

PROCESSES, POWER & MARINE SOLUTIONS AT-A-GLANCE



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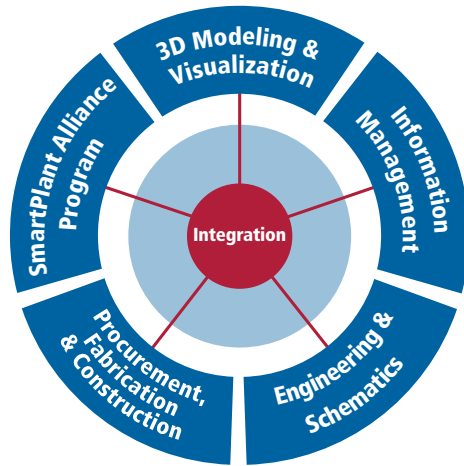
PROCESS, POWER & MARINE

SOLUTIONS AT-A-GLANCE

 INTERGRAPH®



SOLUTIONS



Intergraph® overarching solutions help our customers implement specific work processes by unifying Intergraph products, third-party products, and our customers' legacy software together as an integrated whole. Long-term strategic engineering opportunities should be addressed at the enterprise level. Intergraph has developed a low-risk, modular implementation path through the SmartPlant® Enterprise and SmartMarine® Enterprise, which include the following components:

- ‡ **3D Modeling and Visualization** – Experience economies of knowledge, quality of design, consistency of design, and the ability to leverage best practices globally
- ‡ **Information Management** – Gain a fresh, electronic approach to the creation, storage, and management of engineering information throughout its life cycle
- ‡ **Engineering and Schematics** – Cover the plant front-end and detailed design for plant configuration, control systems, and power distribution
- ‡ **Procurement, Fabrication, and Construction** – Span the complete project execution life cycle from engineering through procurement and tracking to construction
- ‡ **SmartPlant Alliance Program** – Leverage a strong value proposition with solutions provided by complementary software providers

SMARTPLANT ENTERPRISE

Intergraph's SmartPlant Enterprise solution offers a powerful portfolio of best-in-class applications, which may be deployed individually or as a flexible, integrated enterprise solution – allowing an organization to successfully unleash the untapped value often restricted by silo-centric communication and execution. Modular architecture provides scalability to create substantial return on investment while reducing risk.

SmartPlant Enterprise leverages success-critical project information and knowledge to improve and automate work processes, from the very early project phases through operations and maintenance up to decommissioning. By tackling this major “pain point,” SmartPlant Enterprise helps the industry gain multiple hidden benefits – for example, it improves engineering efficiency by up to 30 percent.

SMARTPLANT ENTERPRISE FOR OWNER OPERATORS

Building on Intergraph's experience in operations and maintenance, and Intergraph's leading market share in capital projects, Intergraph offers SmartPlant Enterprise for Owner Operators to manage the engineering design basis in operating plants. This multi-discipline package delivers an integrated engineering solution to support owner operators throughout the plant life cycle.

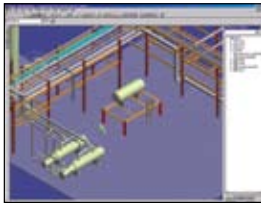
During the plant design, procurement, construction, and completion/start-up phases, Intergraph's planned, pre-configured applications include support for managing engineering and project execution work processes for owner operators. Collaboration with contractors and suppliers is supported via bi-directional data exchange mechanisms facilitating seamless handoff of workflows throughout the value chain. Data exchange with EAM systems such as SAP ensures consistency of information with maintenance. A role-based Web portal provides interoperability between operations systems.

SMARTMARINE ENTERPRISE

Intergraph's SmartMarine Enterprise includes all of the applications, features, and business value of SmartPlant Enterprise with additional integrated applications that support a full range of flexible design, fabrication, assembly, and life cycle management capabilities for ships and offshore platforms.

