

There are less than 20 serious MRO software vendors for commercial airline and MRO facilities to choose from. There are also a number of ERP vendors to consider, and a range of smaller 'point solutions' to enhance and augment core MRO software capabilities. The market is surveyed and categorised.

# MRO IT market suppliers survey

A large number of software products are available on the market for commercial aviation maintenance, repair & overhaul (MRO) organisations to buy. There is also a lot of change taking place in the MRO software marketplace. Barriers to enter the market are relatively low, and software development has become inexpensive.

There is also some confusion about the depth of functionality provided by some vendors. Simply having a screen called 'purchase order' does not qualify the product to handle the number of purchases created by an airline with 50 737s or A320s.

This survey categorises MRO IT vendors and tries to explain the range and depth of functionality on offer. The survey also assesses the background of each vendor, which is a key factor when selecting a long-term partner. The survey indicates company size, geographic coverage and recent growth measures.

It includes electronic flight bag (EFB) solutions, since these extend MRO capabilities onto the aircraft and can be significant enhancements for an airline. Not all vendors are covered, and some omissions are obviously inevitable from this survey. Vendors were asked to answer a standard list of questions, and those who did not provide data are indicated.

A large A3 colour version of the survey is available to our subscribers as a pdf file on our website: [www.aircraft-commerce.com](http://www.aircraft-commerce.com)

The discussion of solutions is in five categories: pure solutions, which are the main vendors in the market; specialist solutions, which typically add to pure-play solutions; enterprise resource planning (ERP) solutions, which traditionally sell to major airlines and large MRO facilities and engine shops;

tier-two solutions, which typically target smaller organisations; and EFB/electronic technical log (ETL) solutions, which sell software to be deployed into the aircraft and MRO shop environment to support real-time data exchange between users and the main MRO software. Vendors are surveyed in alphabetical order.

## Pure MRO solutions

This group of solutions comprises tier-one specialists providing fully integrated maintenance and supply systems for commercial aviation. Most tier-one providers are able to respond legitimately to small and large airlines and MRO facilities seeking new software solutions.

### ADT

Applied Database Technologies (ADT) is a relatively new entrant to the tier-one market. Originally a US-based company dealing with data migration projects, the company has developed a software product now sold to three Turkish airlines. Somewhat less expensive than other solutions in this category, there is limited data on the company and product as no response was received to the questionnaire. There is an office in Istanbul supporting the Turkish market.

### Aerosoft Systems Inc

Based in Toronto, Canada, and with offices in Miami (the old Rene Perez company) and Austria, Aerosoft is actually an amalgamation of two companies that started in aviation maintenance software back in the mid-1990s.

The original Aerosoft product, DigiMAINT, has been supplemented by DigiSMART to enhance reliability

analysis through a relationship with Casebank, another Canadian company.

Aerosoft acquired its second maintenance product, PMI, in early 2004 from SITA. This had previously been bought from Rene Perez. The WinPMI product is still marketed exclusively worldwide by SITA as part of its portfolio.

There have been few sales reported through the company website, and no data from the questionnaire, but the company has entered into a marketing relationship with Corena (see below in Point Solutions) for technical document management in the DigiDOC module.

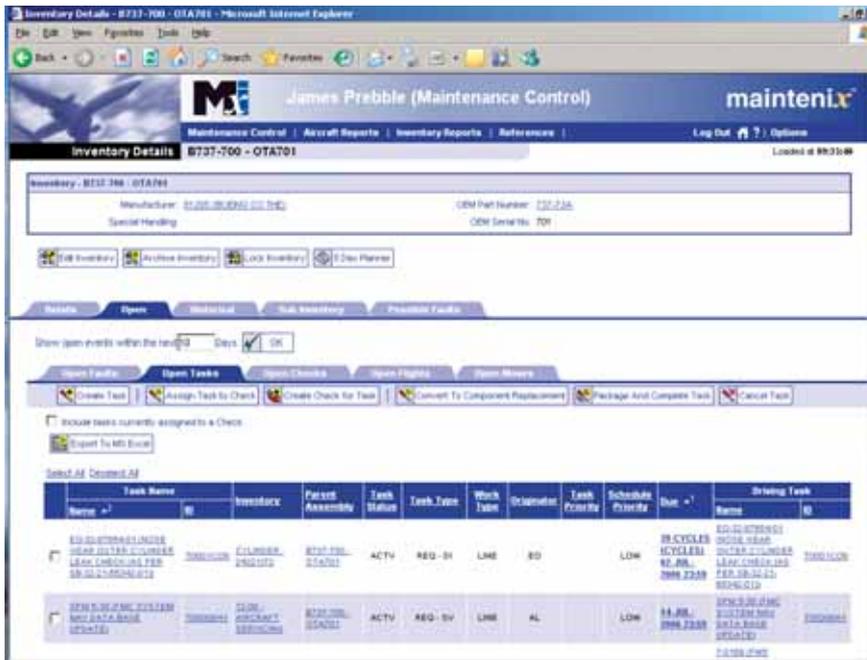
The products are client-server-based and appear to be available as an Application Service Provider (ASP).

### Cimber Air Data

Cimber Air Data is based in Denmark with offices in Singapore and Malaysia. The AMICOS product was first implemented in Cimber Air as a mini computer system. Now a client-server system, it is still sold to medium-sized airlines, although its largest client, Hainan Airlines of China, has 140 aircraft.

The AMICOS II product has a range of modules spanning the full scope of normal airline and MRO requirements, including: Engineering; Planning; Sales; Reliability & Quality Control; Technical Records; Material Planning; Purchasing; Cost Control; Third-Party Work; Loan Order Management; Inventory; and MRO which includes project cost control and invoicing.

With 13 people, half of whom are developers, the company is smaller than most vendors in this category, yet still achieves sales of about \$2 million every year. It is an option for airlines on a tight budget.



MXi was one of the first pure-play vendors to offer a Java web-based maintenance and supply solution to airlines.

Operations; Hangar Maintenance; Shop Maintenance; Quality Control/Assurance; Training; Licenses and Certifications; Financial Interface; and Tools & Ground Support Equipment Management.

#### MRO Software/IBM

IBM acquired MRO Software in mid-2006. Before that, MRO Software was known as PSDI, headquartered in the USA. Operating in several market segments, MRO Software's product, Maximo, is sold to support everything from computer assets to aircraft. The Maximo system is implemented at high-profile airlines in China like China Eastern and Shanghai Airlines.

The system has its own detailed human resources (HR) planning and time recording capability. The configuration management functionality was acquired by MRO Software some time ago and was added to the asset management software. The product has a complete offering for airlines and third-party providers to manage their end-to-end processes. Maximo is so widespread across many industries that it has its own independent user group and website discussing support and configuration of the software.

#### MXi

MXi was one of the first pure-play MRO software vendors to embrace web technology and release a Java application. Already widely used in the airline market place, MXi has third-party maintenance providers and military customers for its Maintainix product.

