



OVERVIEW

Pennant International Group is a leading, worldwide provider of technology-based training solutions, ILS software and services to the Defence, Aerospace, and safety critical industries. The Group exports its range of products and services (electrical and mechanical trainers, E-learning, Virtual Reality, Emulation, Interactive Technical Documentation, Media Services, Educational Pathways) around the world to train current and future generations of operators and maintainers.

Over the last 60 years The Group has grown through a combination of organic growth (product and customer development) and acquisitions including Track Access Services (TAS) and Absolute Data Group (ADG). In addition to our operational centres worldwide, the Group has collaborative arrangements with a strategic range of partners and agents in many countries and can truly claim a global presence. Defence forces and defence contractors form the majority of the current business customer base, but new markets are being developed in civil operations including information technology and telecommunications.

Pennant has a proven capability in the Design, Development, Manufacture, Delivery and Support of technical training solutions and services including:

- Alignment with training regulations such as EASA/EMAR PT 66, FAA, City & Guilds & CASA MEA
- Translating and developing a training requirement into a deliverable product
- Providing subject matter expertise in specialist and technical areas
- Operator and maintainer training within an engineering or related environment
- Hardware and software capabilities
- Through Life Support & Services (Integrated Logistics Support)

In the training space, Pennant equipment offers modern blended solutions. These enable learners to benefit from a suite of modern, generic and bespoke training aids offering operation and maintenance savings and improved safety outcomes. These training aids complement training on real equipment and include basic hand skills devices, virtual reality trainers and maintenance emulators for regulated sectors.

“ It’s exciting being part of a company which has seen large global growth, building upon our vision of ‘one company, one solution’ to fulfill the end-to-end needs of our customers. I believe the business is going from strength to strength, with continual innovation and development driven by our team. I look forward to a productive future, and the next global phase for Pennant. ”

Philip Walker, Group CEO



HISTORY

Pennant International Limited was established over 60 years ago.

Since 1996 the Group has been listed on the London Stock Exchange's AIM market and operates worldwide, with offices in Europe, North America and Australasia. The Group exports its range of technical training solutions around the world to train the next generation of operators and maintainers in defence and regulated civilian sectors.

The company has evolved over the past six decades, from modest beginnings into a market-leading, technology-led business with a truly global customer base. From animated displays using patented light systems to today's sophisticated software training systems, early projects included working with Sir Christopher Cockerell to produce prototype designs of the world's first Hovercraft. In 1965 Pennant took the decision to embrace emerging technologies which opened up new markets in education and training.

These developments resulted in substantial growth for Pennant, with demand for procedural and maintenance trainers for civil and military equipment. The company won progressively larger contracts producing ever more sophisticated software solutions including emulations and the Omega PS LSAR software.

Today, Pennant has become a firmly established world leading supplier of solutions from ILS to training products and services, supported by a creative, innovative and highly trained team.

OUR VISION

To be the provider of choice for world-class products and services which train and assist operators and maintainers in both the defence and regulated civilian sectors.

- **INNOVATION** - Make World Class Products
- **CUSTOMER FOCUS** - Provide Excellent Services
- **DIVERSIFICATION** - Grow Civil
- **CORPORATE DEVELOPMENT** - New Markets, New Ventures

OUR STRATEGY OBJECTIVES & ACTION

STRATEGIC OBJECTIVES

1
Continuously review and enhance the Group's product range

2
To grow and improve our service offering

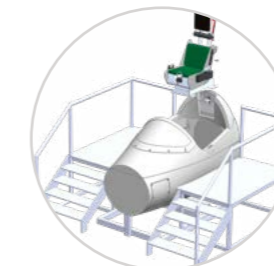
3
Accelerate the Group's presence in civilian training and regulated engineering markets

4
Expand the Group's business in innovative ways

OUR STRATEGY IN ACTION



Launch of new Generic Fastener Installation Trainer (GFIT)



New Crew Escape & Safety Systems Trainer (CESST)



