The MRO management & flight operations software products of 50 vendors are reviewed in this survey. There are a number of new-entry companies and some long-standing companies have ceased trading or disappeared from most competitions.

MRO IT market vendors survey

There remains a wide range of software solutions available to improve commercial aviation MRO efficiency and effectiveness. This is a bi-annual survey that reviews the systems available on the market.

The scope of systems is widening as new point-solutions emerge to address niche requirements. Some new companies are offering applications written specifically for the iPhone for example. This follows a growing trend for smaller, simpler solutions available on mobile devices written for open platforms. Whether these types of solutions ever challenge the established software companies is yet to be seen.

This survey has been carried out at a time of economic hardship and financial belt-tightening at all the major airlines and related maintenance companies. This is causing increased competition for fewer opportunities, with many of the major airlines having already selected MRO systems over the past five years. Normally there would be a natural shake-out of the MRO software vendor market in this situation, but unusually there are a number of strong new entrants that want to break into this intensely competitive world.

2011 also sees the end of a technology step-change into the full web environment, with the majority of software companies now offering their applications on Java, .NET or both. Vendors that have failed to invest in new technology migration risk being left behind in the race for new contracts.

As in previous years, *Aircraft Commerce* categorises vendors and tries to explain the range and depth of functionality on offer. The survey also looks at company credentials of longevity and customer base. As with other surveys not every single vendor is covered, and

omissions are inevitable. Vendors were provided with a questionnaire and asked to respond to the same set of questions for purposes of consistency. Vendors that did not provide responses are marked 'no data'.

The discussion of solutions is in four categories: 'pure-play MRO solutions', which are the main vendors in the market; 'specialist point solutions', which usually augment pure-play solutions; 'enterprise resource planning (ERP) solutions', which provide extended capability in finance and human resources; and 'tier-two MRO solutions', which typically target smaller organisations. Vendors are surveyed in alphabetical order. Some vendors declined to respond to the survey, or simply did not return a report, so they have been included for completeness but their data are limited.

Pure-play solutions

This category of solution is a complete offering of functionality to meet most of the needs of an airline or third-party MRO provider seeking to renew or replace its business systems. The majority of the pure-play MRO software companies in this category have the capabilities to respond legitimately to airlines of any size and MRO facilities seeking a new software solution.

AD Software

AD Software is a company based in France, with offices in South Africa and Thailand serving these regions. It has been in business for 12 years selling its AIRPACK suite of products, and continues to grow: from 17 customers in our last survey in 2009, to 38 as of the end of 2010, with eight of them being signed in the last year alone. This is an

impressive achievement for a company that numbers only 14 people. The AIRPACK suite includes a range of discrete solutions called AIRTIME, AIRSTOCK, AIRUSER, AIRDOC and AIRSTAT. Together these offer an integrated capability for managing: maintenance; inventory control; security; electronic documentation; and fleet and equipment reliability. The market for this product appears to be relatively small operators like Air Tahiti Nui, which puts it right at the edge of a tier-one, pure-play MRO company. The company claims an installed base in all types of customers, including airlines, third-party MRO facilities, and component maintenance shops. The AIRPACK suite also claims to have full links to Boeing AHM and Airbus products, along with an electronic flight bag (EFB), which is again very impressive for such a small company. The product technology is .NET which positions it well for the future.

Applied Database Technologies

One of the recent newcomers to the full pure-play MRO vendor segment, and one of the few growing success stories, this Turkey- and US-based company has grown to 34 people and has a live airline customer base of 25, up from 14 in 2009. During the past 12 months they have secured five new customers. Applied Database Technologies works with Oracle and Turkish-based Formalis to implement its solution.

The company's product, called Wings, has the following modules: Fleet Management; Engineering; Aircraft Maintenance Planning; Aircraft and Component Reliability; Technical Documentation Library; Work Order Management; Heavy Maintenance; Line Maintenance; Shop Management (Component Repair); Tooling

Management; Labor Tracking; Time & Attendance; Invoicing (A/R); Purchasing and Vendor Management; Inventory Control; Receiving and Shipping; Quality Assurance & Audits; Employee Master Definitions; Employee Trainings; Employee Certifications; Open Interfaces – Gateways; Bar Code Printing & Technology; Digital Attachments (Archiving); and Wings Mobile Solutions.

The product is built on Java technology and has integration points to both Boeing and Airbus suites of tools, such as AHM. The customer base is largely cargo airlines and low-cost or charter carriers.

Aerosoft Systems Inc

Aerosoft continues to sell into the smaller regional airline market. In 2010 it signed a marketing deal with Sabre, and later last year with Hexaware, to assist in implementations and to provide an ASP offering to the market. Aerosoft has 22 staff, and is based in Toronto Canada, with further offices in Miami, US (the old Rene Perez company) and Austria.

Aerosoft acquired the maintenance product, PMI, in early 2004 from SITA. In fact there are several offers of overlapping capabilities, DigiMAINT and WebPMI. The WebPMI product is a modernised version of the original PMI product. DigiMAINT is the original Aerosoft product and is now available as a Java application. These products have been augmented with a new series of AeroBUY and AeroREPAIR. These electronically manage requests for Quotations, Purchase/Repair Orders and Invoices for Vendors that participate in e-business logistics. It is designed around the requirements of the ATA standard Spec 2000.

Aerosoft has added two new airlines to its existing 30 customers in the past 12 months. The company still qualifies as a tier-one supplier.

CALM

C.A.L.M. Systems Inc is a smaller-scale provider of MRO software. CALM (Computerised Aircraft Log Manager) is featured for the first time in this survey. Although it is one of the smaller providers, with only six staff, it has been in business for 22 years. Based in the US, CALM is 100% focused on the airline market. It claims customers in all the market segments, from airlines to MRO shops and component shops. In some cases only certain modules are used for specific purposes, acting almost like a low- cost specialist point solution. For example, American Eagle uses its data management module in the technical library. In spite of its small size, CALM has a wide range of capabilities,

extending to a page for an EFB.

Cambridge Online

Cambridge Online (COLS) is a diversified company providing professional information technology (IT) systems and services to a wide range of commercial and academic organisations. Based in Cambridge, UK it serves customers throughout the UK and overseas. COLS is a Microsoft GOLD Certified Partner and offers the NAVair

product based upon the Microsoft Dynamics technology.

The 50-man company claims British Airways, FedEx, Continental Airlines, Japan Air Services, Singapore Airlines, Philippine Airlines, and FLS Aerospace among its customers, although this appears to be an old customer list. It is also unclear which modules of the product capability are being used by customers. COLS has been in business for more than 30 years, and is now part of the Microsoft reseller network.

COLS' product is sold either by concurrent user or by fleet size. Its place in the pure-play solution space is uncertain given the intense competition that exists. It continues to evolve new capabilities, such as the Production Control Consoles.

Cimber Air Data

Cimber Air Data has released a Java version of the long standing AMICOS product. It was first implemented in Cimber Air as a mini computer system in 1987. The company claims to have 20 airline customers, but does not appear to have secured contracts with any new customers in 2010.

