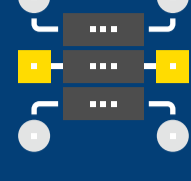


# Sustainable Safety Instrumented Systems

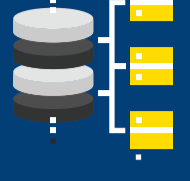
Empowering key decision-makers with opportunities to retake ownership and actively manage their operational safety performance



## Common Challenges in Industrial Process Plants



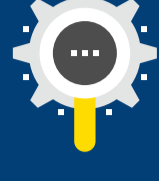
Complexity in operation and configuration due to less intuitive user interface



Tracking safety system data with current application due to lack of integrated and synchronised database management



Shrinking revenue and rising OPEX



Monitoring safety performance and compliance efficiently

## Benefits of Sustainable SIS

Holistic management of functional safety, process safety and security

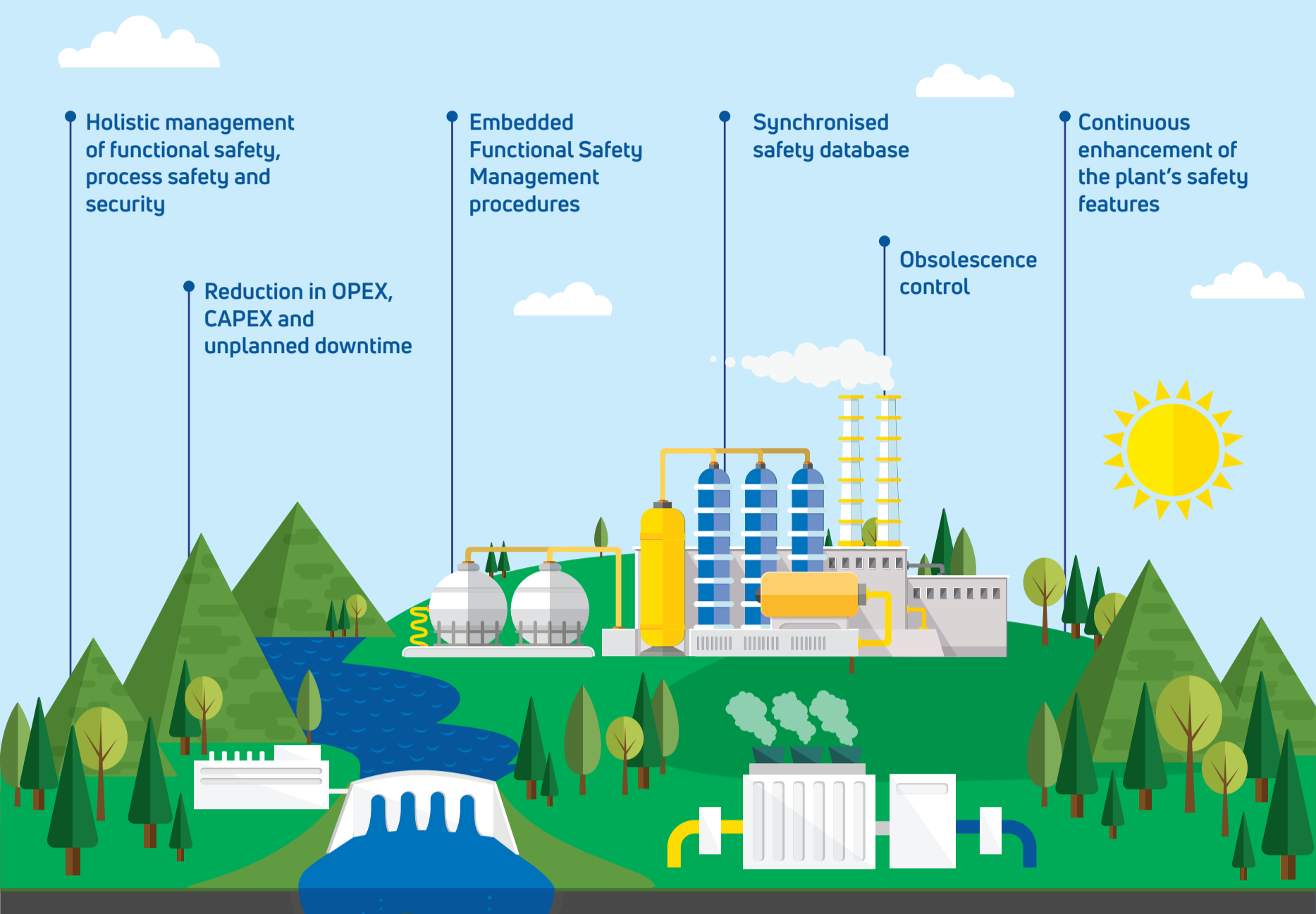
Reduction in OPEX, CAPEX and unplanned downtime

Embedded Functional Safety Management procedures

Synchronised safety database

Obsolescence control

Continuous enhancement of the plant's safety features



Safety design (SIF, SIL, SRS)  
Expected performance

Continuous Enhancement of Safety Performance Using Sustainable SIS

Refinement of safety design

Safety indicators  
Measured performance

Gap analysis  
Performance validation

## Conventional SIS

vs

## Sustainable SIS



### SYSTEM COMPLEXITIES

- Difficult to interpret, configure and operate SIS solutions.
- Requires specialised skill from extensive training and experience.



