



Information Quality

Engineering Data Management

PCA Australasian Forum

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**Information Quality
Specialised Engineering Support for the Digital Plant**

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Engineering Data Management

Company Profile

- Australian Company, Perth Based, Global Contacts.
- Driven by desire to deliver Quality with Integrity.
- Deliver Owner Operator Requirements developed from standard project deliverables.
- Bridging the Gap between EPC's and Operators.
- Difference in the way we access data, world is changing where everything is digital – Operators & EPC's alike need assistance.
- Engineering Data Management, Intelligent Application Management and Engineering Support Solutions.
- Broad Depth and range of Experience.





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How can YOU utilise IQ's tools and services to create a digital plant from an existing asset?



Firstly we need to ask – What are the benefits and why should we create a digital plant?



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Why Create a Digital Plant?

NIST Study:

'This report... estimates the cost of inadequate interoperability in the U.S. capital facilities industry to be **\$15.8 billion** per year.'

-Interoperability is defined as the ability to manage and communicate electronic product and project data between collaborating firms, and within individual companies, design, construction, maintenance, and business process systems.

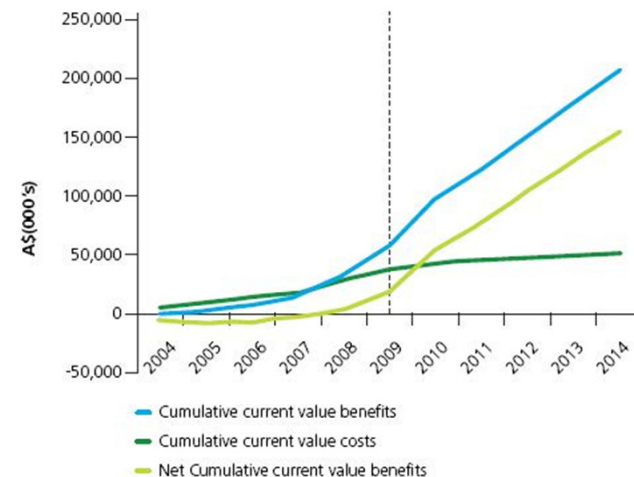
Source - Cost Analysis of Inadequate Interoperability in the U.S. Capital Facilities Industry (NIST GCR 04-867)



Deloitte Woodside AVEVA Net Study:

Massive cost savings which continue to accumulate over the lifecycles of a companies assets.

Chart 4: Net cumulative current value benefits





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Maintaining a Digital Plant – The Benefits

- To operate and maintain your asset **SAFELY** and at it's most efficient state i.e. reduce plant downtime due to unplanned shutdowns.
- Improve access to Drawings, Data and Documentation.
- Eliminate requirement for site visits & access data remotely from anywhere.
- Enable remote planning of hazardous engineering operations.
- Opportunity to integrate data between applications & systems.
- Provides the ability to identify TI (Technical Integrity) equipment.
- Provides accurate archive data.
- Reduce engineering costs by reducing the time to source key data.
- Improves spare parts management i.e. ensures the correct spares are on the shelf.





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ProDat – Project Data Management System

- IQ realised a requirement for a Project Based tool to gather, validate and compile Project Engineering Data.
- A tool to compile, cleanse and prepare data for loading into Project Portals.
- A tool which can be made available to all project stakeholders.
- Imports Data from various and diverse sources and standardises a single data set for load into Owner / Operator / Client corporate systems.
- Tag-centric Data repository.
- Developed over 6 years of project data manipulation.
- Based on requirement to standardise and make available data from various sources.
- Implemented to enable Data Augmentation, Hierarchy builds, Data centralisation and most importantly provides a method of cross-validation.