Post year end acquisition of ADG & the R4i software product suite



Acquisition of Track Access & rail software portal



RDA Hunter – new Australian strategic partnership



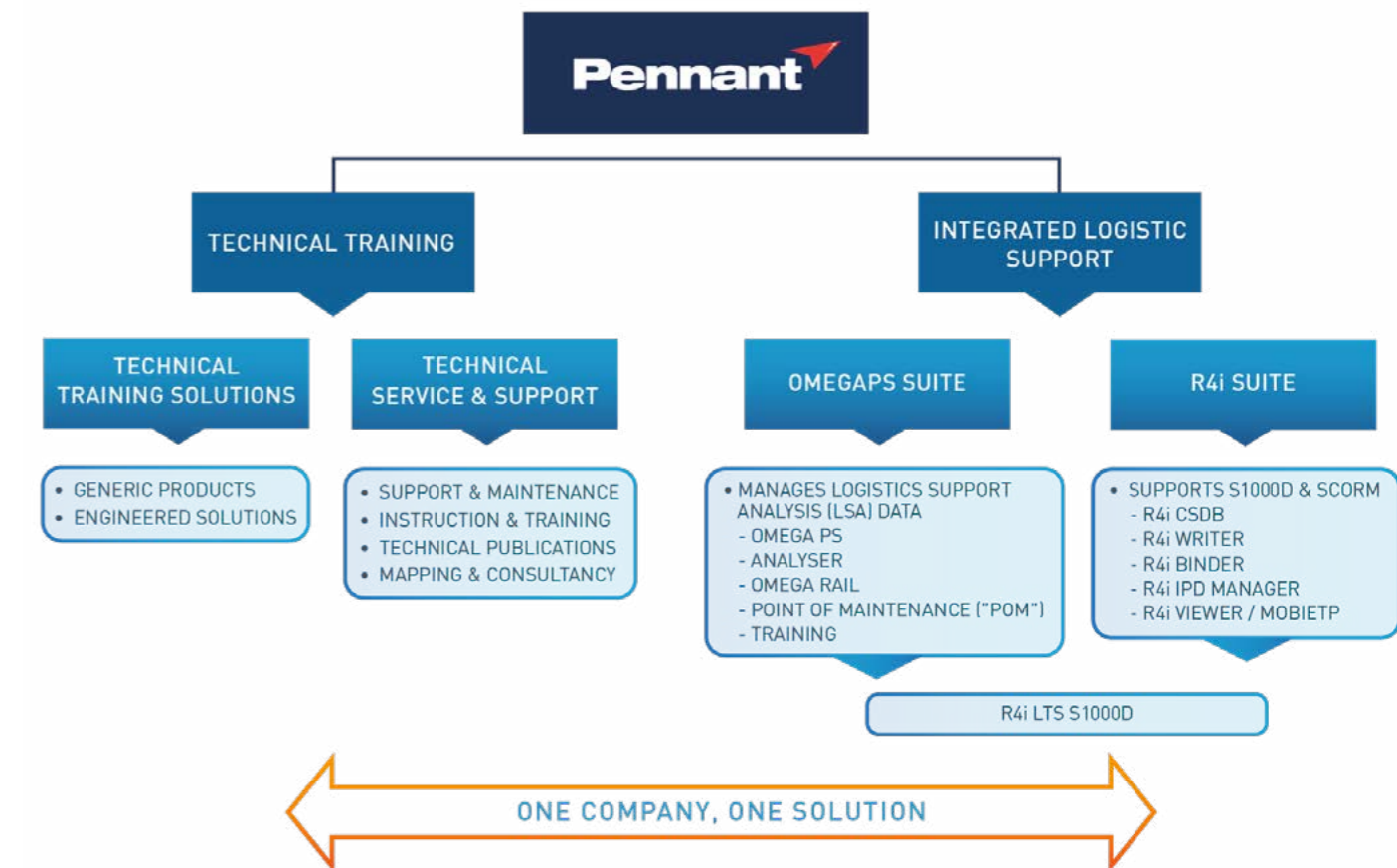
New OmegaPS Rail software product achieved product acceptance



