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 (M R O) organisations to buy. There is also a lot of change taking place in the M R O 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 A 320s.

This survey categorises M R O 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 M R O 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

The discussion of solutions is in five categories: pure solutions, which typically target smaller organisations; and EFB/electronic technical log (ETL) solutions, which sell software to be deployed into the aircraft and M R O shop environment to support real-time data exchange between users and the main M R O 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 M R O 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 M iami (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 DigiSM ART to enhance reliability analysis through a relationship with Casebank, another Canadian company. Aerosoft acquired its second maintenance product, PM I, in early 2004 from SITA. This had previously been bought from Rene Perez. The WinPM I 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 M alaysia. 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 M R O requirements, including: Engineering; Planning; Sales; Reliability & Quality Control; Technical Records; Material Planning; Purchasing; Cost Control; Third-Party Work; Loan Order Management; Inventory; and M R O 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.
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 robotic 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 AM AIS 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 RAMES for revenue accounting. It is not clear if the AM AIS 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.

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 M aiximo 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 M Icon Gulf Group.

MXI is successful and growing and is

MRO Software/IBM
IBM acquired MRO Software in mid-2006. Before that, M R O Software was known as PSDI, headquartered in the USA. Operating in several market segments, M R O Software’s product, M aximo, is sold to support everything from computer assets to aircraft. The M aximo 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 M R O 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. M aximo 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 is successful and growing and is

Operations; Hangar M aintenance; Shop M aintenance; Quality Control/A surance; Training; Licenses and Certifications; Financial Interface; and Tools & Ground Support Equipment M anagement.
implementing seven new customers, including Qantas and Netjets. The M aintenix modules include: M aintenance E ngineering; L ine M aintenance; H eavy M aintenance; M aterials M anagement; S hop M aintenance; and F inance.

While not used today, the product is capable of integrating with E F Bs and Boeing airplane health management (A H M ).

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 M RO 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 M RO software business for 21 years. Founded by Steve Russell and Steve Adams, the company re-wrote the Visual Fox pro system in M icrosoft.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 M RO 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 U K, 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 M RO software market, RAMCO offers one of the widest ranges of integrated M RO, finance and E F B 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 M RO 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
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 M attenance 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 M ROs, component maintenance companies and low-cost airlines. N o data is available on company size.

Swiss AviationSoftware

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. M any 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 its 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 (AM O S and manage/m), capable of being activated at the click of a button. The chosen trade name is ‘connected to manage/m’.

AM O S is the name of the product sold by Swiss-AS. It is a J ava 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. AM O S has its own Gantt charting capability, which provides more specific user functionality for an airline planner than a simple M S Project interface. This approach seems to be winning Swiss-AS customers. The AM O S product is used right across the spectrum of commercial aviation, from airlines to third-party M ROs 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

O n 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.

Tracware, the company’s name, is an affordable client-server application based on M icrosoft tools. Recent customer wins include J et A sia in M acon, N etjets and FR Aviation. M ost customers are in the M RO 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 M attenance application was released for Windows and rode the wave of Y 2K 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.

H aving 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 Flights Operations Software Vendor Company Details