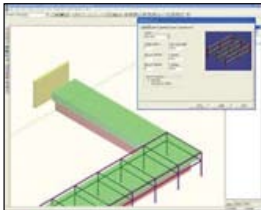
SmartMarine Enterprise helps shipyards, marine, and engineering companies with better decision-support capabilities to facilitate global design, construction, and life cycle optimization – ultimately making contractors and yards more competitive.

3D MODELING AND VISUALIZATION



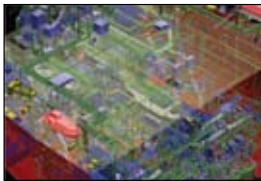
SmartPlant 3D

- ‡ A 3D model of the plant structure, including piping, vessels, and structural steel, used for visualization and integration capabilities
- ‡ Efficient workflow for creating and managing 3D models, including integration with other software tools
- ‡ 4D simulation capabilities for project scheduling and integration capabilities



SmartPlant Layout

- ‡ A 3D model of the plant layout, including walkways, stairs, and structural steel, used for visualization and plant layout optimization
- ‡ Detailed 3D modeling of plant layout, including walkways, stairs, and structural steel, used for visualization and plant layout optimization
- ‡ A 3D model of the plant layout, including walkways, stairs, and structural steel, used for visualization and plant layout optimization



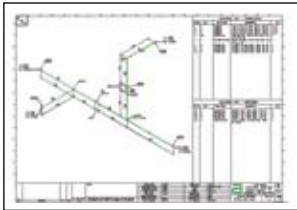
SmartMarine 3D

- ‡ 6D model of the marine facility, including production, and life cycle management
- ‡ Detailed 3D modeling of the marine facility, including production, and life cycle management
- ‡ 7D model of the marine facility, including production, and life cycle management
- ‡ ; Ugly 3D model of the marine facility, including production, and life cycle management



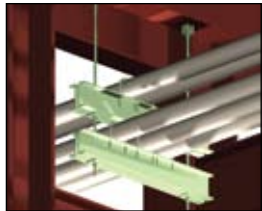
PDS®

- ‡ 6D model of the industrial plant, including construction, and operations
- ‡ 7D model of the industrial plant, including construction, and operations
- ‡ ; Detailed 3D modeling of the industrial plant, including construction, and operations



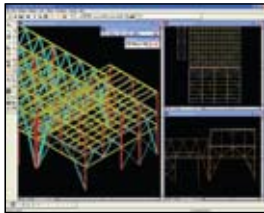
SmartPlant Isometrics

- ‡ 6VéY` e` W ad_ aV[Vé Wj[ef[Y b]bWf` Vé adb]b[Y ekefW_ e [` a` k_ [gfVé S` V YWVéSfVé [ea_ WfU drawings in seconds with ISOGEN®
- ‡ 8adTdaí ` WW bda`Wfêl W STVé 7B5_ d_ e adai ` WlabVéSfae fa gbVéSfWS` V VaUg_ Wf SeZTg[f b]b[Y systems electronically, aiding plant modification and reducing errors and costly rework



SupportModeler™

- ‡ 4g[Ve Ua_ bS` k efS` VSd/e [fa hVdk Wj[T`W[T`dSdVé aXb]bWegbbae SeeW_ T`Vé
- ‡ 3UUWVéSfVé fZW_ aVWf` Y S` V VVVS[f` Y aXTafZ efS` VSd/ S` V WY[WWVW b]bWegbbae



FrameWorks® Plus

- ‡ Bdh[Vé bai Wg^efdgUfgdS^_ aVWf` Y S` V VdSi [Y faa^fZSf egbbae kagdfafS`i ad_ ai , VdSi [Yf modeling, analysis, and reporting
- ‡ 3VVe hSgWfa kagd_ aVWf` Y bdaUWé Tk [fWVéSf[Y efdgUfgdS^fSe] e i [fZ fZWb`S` f UdVéSfja` bdaUWé