The AMICOS Next Generation product is a result of a 10-man company migrating a successful software product over into a modern technology. It comprises a full range of modules spanning the full scope of normal airline and MRO requirements. These include: Engineering; Planning; Reliability and Quality Control; Technical Records; Material Planning; Cost Control; Purchasing; 3rd Party Work; Inventory; Sales; Loan Order Management; and MRO which includes project cost control and invoicing.

Cimber Air Data continues to expand its capabilities, and will be including links to both Boeing AHM and Airbus airN@v next year. It also has an implementation partnership with Bayer Aviation Consulting in Malaysia.

Commsoft

Like many of the smaller software vendors, Commsoft seems to have made the successful transition into modern web technology. It started as a software house 40 years ago in the UK, before winning its first airline contract in 1975. It also has a presence in Australia.

OASES has been moved from client-server to Java and is supported by a total company of 29 people. This new product technology may be the reason why the company has added six new customers in the past 12 months, which is important for its long-term success. It seems that Commsoft is now targeting its product at smaller organisations. The largest customer has 70 aircraft. OASES' mainstay customer used to be the BMI Group, but it has now switched to Swiss AMOS.

OASES modules include: Reliability; Technical Log and Defects; Workcards and Planning; Line Maintenance Control; Inventory and Purchasing; Electronic Demand Handling; AD/SB (Airworthiness Directive / Service Bulletin) Evaluation/Analysis; AMP (Approved Maintenance Programme) Revision; Technical Records; Shop Floor Data Capture and Work in Progress; Request For Quotations; Sales Order Processing; Invoice Passing; Full Invoicing Module; OASES Job Scheduler; and Integrated Management Planning Tool.

IBS

IBS Software Services is an Indian company headquartered in Trivandrum. It has offices around the world, including Australia, the UK, United Arab Emirates (UAE) and the USA.

The IBS iFlight MRO is part of a portfolio of IBS products aimed at airline operations. The other products are: AvientCrew for airline crew management; AvientFleet for airline fleet management; and TopAir for integrated flight operations. With a relatively small number of live customers at 14, IBS is making progress with iFlight, and added two new customers in 2010. The product, formerly the client-server VISaer, is now in .NET. China Southern is the largest live customer with 350 aircraft, indicating the breadth and depth of iFlight.

The IBS offering is unique among the MRO software marketplace in that it offers a complete airline solution set. Functionally, the maintenance product contains a complete range of modules covering engineering, maintenance and material management. iFlight does not have an IPC/AMM browsing function, but this is under development, since there are links to Boeing AHM. There is no

MRO & FLIGHT OPERATIONS SOFTWARE VENDOR COMPANY DETAILS

Company	Website	Contact person	Contact details	Current product	Production technology	Size - people	Years in business	No of airlines in 2010	New customers in 2010
PURE-PLAY MRO SOLUTIONS									
AD Software	www.adsoftware.fr	Frederic Ulrich	f.ulrich@adsoftware.fr +33 450894850	AIR suite	no data	no data	no data	no data	no data
ADT	www.adbtech.com	Alan Yagiz	sales@adbtech.com +90 533 4216646	Wings	Java	34	18	25	5
Aerosoft	www.aerosoftsys.com	Thanos Kaponeridis	thanos@aerosoftsys.com +1 905 678 9564	DigiMAINT, WebPMI, DigiDOC	Java	22	13	30	2
CALM Systems	www.calm-systems.com	Errol Friedman	errol@calm-systems.com +1 8474809750	C.A.L.M.	Visual FoxPro	6	22	no data	no data
Cambridge Online	www.cosl.co.uk	Mark Thompson	mark.thompson@cosl.co.uk +44 1233 422 600	Navair	Microsoft Dynamics	50	32	1	1
Cimber Air Data	www.amicos.com	Rune Hagen	rune.hagen@amicos.com +47 93009854	AMICOS Next Generation	Java	10	25	20	0
Commsoft	www.commsoft.co.uk	Nick Godwin	nsg@commsoft.co.uk +441621 817425	OASES	Java	29	39	47	6
IBS Software Svs	www.ibsplc.com	David Spellman	david.spellman@ibsplc.com +1 678 391 6080	iFlight MRO	.NET	1800	13	14	2
IFR	www.ifrfrance.com	Philippe Lakhdar	philippe.lakhdar@ifrfrance.com +33 5 62747400	AMASIS	IBM iPower + JAVA GUI	64	23	79	3
Infospectrum	www.info-spectrum.com	no data	solutions@info-spectrum.com	infoTRAK	no data	no data	no data	no data	no data
MIRO Technologies	www.mirotechnologies.com	Mark Ogren	mark.ogren@mirotechnologies.com +1512 868 5177	GOLDesp / AuRA	JAVA / Client-server	85	30	5	6
MRO Software(IBM)	www.mro.com	no data	no data	Maximo	JAVA	no data	no data	no data	no data
MXi Technologies	www.mxi.com	Steve Morris	info@mxi.com (613) 747 4698	Maintenix	JAVA	250	14	22	2
Pentagon 2000SQL	www.pentagon2000.com	Kirk Baugher	kirk.baugher@pentagon2000.com +1 212 629 7521	no data	no data	60	no data	no data	no data
RUSADA	www.rusada.com	Hugh Revie	hugh.review@rusada.com +41 21 533 0334	Envision	.NET / FoxPro	95	23	55	4
RAMCO Systems	www.ramco.com	Thomas DeLuca	tdeluca@rsc.ramco.com +1 718 835 2112	Ramco M&E / MRO Enterprise / Analysis EFB / ePubs	JAVA / .NET	250	21	34	5
SaSiMS	www.sasims.com	no data	sales@sasims.com +353 61711400	SaSiMS	no data	no data	no data	no data	no data
SWISS Aviation Software	www.swiss-as.com	Marketing dept.	marketing@swiss-as.com +41 615827294	AMOS	JAVA	76	21	86	13
Tracware	www.tracware.co.uk	Patrick Walker	Patrick_Waker@tracware.co.uk +44 1983 567574	no data	no data	no data	no data	no data	no data
TRAX	www.trax.aero	Chris Reed	sales@trax.aero +1 305 662 7400	TRAX Maintenance	Java / .NET	100	13	99	11
Ultramain	www.ultramain.com	Katherine Cox	kcox@ultramain.com +1 505 828 9000	Ultramain	no data	no data	no data	no data	no data
Volartec	www.volartec.com	Manuel Roché	mroche@voalrtec.aero +54 351 4809710	Alkym	.NET	30	7	26	8
SPECIALIST POINT SOLUTIONS									
AerData	www.aerdata.com	Jaap van Dijk	jaap.van.dijk@aerdata.com +31 20 6559030	STREAM, EFPAC	.NET	75	3	20	15
ARMAC	www.armacsystems.com	Michael Armstrong	michael.armstrong@armacsystems.com +353 41 9877480	RIOsys	Java	no data	no data	no data	no data
AviIT	www.aviit.com	David Brown	dbrown@aviit.com +44 1383 620 922	eMan	no data	no data	no data	no data	no data
Bytron	www.bytron.aero	Sarah Allen	sva@bytron.aero +44 1652 228060	skybook eFB / SkylightES	no data	no data	26	no data	no data
Component Control	www.componentcontrol.com	Kimberley Bret	k.bret@componentcontrol.com	Quantum Control Aviation suite	no data	no data	no data	no data	no data
Conduce	www.conduce.net	Paul Saunders	paul.saunders@conduce.net +44 333 888 4066	Fatigue Reporting, MyTechLog, various iPhone/iPad apps	.NET	5	1	0	5
EmpowerMX	www.empowermx.com	Stan Melling	stan.melling@empowermx.com +1 651 788 8846	FleetCycle	Java	no data	11	7	0
Enigma	www.enigma.com	John Snow	johnsnow@enigma.com +1 781 265 3636	Enigma 3C / InService suite	Java	100	18	no data	no data
Euroscript	www.euroscript.com	Benoit Laxenaire	benoit.laxenaire@euroscript.com +33 6 03 97 31 05	E-FOS suite	Java / XML / XSL / CSS	1350	23	3	18
iBaseT	www.solumina.com	no data	no data	Solumina	no data	no data	no data	no data	no data
IDMR Solutions	www.idmr-solutions.com	no data	no data	InForm & eMAT	no data	no data	no data	no data	no data
Infotrust Group	www.infotrustgroup.com	Terry McNicholas	tmcnicholas@infotrustgroup.com +1 949 732 7530	TechSight / X	Various	230	16	40	8
MINT Software Systems	www.media-interactive.de	Ilka Gerlach	ilka.gerlach@media-interactive.de +494315302150	MINT Suite	Java / Delphi	29	12	20	3
Omega	www.omegaair.com	Michael Formby	mformby@omegair.com +1 9727753693	AMES	.NET / C#	15	19	20	3
Servigistics	www.servigistics.com	Giacomo Squintani	Giacomo.sqintani@servigistics.com +44 1454 419191	PARTS	Java	no data	no data	no data	no data
Smart4Aviation	www.smart4aviation.aero	Dirk Jan Baas	info@smart4aviation.aero +316 4216 2431	Smart Suite	Java	52	1	8	2
Superstructure	www.superstructuregroup.com	Azam Begg	azam.begg@superstructuregroup.com +44 7972 610 594	AQD Safety Management	.NET	20	11	95	10
T&A Systeme	www.systeme.de	Juergen Glaeser	juergen.glaeser@systeme.de +492324 9258170	Logipad	.NET	50	16	5	1
AMT Flightman	www.flightman.com	Diogo Serradas	diogo.serradas@flightman.com +3531 806 1000	Flightman	no data	no data	no data	no data	no data
Boeing/Jeppesen	www.jeppesen.com	no data	no data	no data	no data	no data	no data	no data	no data
Osys	www.o-sys.com	Susyn Conway	conways@o-sys.com +1 703 889 1329	Core Wing, Core Fleet, EHM	Java	no data	no data	no data	no data
Skypaq	www.skypaq.com	John Corrigan	john.corrigan@skypaq.com +353 44 9350 360	no data	no data	no data	no data	no data	no data
Teledyne	www.teledyne-controls.com	Scott Chambers	schambers@teledyne.com (303) 470 1525	no data	no data	no data	no data	no data	no data
ERP SOLUTIONS									
IFS	www.ifsworld.com	no data	no data	IFS MRO	Java / .NET	2630	no data	no data	no data
HCL-Axon (SAP)	www.hcl-axon.com	Allan Bachan	allan.bachan@hcl-axon.com +1 817 235 1955	iMRO SAP	JAVA / NetWeaver	7500	34	75	6
2MoRO (SAP)	www.2moro.com	Jacques Beauchesne	david.ferrier@2moro.fr +33 559013005	Aero-Webb / Aero One SAP	Java / .NET	24	6	9	3
Oracle	www.oracle.com	Christopher Evans	christopher.evans@oracle.com +1 330 286 0253	cMRO	Java / .NET	no data	no data	no data	no data
SAP	www.sap.com	Phil Te Hau	Phil.te.hau@sap.com +1 610 661 3557	SAP R/3	Java / .NET	no data	no data	no data	no data