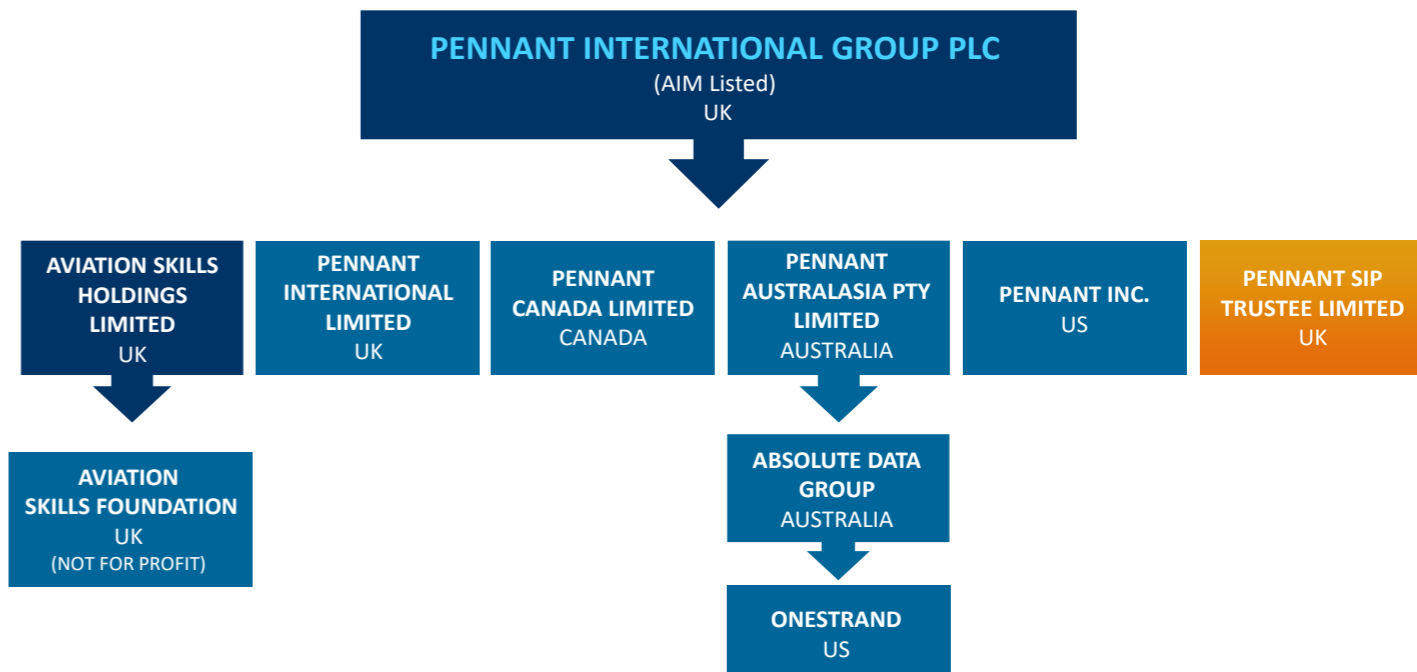
Continued investment in infrastructure



OUR CAPABILITIES



GROUP STRUCTURE



OUR FACILITIES

Pennant has over 200 staff working across sites in the United Kingdom, North America, Middle East and Australasia. Our facilities contain over 60,000 sq.ft of production capacity, which has quadrupled since 2005.

Pennant's head office is based in **Cheltenham UK**; featuring units, production space, demo suite and modern offices. In the United Kingdom, Pennant also has offices in **Manchester** and **Fareham**. In **Ottawa, Canada**, Pennant has an office specialising in LSAR Software and services, and in Australia Pennant has two locations -an office in **Melbourne** and an engineering site in **Wagga, Wagga**.

Alongside these Pennant locations, other companies within the group include Track Access Services (TAS) based in **Hertfordshire, UK** and ILS experts R4i based across **Brisbane, Australia** and the **US**. Pennant will be opening up a **Middle East** office in the near future.

