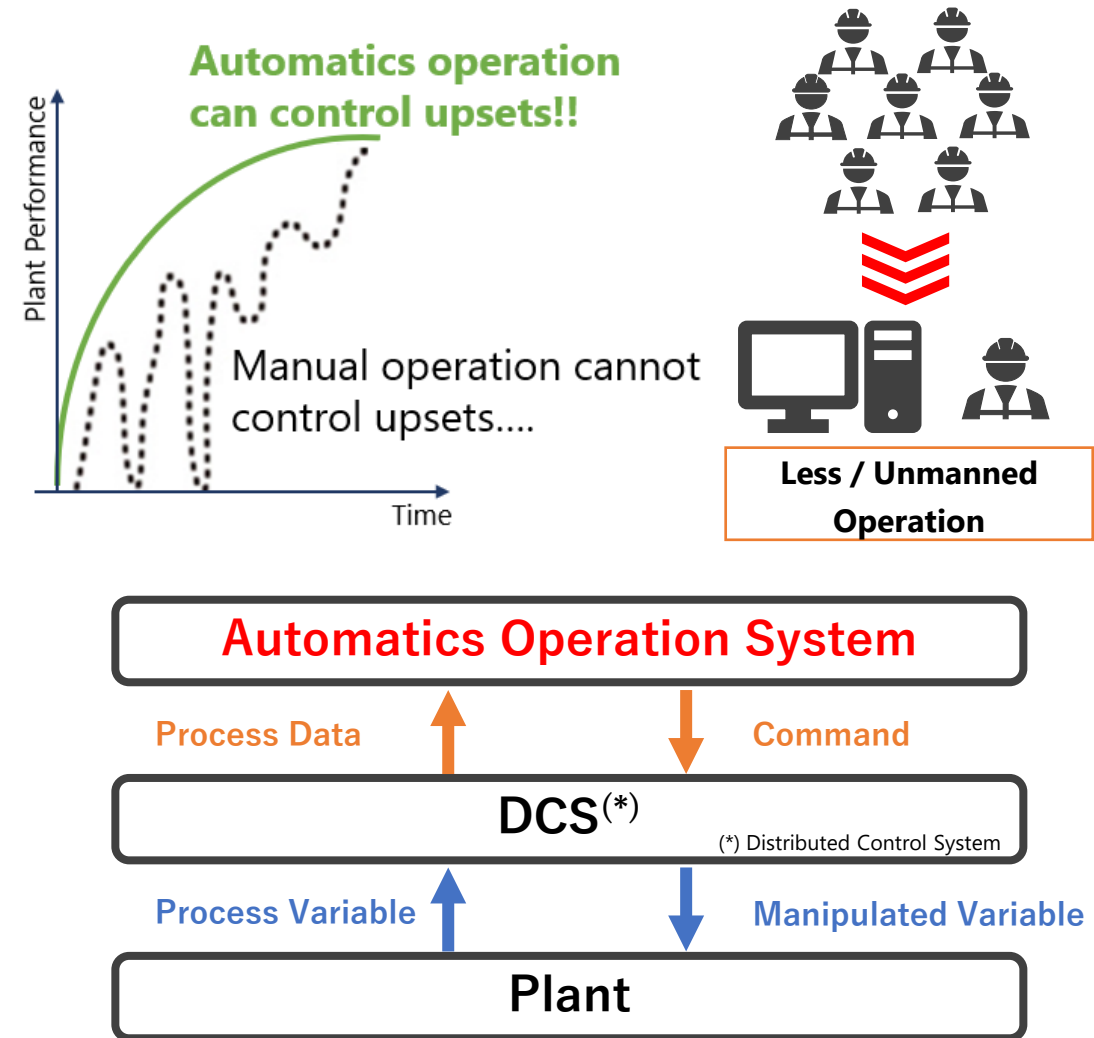
Automatics Operation

Advantages of Automatics Operation

- 👍 **Stabilizing facility performance by reducing process upsets during process operation**
- 👍 **Prevention of equipment damage due to mistakes**
- 👍 **Minimizing transient operation time**
- 👍 **Standardization of transient operation sequence**
- 👍 **Assistance for operators with limited experience.**