Better visualisation of process behaviour during plant start-up or process upsets.

Intuitive user interface of safety application

### SAFETY INTEGRITY REPORTS

- Report format is not user-friendly or ready for interpretation.
- Data gathering and analysis are time-consuming.



Raw data is automatically converted into comprehensible formats.

Automated and real-time documentation of the plant's safety status.

### MANAGEMENT OF CHANGE

- Changes are sometimes manually documented.
- Difficult to trace and compile modifications chronologically.



Automated change management process.

Easy access to historical records for auditing purposes.

### CAPITAL AND OPERATIONAL EXPENDITURES

- Safety operators and managers may maximise safety parameters irrespective of cost.



CAPEX reduction through embedded FSM structure and automated management of change.

OPEX reduction through optimal safety/cost performance based on actual plant performance and ease of maintenance.

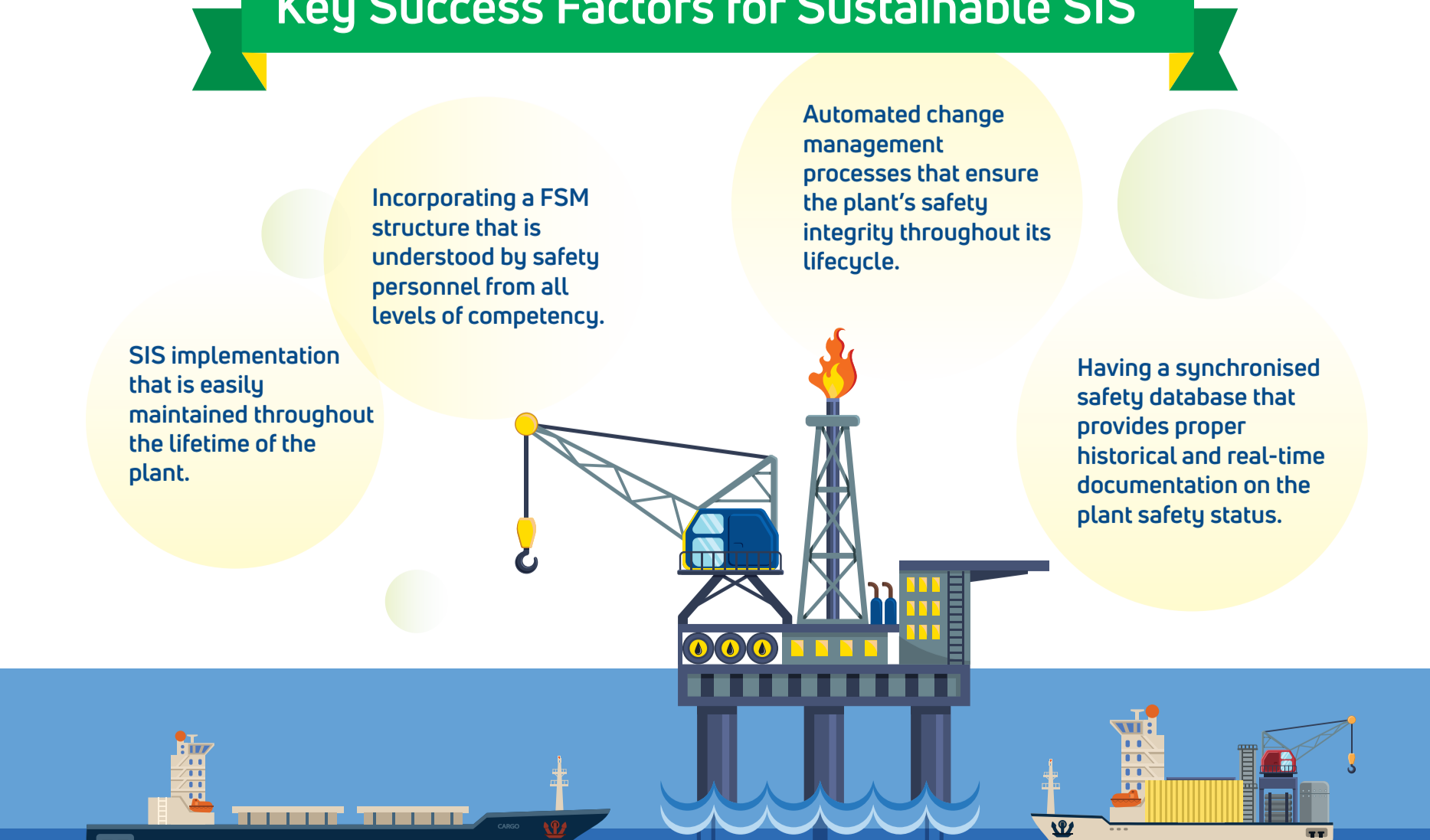
## Key Success Factors for Sustainable SIS

Incorporating a FSM structure that is understood by safety personnel from all levels of competency.

Automated change management processes that ensure the plant's safety integrity throughout its lifecycle.

SIS implementation that is easily maintained throughout the lifetime of the plant.

Having a synchronised safety database that provides proper historical and real-time documentation on the plant safety status.



An infographic by Frost & Sullivan, commissioned by Yokogawa

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