SmartPlant Review

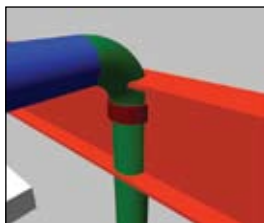
- ‡ 7` STVé [fVéSUr[hWdWVW S` V S` S`keje aX`Sd`VW Ua_ bWj` %6_ aVWé aXbdaUWéel bai Wd` S` V_ Sq` WefdgUfgdVé
- ‡ A`XVé S^aXfZWh[egS`f` Sfa` faa`é kag` WWV fa dWVW VVéY` e Vgd` Y WY[WWV` Yf Ua` efdgUfja` f abVéSfja` el ad maintenance – in one powerful application

3D MODELING AND VISUALIZATION



SmartPlant Review Publisher

- ‡ 3D visualization of P&ID data
- ‡ Economical distribution for easy viewing over the network and Web



Clash Manager

- ‡ Identifies and reports on clashes between 3D models
- ‡ 7-Step process to resolve clashes
- ‡ : SmartPlant 3D



3D Symbol Designer

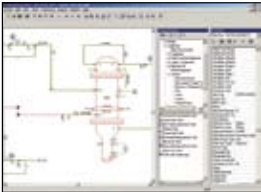
- ‡ 3D visualization of P&ID data
- ‡ Bulkload sheets for SmartPlant 3D
- ‡ : SmartPlant 3D



SmartPlant Markup

- ‡ Bulkload sheets for SmartPlant 3D
- ‡ and SmartSketch files
- ‡ 8g: Other applications that manage documents, drawings, and markups

ENGINEERING AND SCHEMATICS



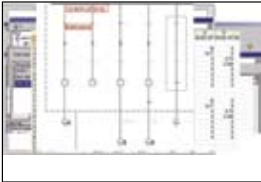
SmartPlant P&ID

- ‡ Provides a single source of truth for all plant-related process, equipment, instrumentation, and piping data for the life of the plant
- ‡ : Maintains a single source of truth for all plant data to keep it accurate and up to date for the efficient design, construction, operations, and maintenance of a plant



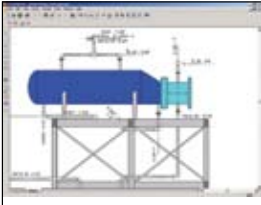
SmartPlant Instrumentation

- ‡ A single source of truth for all instrumentation data, including start-up, continuous operation, emergencies, and shutdowns
- ‡ Provides a single source of truth for all instrumentation data to keep it accurate and up to date for the efficient design, construction, operations, and maintenance of a plant
- ‡ Provides a single source of truth for all instrumentation data to keep it accurate and up to date for the efficient design, construction, operations, and maintenance of a plant



SmartPlant Electrical

- ‡ Provides a single source of truth for all electrical data, including start-up, continuous operation, emergencies, and shutdowns
- ‡ Provides a single source of truth for all electrical data to keep it accurate and up to date for the efficient design, construction, operations, and maintenance of a plant



SmartSketch

- ‡ A single source of truth for all 3D model data, including start-up, continuous operation, emergencies, and shutdowns
- ‡ Provides a single source of truth for all 3D model data to keep it accurate and up to date for the efficient design, construction, operations, and maintenance of a plant



SmartPlant Process Safety

- ‡ Provides a single source of truth for all process safety data, including start-up, continuous operation, emergencies, and shutdowns
- ‡ Provides a single source of truth for all process safety data to keep it accurate and up to date for the efficient design, construction, operations, and maintenance of a plant