MRO & 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 maint. shop	Engineering & maint. 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 airN@v/Airman	Company
																PURE-PLAY MRO SOLUTIONS
no data	Yes	Yes	Yes	Yes	Yes	Yes	Yes									**AD Software**
No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Interface	Yes	Yes	Yes	**ADT Wings**
No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	**Aerosoft**
No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	**CALM Systems**
no data	Yes	Yes	Yes	No	No	no data	no data	no data	Yes	Yes	Yes	Yes	No	No	No	**Cambridge Online**
Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	interface	Yes	interface	Yes	No	**Cimber Air Data**
No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	interface	No	No	Yes	No	No	**Commsoft**
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	**IBS Software Services**
Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Interface	Yes	interface	Yes	interface	No	Yes	**IFR**
no data	no data	no data	no data	no data	no data	Yes	Yes	Yes	no data	no data	no data	no data	no data	no data	no data	**Infospectrum**
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	interface	Yes	interface	interface	interface	No	**MIRO**
no data	no data	no data	no data	no data	no data	Yes	Yes	Yes	no data	Yes	Yes	no data	no data	no data	no data	**MRO Software**
No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Mtce only	No	Yes	Yes	**MXi**
no data	no data	no data	no data	no data	Yes	Yes	Yes	Yes	no data	no data	no data	no data	no data	no data	no data	**Pentagon 2000SQL**
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	**Rusada**
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	**RAMCO**
no data	no data	no data	no data	no data	no data	Yes	Yes	Yes	no data	no data	no data	no data	no data	no data	no data	**SaSIMS**
No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	interface	interface	No	No	**SWISS AMOS**
no data	no data	no data	no data	no data	no data	Yes	Yes	Yes	no data	no data	no data	no data	no data	no data	no data	**Tracware**
No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	**TRAX**
no data	no data	no data	no data	no data	no data	Yes	Yes	Yes	no data	no data	no data	no data	no data	no data	no data	**Ultramain**
No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	**Volartec**
																SPECIALIST POINT SOLUTIONS
No	Yes	Yes	Yes	Yes	No											**Aerdata**
no data	no data	no data	Yes	no data	no data		Yes									**ARMAC**
no data	no data	no data	no data	no data	no data				Yes				Yes		Yes	**AviIT**
No	no data	no data	no data	no data	no data								Yes			**Bytron**
No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			**Component Control**
No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	No	No	**Conduce**
Yes	No	Yes	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No	No	**EmpowerMX**
Yes	No	Yes	Yes	Yes	Yes	Yes			Yes							**Enigma**
No	Yes	No	No	No	Yes				Yes				Yes			**Euroscript**
no data	no data	no data	Yes	no data	no data	Yes					Yes					**iBaseT**
no data	Yes	Yes	No	No	No	Yes			Yes		Yes					**IDMR Solutions**
Yes	Yes	Yes	Yes	Yes	Yes				Yes	interface	interface	interface	Yes	Yes	Yes	**Infotrust**
Yes	Yes	Yes	Yes	Yes	Yes	Yes				Yes	Yes					**MINT Media Interactive**
No	Yes	Yes	Yes	No	No						Yes					**Omega**
No	No	Yes	Yes	Yes	Yes	interface	Yes	interface								**Servigistics**
Yes	Yes	No	No	No	No								Yes			**Smart4**
No	Yes	Yes	Yes													**Superstructure**
No	Yes	No	No	No	No	Yes							Yes			**T&A Systems**
no data	Yes	Yes	No	No	No	Yes	No	No	No	No	No	No	Yes	no data	no data	**AMT Flightman**
no data	Yes	Yes	No	No	No	Yes	No	No	No	No	No	No	Yes	Yes	no data	**Boeing/Jeppesen**
Yes	Yes	Yes	Yes	No	No	Yes							Yes	Yes		**Osys**
no data	Yes	no data	No	No	No	No	No	No	No	No	No	No	Yes	no data	no data	**Skypaq**
no data	Yes	Yes	No	No	No	No	No	No	No	No	No	No	Yes	no data	no data	**Teledyne**
																ERP SOLUTIONS
Yes	no data	no data	no data	no data	no data	no data	Yes	Yes	no data	no data	no data	no data	no data	no data	no data	**IFS**
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	**HCL-Axon**
no data	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	**2MoRO**
no data	no data	no data	no data	no data	no data	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	**Oracle**
no data	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	no data	no data	no data	**SAP**

EFB, but it is available through an interface.