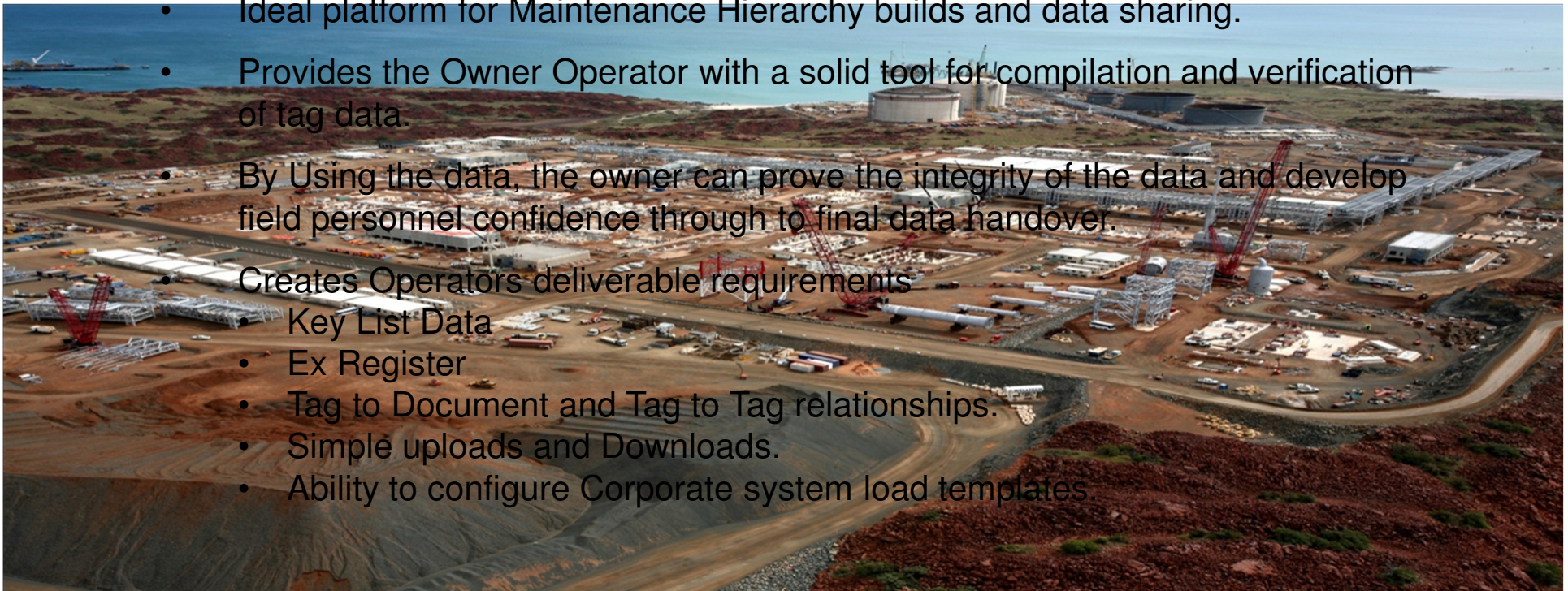


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ProDat – Project Data Management System

- Built to users specifications and requirements and to produce templates compliant with ISO 15926.
- Built to be intuitive and easy to access data.
- Ideal platform for Maintenance Hierarchy builds and data sharing.
- Provides the Owner Operator with a solid tool for compilation and verification of tag data.
- By Using the data, the owner can prove the integrity of the data and develop field personnel confidence through to final data handover.
- Creates Operators deliverable requirements
 - Key List Data
 - Ex Register
 - Tag to Document and Tag to Tag relationships.
 - Simple uploads and Downloads.
 - Ability to configure Corporate system load templates





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Creating a Digital Plant

- To create a digital plant, we need to utilise purpose built data collation, validation and audit tools –