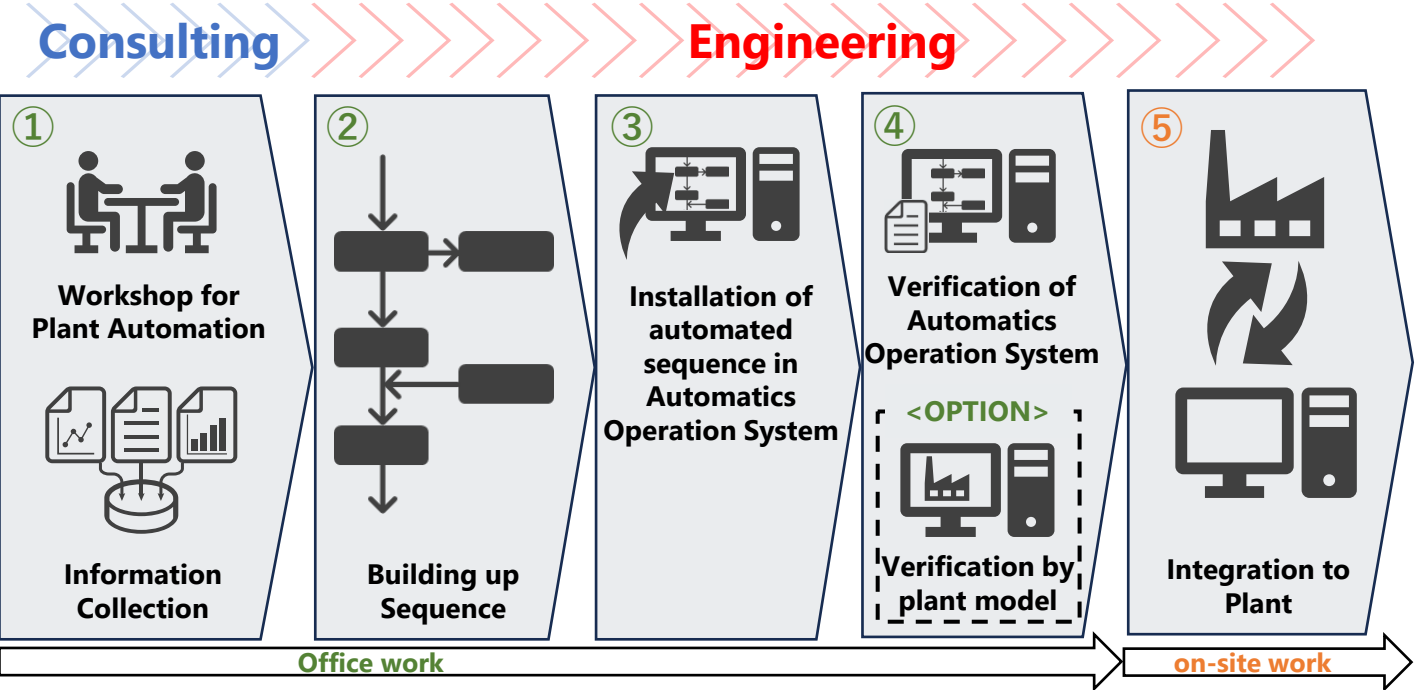
What is Automatics Operation ?

- Automatics Operation achieves an automated operation for numerous types of plant and equipment (upstream, midstream, downstream).
 - Plant Startup and Shutdown
 - Transient Operation (ramp-up/down, etc.)
 - Process Upset (adjusted for stable operation)
 - Package System Startup and Shutdown (Compressor, Expander, etc.)
- JGC provides consulting and engineering services to implement Automatics Operation for existing plants.



Automatics Operation

Workflow for Implementation



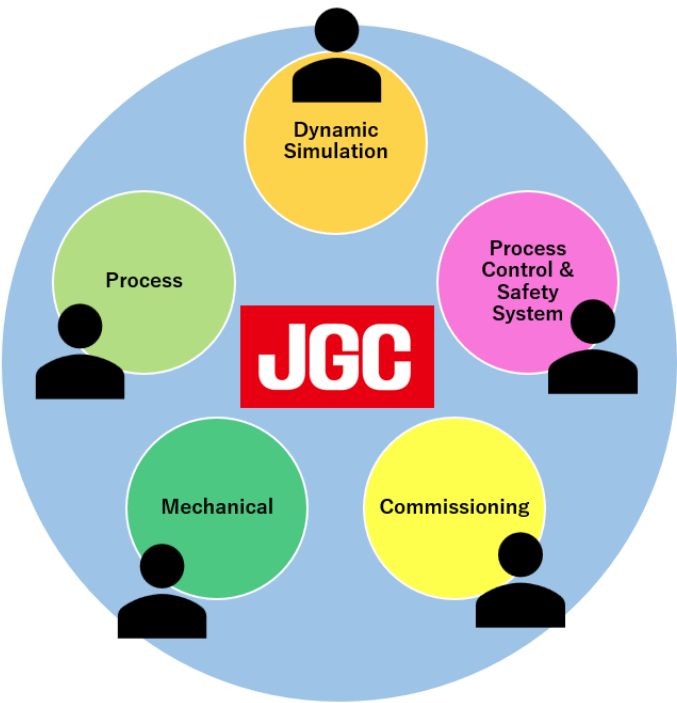
Our Experience

- LNG, Ammonia, Power Plant, etc.
Automation for plant startup and shutdown in various types of plants.
- MCHE^(*) Cooldown, Compressor change-over, etc.
Automatic sequences for startup and shutdown of many types of package system