200+
EMPLOYEES

60,000
SQ FT IN UK
FACILITES



Manchester, UK



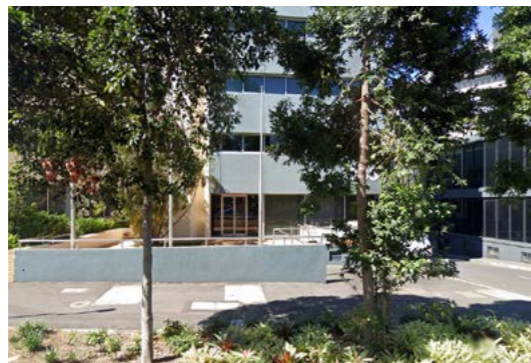
Hertfordshire, UK



Fareham, UK



Head Office - Cheltenham, UK



Pennant Australia - Brisbane



Ottawa, Canada



Pennant Australia - Wagga, Wagga



Pennant Australia - Melbourne

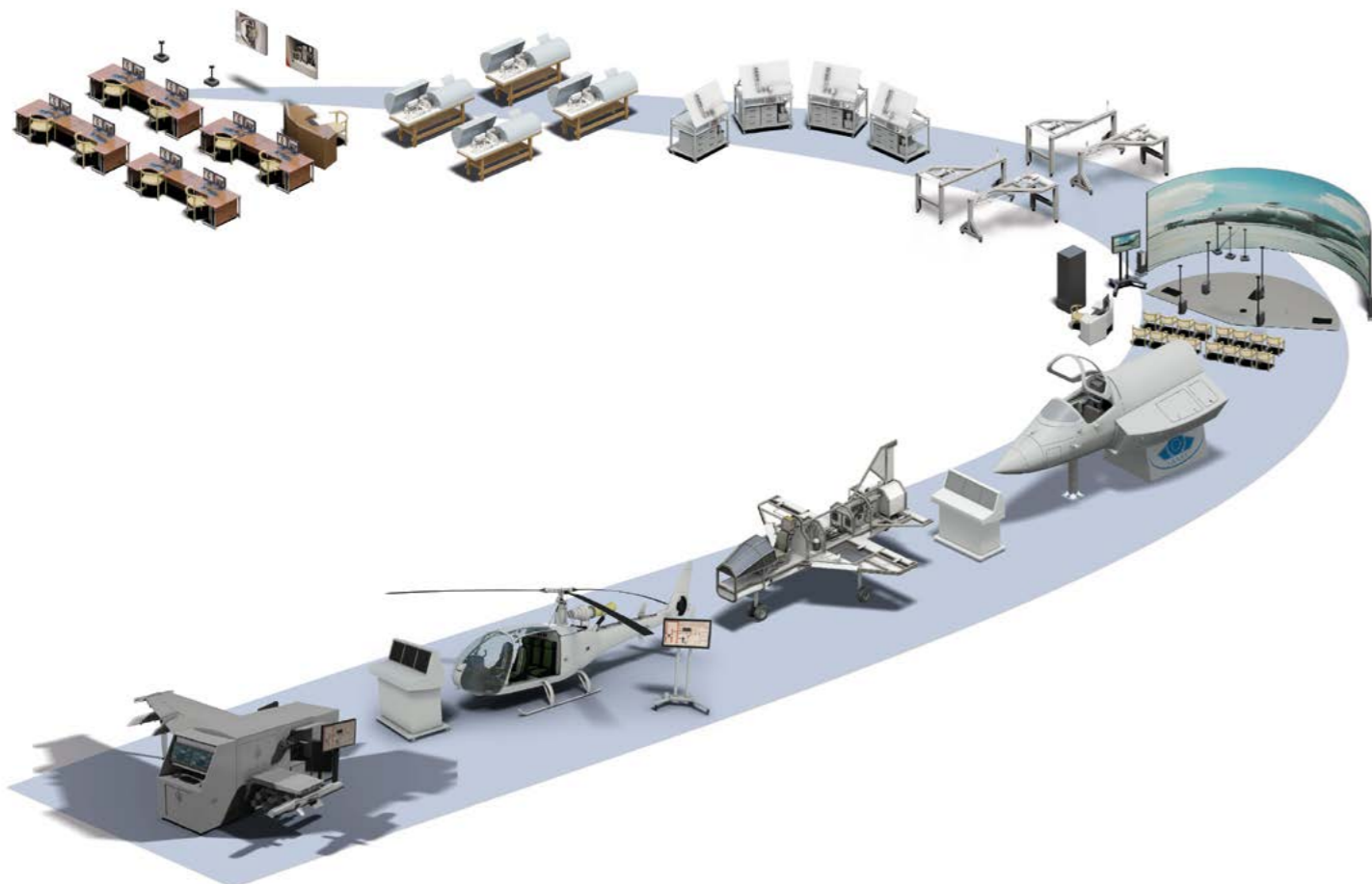


TECHNICAL TRAINING SOLUTIONS

Pennant specialise in generic and engineered (platform specific) solutions based on real or simulated military equipment interfaced with simulation computers and instructor control facilities.

GENERIC TRAINERS

Pennant's range of generic training equipment offers a blended solution enabling ab-initio students to benefit from a suite of modern, generic training aids which provide operation and maintenance savings and improved safety issues. These training aids include: basic hand skills devices, virtual reality solutions, desktop emulators and mechanical systems for practicing maintenance and fault finding activities.



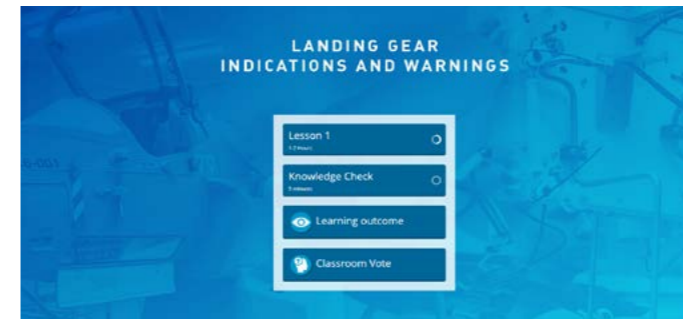
ENGINEERED SOLUTIONS

In addition to the suite of generic training products, Pennant has an experienced team of hardware and software engineers that analyse, design and manufacture bespoke engineering solutions to satisfy training needs. This equipment can be platform specific or custom-built, and can include simulators, part-task trainers and procedural trainers for both defence and civil customers.