IFR

IFR France has been in business for over 20 years, and is a European Aeronautic Defence & Space (EADS) company, based in France with other offices in Russia and Spain. It provides maintenance software alongside catering and flight operations systems. It has 79 airline customers, many of them from former French colonies, and added three more in 2010.

The maintenance product is AMASIS, which is sold alongside catering and operations systems. The solution is offered as a hosted Application Service Provider (ASP) system and is used by 21 airlines, which makes it the most successful ASP provided by any of the vendors.

The technology migration story for IFR France is interesting. In our last report it was migrating to .NET, but it now states that its technology is a combination of IBM iPower for AS400 and a Java GUI. This indicates that the company seems to have decided to put a web veneer on an older mainframe technology.

AMASIS is used mainly by airlines and some third-party maintenance providers. Modules include: Routine Maintenance; Assembly/Sub-assembly; Scheduled Maintenance; SB & AD Management; Logistics; Finance; e-documentation; Automatic Provisioning; Labour Manhours; Technical Library; Barcode; Data Import-Export; and Business Intelligence (new). The system links to the Airbus suite of products and also has a native link to a project planning tool. A link to Boeing's AHM is under development.

Infospectrum

InfoTrak is the MRO product from Infospectrum. Headquartered in India and USA, and with an office also in Oslo, Norway, Infospectrum bought the Avexus product several years ago. With no data provided by the company, there are few details available, and it is hard to clarify the number of existing or new customers from the current website. The company also has a SAP practice.

MIRO Technologies

Miro has been supplying aviation MRO systems for almost 30 years. Headquartered in California, USA the company also opened a large office in Saudi Arabia in 2009. Miro has 90 employees and has a fast-growing client list that includes major original equipment manufacturers (OEMs) and defence contractors such as AAR, BAE Systems, Boeing, Honeywell, ITT, Lockheed Martin, L-3, Northrop Grumman, Pratt & Whitney (P&W) and Rolls Royce (RR). In addition, military organisations on four continents rely on Miro's technology as a key element in their defence system sustainment strategy.

Miro also currently has five airline customers, including SAS and ExpressJet Airlines.

GOLDesp is Miro's flagship COTS product for Aerospace & Defense, with the AuRA application serving the needs of the commercial MRO industry. In recent years, Miro has focused its research and development (R&D) and product marketing efforts on the migration of the GOLD product line to an SOA and Java (Web 2.0) platform.

Reports from Miro indicate that AuRA airline functionality will be integrated into a future version of GOLDesp. AuRA functional modules include: Enterprise/Organisational Modelling; Engineering; Materials/Warehouse; Procurement; Planning and Scheduling; Line Maintenance; Maintenance Operations – Hangar Maintenance; Shop Maintenance; Quality Control/Quality Assurance; Training; Licenses and Certifications;

Financial Interface; and Tools & Ground Support Equipment Management.

IBM

No information was received from IBM, so this entry is gathered from public sources. Operating in several market segments, IBM's Maximo product is sold to support everything from computer assets to facilities, power stations and aircraft. The range of customers using the application in a live environment today is believed to be wide, and includes airlines as well as component maintenance providers.

MXi

MXi is one of the larger, tier-one pure-play MRO software providers with over 250 employees (although this is down from 306 in 2009). Founded in 1996, the company is based in Ottawa, Canada, but it also has offices elsewhere in the world: Washington and Seattle, USA; Amsterdam, Netherlands; and Sydney, Australia. More than 70% of MXi's business involves airline and third-party commercial MRO. The company works with implementation partners worldwide including Pythian, Envision, TATA Consulting, Hexaware and Milcon Gulf Group.

MXi continues to make progress, with sales in 2010 to at least two carriers, including Ethiopian Airlines. This is presumably as part of the 787 Dreamliner GOLDCare deal that Mxi has signed with Boeing. The Maintenix customer base includes 22 live airlines. Like many of the larger MRO software companies, MXi's product runs on Java technology.

The Maintenix modules include: Maintenance Program Management; AD/SB Management; Configuration Management; Records Management; Diagnostics & Repair Modelling; Long-Range Planning; Asset Maintenance Planning; Maintenance Control; Line Maintenance; Maintenance Operations; Production Planning & Control; Hangar Maintenance; Engineering Support; Shop Scheduling & Repair Routing; Shop Productions Control; Shop Maintenance Execution; Material Planning; Material Procurement; Warehouse Management; Warranty Management; Material Receipt; Demand Management; Tool Control & Ground Support Equipment (GSE); Compliance Reporting; Quality Assurance; Reliability Analysis; Maintenance Cost Tracking; Financial Reporting; and Human Resources (HR).

The Maintenix product has the capability to integrate with EFBs, the Airbus Airman product and Boeing AHM.

Pentagon 2000SQL

The company is still active on the web, but no responses were returned by Pentagon 2000. Little is known about the company or their product.

Rusada

Rusada is headquartered in Switzerland, with offices in the UK and India. The company started in business in 1987, and now has 95 staff. Rusada's Envision product is built upon .NET and FoxPro technologies, and now has a live installed base of 55 airlines, four of which were added in 2010. Rusada's customers are regional or low-cost airlines, and use a combination of its full range of airline MRO modules. Its largest airline customer operates a fleet of 75 aircraft.

Modules include: Configuration; System and Resource Manager; Engineering Manager; Document and Records Manager; Quality Manager, Materials Manager; Maintenance Manager; Operations Manager; Finance Manager; Training Manager; Analytical Manager; and Safety Manager.