MXi has a relationship with Sabre and Boeing, although Sabre seems to be less prominent in the marketplace as a sales channel. MXi has won 29 customers in its 12 years of business, including some well known names such as Boeing, Air France and myTechnic.

Formed in 1996, the company has grown to 211 people, including 49 development staff. The company is based in Ottawa, Canada but without overseas offices. Two-thirds of the business comprises airline and third-party commercial MRO. While available as a hosted ASP, the company has no live customers to date on this option. The company works with implementation partners worldwide including IBM, Bearingpoint and Milcon Gulf Group.

MXi is successful and growing and is

#### Commsoft

Commsoft started in business in the 1970s. Based in the UK, with an office in Australia, the company still sells the OASES client-server product around the world. The website claims that the company has about 40 users including national carriers, third-party maintenance providers, regional carriers, cargo specialists, charter operators and specialist rotatable stockists.

It is not clear from Commsoft's website which customers use OASES, and there is no company size or financial data available. It is believed to be of a similar size as Cimber.

#### IFR

IFR is now an EADS company, based in Toulouse, France. One of the longest-serving MRO software vendors, IFR started in 1987 and has amassed 65 airline customers, many from former French colonies. With sales in 2006 of almost \$7 million, and a staff of 60 including 38 programmers, the product AMASIS was sold to 13 new customers in 2006 and 2007. IFR's sales and size are distorted by the fact that it also sells a range of airline solutions including CANOPES for catering, KEOPS for operations management and RAMSES for revenue accounting. It is not clear if the AMASIS system has moved from its COBOL origins. The solution is offered as a hosted ASP system and has 16 airlines using it in this mode.

#### Infospectrum

Having originally been a development partner for Avexus, Infospectrum bought the company when it ran into trouble in

December 2006. Headquartered in USA, Infospectrum has strong roots in India where much of the development and business process outsourcing is done. The company also has a SAP practice. Little is known about the customer base for the re-named infoTRAK product suite. Traditionally Avexus sold to the MRO facilities and shop environments with some defence contractor business.

Under new management, the product is still strongly marketed worldwide. It is offered as a JEE-service-oriented architecture (SOA) solution and with an ASP option. Product modules appear to cover all the main functional areas for MRO shops and facilities.

#### MIRO Technologies

Miro is headquartered in California, USA. The company has moved to a new JEE SOA and plans to move the client-server AuRA product into the same environment as the GOLDesp development. This is used by original equipment manufacturers (OEMs) like Lockheed Martin, Boeing, Raytheon and military such as the UK Army, Navy and Royal Air Force (RAF).

The company has just over 80 people and has offices in the USA, UK, India and China. With sales to airlines like SAS and the Continental Airlines/Delta regional carrier ExpressJet, Miro also offers a lightweight offering to small carriers like Grandstar Cargo, a Chinese start-up, with an ASP offering. Miro also sells JAR OPS-1 configured solutions specifically for airlines without JAR145 facilities.

Functional modules include: Enterprise/Organisational Modelling; Engineering; Materials/Warehouse; Procurement; Planning and Scheduling; Line Maintenance; Maintenance

implementing seven new customers, including Qantas and Netjets. The Maintainix modules include: Maintenance Engineering; Line Maintenance; Heavy Maintenance; Materials Management; Shop Maintenance; and Finance.

While not used today, the product is capable of integrating with EFBs and Boeing airplane health management (AHM).

#### Pentagon 2000SQL

As the name suggests, this company focuses largely on the military market. The website indicates that the company offers solutions for aerospace, defence, electronics, power systems, metals/raw materials trading, automotive and heavy duty parts.

Celebrating 22 years this year, the company is headquartered in the USA and has 60 employees in two offices. The company website shows that the product offers functions in all the major areas of airline and MRO processes, including finance and customer management. The website indicates that the company's last airline sale was in May 2006, when JAL's component shop selected Pentagon2000.

Other airline customers include ANA, but it is unclear if it is again only using it in the component shops. The company seems to focus on third-party maintenance and non-aviation business, including military supply chain.

#### Russell Adams (RAL)

RAL has been in the aviation MRO software business for 21 years. Founded by Steve Russell and Steve Adams, the company re-wrote the Visual Fox pro system in Microsoft.NET, making it one of the first pure-play software companies to choose this technology.

Since this move to .NET, the company has grown rapidly and now offers a complete range of functional modules for commercial aviation, including its own ETL software. The company recommends the Panasonic Toughbook for the ETL (see Panasonic entry). The products are sold under the Enterprise brand name. The Enterprise suite includes the product functions for an airline, an MRO facility, corporate operators, flight training schools, and general asset management for non-aviation.

The company is part of the Rusada group, still in the original owners' hands. Head office is located in Switzerland, with satellite offices in UK, Dubai, Singapore and Australia. Data is not available for company size, but according to the website more than 60 customers use RAL products including prestigious names like myTravel and Bombardier. There are a number of defence companies too, including Serco and VT.

RAL has signed a number of new customers in the last six months, including HAECO, offering an

engineering service to Air Arabia, HeliExpress in Hong Kong and Air North in Alaska. The order book appears to be bulging and the company continues to be a strong player in the pure-play segment.

#### Ramco Systems

No longer a new arrival to the airline MRO software market, RAMCO offers one of the widest ranges of integrated MRO, finance and EFB solutions available on the market today. The technology is also one of the most advanced; it offers its aviation solution in either .NET or Java.

Ramco's DecisionWorks™ solution wraps around whatever mix of functional modules a customer chooses. This provides customisable business logic and data mining tools that allow managers to drive the airlines', or MRO shops', business efficiently. VirtualWorks™, a technology supporting code development and application delivery, enables a flexible approach to building the solution from the ground up. Fitting a standard product to each individual aviation company is a key challenge for any software vendor.

Headquartered in the USA, Ramco Systems' aviation division is part of the larger Ramco group, selling ERP solutions to finance and manufacturing as well as aviation sectors. Ramco has recently added a number of prestige



## AMICOS

An LCC requires a TFM solution (Technical Fleet Management) that controls processes end to end across organization ranging from logistics, planning, engineering and operations from high level management to hangar floor.

**Our solution addresses this requirement while offering:**

- Scalability
- Full fledged functionality and modularity
- Quick decision support providing correct information at right time
- Integration to prevailing system environment and protection of the investment
- High ROI
- Statistics and reliability for improved operations
- Potential savings in opportunity costs by keeping assets airworthy

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airlines, including Virgin America in USA, Veuling in Spain and Jeju Air, a start-up in Korea. Eight new customers were added in total by the end of 2006. With the first customer, Indian Airlines, in 1999, Ramco still has some way to go before it catches up with some of the other vendors in terms of sheer numbers of commercial MRO customers. The company also has a limited presence on the military side.