Help | User Name: | Security Level: | Project: | Login

Tag Search: Search

Drawing Search: Search

HOME TAG SEARCH DOCUMENT SEARCH MAINTENANCE HIERARCHY

Maintenance Tags

- PLA.B: GAS PRODUCTION
- PLA.E: GENERAL UTILITIES
- PLA.F: SAFETY
- PLA.G: MONITORING & CONTRL SYSTMS
- PLA.H: COMMUNICATIONS
 - PLA.H01: LIFESAVING RADIO/ TELEPHONE
 - PLA.H02: MANDTRY PUBLIC ADDRESS SYS
 - PLA.H0201: MANDATORY PUBLIC ADDRESS
 - PLA.H0201010: MANDATORY PUBLIC ADDRESS
 - CPA: PUBLIC ADDRESS SYSTEM
 - CPWRSYS: EQUIPMENT POWER SYSTEMS
 - 00CPSS061001: LAN RACK STS
 - 00CPSS061002: PRIMARY SATELLITE STS
 - 00CPSS061003: SECONDARY SATELLITE STS
 - 00CPSS061004: EMS/RADIO RACK STS
 - 00CPSS061005: RADIO RACK STS
 - 00CPSS061006: CCTV RACK STS
 - 00CPSS061007: CONSOLE STS A
 - PLA.H03: NTNL SYS OTH PLUN MANDTRY
 - PLA.H04: XTNL SYS OTH PLUN MANDTRY
 - PLA.H05: COMMON SYSTEMS

Unassigned Tags

- 00GZT074005: TX,POSITION,INDICATION,VALVE XV074005
- 00GZT074010: TX,POSITION,INDICATION,VALVE XV074010
- 00HS087104: SW,MATRIX PANEL,FIRE & GAS,RESET
- 00HZS086206: SW,ACTIVATE HIPPS,MATRIX PNL,TEMP REFUGE
- 00LT044101A: IND,LEVEL,DIESEL BULK STORAGE,T044002
- 00LT045001A: IND,LOCAL LVL,SERVICE WATER TANK,T045002
- 00PDT045080: TX,DP ACROSS CARBON FILTER,V045001
- 00PDT045090: TX,DP ACROSS PARTICULATE FILTER,V045002
- 00PDT068001: TX,DP,HP/IP,COMPRESSOR 1,ACCU 1

Non Maintainable Tags

- 00B
- 00C
- 00F
- 00G
- 00H
- 00J
- 00L
- 00P
- 00Q



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CASE STUDY – Legacy Datasheet Conversion Project

- Production of a bespoke MS Access Database to build tables containing key engineering & equipment data. Here the data was audited & validated.
- Code was written to transfer entire key list data onto corporate PSV datasheet templates. This produced an individual electronic datasheet for every PSV complete with key list data, correct document numbers and revisions at the press of a button.
- No OCR software was used during this process due to consistent errors when trialling and the criticality of the equipment e.g. the number '5' being mistaken for the letter 'S'. The best approach is using 'real people' to ensure 100% confidence in the translation of information.
- Resulted in the client receiving over 2700 PSV datasheets in the most recent electronic corporate template.
- Project identified that there were nearly 1000 tags which did not have a datasheet – this was not previously known.
- Also identified that there were almost 90 tags with datasheets which did not reside in the CMMS (SAP) – again this was not previously known.



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CASE STUDY – Benefits of Conversion

- Once loaded, access to critical equipment datasheets remotely from any location. Subsequent ease of maintaining datasheets once electronic.
- Identification of almost 1000 tags which had no datasheet and therefore no data loaded into various engineering and maintenance systems.
- Identification of nearly 90 tags which did not previously reside in CMMS, therefore once this data was loaded - subsequent re-certification maintenance plans were able to be created.
- Validation and where required, update of all critical measuring points for each PSV within the CMMS. This is critical as it determine maintenance schedules.
- Cleansed and consistent engineering data and characteristics.
- Overall improvement in operational safety.
- Improvement in plant efficiency i.e. reduce the chance of unplanned shutdowns.
- Ability to assess spares management