Envision links to Boeing AHM and Airbus airN@v and with a partner EFB. Unlike some of the other MRO software vendors, Envision includes a native finance and accounting capability and job
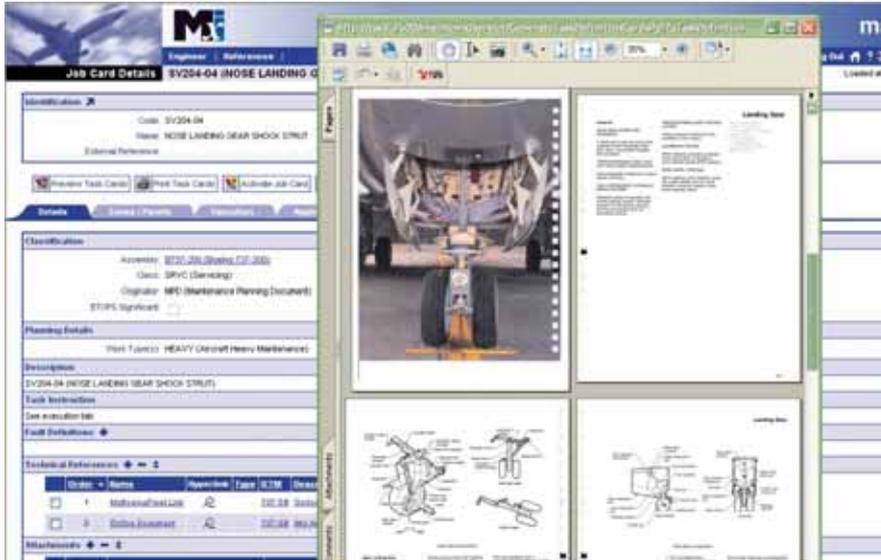
MXi integrates with Interactive Electronic Technical Publications (IETPs) to provide a seamless paperless environment for airline operators. The company has a deal with Boeing on Goldcare for the 787.

card authoring.

Ramco Systems

After a strong growth phase in 2009, Ramco has had a slower rate of new customer uptake compared with the market leaders like TRAX and SwissAMOS, although it still managed to secure five new customers, including Air India, during 2010.

It continues to offer a wide range of solutions on a technology-agnostic platform, which includes Java or .NET.

The Group headquarters is in India, with the aviation division based in Lawrenceville, New Jersey. Ramco has more than 250 staff, with the main group selling ERP solutions into the finance and manufacturing sectors as well as aviation. RAMCO is offered as an ASP with two small airlines live on the system.

Ramco implements its solutions itself, rather than through partners. It has live customers in all the aviation market segments, including engine and component overhaul. RAMCO continues to have a marketing relationship with Sabre Airline Solutions to sell the Ramco application as part of its own portfolio of solutions.

Functionally, the 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 Human Resources; Licences & Certifications; Maintenance Financials; Tools & Special Equipment Management; and EFB.

SaSiM

With no data returned this year from SaSiM, it is hard to comment on whether it remains a true tier-one pure-play solution provider. It is believed that the company offers: Maintenance and Engineering; Aircraft Configuration; Component Maintenance; Inventory Module; Component Control; SB/AD Control; Tool Management; Publication/Library Control; Staff Recording; and The Log Book. There is no recent news on their website.

Swiss AviationSoftware

With 86 live airlines (and nine more in the process of implementation), Swiss AviationSoftware is hot on the heels of TRAX as having the largest installed live customer base with true fully integrated MRO software. Significant successes in 2010 include: the BMI Group, where it is replacing Commsoft; and Royal Brunei, where it is replacing AMICOS.

In 2010 AMOS added 13 new customers and expanded its functional footprint. The company works on implementation with Lufthansa Systems Americas, Singapore Technology Aerospace and CrossConsense.

Available modules include: Material Management; Engineering; Planning; Production; Maintenance Control; Component Maintenance; Quality Control; Human Resources; Financial Management; and Interfaces to numerous outside systems.

AMOS offers a Financial Management & Billing Module, including Contract Management and Financial Reports, but it does not replace a proper general ledger system. AMOS interfaces to other financial accounting systems, for example SAP Finance.

The technology underpinning AMOS is Java, and the product has evolved over 21 years from an initial internal Swiss Air Lines project. 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. The largest airline using the product is Ryanair, which has a fleet of more than 250 aircraft.

TracWare

No data are available from the company directly as part of this survey. Based in the UK, the company still has an internet presence and seems to be growing.

TRAX

In 2010, TRAX was one airline away from having 100 customers. In the past year, 11 new customers have selected the new TRAX offering, which is now available on Java and .NET technology. The company is leading the market with Swiss AviationSoftware, and continues to battle in a hard-fought market segment. The significant move into web technology for TRAX was crucial to its continued survival against the growing competition from Swiss.

TRAX's oldest customer remains Air Atlanta, but a significant win was registered in the past 18 months with Air Canada selecting TRAX to replace Mxi in its home market. The range of TRAX customers includes airlines and MRO facilities.

Unlike some of the other vendors, the company does not offer an EFB but it has a full range of modules including: Materials Management; Customer (Sales) Orders; Requisitions; Orders; Receiving; Inventory; Picklist; Packing & Shipping; Fleet Management; Engineering; MX Planning; MX Controller; Production; Shop; Quality Assurance; Reliability; Technical Records; Component Management; P/N Planning; P/N Engineering; P/N Shop; P/N Reliability; P/N Quality Assurance; Technical Publications; Library (Tech Pubs); MEDL (Mfg Electronic Data Loader); TRAXDoc (Document Management); Resource Management; Training; Labor Capacity; Site (Hangar) Capacity; Shop Capacity Management; Electronic Data Interchange; B2B (Sales, Exchanges, and Repairs); and Manufacturer Onboard Toolboxes.

The Manufacturer Onboard Systems are offered via Web Services to allow for the exchange of data between the airline and its ground-based systems. TRAX offers interfaces for all the major aircraft

Rusada is one of the few vendors to favour the Microsoft .NET technology platform.

manufacturers.

Ultramain

No data were returned by Ultramain so this entry is gathered from public sources. The latest website does not indicate any new customers since the last survey in 2009, but does indicate that the product is moving to Java.

Volartec

Argentina's Volartec continues to grow rapidly and is a vendor worth keeping an eye on. The .NET product, with the odd name Alkym, now has 26 live airlines, eight of which were added in 2010. The company has established an office in Ireland in order to open the European market place to this new product.

The company has 30 employees, of whom 10 are software developers. Alkym's modules comprise: Maintenance Control; Planning; Engineering; Reliability; Purchasing & Repairs; Inventory; Receiving & Shipping; Sales; Technical Library; System Configuration; Quality Assurance; and Human Resources. Alkym also includes a native job card authoring capability, and a manpower planning and scheduling tool. The company is currently developing an interface to Boeing AHM and Airbus airN@v.

Volartec's oldest customer is Pluna Uruguay, and the largest is the Venezuelan Air Force. Volartec carries out all its own implementations.

Specialist point solutions

There has been a growth in the market for new specialist software

solutions addressing specific niche requirements around the edge of aircraft maintenance and logistics management. There are even new entrants offering iPhone apps which may be an interesting trend in the future. Easy integration is always one of the keys to success in this market segment.

AerData

In March this year AerData, a Dutch-based software provider for aircraft asset managers announced that it had acquired a majority stake in Waviatech, the UK-provider of STRAM for Aircraft Records, and renamed the company under the AerData brand.

AerData also owns the EFPAC engine management software, and now combines the two offerings to the market place. This is an interesting, and somewhat logical, move for AerData, which has a large customer base in the engine- and aircraft-leasing business. It combines these two software products with the CMS software for aircraft lease and asset management. It will be interesting to watch for further acquisitions in the future, since AerData may decide to move into the full MRO software domain.