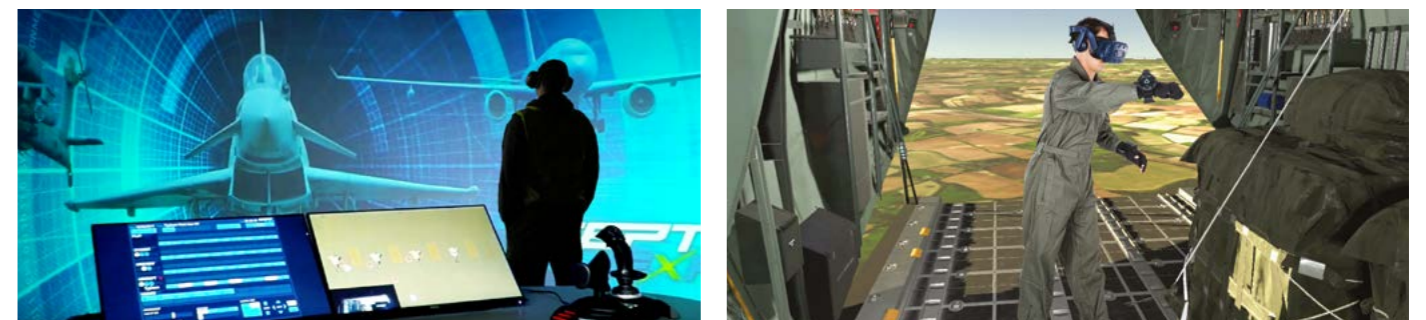
COMPUTER BASED TRAINING

Pennant has been at the forefront of distributed learning in the form of web and server-based e-learning, with Computer Based Training (CBT) and Computer Aided Instruction (CAI) applications providing consultancy and developing new strategies, practices and technology in collaboration with government departments and industry across the world.



VIRTUAL REALITY TRAINING

Increasingly, training establishments are relying on virtual reality to transition between theoretical and practical exercises in procedural training. With a suite of impressive solutions, Pennant delivers innovative, effective and high-quality training which allows multiple users to inject real-time faults, practice emergency solutions, record responses and review activity easily and safely.



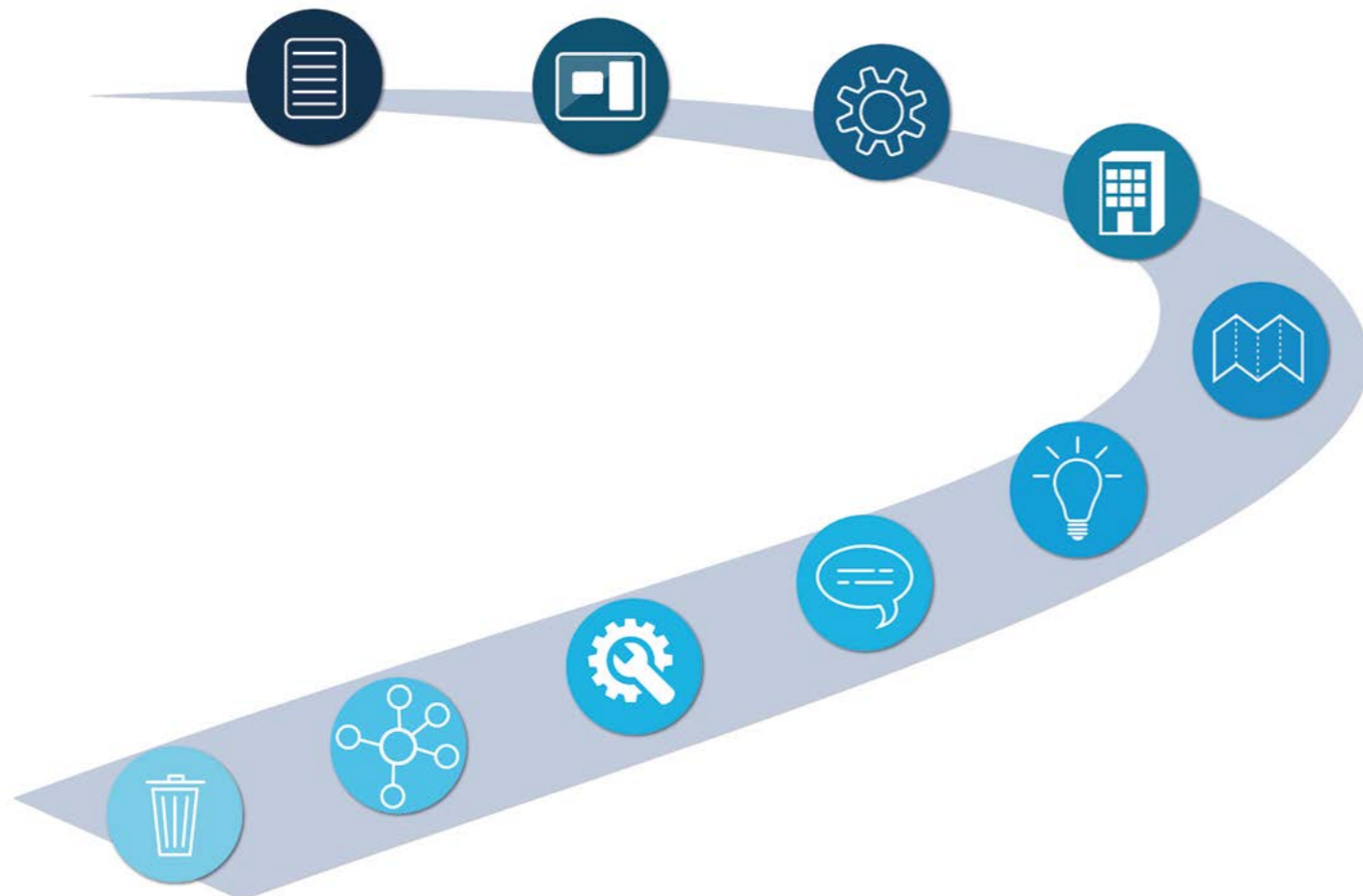
TECHNICAL SERVICES & SUPPORT

CAPABILITIES

Our capabilities include:

- | | |
|--|---|
|  Training Needs Analysis (TNA) |  In Service Support, Preventative and Corrective Maintenance |
|  Courseware Development |  Instruction and Training |
|  Technical Publications, IETMS, S1000D etc. |  Consultancy |
|  Facilities Planning |  Spares and Obsolescence Management |
|  Competency Mapping to EASA, EMAR, City of Guilds etc. |  Dismantling and Disposal |

Pennant takes a "Through Life Support" approach to Technical Services and Support for both Pennant and third party training systems in the regulated sectors. From TNA Development to final disposal, Pennant can plan, implement and manage every stage of your support life cycle.



CASE STUDY - AVIATION TECHNICAL TRAINING (RAAF BASE WAGGA)

- 2012** - Embedded with Customer to develop TNA
- 2013** - Contract Award (Rolling Annual Contract)
- Refurbished existing Training Aids
- HazMat Remediation - Disposed of obsolete equipment
- Delivered modern training aids, Pennant and third party
- Created instructor and student resource (Media)
- 2014** - Support of 4,000+ items of training equipment from hand tools to ground run aircraft
- 2016** - Created over 100 instructional videos, from hand skills to aircraft movements
- 2017** - Provided Instructor and Developer resource
- 2018** - Mapping to MEA training requirements and development of type training
- 2019** - Supporting the introduction of new airframes
- 2020** - Undertaking deep maintenance and product refresh



INTEGRATED LOGISTICS SUPPORT (ILS)

Pennant is proud to produce innovative Integrated Logistics Support (ILS) software solutions that are incorporated within our OmegaPS Suite. Our software is sold world wide, and offers industry and government users a suite of applications to efficiently manage logistic support data, and to conduct leading edge supportability analyses that enable optimized equipment support decisions over the entire product life cycle. With a focus on client requirements, Pennant has a proven track record and can help save organizations time and resources managing their equipment product support information sets. Our consultants can assist users in effective management of product support enabled by our software.

OMEGAPS SOFTWARE

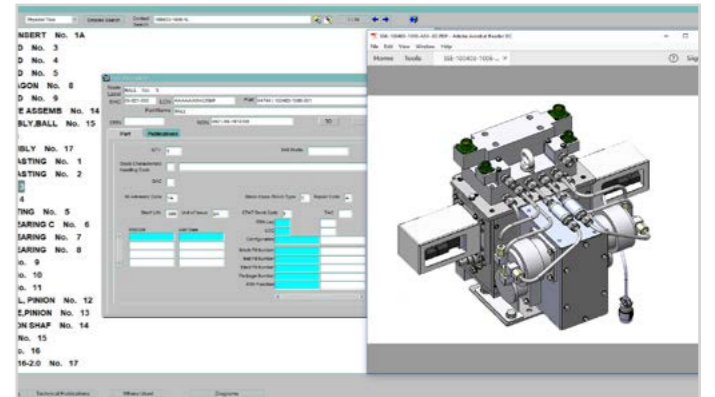
OmegaPS is an integrated database that efficiently organizes logistics data as it is defined and managed throughout the equipment life-cycle. It contains all the logistic product support information – both vendor and client data - that describes the equipment your organization manages, including how it is maintained, and how to fix it should it fail. Other features include:



- Manages Logistics Support Analysis (LSA) data in accordance with SAE-GEIASTD 0007, Mil Std 1388-2B, Def Stan 0060 and Def Aust 5692. It is also compatible with S3000L Standards
- Maintain detailed configuration of complex equipment
- Identifies how to fix or prevent failures (planned maintenance tasks)
- Reliability Centered Maintenance (RCM) with multiple user defined logic trees embedded (e.g. MSG 3, RCM2, etc) for engineers to analyse & optimise preventative maintenance
- Identifies how often each maintenance action will occur
- Interfaces with ERP Systems
- Compatible with S1000D publishing standard

OMEGAPS ANALYZER

OmegaPS Analyzer is a Windows based product that provides the power of an intuitive GUI and the sophistication of embedded and proven Canadian Department of National Defence algorithms. The primary functions include Life Cycle Cost (LCC) Optimization, Level of Repair Analysis (LORA), Spares Optimization, and Availability Modelling. Key features include:



- Make support decisions based upon proven data algorithms
- Support operational availability design review assessments
- Simulate availability impacts across multiple mission scenarios
- Optimize spare part inventory holdings
- Determine the most cost-efficient in-service support approach
- Conduct sensitivity analysis to support risk assessment
- Attribution of costs to customized cost breakdown structures

CURRENT OMEGAPS USERS:



R4i

R4i specializes in creating, managing and leveraging technical data and maintenance information for clients across a variety of industries.