With 135 software developers in the aviation division, Ramco is also one of the largest vendors in the market today. Its modules on offer include: Customer Management; Quoting; Part Sales Management; Customer Order Management; Engineering; Materials Procurement; Maintenance Projection; Planning & Scheduling; Maintenance Operations; Hangar Maintenance; Engine/Shop Maintenance & Line Maintenance; Quality Control/Quality Assurance; Maintenance HR; Licenses & Certifications Maintenance Financials; and Tools & Special Equipment Management.

Ramco implements its own solutions and with offices worldwide, and 150 implementation and support staff, it is well positioned for growth. Unlike some ERP companies, Ramco seems to have overcome the generic nature of these solutions to match the specific needs of commercial aviation maintenance.

#### SaSiM

This is a new entrant to the market, but the product itself dates back 13 years. Previously at the top end of tier-two, the company makes it into the tier one category based on 50 customers worldwide and a global presence including Europe, Australia and Canada. The current company started in 2000

in Ireland, having grown from its original roots in Sweden. The product, SaSiMS, is published by Maintenance Support Systems Ltd. Since its inception in 1995, the SaSiMS programme and the company have expanded together. The system runs on SQL and is offered for smaller customers as a hosted ASP.

Customers include helicopter operators, third-party MROs, component maintenance companies and low-cost airlines. No data is available on company size.

#### Swiss Aviation Software

Swiss is one of the dominant vendors in the pure-play software market today for airlines. Swiss has been growing rapidly over the past five years and has added some very large airlines to an already prestigious customer base.

Customers like Ryanair, easyJet, TUI Group, Swiss and Austrian make Swiss-AS a formidable software vendor. Starting as the IT department for Crossair in 1989, the breakthrough for Swiss happened in 2002 when the Austrian Airlines group bought the system. Many new functions were developed. The next important event that shaped the company's future was in 2004 when it became a standalone entity, 100% owned by SWISS. The company teamed with Singapore Technologies and uses this as a marketing outlet that has opened more of the market. In late 2007, Swiss-AS signed a co-operation agreement with Lufthansa Technik. Both LHT and Swiss-AS will now be able to offer their customers preconfigured linking of their systems (AMOS and manage/m), capable of being activated at the click of a button. The chosen trade name is 'connected to manage/m'.

AMOS is the name of the product

Ramco provides an SoA technology framework for its products. The core MRO modules can be moulded to each customer's requirements using its VirtualWorks product.

sold by Swiss-AS. It is a Java application built in a modular construction.

The functional scope of the product is wide, but also deep. In many areas, Swiss-AS has invested in producing deep functionality natively within the system. A good example of this is in the planning area. AMOS has its own Gantt charting capability, which provides more specific user functionality for an airline planner than a simple MS Project interface. This approach seems to be winning Swiss-AS customers. The AMOS product is used right across the spectrum of commercial aviation, from airlines to third-party MROs and engine shops.

Swiss-AS sells exclusively in the commercial aviation market and has no military customers. As part of the SWISS group, the company has financial stability and will be increasing the number of its employees to 70 in the near future.

#### Tracware

On the border between tier-two and tier-one, Tracware qualifies due to global customer base and global offices. The company is based in the UK and is relatively small. Established in 1999, it is staffed by people with practical experience in the Aerospace-based manufacturing and maintenance sectors. In 2001, the company expanded its operations to include Australia and continental America, adding further agency coverage in the Middle East and Africa in 2002.

Its product AeroTrac, is an affordable client-server application based on Microsoft tools. Recent customer wins include Jet Asia in Macau, Netjets and FR Aviation. Most customers are in the MRO and component repair business.

#### TRAX

TRAX was one of the first companies to offer a real alternative to heavy-mainframe-based airline maintenance and supply systems. In 1997 the TRAX Maintenance application was released for Windows and rode the wave of Y2K technology obsolescence to grab a large airline customer base. Already grabbing its 66th airline customer at the start of 2008, TRAX is one of the dominant solutions in the pure-play market place.

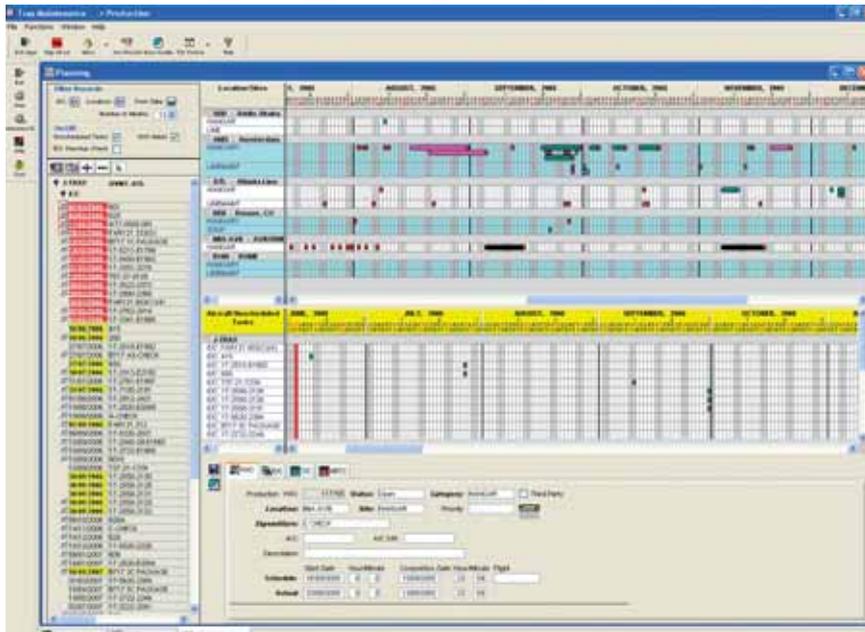
Having moved from client-server to .NET in late 2007, TRAX now has a modern framework to secure its future position. The company is headquartered