AerData is a relatively new 75-strong company operating from Amsterdam, which has 20 airlines live using the STREAM and EFPAC products. This includes 15 new contracts that were signed in the past 12 months. The company uses .NET technology for its products.

ARMAC

While no data were received for this year's survey, ARMAC continues to have

a presence in the market place and seems to continue to gain new customers and expand its business for parts and inventory optimisation. The other real competition in this segment comes from Servigistics and MCA.

AviIT

AviIT is a small UK-based company that provides a library-management solution for airlines and a low-cost Aircraft Communications Addressing & Reporting System (ACARS) message decoder. The latest customer was Era Helicopters, which selected the eMan Solution in early 2011. No data were received from AviIT, but it remains an interesting point solution for airline maintenance departments.

Bytron

UK-based Bytron offers the Skybook, Skybook.aero and Skylight solutions to the airline market. Survey data was sketchy, but the company, formed in 1984, is a niche player in the emerging EFB market.
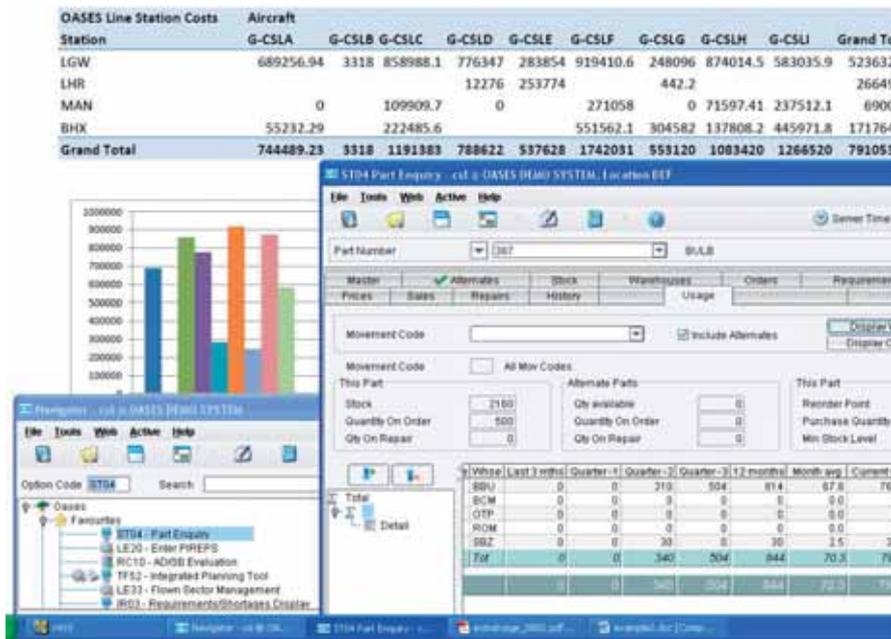
Skybook modules available include: Techlog; Flight Folder; Voyage; Library; Cabin Crew; and additional applications. For Skybook.aero, modules include: Dispatch Monitor; Flight Briefing; Cabin Crew Briefing; Operational Notices; Weather/NOTAM (Notice to Airmen) Watch; Digital Library; Analytics; Dashboard; Global Situational Display (GSD); and Flight Record Vault (FRV).

Component Control

Component Control is one of the oddities of the airline MRO software world. It provides a low-cost and light capability, mainly aimed at parts traders, small fixed-base operators (FBOs) and component overhaul facilities. It remains hugely successful in this market segment, having an almost monopolistic hold over the market. No data were received from the company, but it is confirmed that it continues to flourish.

Conduce Software

Like a growing number of new entrants into the aviation MRO point-

solution space, Conduce is a year old and provides a range of iPhone apps ranging from Fatigue Reporting to Technical Logbook. While the company admits that no customers are live yet, it has gained five orders from customers, and is seeking to break into the segment. The solutions are offered as bespoke software through to Software as a Service (SaaS). The company is based in the UK, and the software division comprises five staff, with a total of 20 in the parent company Conduce Group. This is one of several young companies that are worth keeping an eye on.

Corena

One of only a handful of S1000D technical publication solution providers, Corena continues to sell into the aerospace, automotive, energy and maritime industries. No data were returned for the survey, but from public domain information, Corena continues to compete with the likes of InfoTrust, Enigma, Euroscript, iBaseT and PTC for aerospace contracts.

EmpowerMX

Unique among the point solutions providers, EmpowerMX provides the maintenance half of a complete engineering and supply solution to the airline market. This limits its market somewhat to larger airlines that have yet to invest heavily in a fully integrated MRO solution, but just want to update and modernise their maintenance operation. Modules available include: Production Manager; Line Manager; Maintenance Program Manager; Maintenance Intelligence; and Planning

Manager. The product is Java-based and the company's customers include large airlines like US Airways and American Airlines. It currently has seven live customers, and offers the solution as an ASP option. The company has been in business for 11 years and is based in the USA.

Enigma

There are several Enigma products available from the 100-man company based in the USA, Israel and Sweden.

InService MRO, InService Job Card Generator, InService Revision Manager, InService EPC and Enigma 3C serve the technical publications niche market for airlines and MRO shops. The company has close ties to SAP and Oracle implementations, and the product can be offered as an ASP option to reduce the cost of ownership and speed up implementation time. About half of Enigma's business is in the airline industry. Started in 1992, the product has evolved into Java technology. The product suite also aims to improve the scheduling of resources and links to electronic tech logs and EFBs, with customers like KLM and FedEx.

Euroscript

Euroscript International provides solutions for content lifecycle management that help customers design, build and run content management operations of all sizes. With a market presence in over 15 countries, Euroscript serves customers in a variety of business sectors including the public sector, aerospace, defence and transport, manufacturing, life sciences, financial

services, and energy and environment. Headquartered in Luxembourg, the company offers customers like Air France the E-FOS suite of documentation management solutions. The company has added 18 new clients in the past 12 months, and while airlines account for only 5% of its business at the moment, it has three live airlines and is expecting to add more.

The product is Java-based and is developed by a team of over 80 staff out of a total of 1,350. The E-FOS products are used for browsing the illustrated parts catalogue (IPC) and aircraft maintenance manual (AMM) and for integration into an EFB.

iBaseT

With no data it is hard to comment on the Solumina product set this year. The company is still marketing to the aerospace and defence market for MRO and PLM as a competitor to the other S1000D content providers, but it is hard to determine from public announcements how successful it continues to be.

IDMR Solutions

IDMR Solutions Inc. Aviation Services group develops customised airline software designed to address maintenance documentation needs. The company started developing customised desktop applications in 1998 and now offers a range of Maintenance and Planning, Records, Flight Ops, and Ground Ops products. No survey data were received from the company, but its website claims jetBlue and AtlasAir among its customers.

Infotrust

InfoTrust continues to offer content management and aviation-specific job card authoring and printing, as well as work-content planning tools to the airline market place, which accounts for about 60% of sales. It also targets the non-aviation sectors, which make up about 10% of its business, with the balance being military markets.

The company started in 1994 and now has 230 staff based in the USA. InfoTrust's product set includes: Content Management Systems

One of the companies in the leading pack of full, integrated and deep-level software vendors is SwissAviation Software. The company favours JAVA technology and has large customers as well as smaller operators.