The R4i S1000D Software Suite helps customers to create, manage and leverage information vital to the build, operation and maintenance of their complex assets. The R4i Suite is made up of the following core components:

R4i CSDB

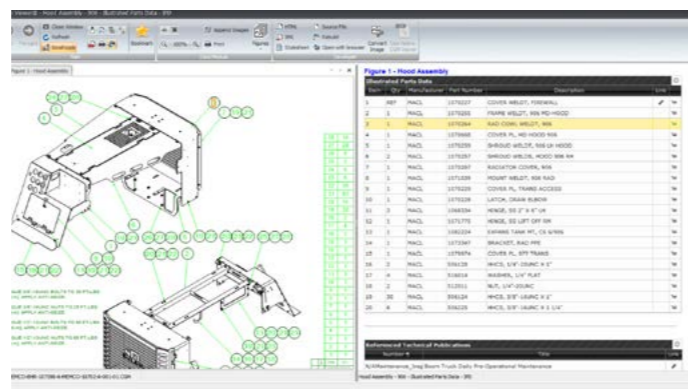
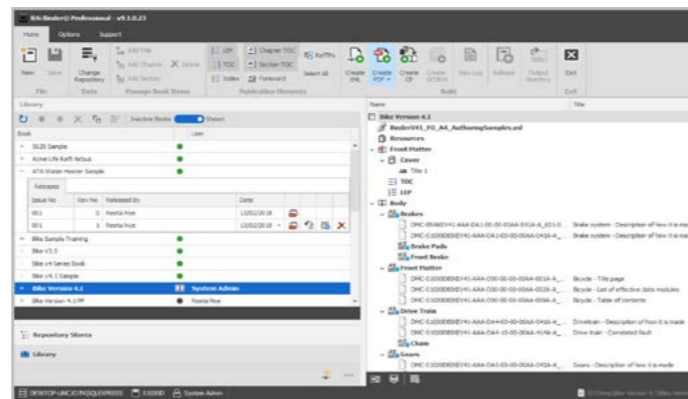
The **R4i Common Source Database (CSDB) Server** enables organisations to create, manage and publish maintenance and operational content electronically as an Interactive Electronic Technical Publication (IETP). Easy to install and fast to configure, the R4i CSDB is rich with features that ensure authors are productive immediately.

R4i Binder

R4i Binder is a powerful productivity tool for building customised manuals, handbooks, operating procedures and more, from any SGML or XML content. Build complete PDF Manuals that include cover pages, hyperlinked TOC, LOF, LOT and Indexes, all automatically generated.

R4i Viewer

The **R4i Viewer** is a free to distribute, content access tool that provides operators and maintainers with an interactive and unified view of manuals, e-learning courseware and maintenance job tasking. Available for operation in both online and offline field mode, the R4i Viewer is in use with Defence and civilian programs around the world.



R4i ReViewer

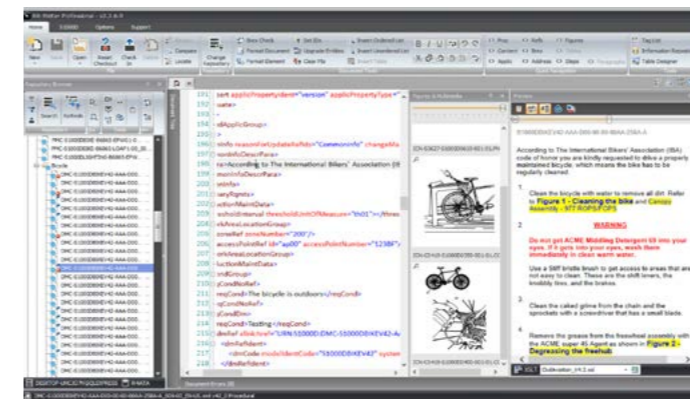
Expedite and streamline the IETP review process, with **R4i ReViewer** - Gain speed with document review, change, audit ability and traceability. R4i ReViewer allows engineering, logistics and program office personnel to check and review content within the full context of an IETP.

R4i MobileTP

R4i MobileTP is a free to distribute, content access tool that leverages technical and operational IETP content on mobile devices, including Android and iOS.

R4i CDMS

The **R4i Viewer** and **R4i MobileTP IETP's** can be distributed and managed via the R4i Content Distribution Management System (CDMS). The R4i CDMS resides between the R4i CSDB and the IETP user and manages **R4i MobileTP** software upgrades and IETP package downloads. Easy to use, the R4i CDMS enables publishing teams the flexibility to publish, update and revoke IETP's directly generated from the R4i CSDB technical repository.