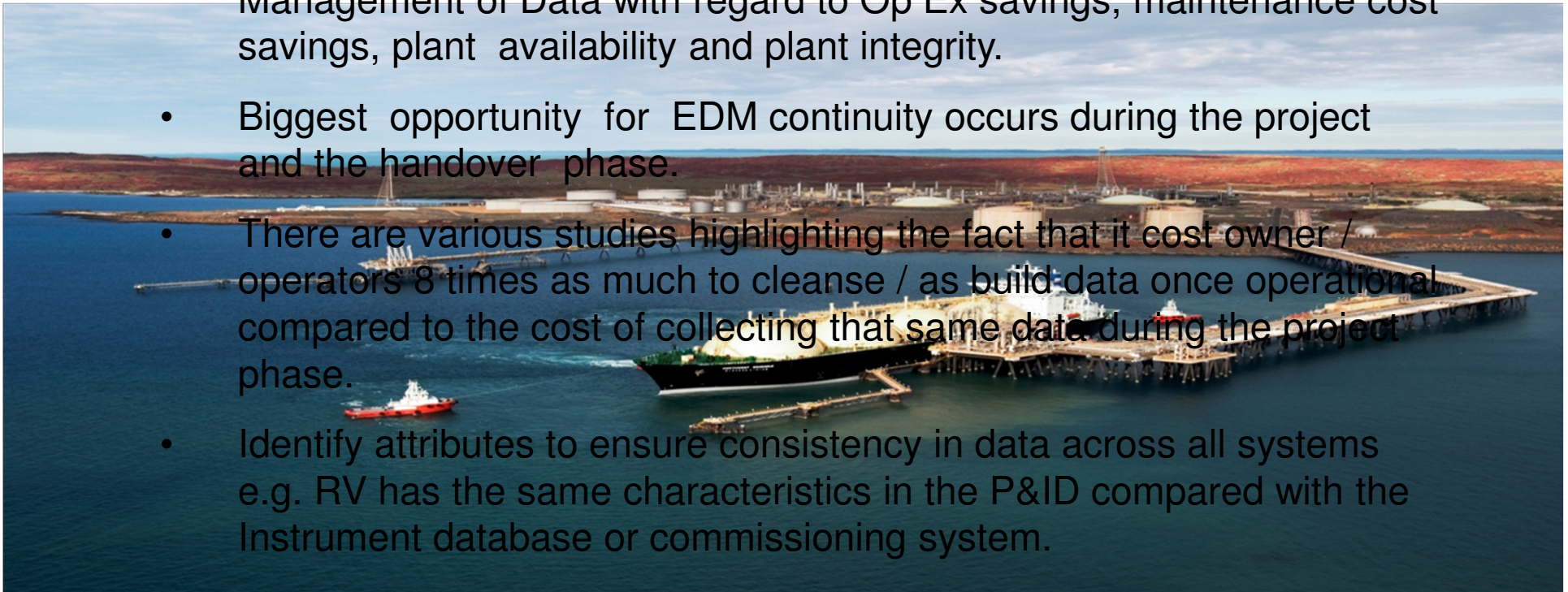


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Data Management

- Engineering Data Management is crucial to the integrity of operating facilities.
- Most Companies acknowledge the clear benefits realised in correct Management of Data with regard to Op Ex savings, maintenance cost savings, plant availability and plant integrity.
- Biggest opportunity for EDM continuity occurs during the project and the handover phase.
- There are various studies highlighting the fact that it cost owner / operators 8 times as much to cleanse / as build data once operational compared to the cost of collecting that same data during the project phase.
- Identify attributes to ensure consistency in data across all systems e.g. RV has the same characteristics in the P&ID compared with the Instrument database or commissioning system.