MRO & FLIGHT OPERATIONS SOFTWARE VENDOR COMPANY DETAILS

Company	Contact /website	Contact person	Contact details	Current product	Production technology	Size people	Years in business	Number of airlines in 2006	New customers in 2006
<b>PURE-PLAY MRO SOLUTIONS</b>									
ADT	www.adbtech.com	n/a	n/a	Wings	unknown	n/a	n/a	3	n/a
Aerosoft	www.aerosoftsys.com	n/a	n/a	DigiMAINT & WinPMI	Client-server	n/a	11	n/a	n/a
Kimber Air Data	www.amicos.com	Rune Hagen	+45 74433222	AMICOS	Client-server	13	23	25	4
Commsoft	www.commsoft.co.uk	n/a	info@commsoft.co.uk	OASES	Client-server	n/a	30+	40	n/a
IFR	www.iffrance.com	Mr. Patrick Massicot	+335 62 74 75 00	AMASIS	AS400 ?	60	21	65	13
Infospectrum	www.info-spectrum.com	Jessica Treadwell	+1 858 436 2599	infoTRAK	JAVA	n/a	n/a	n/a	n/a
MIRO	www.mirotechnologies.com	Mark Ogren	+1 512 868 5177	AuRA/GOLDsep	Client-server/JAVA	80+	26	n/a	n/a
MRO Software (IBM)	www.mro.com	Maxine Germaney	+44 1256 341316	Maximo	JAVA	355,766	84	Contact IBM	n/a
MXI	www.mxi.com	Erin Lawless	+1 613 747 4698	Maintenix	JAVA	211	12	4	4
Pentagon 2000SQL	www.pentagon2000.com	n/a	n/a	n/a	n/a	60	22	n/a	n/a
RAL	www.russelladams.com	Richard Vorias	sales@russelladams.com	Enterprise suite	.NET	n/a	18+	n/a	n/a
RAMCO	www.ramcoaviation.com	Thomas DeLuca	+1 718 835 2112	Ramco Aviation & MRO Software	JAVA/.NET	325	16	8	8
SaSIM	www.sasims.com	Anders Cassel	+353 65 684 2110	SaSIMS	Client-server	n/a	8 (13)	n/a	n/a
SWISS Software	www.swiss-as.com	Julia Ehret	Julia.Ehret@swiss-as.com	AMOS	JAVA	50	16	40	9
Tracware	www.tracware.co.uk	Andrew Maley	info@tracware.co.uk	Aerotracc	Client-server	n/a	9	n/a	n/a
TRAX	www.trax.aero	Chris Reed	+44 1403 275353	TRAX/EVO	.NET	71	11	59	9
Ultramain	www.ultramain.com	n/a	sales@ultramain.com	Ultramain	n/a	n/a	20+	n/a	n/a
VISAer	www.visaer.com	n/a	marketing@visaer.com	VISAer	Client-server/.NET	n/a	n/a	n/a	n/a
<b>SPECIALIST POINT SOLUTIONS</b>									
4sight	www.4sighttech.com	Hernan Clarke	+1 480 922 6482	PMPro/CheckPlan	Java	n/a	11	n/a	n/a
Aerofomatics	www.jetepplan.com	Danny Mcloughlin	dmcloughlin@teamssoft.ie	JetEplan	n/a	25	14	0	2
AviIT	www.aviit.com	David Brown	+441383 620922	eMan/Archimedes Airboard	n/a	22	4	5	2
ARMAC	www.armacsystems.com	Michael Armstrong	n/a	RIOsys	Java	n/a	n/a	n/a	n/a
Component Control	www.componentcontrol.com	Z Bar-On	n/a	Quantum suite	n/a	n/a	n/a	n/a	n/a
Corena	www.corena.com	n/a	+47 3271 7200	LifeSTAR	XML/SGML	n/a	15	n/a	n/a
Delia Systems	www.opti-time.com	n/a	n/a	OPTI - TIME	Client-server	n/a	n/a	n/a	n/a
EPFACS/TES	www.tes-uk.com	Luis Davila	+44 1443 743526	EPFAC	n/a	55	13	n/a	2
EmpowerMX	www.empowermx.com	Peter Miller	+1 218 279 7861	FleetCycle	n/a	52	9	8	3
iBaseT	www.solumina.com	n/a	n/a	Solumina	n/a	n/a	22	n/a	n/a
Jouve (Infotrust)	www.infotrustgroup.com	Geoffrey Godet	n/a	AirGTI/EFB IDMS	n/a	n/a	n/a	n/a	n/a
Omega	www.omegaair.com	Richard Reno	n/a	AMES	Client-server	n/a	16	n/a	n/a
Openconnect	www.openconnect.ch	Guido Andereg	info@openconnect.ch	eDOC / eCARD	Java	n/a	12	n/a	n/a
Perceptive	www.perceptive-inc.com	Ray Andrick	n/a	Redstone	n/a	n/a	13	n/a	n/a
Siemens (UGS)	www.plm.automation.siemens.com	n/a	n/a	Teamcentre	n/a	n/a	n/a	n/a	n/a
Waviatech	www.waviatech.com	Godfrey Ryan	+44 7962 545 558	Stream	n/a	10	6	0	3
X-hive	www.x-hive.com	Nick Kupperts	n/a	AMDS	n/a	n/a	12	n/a	n/a
<b>ERP SOLUTIONS</b>									
IFS	www.ifsworld.com	Espen Olsen	+47 9576 5923	IFS MRO	Java/.NET	2,630	25	10	numerous
Lawson	www.lawson.com	n/a	n/a	M3	n/a	n/a	25+	n/a	n/a
Lufthansa Sys. (SAP)	www.lhsystems.com	Dr. Andreas Jacobsen	info@LHsystems.com	SAP	Java.NET	3,320	12	15	2
2MoRO (SAP)	www.2moro.com	Guy Knight	guy.knight@2moro.com	AeroWebb/Aero One SAP	Java/.NET	35	4	3	3
Oracle	www.oracle.com	Hannes Sandmeier	hannes.sandmeier@oracle.com	cMRO	Java/.NET	n/a	n/a	n/a	n/a
SAP	www.sap.com	n/a	n/a	SAP R/3	Java/.NET	n/a	n/a	n/a	n/a
<b>EFB/ETL SOFTWARE SOLUTIONS</b>									
Airbus	www.airbus.com	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AMT Flightman	www.flightman.com	Steve Hardgrave	info@flightman.com	Flightman	n/a	n/a	n/a	n/a	n/a
Boeing/Jeppesen	www.boeing.com	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
DS&S	www.ds-s.com	Melanie Kitchener	+44 1332 777582	Core Wing, Core Fleet, EHM	Java	650	8	300+	Several
Panasonic	www.toughbook.eu	n/a	kontakt@toughbook.eu	Toughbook CF19/CF30	-	n/a	n/a	n/a	n/a
Rockwell Collins	www.rockwellcollins.com/IDS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Skypaq	www.skypaq.com	n/a	+ 353 44 9350360	MRObility/ETL	n/a	n/a	n/a	n/a	n/a
Teledyne	www.teledyne-controls.com	Brian Proffitt	bproffitt@teledyne.com	AvVantage	n/a	n/a	n/a	n/a	n/a