INFORMATION MANAGEMENT



SmartPlant Foundation

- ‡ 7` ST Vê VWUfcb` [U_ S` SYW_ W f aXS^aXfZWbS` fie WY[VWd` Y [Xad_ Sfja` t [fVYdSf` Y VSfS a` fZWbZke[US^ asset, processes, and regulatory and safety imperatives
- ‡ 7` Ua_ bSeeVê S bS` fie VVê[Y` t _ aV[USfja` el gbYdSVVêl S` V dVgdT[eZ_ W f VVWUf[hVWk _ S` SY[Y fZVWVha h[Y plant configuration from front-end engineering design to plant decommissioning



AIM/Directa

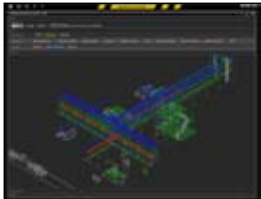
- ‡ 3VVdVêVê bcbTW_ e ahVaa] VW Tk Ua` hW fja` S^VaUg_ W f _ S` SYW_ W f bcbVgUfe
- ‡ Ea hVê ebWU[U [eegVê egUZ Se fcs` e_ [fS^e/Ua` fcb^VW V[efqTgrja` aXVaUg_ W feffi bS` f efcjUfgdVê/dVsf[Y fSYel SeeVêl VaUg_ W feffi S` V VVê[Y` faa^ [fVYdSfja` /_ bad` aX\$6 eUZW_ Sf[Uel Ua` ` WUfh[hk USee[USfja` efi

PROCUREMENT, FABRICATION, AND CONSTRUCTION



SmartPlant Materials

- ‡ Bcbh[VVê S` [fVYdSfW ^XWUKUW_ SfVdS^S` V egbb`k UZS[_ S` SYW_ W f ea`gfja`
- ‡ A VVê S Ua_ _ a` Ua`STadSfja` b`SfAd_ S` V bcbVWUf i ad`TWUZ XadS^bSd` Vê [S` k bcbVWUf egbb`k UZS[t whether it is an owner operator, EPC company, or fabricator
- ‡ A dYS` [Vê _ g f[V[eU]b [WZ[VdSdZ[US^T [e aX_ SfVdS^S` dVg[e]fja` _ S` SYW_ W f eabZ[ef[USfW purchasing management, fabrication tracking, and site management



SmartPlant Construction

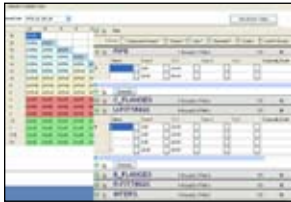
- ‡ E f dVê _ [Vê Ua` efcjUfja` S` V [fVYdSfVê WY[VWd` Y fa [bcbhW53B7J VVU[W Uk
- ‡ DVWgUê d[e] S` V [bcbhVê fcs` ebSdW Uk aXUa` efcjUfja`
- ‡ ;_ bcbhVê VVU[eja` Ž_ S[[Y USbST [fVê fZdgYZ SVZZaU dVbad[Y a` Ua` efcjUfja` bcbYdVêl d[e] el S` V UZS` YWUae fe

PROCUREMENT, FABRICATION, AND CONSTRUCTION



SmartPlant Reference Data

- ‡ Provides a central location for material data used in procurement, fabrication, and construction
- ‡ : S V Ua_b W W I W T Se W e Y W W S F S T S e W U S S a Y for all disciplines and tools



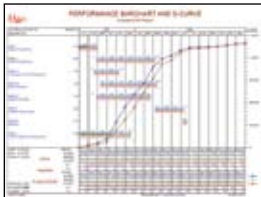
Standard Database for SmartPlant Reference Data

- ‡ 6 W Ua_b W W e W W S Y W a X U a _ _ a V f k U a W W i f Z V _ W e f a e f Z S f U S T W g e W f a g c g W k describe materials throughout a project life cycle
- ‡ I a d e e V S _ W e k i f Z E _ S c B S f % I B 6 E I S V E _ S c B S f ? S W S e