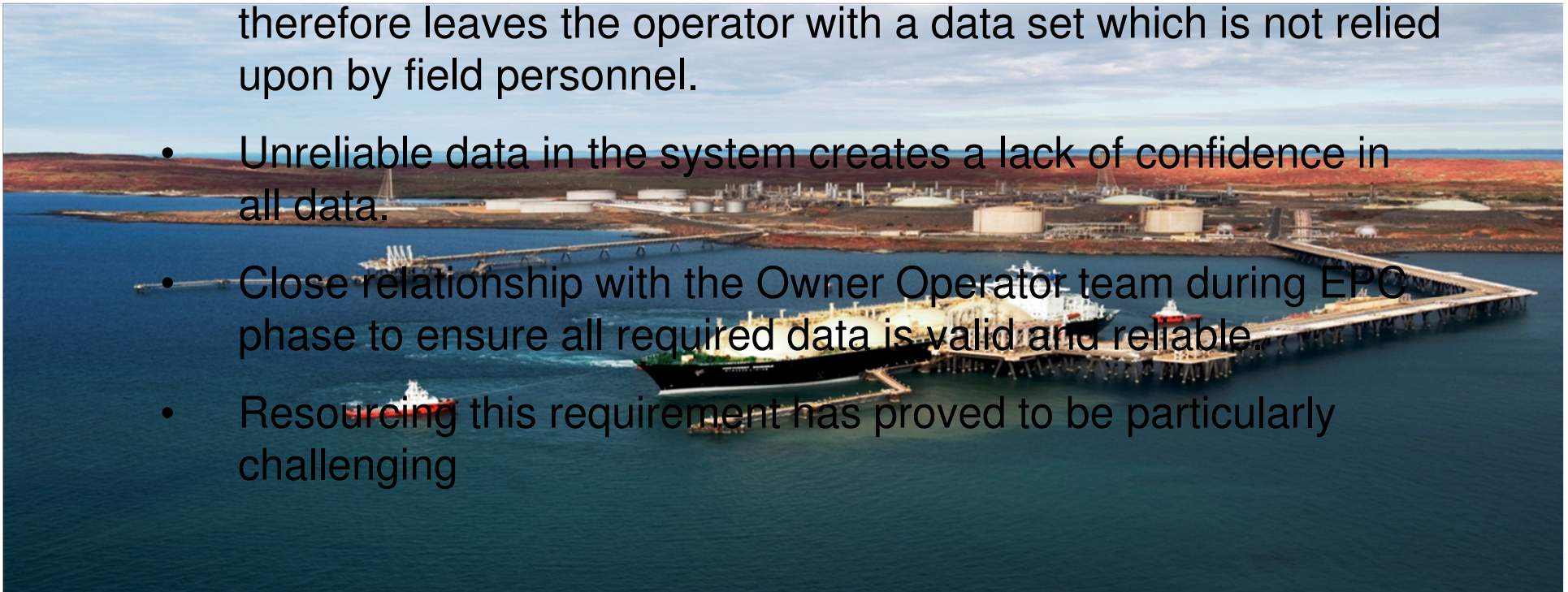


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Data Management

- Data losses, duplication and corruption between Feed, Detail Design, Procurement, Construction and Commissioning.
- There is no incentive for most EPC Contractors which therefore leaves the operator with a data set which is not relied upon by field personnel.
- Unreliable data in the system creates a lack of confidence in all data.
- Close relationship with the Owner Operator team during EPC phase to ensure all required data is valid and reliable.
- Resourcing this requirement has proved to be particularly challenging