R4i Writer

R4i Writer is the most advanced XML Authoring Tool for Technical Writers required to create mission critical content. Author S1000D data modules faster with drag & drop references, automatic hotspots and live document previews. R4i Writer is optimized for the S1000D data formats and installs "Ready to Write" with schemas and stylesheets for S1000D versions 2.0 to latest included.

R4i IPD Manager

R4i Illustrated Parts Data Manager automates the process of generating 100's of IPD data modules, speeding time to market and eliminating human error from the parts data production cycle. Designed to connect to disparate information systems, Microsoft Excel spread sheets and SQL Databases, IPD Manager authors simply map the data fields to their required export data sets.

R4i LTS

The **R4i LTS** tool is able to extract Logistics Support Analysis (LSA) or Logistics Product Data (LPD) information and dynamically generate engineering approved ASD S1000D compliant content.

With an OmegaPS database being able to conform to latest industry data structures of SAE GEIA-STD-0007 and ASD S3000L, R4i LTS tool extracts technical information and dynamically generates engineering approved ASD S1000D compliant content.

TECHNICAL PUBLICATIONS

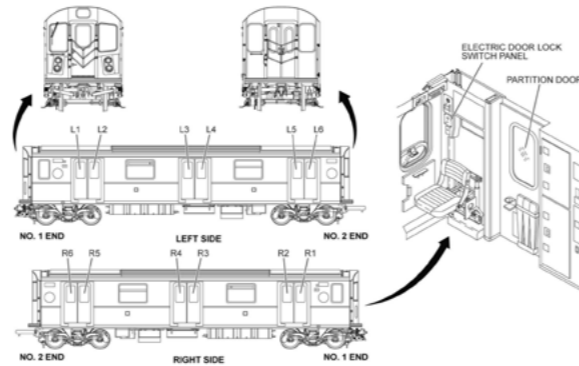
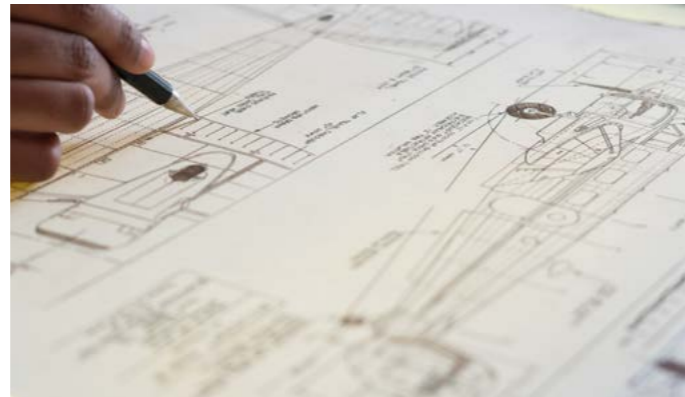
To Pennant the term 'technical publications' means anything from a concise owner's handbook, printed on paper and presented in a ring binder to an interactive electronic technical manual (IETM), including intelligent 3D graphics, compliant with S1000D, accessible over the internet on a range of mobile devices.

Regardless of the requirement, the core skill of our experienced team of technical illustrators and authors is the ability to convert complex source technical data into User Handbooks, Operation & Maintenance Manuals, Parts Catalogues and training courseware.

We have more than 50 years' experience and progressive technical development in the field and we are confident that our offer is comprehensive, professional and competitive.

We are proud of our hard-won reputation across a wide range of industry, government and commercial sectors, both in the UK and worldwide, including Defence, Aerospace, Rail, Automotive, IT and Communications, Power Generation, Utilities, Nuclear, Petro Chem & Gas, and many more.

We have adopted the R4i S1000D product suite for the development of S1000D compliant XML data modules. R4i Writer combined with the R4i CSDB and R4i Viewer form the building blocks of Interactive Electronic Technical Publications (IETPs).



WE HAVE WORKED WITH:



TRACK ACCESS SERVICES (TAS)



Track Access Services (TAS) was established in 2002 and began by producing cab-ride videos to show the driver's eye view of the railway throughout the UK. This quickly became recognised as a valuable tool for Network Rail and the Train and Freight Operating Companies to improve driver route knowledge and safety on the railways, a focus TAS maintains to this day. In July 2019 Pennant were pleased to announce the acquisition of TAS.



TAS developed the first PC program for delivery of Driver Route Learning material with their Route Player application, which synchronises driver's eye video to its location on an interactive map. TAS have recently developed an online version of the application, TrackAccessPortal.com, to deliver the material to any platform, PC, MAC, tablet or mobile via the web browser. Other capabilities include:



- Realistic Simulation Modelling used to visualise enhancements and renewals of railway infrastructure
- Provide operational briefing to drivers prior to commissioning
- Possession planning and signal sighting work to be carried out from desktop environments

RAILWAY SURVEY



SIGNAL SIGHTING



RAILWAY SIMULATION



DRIVER TRAINING