(*) Main Cryogenic Heat Exchanger

Our Strengths

- Experience in EPC and O&M of many types of facilities in many locations around the world
- Specialist Engineering Team consisting of various experts in JGC to deliver Automatics Operation



Automatics Operation

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Case Study : Success of Automated Startup/Shutdown in IGFC(*)

- Plant owner: Osaki Coolgen Corporation <<https://www.osaki-coolgen.jp/en/>>
- Process: CO2 Capture and Recovery Facility in the IGFC
- Requirement: Fully automated plant startup/shutdown operation

(*) Integrated Coal Gasification Fuel Cell Combined Cycle

Approach

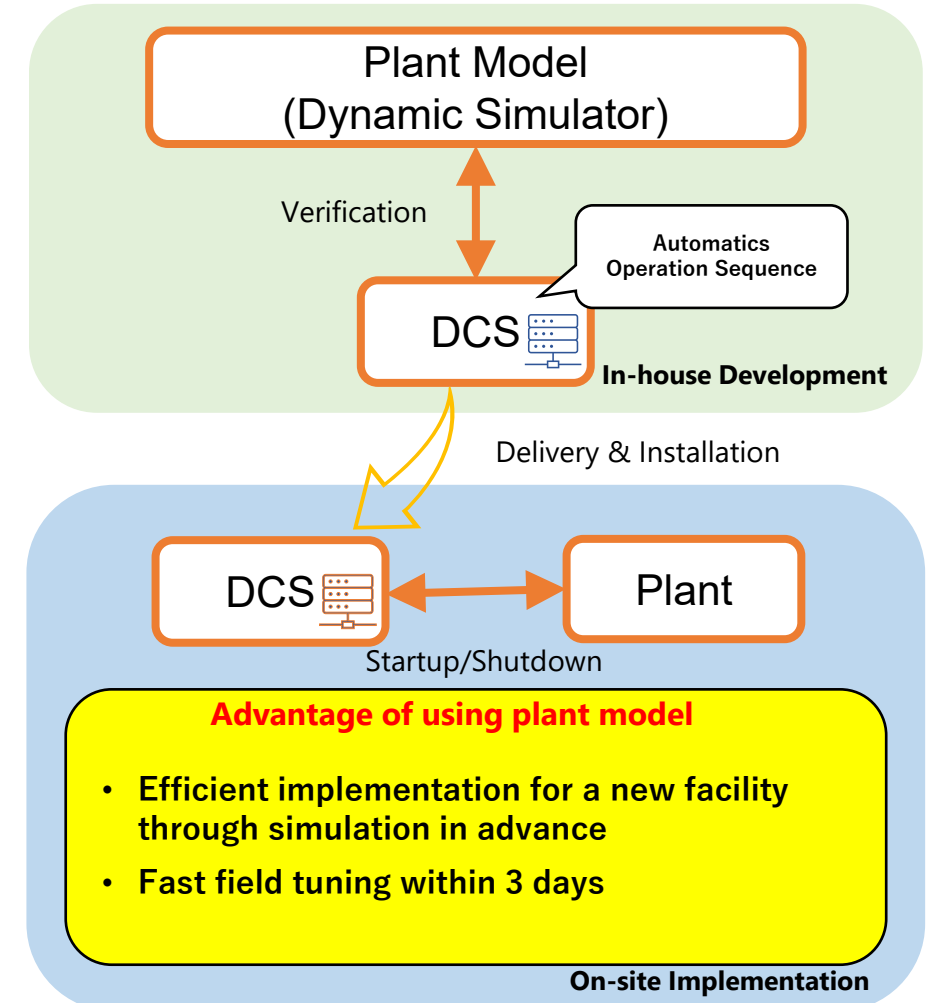
- Developed Plant Model to validate Automatics Operation Sequence for minimizing tuning work during on-site implementation
- Implemented Automatics Operation sequence into DCS according to system configuration at existing unit

Achievement

- Quick startup/shutdown operation by automating over 1000 steps in the procedure
- Safe startup/shutdown operation without any human error and any failure of an equipment



Provided by Osaki Coolgen Corporation



Implementation by using plant model