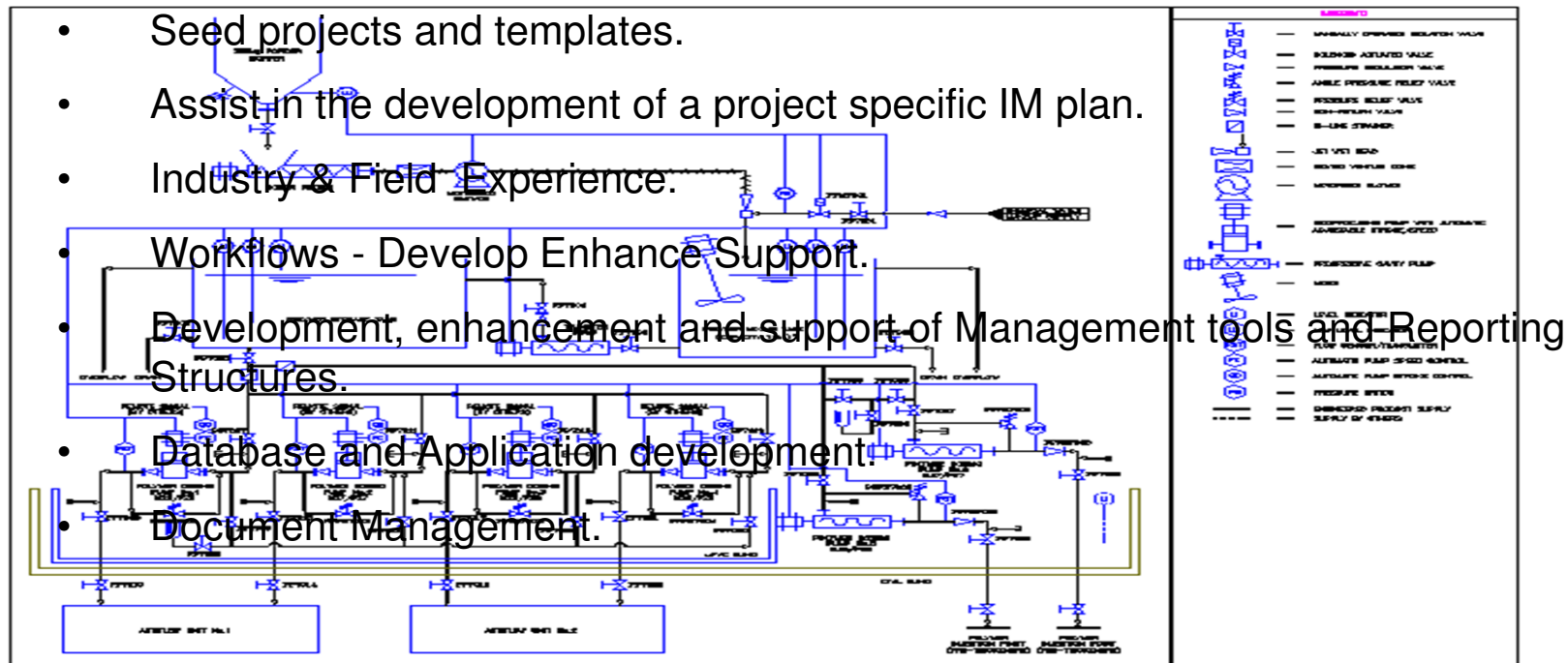


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Engineering Support Services

- Full Drafting Services.
- Administration, configuration and population of intelligent engineering applications.
- Provision of experienced Designers / Administrators for Intelligent Systems.



- Seed projects and templates.
- Assist in the development of a project specific IM plan.
- Industry & Field Experience.
- Workflows - Develop Enhance Support.
- Development, enhancement and support of Management tools and Reporting Structures.
- Database and Application development.
- Document Management.



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Drafting Services

- IQ provides a range of Electrical, Instrumentation, Process, Mechanical, Structural and Civil engineering drafting services with extensive experience in the oil, gas and mining industries.

