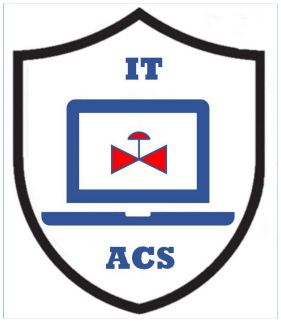
What is CFIHOS

Capital Facilities Information Hand-over Standard

MLM-082-B

Industry	– Process Industry
Principal Role	– Owner / Operator
Professional Role	– Control Engineer + Procurement
Enterprise Phase	– Engineer, Procure, Construct + Operations



Turn on your audio and click start to begin video

START

This MLM describes procurement practices using the Capital Facilities Information Hand Over Standard, including acceptance procedures

Click the NEXT button when you are ready to advance to the next slide.

What is CFIHOS ?

CFIHOS is:

- A Eurozone standard coordinated by USPI with over 30 members including Owner/Operators, EPCs, Manufacturers & Technology suppliers.
- Based on success of Hand-Over practices in Shell and other majors
- Focused on Oil, Gas, Petrochemicals and Power Industry
- Issued in draft, and is currently seeking application feedback

CFIHOS uses MongoDB to develop the EIS (Engineering Information System) to manage:

- Standard Product Class Libraries (ISO 15926, IEC 61987 CDD)
- Lists of EPC and Vendor Deliverables (e.g., Drawing Registers)
- Product Specification Data (IEC 61987 LoPs, ISA 108, ISA 20)
- Hand-over data requirements and formats
- Standard contractor and vendor Contract Templates

Why is CFIHOS Needed ?

High cost of current Handover practices.

- For example, NIST estimates over 4% of the Total project cost is wasted through inefficient transfer of Engineering, Vendor, and Operation Maintenance information.

What Does CFIHOS Include?

Standards, work processes, and tools to assist with efficient handover of Engineering information to Operations and Maintenance.

1) Template contracts to facilitate specification of requirements and acceptance procedures for:
    1) Engineering
    2) Constructors and Field Contractors
    3) Vendors
2) Standards defining information and formats to be delivered to the Owner/Operator by:
    1) Engineering
    2) Constructors and Field Contractors
    3) Vendors
3) Master Product Class Library including:
    1) Standard names of instruments, pumps, vessels, etc.
    2) Specification parameters for above
    3) Definition of Deliverable data for all of the above

How can Hand-over be Improved ?

Data Handover must be consolidated from many different sources.
It should be:

- Complete
- Consistent
- Compliant
- Correct

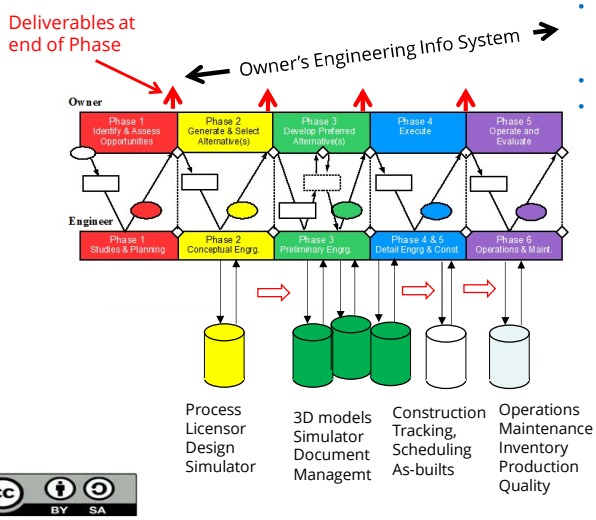
Requires an Owner's EIS (Engineering Information System) to provide tools to transfer data from EPC to Owner systems including:

- % Complete Reporting,
- Engineering Change Control,
- Data Validation

The Owner's EIS should be consistent with maintenance systems used by the Owner during Operations (rather than EPC systems).

Data Handover can no longer be a "Post Project" activity. Instead, it must be "Continuous" during the Project.

Engineering Data Transfer should not be left to the end of the Project



- Owner's Engineering Information System (EIS) is controlled by facility Owner/Operator. but is accessible by EPC, vendors, etc.
- EIS uses Standard CFIHOS data formats
- MoC Work processes insure validity of EIS changes.