## MRO &amp; FLIGHT OPERATIONS SOFTWARE VENDOR PRODUCT CAPABILITIES

ASP offered	Airline (EASA/FAR OPS 1)	Airline (EASA/FAR OPS 1 & 145)	Third party facilities	Engine overhaul shop	Component shop	Engineering & maintenance modules	Supply modules	Purchasing modules	Native authoring/printing	Manpower time & attendance	Manpower detailed planning	Native finance & accounting	Electronic Tech Log/Flight Bag	Links to Boeing AHM	Links to Airbus AHM	Company
<b>PURE-PLAY MRO SOLUTIONS</b>																
n/a	Yes	Yes	Yes	No	No	Yes	Yes	Yes	n/a	Yes	n/a	n/a	No	n/a	n/a	ADT
n/a	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	n/a	n/a	n/a	n/a	Aerosoft
No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Cimber Air Data
n/a	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	n/a	n/a	n/a	Commsoft
Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	interface	No	Yes	IFR
Yes	n/a	n/a	Yes	Yes	Yes	Yes	Yes	Yes	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Infospectrum
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	interface	Yes	No	No	MIRO
No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	No	No	MRO Software (IBM)
Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	No	MXi
n/a	n/a	n/a	n/a	n/a	Yes	Yes	Yes	Yes	n/a	Yes	Yes	Yes	n/a	n/a	n/a	Pentagon 200SQL
n/a	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	n/a	n/a	RAL
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	RAMCO
Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	5aSIM
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	interface	No	No	No	SWISS Software
n/a	n/a	n/a	Yes	Yes	Yes	Yes	Yes	Yes	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Tracware
No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	interface	Yes	No	No	TRAX
n/a	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	n/a	Yes	n/a	n/a	Ultramain
n/a	n/a	Yes	Yes	n/a	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	n/a	n/a	n/a	VISAer
<b>SPECIALIST POINT SOLUTIONS</b>																
n/a	n/a	n/a	Yes	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Yes	n/a	n/a	n/a	n/a	4sight
Yes	Yes	Yes	Yes	Yes	-	n/a	n/a	n/a	n/a	Yes	n/a	n/a	n/a	n/a	n/a	Aeroinformatics
Yes	Yes	Yes	Yes	No	Yes	No	No	No	Yes	No	No	No	Yes	No	Yes	AviIT
n/a	n/a	n/a	Yes	n/a	n/a	n/a	Yes	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	ARMAC
Yes	n/a	n/a	Yes	Yes	Yes	n/a	Yes	Yes	n/a	n/a	Yes	n/a	n/a	n/a	n/a	Component Control
n/a	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No	No	No	n/a	n/a	Corena
n/a	n/a	Yes	Yes	n/a	n/a	No	No	No	No	Yes	Yes	No	No	No	No	Delia Systems
No	Yes	Yes	Yes	No	No	Yes	No	No	No	No	No	No	No	No	No	EFPAC/TES
Yes	Yes	Yes	Yes	No	No	Yes	No	No	No	Yes	Yes	No	No	No	No	EmpowerMX
n/a	n/a	n/a	Yes	n/a	n/a	Yes	No	No	No	No	Yes	No	No	No	No	iBaseT
n/a	Yes	Yes	Yes	No	No	No	No	No	Yes	No	No	No	Yes	No	No	Jouve (Infotrust)
n/a	Yes	Yes	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	Omega
n/a	Yes	Yes	Yes	n/a	n/a	No	No	No	Yes	No	No	No	Yes	n/a	n/a	Openconnect
Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	No	No	No	No	n/a	n/a	Perceptive
n/a	n/a	n/a	n/a	n/a	n/a	Yes	Yes	Yes	n/a	n/a	n/a	n/a	No	No	No	Siemens (UGS)
No	Yes	Yes	No	No	No	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Waviatech
n/a	Yes	Yes	Yes	No	No	No	No	No	Yes	No	No	No	Yes	No	No	X-hive
<b>ERP SOLUTIONS</b>																
Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	IFS
n/a	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	n/a	n/a	n/a	Lawson
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Lufthansa Sys (SAP)
Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	2MoRO (SAP)
n/a	n/a	n/a	n/a	n/a	n/a	Yes	Yes	Yes	Yes	Yes	Yes	Yes	n/a	n/a	n/a	Oracle
n/a	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	n/a	n/a	n/a	SAP
<b>EFB/ETL SOFTWARE SOLUTIONS</b>																
n/a	Yes	Yes	No	No	No	Yes	No	No	No	No	No	No	Yes	n/a	Yes	Airbus
n/a	Yes	Yes	No	No	No	Yes	No	No	No	No	No	No	Yes	n/a	n/a	AMT Flightman
n/a	Yes	Yes	No	No	No	Yes	No	No	No	No	No	No	Yes	Yes	n/a	Boeing/Jepesen
Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	Yes	n/a	n/a	DS&S
-	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	Yes	n/a	n/a	Panasonic
n/a	Yes	Yes	No	No	No	Yes	No	No	No	No	No	No	Yes	n/a	n/a	Rockwell Collins
n/a	Yes	n/a	No	No	No	Yes	No	No	No	No	No	No	Yes	n/a	n/a	Skypaq
n/a	Yes	Yes	No	No	No	Yes	No	No	No	No	No	No	Yes	n/a	n/a	Teledyne



in the USA and has an office in the UK. Selling worldwide, the product is very deep as well as broad. Many functions have been developed in conjunction with customers and this has helped ensure the product usability remains high.

Modules include: fleet maintenance & planning; quality assurance; materials management & planning; compliance audit & reporting; technical records online; SGML manual distribution; airline purchasing & finance system link; large MRO management; technical publications management; site capacity planning; EFB; and reliability tracking. TRAX says it is developing an interface to both Boeing AHM and Airbus AirN@v/Airman.

The company has a number of prestigious airlines, including jetBlue and Alaska Airlines. United Airlines uses some of the engineering and jobcard modules and ranks as the largest airline to use any of the pure-play vendors. With 25 development and 35 implementation staff, the company is well positioned to continue the growth in customers.

#### Ultramain

Previously Software Solutions Unlimited, Ultramain has three of the biggest airline names in the business as customers: Virgin Atlantic, Cathay Pacific and Emirates. Ultramain grew in the early part of this decade installing integrated supply and maintenance solutions for airlines and mass transit companies. Recently it introduced efbFlightLogs™, which aims to replace aircraft paper flight logs with an easy-to-use, touch-screen interface. Ultramain is adding its own specialist ETL and EFB solutions to the growing number available on the market. It is also unique amongst MRO software vendors in developing its own software

development environment, XPONENT. Whether this is an advantage or not is yet to be proven.

Based in the USA, the company also has offices in the UK and Hong Kong, with 40-50 staff. The Ultramain product offers a complete and deep MRO solution for airlines and MRO facilities. Some of the Ultramain functionality represents the deepest level of capability of any vendor on the market today, driven by its key customers like Cathay Pacific. The website does not indicate any new customers since Emirates.

#### VISAer

One of the main players in the 1990s and early 2000s, VISAer has some large airline customers including Lan Chile, UPS and third-party MRO provider FLS (now part of SR Technics). In recent years VISAer has had a lower profile in the marketplace, perhaps due to the ending of its relationship with UNISYS, or due to the company focusing on making a success of its current customer projects.

It is understood that VISAer is developing a .NET version, but it is unclear from the website when this will be released. The latest news in 2007 was the completion of a migration of ten business units in Qantas Defence Services to VISAer. There are no new announced customers since Jordan Aeronautical Systems Company, but there may be deals that remain unreported.