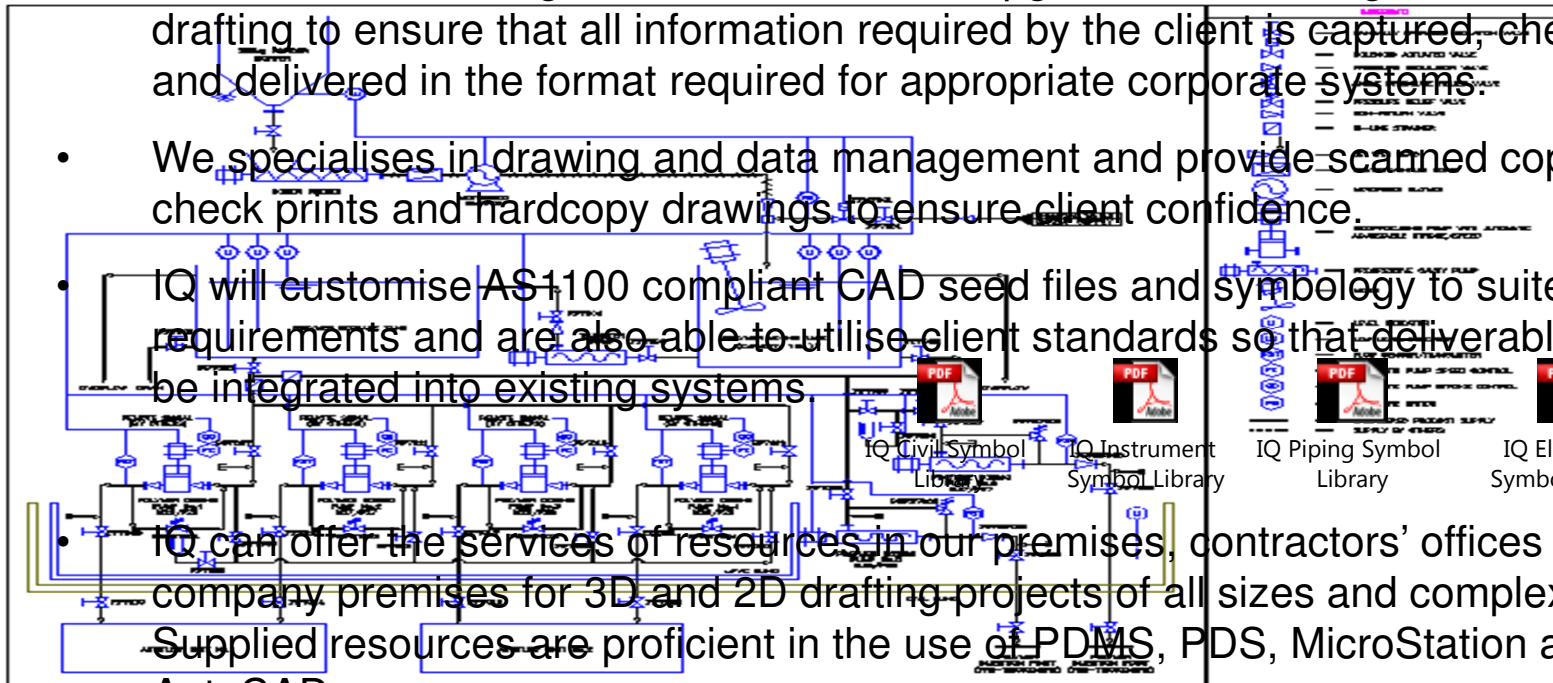
- This includes drawing creation, conversion, upgrades, as building and back drafting to ensure that all information required by the client is captured, checked and delivered in the format required for appropriate corporate systems.

- We specialises in drawing and data management and provide scanned copies of check prints and hardcopy drawings to ensure client confidence.

- IQ will customise AS1100 compliant CAD seed files and symbology to suite client requirements and are also able to utilise client standards so that deliverables can be integrated into existing systems

- IQ can offer the services of resources in our premises, contractors' offices or company premises for 3D and 2D drafting projects of all sizes and complexities.

- Supplied resources are proficient in the use of PDMS, PDS, MicroStation and AutoCAD.





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Intelligent Engineering Systems

- IQ specialise in the administration, configuration and population of intelligent engineering applications such as Intergraph's smart plant suite of applications, AVEVA's suite of applications and I & E Systems DAD software.

IQ can provide experienced users to populate and create deliverables or assist with development and day to day Administration.

- IQ Administrators have the ability to develop seed projects and templates to client specifications that ensure data consistency and integrity across diverse contractors and suppliers.
- IQ can also offer resources fully conversant with Smart Plant P&ID, Smart Plant Instrumentation, Smart Plant Electrical, AVEVA P&ID, AVEVA Instrumentation and DAD.



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Asset Maintenance Builds

- IQ can provide a maintenance solution derived from both vendor documentation and RCM analysis of maintainable equipment.
- Development of maintenance plans, procedures, task lists, allocation of resources, identification and cataloguing of spare parts.
- Once developed, IQ can load all maintenance data including spare parts and catalogued data into the clients Computerised Maintenance Management System (CMMS).
- Prodat will be capable of collation of maintenance data to company requirements and all preparation, audit & review required to load into a clients bespoke CMMS.
- Prodat is the ideal tool for creating a functional location tag hierarchy to suit client requirements.





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QUESTIONS?



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