SmartPlant Spoolgen®

- ‡ 7 S T W e X T d U S f a d e f a S V V _ S g X U f g d Y S V U a e f d j U f a [X a d S f a f a V W e Y e a _ W d U e / 6 8 e S V B 5 8 e f i X a _ b S f V W e Y e k e f W _ e
- ‡ 3 g f a _ S f U S k Y W W S f W S W W e S c k V d S i [Y e S V d W a d e i f Z a g f f Z W W W X a d d W d S X Y a d re-entry of material data



PRISM Management Suite

- ‡ A W W e f Z W a k U a _ _ W d U S b d W W f _ S S Y W _ W f e k e f W _ f Z S f b d h [W W e U a _ b W W f f W y d S f a a X b d W W f data from estimate, budget, schedule, cost control, earned value curves, and project risk in a single suite of applications

COMPLEMENTARY SOLUTIONS

F: ;D6ŽB3DFK EA >GF;A @E

- ‡ %6E @Wf ;` Už, AdZa9W
- ‡ 6W @ad] WfSe/6@HfiEaXi SdW,
Nauticus Early Design
- ‡ 83>5A @77D FWUZ` a`aYVé, 83>5A @77D

Take a Closer Look

OrthoGen delivers powerful multi-discipline drawing solutions. Automatic drawings generated from 3D models are created in a fraction of the time previously spent, and they accurately and consistently reflect model conditions.

Nauticus Early Design supplies a complete package for early design of ship hull structures. The software integrates 3D CAD and ship analysis systems. Ship designers can perform contract and classification design quickly and efficiently.

83>5A @77D bđh[Vvé bđUvé [Xad Sf[a` _ S` SYW_ Wf plus process performance auditing and advising to make plants smarter and safer. Process information can be managed in real-time for improved productivity.

EFDG5FGD3> EA >GF;A @E

Fabrication

- ‡ 3UW5SV, Efdg5SV
- ‡ 6WéY` 6SfS, E6E!\$
- ‡ FWY`S 5abacSf[a`, FWY`S EfdgUfgdWé

Analysis and Design

- ‡ 5a_ bgfWé` EfdgUfgdWé ;` Už, E3B\$ " " "
- ‡ 7` Y[Wd[Y 6k` S_ [Uel ;` Už, E35E
- ‡ 9Wad[S FWUZ DWéVSDUZ 5abacSf[a`, 9F EFDG6>
- ‡ DWéVSDUZ 7` Y[Wdé ;` fWd Sf[a` S^, EF336

Other Partners

- ‡ 357 EfdgUfgdS^7` Y[Wd[Y 3bb[Uf[a` e/357E73fi,
357 8dS_ W adje Bge 8B> Gf[ffVé
- ‡ 6[We[a` S^Ea`gf[a` el ;` Už, 8ag` VSf[a` %6

SMARTPLANT ALLIANCE PROGRAM

3@6 BDA 6G5FŽEGBBA DF76
;@F79D3F;A @ B3DF@7DE

The primary goal of the SmartPlant Alliance Program is to increase the value of SmartPlant Enterprise for our clients by growing into neighboring and complementary business areas. Benefiting from SmartPlant Enterprise's open architecture, the SmartPlant Alliance Program encourages complementary solution providers to offer more extensive and valuable solutions for SmartPlant Enterprise clients. SmartPlant Alliance Members can leverage the strong value proposition of SmartPlant Enterprise for their own business. There are three types of SmartPlant Alliance Members:

- ‡ **SmartPlant Alliance Technology members** – Software and solution providers who integrate their products with SmartPlant Enterprise technology
- ‡ **SmartPlant Alliance Services members** – Consultants and service providers who offer service-centric solutions around SmartPlant Enterprise
- ‡ **SmartPlant Alliance Content members** – Companies who develop content for SmartPlant Enterprise products – for example, suppliers provide their electronic catalogs in a SmartPlant Enterprise-readable format