Data is developed in "silos" and is often not effectively transferred between Engineering, Construction and Operating Phases

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A formal review and approval step (or "**Stage Gate**") is required at the end of each **Project Phase**, and prior to beginning the next Phase.

At this point, the **Owner** and the **Engineer** exchange "Requirements" and "Deliverables". The are a rich set of Deliverables that are exchanged in well-established formats at specific points (usually the end of each project Phase).
The person(s) on the Owner/Client side review and approve deliverables. Approval is required before the next Phase of the project may proceed.

How can an Owner's Information System (EIS) Facilitate CFIHOS Benefits?

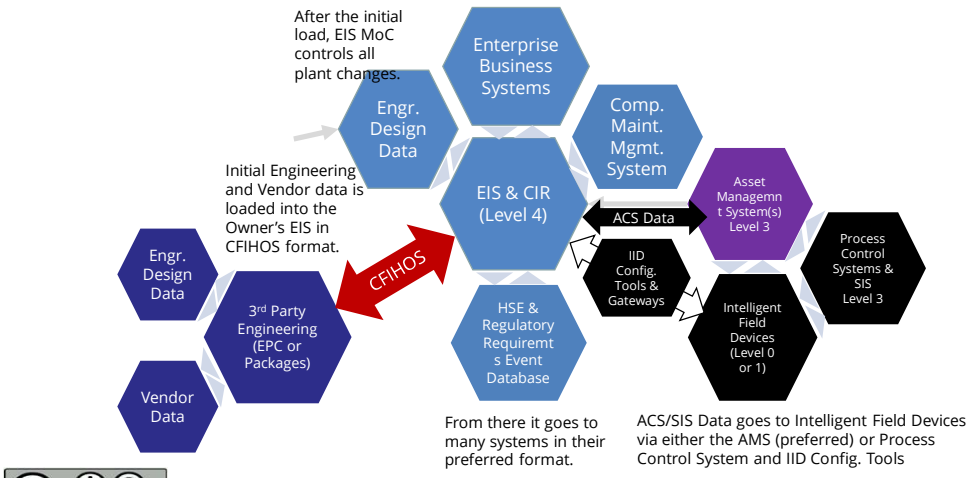
Standard Product Class Libraries, data and format standards, and Contract Templates. are loaded and tested.

A SaaS (Software as a Service) web-based system is currently available. To get started with CFIHOS, a client needs only to login with a standard personal computer and train their people.

Ongoing improvements and additions to CIFHOS library will be loaded as they become available. Upgrade costs are included in the monthly service fee (approx. $1 /tag/year.)

The same EIS server is accessed by many companies. Each user therefore benefits from the reliability, efficiency, and shared learning curve.

EIS and ICS Configuration Data



How can an EIS Facilitate CFIHOS Improvements?

The EIS is specifically designed to help Owner/Operators transfer EPC and Vendor information during engineering, hand-over, maintenance and turn-around activities. It is optimized to provide:

- Easy access to Technical information (reduce man-hours spent searching for information).
- "Single Source of Truth" for plant personnel, so latest version of drawings and data is clearly indicated, and history is available online.
- Engineering Change Control to ensure accuracy of information.
- Online Work Processes for Turnover and Maintenance activities.
- On-demand Information and Training for site personnel.

CFIHOS Articles and Conferences

- USPI description of CIFHOS conferences and meetings
  - https://uspi.nl/index.php/projects/frameworks-methodologies/cfihos-overview/conferences-and-workshops
- CFIHOS, ISO 15926 and related standards by Datum360
  - https://www.datum360.com/standards
  - Will CFIHOS help ?
- Are you CFIHOS ready ? - by Aveva
  - View CFIHOS Infographic
- Article on CFIHOS by Hexagon/Intergraph
  - https://hexagonppm.com/about/compliance/cfihos
- Article on CFIHOS by Meridian
  - https://www.bluecieloecm.com/cfihos-2015-data-integrity-at-handover/

Author

Gary has more than 40 years of experience with enterprise integration and optimization projects, including PERA master planning and project management.

As one of the initial authors of the PERA Handbook of Master Planning, he has used PERA Enterprise Architecture and Master Planning methodologies throughout his career including control and information systems for oil production, pipelines, refining and marine loading, petrochemicals, coal, gas, and oil-fired power plants, polyethylene, ammonia, explosives, paint, pulp and paper, food and beverage, and pharmaceuticals. LNG facilities included world-scale arctic, European, and US Gulf coast complexes.

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