(ATA/MilSpec/S1000D); Content Viewers (ATA/MilSpec/S1000D); Tech Pubs (Airlines/MRO - ATA/S1000D); Tech Ops (EOs, EAs, Workcards - Airline/MRO - ATA/S1000D); and Flight Ops (Ground & EFB - ATA/Spec2300). The products are offered as an ASP with three customers using this form of product delivery.

InfoTrust has a long history in the airline market, with customers like American Airlines using the products for over a decade. The largest customer is United Airlines and eight new customers have been added in the past 12 months to bring the company's total airline customers to 40. This places it as one of the leaders in the field of content management and delivery for commercial aviation.

The InfoTrust product set covers a wide range of needs, and includes integration with manpower planning and finance systems. EFB functionality is available and it links to Boeing AHM and Airbus airN@v.
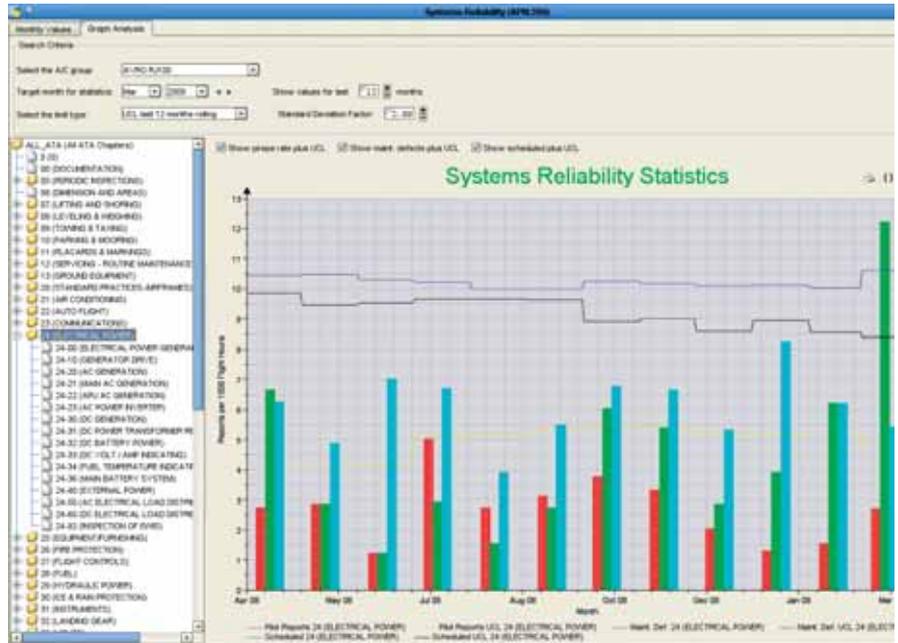
Jeppesen

While no survey response was available from Jeppesen, recent public reports of NetJets' subsidiary Executive Jet Management indicates that it has received US Federal Aviation Administration (FAA) approval to use an Apple iPad App from Jeppesen as an alternative to paper aeronautical maps. This seems to be a precedent-setting move that will set the stage for this portable EFB solution to be rolled out by business and commercial aircraft operators alike.

Executive Jet, which is the first publicly-disclosed customer of Jeppesen's so-called Mobile TC (terminal charts) iPad App - which turns the tablet into a Class 1 kneeboard EFB - is now using the solution as the sole reference for electronic charts.

Lufthansa Technik

Lufthansa Technik diversified into the MRO point solution market several years ago with a bundled software package to enhance and facilitate the execution of its third-party maintenance contracts. The technical operations websuite, called manage/m®, allows commercial aircraft operators to manage all core functions of their fleet's technical operations as an entirely web-based system online.

Manage/m® is provided at no extra costs to every customer holding an MRO contract with Lufthansa Technik. The modules of manage/m® comprise a complete range of support functions that enable operators to manage their regulatory responsibilities. Quality monitoring, reliability trends, status reports, documentation and tracking of shop events in real-time are just a few of the products available as web services.

The company claims to have secured 25 new customers in past 12 months, which is an impressive uptake, and may indicate a trend in the current climate towards ASP/SaaS type solutions to software requirements.

MINT Software Systems

MINT has changed its name, but still offers a set of specialist tools for training and regulatory compliance management for aviation MRO organisations. This year it teamed with SkySoft which provides SimUnity, a small-scale software product for airline simulator maintenance. MINT is a 29-strong German company which has offices in Colombia and UAE. Its largest client is United Airlines, and recently the company added Thales and N3 Engine Overhaul Services as the latest customers. It now has a total of 20.

Compliance & Training Management MINT TMS is applied to improve management of Flight and Cabin Crew Training, as well as Technical and Air Navigation Service Provider (ANSP) Training. The Compliance Management & Shift Planning Suite MINT MRO is used by MRO organisations to help them achieve regulatory compliance with the aviation authorities. MINT WebAssistant and MyMint are tools for staff qualification record keeping. These

modules are also used in MINT TMS. It is mainly MRO organisations that leverage its functionalities as a stand-alone system in order to manage regulatory compliance. Using MINT WebAssistant lays the foundation for MINT Shifts. The products are based upon Java and Delphi technologies.

Omega

Omega Airline Software from Texas, USA has grown slightly to 15 employees and 20 live customers, with three airlines being added in 2010. Now a .NET-based maintenance scheduling tool, AMES is the product sold and implemented for commercial airlines. Advanced Planning and Scheduling is always a difficult task and Omega does well to serve a very specialist niche requirement.

Airlines joining the AMES community in the past few years include Southwest and Air Canada. Continental remains a long-standing customer with Delta being the largest user of AMES.

Omega Airline Software is a privately owned company with headquarters in Dallas, USA. Airline maintenance software veteran Richard Reno founded the company in 1992, after 20 years working in maintenance planning and information technology for American and Continental Airlines.

Superstructure

Serving the Quality Assurance, Risk Management and Flight Safety market, Superstructure is a New-Zealand-based company with offices in the UK. It boasts an impressive list of 95 airlines for its .NET Aviation Quality Database (AQD) product, 10 of which were added in 2010 alone. Customers range across the world including US, European, Middle East and

Asian airlines, and most recently the Royal Saudi Air Force.

The company was formed in 1999 and is staffed by 20 people. AQD includes functional modules for: Safety Management; Quality Management; Risk Management; Compliance Management; Remote Workbench; Offline Capture; Automatic Email Alerts; Flight Data Monitoring Integration; and Data Export Utility (IATA STEADES). Superstructure's customers include airlines and third-party MRO shops that have implemented the tool in order to improve their maintenance error management and risk management using the Jim Reason 'Swiss Cheese' model of organisational risk analysis.

SMART4

Smart4Aviation was formed in 2010 and is already staffed by a workforce of 40. The company's headquarters are based in Amsterdam, but it also has offices in Canada, India and Poland. The product is called SmartSuite and is written in Java, aiming at the EFB and line management functions including fuelling and flightcrew briefing.

Customers already include Air Canada, KLM Dutch Airlines, Finnair, Emirates, flydubai, Thomas Cook and Air Canada Jazz. Martinair was the initial customer for the product set. The company is teamed with navAero, a long-standing player in the EFB market, TFM Aviation, which is a fuel management consultancy, and the Polish IT company AzimuthIT.