TECHNOLOGY MEMBERS

- ‡ 344 , 344 *""j 3 WY[VWd Y
- ‡ 53JbVfe
- ‡ 7_ Wba` BduVee ? S` SYW_ Wf, 6WFSH
- ‡ 7` Y[VWd Y BS` ` [Y ` ? S` SYW_ Wf ; Uz/7B? fi,
GENESIS Solution Suite including the EDISON Suite
- ‡ : a` Vki W^

Intergraph supports existing condition data capture for revamp projects:

- ‡ : Z5SV , Lk8
- ‡ >WUS
- ‡ CgS` fSba[f
- ‡ Fd_ T^W

SERVICES MEMBERS

- ‡ 3cgSfWUZ ; fVd Sf[a` S^
- ‡ 5E5
- ‡ 9S@ 5abadSf[a`

Take a Closer Look

Aquatech International offers water and wastewater treatment solutions and services to industrial and infrastructure clients. The company offers services based on E_ SdB` S` f 8ag` VSf[a` ž

CSC provides business process transformation and enterprise IT system deployment in assisting clients to realize the full potential of SmartPlant Enterprise.

GaN Corporation delivers innovative software development and information technologies to maximize clients' productivity in customizing SmartPlant Enterprise

CONTENT MEMBERS

The following companies have either current or planned activities to place their data into Intergraph formats.

Catalogs

- ‡ 5Sd Vè
- ‡ 5aabVd
- ‡ >[VST ESXW
- ‡ ? Wfcdgf
- ‡ EUZ` VWVd7 VWfdU
- ‡ E_ 6gUf
- ‡ Eb[dS`? S` gXSufgd Y 5a_ bS` k
- ‡ FkUa 8ai 5a` fd^
- ‡ H[UfSg^U

Hanger and Support Vendor Libraries

- ‡ 3` h[^;` fVd Sf[a` S^
- ‡ 4VZd YVd
- ‡ 4VdW ZBai VdB|bWEgbbadè
- ‡ 4[VWd9 dgb
- ‡ 5SdbW fVd` BSfWba`
- ‡ : [f]
- ‡ >;E793
- ‡ BF` B
- ‡ BSd Egbbadè >[_ fVW
- ‡ FZa_ Se ` 4Vfe

- ‡ FdZ5 ahWd/3XS >ShSfi
- ‡ G` [efdf
- ‡ I Sg] WéZS 5ZWtkZ4gdW^

Other

- ‡ 3_ Wd[US` @Sf[a` S^EFS` VSd/e ;` efffgfW/3@E;fi
- ‡ 3_ Wd[US` BWca Ng_ ;` efffgfW/3B;fi
- ‡ 3_ Wd[US` EaU[Mk XadFVef[Y S` V ? SfW[Sé/3EF? fi
- ‡ 3_ Wd[US` EaU[Mk aX? WUZS` [US^7` Y[Wwé/3E? 7fi
- ‡ 3_ Wd[US` I SfWdI ad` e 3eeaU[Sf[a` /3I I 3fi
- ‡ 6VgfeUZVé ;` efffgf Xid@ad_ g` Y Wé/6;@fi
- ‡ ;` fWd Sf[a` S^A d/S` [Sf[a` XadEFS` VSd/[Sf[a` /EA fi
- ‡ ? S` gSUfgdVé EFS` VSd/[Sf[a` EaU[Mk/? EEfi
- ‡ AdSUW
- ‡ B3E† ;` Uz
- ‡ BdUMé ;` Vgefck BdSuf[UWé /B;Bfi
- ‡ H94 Bai WFWUZ Wé! ==E Bai WdBS` f
Classification System

PRODUCT-SUPPORTED INTEGRATION PARTNERS

- ‡ 7F3B
- ‡ ;4?
- ‡ >[UW eW Ua` fW f/egUZ Se 3B; S` V ==Efi
- ‡ ? WdV[g_
- ‡ ? [UdeaX
- ‡ E3B®
- ‡ 3` V _ adW