Based in Massachusetts, USA, the company also has offices in the UK and Australia. The company is believed to number 40-50 people. The VISAer product contains a complete range of functional modules covering engineering, maintenance and material management. Reports about the company and product from current customers are positive.

*There is a broad split in the pure-play market, for new technology, between Java and .NET. Trax is one company that has chosen the .NET route.*

## Specialist solutions

This group of solutions represents specific software that is designed to be implemented alongside a core MRO system. They can be standalone or integrated tightly with the engineering and supply system.

#### 4sight

Founded in January 1997, 4sight Technologies provides specialist solutions for optimising scheduling of maintenance work. 4Sight's software tools fulfil many needs, such as: company-wide integrated project scheduling; long-range planning & scheduling; advanced constraint scheduling & optimisation; and maintenance & production scheduling.

Enterprise Management 360 is a next-generation, end-to-end solution designed to assist organisations seeking continuous improvements in process quality and productivity by optimising resources and minimising waste in areas such as time-delays, poor processes and inadequate strategic planning. It replaces PMPro™ and CheckPlan, which are aimed at heavy maintenance facilities. This solution provides significantly more specific functionality for aviation maintenance than a simple MS Project interface.

#### Aeroinformatics (Teamsoft)

Teamsoft was incorporated in Dublin, Ireland in 1994, specialising in developing software solutions in the financial and distribution sectors. In 2002, Teamsoft took the strategic decision to develop its own branded products for the aviation industry.

In 2004 Teamsoft launched the standalone JetEplan engine maintenance planning system, and established AEROinformatics in the US and Europe to market and support the aviation industry products and services. AEROinformatics has 25 staff, and offices in San Diego, CA and Dublin, Ireland. Customers include airlines and engine leasing companies.

#### AviIT

AviIT has been providing software solutions over the past six years to a number of leading airline and aviation sector companies worldwide. Based in Scotland, UK, the company has expanded into the USA. Although the primary focus is in the aviation sector, many of AviIT's



products and services are equally applicable to other industries.

eMan is a solution aimed at providing airlines with a single, centralised storage of all electronic format documentation and applications. It also includes a full library management module.

Archimedes is a low-cost aircraft communication & reporting system (ACARS) message decoder that connects to an airline's ACARS environment. For example, Archimedes can identify Post Flight Reports and format them into human readable format issuing them via e-mail or fax to end user departments. Likewise OOOI data can be decoded and used to feed engineering and crew management systems.

#### ARMAC

Using the RIOsys solution from Armac, companies with a substantial investment in spares inventory can work to reduce their investment, while increasing their fill rates. Armac Systems was founded by Micheál Armstrong, an engineering graduate with over 15 years experience in the aerospace maintenance sector. Armac's shareholders include its launch customer SR Technics and Enterprise Ireland, the development agency of the Irish government. Armac's proprietary intellectual property (utilised in RIOsys) has been developed in collaboration with Irish Academic Institutions, supported by Enterprise Ireland.

The system works with existing material planning systems and the company claims that installation, integration and training can be completed in days.

#### Component Control

Component Control, based in San Diego, California, is a developer and provider of Aviation Management Software solutions. Its main market is component trading and repair vendors, utilising the Quantum suite, which contains the elements theoretically needed to support an airline core MRO process set. In reality, however, the customer base reflects the product's main strength in the component management segment.

The company has a large number of clients, with many in mainland USA. There are many large component trading companies both in USA and Europe.

#### Corena

Corena has more than 15 years' experience in information systems with focus on document management for aviation.

Corena also offers consulting services covering systems integration, programming through to project management. Its LifeSTAR product is based on the XML/SGML open standard technology and is used by airlines for job card and check management through to centralised electronic document management. With offices in Asia, Europe and the USA, the company has a global reach. Corena is also active in the defence marketplace and many companies integrate the solution with their core MRO software.

In a recent announcement, Corena's technical documentation system has been selected as an integral part of Singapore Airlines Engineering Company's MRO ERP system based on SAP. The Airbus

*Specialist point solutions can enhance and extend the functional capabilities of either a new core MRO or old legacy system. They can offer a lower risk and quicker return on investment than a complete MRO system.*

A380 standard check package generation is produced by use of Corena software. The system is implemented by Corena's associated company, As precise Pte Ltd., in Singapore.

#### Delia Systems

Delia Systems is a French company, which has sold scheduling and optimisation systems to airlines like Air France and Emirates in the past. It is unclear whether it is still actively selling in the aviation sector. The product, OPTI-TIME, was previously seen as a leading edge scheduling and optimisation tool for MRO facilities in the late 1990s. The product seems to have disappeared from the marketplace recently, but still may be worth investigating as a bolt-on to a current MRO core system.

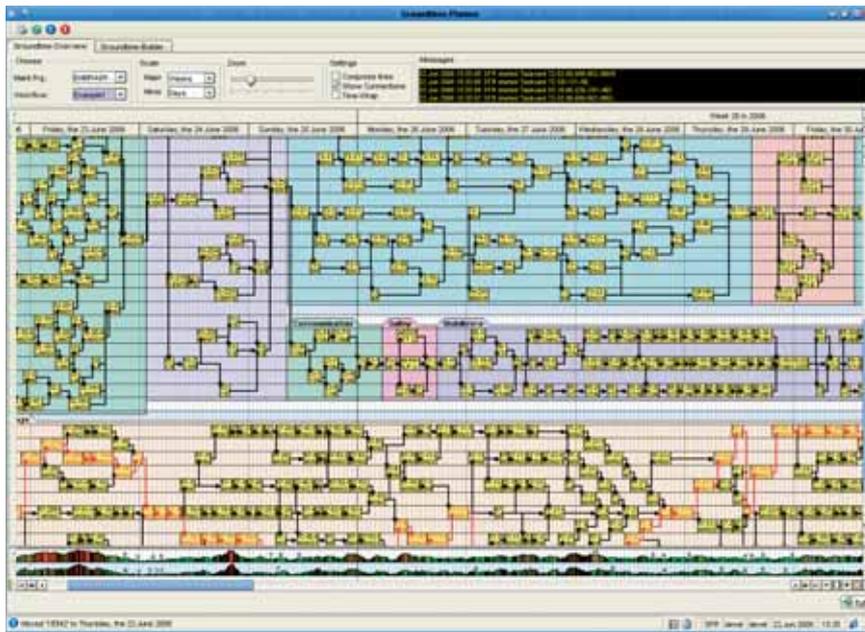
#### EFPAC/TES

The EFPAC engine management software system is provided by the Total Engine Support (TES) Aviation Group in the UK. Launched in July 2000, EFPAC is designed to support the increasing demand for accurate planning and financial forecasting of aircraft engine maintenance costs in airlines, leasing companies and maintenance organisations. Planning engines and their maintenance is a "black art".

The EFPAC maintenance plans are based on user-defined parameters such as LLP profiles, aircraft/engine utilisation, EGT deterioration, airworthiness directives, service bulletins, aircraft and engine lease return conditions, enabling EFPAC to determine the dates at which engines will require removal or maintenance.