The SmartSuite products include: Smart BRIEF; Smart BRIEF CABIN; Smart NOTAM MANAGER; Smart FUELING; Smart VIEW; Smart MET; Smart OPS; Smart DOC; Smart EFF;

Smart EFB; Smart eFORMS; Smart PERFORMANCE; Smart LOAD; Smart HUB; Smart ONTIME; Smart FUEL MANAGER; Smart MISSION MANAGER; Smart ALERT; Smart COMM; and Smart VIEW+.

Smart4Aviation is an interesting new entrant to watch out for in the EFB and maintenance/operations market space.

T&A Systems

This German company, which started in 1994, is an IT service and solution provider.

T&A Systems has built up methodologies and expertise in designing solutions, especially in the areas of: network design; operations; storage and backup systems; as well as Identity-, Resource- and Information-Management. For aviation it offers Class 1 and Class 2 EFBs and supporting software modules for line maintenance staff. The product, Logipad, is developed in .NET and is live at five airlines.

The launch customer was LTU, which is still a user. The largest customer is Etihad. The 50-strong company has an interesting partnership with Ultramain and Jeppesen.

Offerings include: Logipad Ground Service Module; Class-I Device; Class-II Device; Cabin Device; Maintenance Device; Internet Update Module; and eReporting Module.

ERP solutions

These products offer a complete end-to-end enterprise-wide software package, hence the name enterprise resource planning (ERP) solutions. As with previous surveys, this market segment yielded very low response rates. Most of

the data below are public domain information.

IFS

IFS seems to have gone quiet in the aviation MRO space, both commercial airline and aerospace and defence. It is hard to tell from their website which new customers were added in 2010, or the size of the installed customer base. It seems Alitalia Maintenance Systems was the last customer to be signed, as recently as this year, with other customers quoted as Bristow Helicopters, Aero-Dienst GmbH, K&L Microwave, Hawker Pacific, Ensign Bickford, Todd Pacific Shipyards and Lufthansa Technik Qantas.

Previously known for deeper level functionality for third-party MROs and component overhaul shops, perhaps there is a continued trend away from expensive ERP back towards pure-play software and point solutions. Indeed aerospace & defence (A&D) MRO represents only a small fraction of IFS's total business in other industry verticals.

2MoRO (SAP)

Started in 2004, this 24-man French implementation and development team approaches the aviation MRO market with Aero One, Aero-Webb and Bfly as a range of packaged solutions. The company claims to have nine live customers, including Safran (Turbomeca) which has been a user for four years. Indeed, Safran also represents 2MoRO's largest customer, managing an impressive 20,000 engines on the system.

2MoRO Solutions also works with other implementation partners, currently CapGemini, Viseo and Grupo Sypsa.

The solutions include job card management and a comprehensive manpower planning capability. Of course SAP R/3 has a powerful finance functional footprint, which is one of the strengths of a full ERP solution. The 2MoRO SAP solution currently lacks an EFB or integration with Boeing AHM or Airbus airN@v.

HCL-Axon (SAP)

AXON and HCL came together in recent years to form a tailor-made aviation version of SAP R/3 called iMRO. It utilises the core of SAP R/3 and the

Component Control provides a low-cost system for the management of parts. It has almost a monopoly on this segment of the market.

power of the SAP NetWeaver technology to produce a user-friendly, powerful aviation solution. The company claims to have 75 users among the whole SAP aviation community, with six new customers for iMRO in the past 12 months.

AXON is a UK-based company that has partnered with HCL from India, and has also opened a joint office in the US and Malaysia. The company seems to have a flexible approach to partnering for implementations, quoting 2MoRO (see elsewhere in this article) as a company that it works with. In addition, HCL-Axon partners with Lufthansa Systems and SAP itself. As Systems Integrators, HCL-Axon also works closely with Price Waterhouse Coopers.

The iMRO solution is on offer as an ASP option, with one customer using it in this mode. It offers the full range of SAP functionality, together with integration to a third-party job card system, integration with Boeing AHM and Airbus airN@v. Lufthansa is quoted as its largest customer.

Oracle

Little is known about the Oracle cMRO solution, since the company has not provided any data for the survey. Nevertheless, it is believed to be implemented in Korean Airlines, American Eagle, Siberian Airlines, OGMA, Mexicana Airlines, MRS Logistica Brazil and the US Air Force.

Oracle cMRO integrates service supply chain planning, scheduling, and fleet configuration management capabilities in a single, real-time information system. The company's website sells the solution as a part of the Oracle E-Business Suite, an integrated set of applications that automates business processes, and delivers reliable information in one place. It goes on to

say that cMRO touches 22 applications in the Oracle E-Business Suite to provide an air transportation maintenance and A&D MRO service solution. It is not clear whether this means that the solution is a collection of other products in a suite, or a collection of modules within a single framework.

Nevertheless, the company remains a powerhouse in the ERP world, and is therefore a strong contender for a combined ERP and MRO system if a large organisation were seeking this type and scope of solution.

SAP

Unlike Oracle, SAP's strategy for the aviation MRO domain seems to have been to leave it to partners like HCL-Axon over the past two or three years. Again no direct data were returned as part of the survey, so publicly available information has been used for this summary.

It appears that the latest entrant into the 'packaged SAP' solution is Tata Consultancy Services (TCS) from India. A press release in late 2010 announced that TCS had joined forces with British Airways to launch 'SWIFT MRO'. This brought to the market a solution, based on the latest SAP platform, which leverages British Airways' best practices through a simplified Graphical User Interface (GUI).

TCS and British Airways claim to be bringing this product to the MRO industry so that other organisations can benefit from an end-to-end solution, which can be scaled to support both the current and future needs of the industry. The most interesting aspect of the press release was the claim that the SWIFT MRO pre-configured solution provides significant cost savings in terms of implementation when compared to competing solutions, because of the use

of TCS's proprietary solution accelerators.

Undoubtedly SAP has a long future in some form within the aviation MRO market space, but the battle between the pure-play market leaders and the ERPs seems to be led firmly by the pure-play domain.

Tier-two solutions

A range of very small scale solutions continues to be available, but most of these are not designed for any company larger than an operator of light aircraft or small helicopters. The list includes Airline-Software Inc (SPECTRUM), Amelia, Aviation InterTec Services, AV-Base Systems, Continuum Applied Technologies (Corridor), Interglobe (USA), TRACER Corp, and QAV Aviation Systems.

Summary

The market situation for MRO software has evolved rapidly over the past two years. The core pure-play market has seen some movement, with clear front runners beginning to emerge in TRAX and Swiss AviationSoftware. Other software companies, like Miro and IFS and SAP, for example, seem to be concentrating more on military customers.

Most vendors have completed the latest round in technology refreshes, but it is almost certain that the next development from Java/.NET web technology is just around the corner, and vendors will need to have well funded R&D departments if they are to continue as realistic players.

Another fascinating trend is the growth in point solutions around the edges. Some like Smart4 offer iPhone applications. This lower cost of development technology may spawn even more diversity as niche solutions are provided to niche aviation MRO and operations challenges.

Any omissions or inaccuracies will be rectified in the next survey. Please contact us to update our database in the meantime. **AC**

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