EFPAC allows detailed shop visit definition and determines shop visit costs and post-shop-visit engine condition. From the EFPAC maintenance plans a number of reports can be generated giving visibility of the cash-flow requirements, cost per hour and cost per cycle over any period of time.

EFPAC can also be integrated with existing technical records systems to keep the EFPAC database and maintenance plans automatically updated with aircraft/engines hours and cycles utilisation and other relevant technical data. This is an excellent way of extending a core MRO system.



Some vendors like Swiss AS offer deep functionality that goes beyond simple external links to products like MS Project for planning.

### EmpowerMX

Formerly SINEX, the company reformed as EmpowerMX and is based in the USA. EmpowerMX provides aircraft maintenance software and consulting services to the air transport industry. The product suite is classified here as a point solution to ensure a differentiation with other core integrated MRO solutions with both maintenance and supply in one product.

The FleetCycle suite of products is a very effective solution, particularly for large airlines with large legacy systems. It can be painful, expensive and take many years to replace all the elements of a complete MRO software solution. FleetCycle may be the ideal answer to this problem, because it aims at the production environment, whether line or hangar, and encompasses the task card management function, as well as point-of-maintenance work recording. Other modules include reliability management. The company is continuing to expand the range of modules.

### iBaseT

Solumina is an operations process management software suite that manages work and quality processes for the manufacturing and MRO of highly engineered products. Solumina functional modules include Process Planning, Shop Floor Execution, and Quality Assurance in one integrated system. Solumina is the specialist product that has applications for large MRO facilities to manage the production and repair environment. Customers include American Airlines. The specialist nature of the tool means it will have limited appeal for smaller MRO facilities, or airlines with in-house maintenance capability.

### Jouve (Infotrust)

In December 2007 Jouve Data Management acquired the Infotrust group and re-branded the company. Now trading as Infotrust, the core airline and MRO solutions remain the same. AirGTI has been setting the standard for independent electronic job card management, check planning and document viewing tools for airlines and maintenance shops. It has an impressive list of commercial aviation customers. Facing more competition from the OEMs' in-house solutions (Boeing's Maintenance Performance Toolbox and Airbus's airn@v) the product is still a solution at the leading edge.

With the advent of the EFB, the company has introduced the Intelligent Data Management System (IDMS) solution. The pure XML-based information management system for EFBs, the IDMS is powered by an advanced XML content server. It is flexible and can provide a common user interface across fleets.

### Omega

Omega Airline Software has been selling the AMES product to airlines since 1992. AMES is an enterprise software suite designed to manage the maintenance schedules of commercial aircraft. With customers around the world, the AMES product either fits alongside a core MRO software solution in a standalone mode.

The Ames Suite enables an airline to plan a fleet's maintenance schedule, and determine the estimated budget and personnel needed to perform the maintenance. It is a cost-effective add-on to a legacy MRO system or one of the smaller pure-play or tier-two MRO system providers.

### Open Connect

The eDOC suite from Open Connect AG provides airlines with a complete documentation process. The software solution is based on an Enterprise Content Management (ECM) framework, and uses the latest technologies to give mechanics and engineers access to any kind of document in any format via wireless networks or mobile workstations. At any time, current data are transmitted worldwide and get exactly where they are needed. The company also serves the pharmaceutical sector, the manufacturing industry and financial markets.

The company has a strong relationship with Lufthansa and Swiss AviationSoftware. The eDOC solution can add significant value to a core MRO software suite. Already in service with Lufthansa Technik and Austrian Airlines, the solution suite is expanding and is set to be one of the strongest document management solutions for the airline marketplace.

### Perceptive Inc

Started in 1995, Perceptive's Redstone solution fills a very specific need for a point solution in the aviation MRO environment. One of the biggest headaches for any hangar is the generation, follow-up and completion of a non-routine card (NRC). NRCs are those maintenance tasks that arise as a result of a routine inspection task that uncovers an unforeseen problem, like corrosion. This is a classic area where even the pure-play MRO solutions sometimes need a hand.

Perceptive's solution for NRCs is a software tool designed specifically for a wireless handheld device. The screens and data capture are built around the specific work environment of an aircraft maintenance hangar. Already three of the five largest third-party MRO companies in North America connect their hangar floor to their enterprise with solutions from Perceptive. This very innovative solution is worth exploring for organisations with large maintenance hangars.

### Siemens (formerly UGS)

Teamcenter, formerly marketed by UGS, is a product lifecycle management (PLM) tool, which includes within it an

A/c Type	A/c Registration	List Sectors By:	Sector No.
G-TRIG000006	13 Jun 2002	31K	EMA 21:15 FGS 01:00 DKJ 0 0
G-TRIG000005	11 Jun 2002	617L	PFO 11:15 EMA 16:00 DKJ 0 0
G-TRIG000004	23 May 2002	JMC210	ACE 18:00 BRS 22:00 CCC 1 1
G-TRIG000003	23 May 2002	JMC209	BRS 14:15 ACE 17:15 CCC 0 0
G-TRIG000002	23 May 2002	JMC208	MAN 12:43 BRS 14:13 CCC 0 0
G-TRIG000001	23 May 2002	JMC207	BRS 10:01 MAN 11:31 OFC 1 1
G-BXKH000005	27 May 2002	JMC207	BRS 10:01 MAN 11:31 RTU 0 0
G-BXKH000003	27 May 2002	JMC001	ALC 15:51 ACE 16:51 PP 0 0
G-BXKH000002	7 Jun 2002	JMC123	EMA 05:00 MAH 07:00 198400 0 0
G-BXKH000001	6 Jun 2002	JMC655L	ACE 21:05 EMA 23:05 OFC 0 0

element of MRO capability. Siemens AG acquired UGS for \$3.5 billion in 2007, and Teamcenter is now marketed by the Automation and Drives division.

Teamcenter is more normally associated with OEMs that wish to support their products in the aftermarket. No-one in commercial aviation is using the solution.

#### Waviatech

Waviatech was founded in 2002 by Karl Scanlon (ex-TEAM Aer Lingus and Orix Aviation) together with an experienced database programmer and software developer.

Used by many leasing companies, the company's Stream product is a clever solution to the ever present problem of paper log books in the commercial airline industry. The company dispatches an on-site team to scan paper documents and use the Stream technology to intelligently index these scanned images. Customers can then search through the paper record as if it were an electronic database. The launch airline in 2007 for the licensed version of Stream was the Northwest Airlines subsidiary Compass Airlines, which uses it for its Embraer 175s.

#### X-hive

X-Hive Corporation provides XML database and enterprise content management (ECM) solutions to the aerospace, automotive and other related industries. The company's standard products are aimed at helping customers improve their operational performance. Customers include Boeing, Fokker Services, Northwest Airlines, Harley Davidson, Renault F1 and many others, which use the system to manage technical information, publish complex

documentation, and share data anywhere it is needed around the globe.

Founded in 1996, the company is headquartered in The Netherlands. The aviation product suite, AMDS, is based on the new S1000D V3.0 standard for civil and military aviation.

#### ERP solutions

This group of solutions was one of the first to try to break into the airline MRO systems market in the 1980s. These products offer a complete end-to-end enterprise-wide software package.

#### IFS

Headquartered in Sweden, Industrial and Financial Systems (IFS) is one of the giants of the ERP world. It has had some success with large commercial airlines and MRO facilities with its customised offering for this specific market segment. Started in 1983, IFS has created a version of its standard offering that broadly fits into a commercial aviation business process map. With offices worldwide, IFS sells to many market segments from power stations to financial institutions.

Commercial aviation customers include Finnair and Bristow Helicopters Group. The IFS application is particularly strong for third-party MRO facilities, with deep functionality for financial management and sales/invoice preparation. Modules include production management, engineering, maintenance planning, maintenance execution, supply chain, purchasing, HR and finance. One key feature is the IFS Business Modeler, a graphical tool to re-design business processes and then embody them into the standard IFS functional stack.

IFS competes in the commercial and military markets, and has a strong

Specialist providers aim to solve specific business challenges for airlines. DS&S offers electronic technical logbooks (ETL), as well as engine trend monitoring and health monitoring systems.

presence in the latter through the BAe-IFS joint venture company, IFS Defence.

#### Lawson

In 2006, Lawson Software and Intenia merged to form the new Lawson. Intenia previously marketed and sold the Movex solution for commercial aviation with limited success. Lawson now delivers software and implementation services to 4,000 customer sites in manufacturing, distribution and services industries across 40 countries.

Movex has been renamed M3. Functional capabilities include financials, human capital management, supply chain management, business intelligence and asset management.

Key commercial aviation customers include SAS Technical Services and Sabena Technics (TAT Group) which indicates the strength of the product lies in the third-party MRO market. The company has also implemented the solution at China Southwest Airlines.

#### Lufthansa Systems (SAP)

Lufthansa Systems is one of the world's leading IT service providers for the airline and aviation industry. It has 3,320 employees in several locations in Germany and offices in 15 countries. Its portfolio addresses all airline business processes, and includes services for passenger and cargo handling, flight operations, and aircraft maintenance and repair.

As a full-service provider it also covers the complete operation of an airline's IT systems, including outsourcing. LHS has gathered together a group of other solutions, from task card management to customer portals for third-party MRO customers. Airlines also benefit from the integration of the DocManage module, which helps airlines to deal efficiently with the heterogeneous documentation they get and to publish individual job-cards for every maintenance event.

#### 2MoRO (SAP)

A recent entrant into the commercial aviation MRO systems market, 2MoRO is a French company specialising in implementing SAP R/3. They have added functionality around the edges of the

*Electronic Flight Bags (EFB) extend ground-based maintenance and supply systems into the cockpit. The original equipment manufacturers (OEMs) like Airbus and Boeing offer their own systems, alongside a number of independent providers.*

solution and can provide the end result as a hosted ASP option. The company started in 2004 and has grown rapidly with large contracts with Snecma Services and Turbomeca. It also offers consulting for MRO and airline customers.

Headquartered in France, the company has offices in Canada and USA, and 35 staff. Time will tell if the pre-packaged, scaled-down version of SAP for aviation will be a saleable proposition. Certainly the start of the 2MoRO venture has been a success.

#### ORACLE

Oracle has offered the aviation MRO marketplace various solutions over the past 15 years. The current product is ComplexMRO or cMRO, a pre-configured variant of the Oracle ERP suite of modules made for the aviation MRO market.

The company's website still advertises cMRO, but details are sparse. There is a datasheet but there are no referenced airlines. It is unclear if customers such as Air Mauritius, which were announced several years ago, have gone live.

#### SAP

In the 1990s and early 2000s, SAP had some high profile projects with large airlines that had major overhaul facilities, including Air New Zealand, British Airways and Singapore Airlines. SAP is generally implemented by a consulting company which produces a bespoke development based around a core SAP system. These tend to be long, high-cost projects, but can produce good results. Financial control and visibility is usually very high.

Recently SAP seems to have tried to address the market differently (see SAP solutions above). Using its Netweaver technology, systems integration and reconfiguration to fit more closely with an airline's needs has led to pre-packaged solutions. The website claims recent success at Ameco Beijing and MTU Aero.

### Tier-two solutions

Too many smaller-scale aviation MRO solutions are available for them to be covered in detail here, with more being written every day. In reality most of these



are only applicable to very small air taxis, executive operators and small component shops. Some, however, have the ambition to grow into tier-one solutions. Tier two includes: Aircraft Maintenance Systems, Airline-Software Inc (SPECTRUM), Aviation InterTec Services, AV-Base Systems, C.A.L.M, Cambridge Online Systems (OpenAIR), Amelia, Tracware (UK), Continuum Applied Technologies (Corridor), Interglobe (USA), TRACER Corp, Mint Media Interactive and QAV Aviation Systems.

### EFB/ETL solutions

The EFB/ETL market is still evolving. A number of pure-play MRO vendors, such as TRAX, RAMCO and Ultramain, offer their own EFB, while a growing number of specialist providers, including OEMs like Boeing and Airbus, is focused purely on their own solution.

Of those responding to the survey, DS&S stands out as one of the success stories in the EFB marketplace. With a live application for several years at MyTravel, the company also offers a range of companion products alongside the EFB/ETL.

In terms of hardware, the undoubted aviation market leader is Panasonic's Toughbook range. Key issues are battery longevity and screen visibility in daylight. Other players in the EFB market are AMT and Skypaq, both based in Ireland. Both have live airlines and are continuing to grow their market presence. Data is sparse on both companies. It is believed that the Rockwell solution is based around the AMT Flightman framework.

Teledyne is one of the longest-serving EFB providers, offering a complete class-

range of EFBs. It has had live applications at Fedex for almost a decade.

### Summary

The market for commercial aviation maintenance, engineering and supply software can be confusing. The first task when assessing the market against an internal requirement is to understand what each company can really offer. The main 'pure play' segment still remains congested with no real dominant company. In reality any one of these solutions could support a wide range of airline or MRO requirements.

Serious consideration should be given to some of the specialist point solutions that are aimed at solving very specific business challenges. A great example of this is the Perceptive Inc. Redstone solution. These types of systems can be extremely cost effective and carry a lower business risk to implement.

The layer of tier-two solutions may end up spawning a new tier-one solution over time, but the pure play market is already full of excellent offerings so it is hard to see why the market would want to develop another product.

The emerging EFB/ETL market can compliment a core MRO software solution, but remains immature, with some of the leading pure play vendors have chosen to create their own. Any omissions or inaccuracies will be remedied in the next survey. Please contact us to update our database in the meantime. **AC**

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