<table>
<thead>
<tr>
<th>Company</th>
<th>Contact / website</th>
<th>Contact person</th>
<th>Contact details</th>
<th>Current product</th>
<th>Production technology</th>
<th>Size people</th>
<th>Years in Business</th>
<th>Number of airlines in 2006</th>
<th>New customers in 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADT</td>
<td><a href="http://www.adtech.com">www.adtech.com</a></td>
<td>n/a</td>
<td>Wings</td>
<td>unknown</td>
<td>n/a</td>
<td>1</td>
<td>12</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Aerosoft</td>
<td><a href="http://www.aerosoftsys.com">www.aerosoftsys.com</a></td>
<td>n/a</td>
<td>DigGRAFT &amp; WspFM</td>
<td>Client-server</td>
<td>n/a</td>
<td>3</td>
<td>25</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Aeropoint Datasystems</td>
<td><a href="http://www.aeropoint.com">www.aeropoint.com</a></td>
<td>n/a</td>
<td>DigGRAFT &amp; WspFM</td>
<td>Client-server</td>
<td>n/a</td>
<td>13</td>
<td>3</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Airbus</td>
<td><a href="http://www.airbus.com">www.airbus.com</a></td>
<td>n/a</td>
<td>DigGRAFT &amp; WspFM</td>
<td>Client-server</td>
<td>n/a</td>
<td>13</td>
<td>3</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>ATR Flightman</td>
<td><a href="http://www.rightman.com">www.rightman.com</a></td>
<td>n/a</td>
<td>Rightman</td>
<td>Client-server</td>
<td>n/a</td>
<td>13</td>
<td>3</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Boeing</td>
<td><a href="http://www.boeing.com">www.boeing.com</a></td>
<td>n/a</td>
<td>Rightman</td>
<td>Client-server</td>
<td>n/a</td>
<td>13</td>
<td>3</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>DAS</td>
<td><a href="http://www.das.eu">www.das.eu</a></td>
<td>n/a</td>
<td>Care Wsp, Care Fleet, EIN</td>
<td>n/a</td>
<td>n/a</td>
<td>550</td>
<td>30</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Panasonic</td>
<td><a href="http://www.toughbook.eu">www.toughbook.eu</a></td>
<td>n/a</td>
<td>Toughbook Chg/UF</td>
<td>n/a</td>
<td>n/a</td>
<td>550</td>
<td>30</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Realworld Collins</td>
<td><a href="http://www.realworldcollins.com">www.realworldcollins.com</a></td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>550</td>
<td>30</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Skyrapq</td>
<td><a href="http://www.skyrapq.com">www.skyrapq.com</a></td>
<td>n/a</td>
<td>MRO/Online/ETL</td>
<td>n/a</td>
<td>n/a</td>
<td>550</td>
<td>30</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Teledyne</td>
<td><a href="http://www.teledyne-control.com">www.teledyne-control.com</a></td>
<td>n/a</td>
<td>AirNet</td>
<td>n/a</td>
<td>n/a</td>
<td>550</td>
<td>30</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
## MRO & FLIGHT OPERATIONS SOFTWARE VENDOR PRODUCT CAPABILITIES

<table>
<thead>
<tr>
<th>Company</th>
<th>ASP offered</th>
<th>Airline (EASA/FAR 145) FMS (OPS-145)</th>
<th>Third party facilities</th>
<th>Engine overhaul shop</th>
<th>Component shop</th>
<th>Engineering &amp; maintenance modules</th>
<th>Supply modules</th>
<th>Purchasing modules</th>
<th>Native authoring/ printing</th>
<th>Maneuver time &amp; attendance</th>
<th>Maneuver detailed planning</th>
<th>Native finance &amp; accounting</th>
<th>Electronic Tech Log</th>
<th>Flight Log</th>
<th>Links to Boeing ACC</th>
<th>Links to Airbus ACC</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PURE-PLAY MRO SOLUTIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>n/a</td>
<td>n/a</td>
<td>Yes</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td>AOTI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>n/a</td>
<td></td>
<td>Aerosoft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td>Cimber Air Data</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td>Comair</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td>Infopstructure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td>MROI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td>MRO Software (IBM)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td>MIU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td>Pentacle 200SQL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>Rial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>RiaBco</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td>SaaSy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>Swiss Software</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td>Swissware</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Ultimare</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Vissker</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SPECIALIST POINT SOLUTIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td>404Tell</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>Aeroinformatics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>AvioIT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td>ARINC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>Component Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>Connex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td>Delta Systems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>EmpowerMX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>eBusiness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td>jet (rehosted)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>Omega</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td>Openconnect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>Percutive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td>Siemens (SIS)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Wavizh</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>X-Aire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ERP SOLUTIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>IFS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>Lawrence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>Lufthansa Sys (SAP)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>2MoRO (SAP)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td>Oracle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>SAP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>EFB/ETL SOFTWARE SOLUTIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td>Airbus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>AMT Flightman</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>Boeing/Jeppesen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td>DSS&amp;S</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td>Panasonic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>Rockwell Collins</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>Skywatch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td>Teledyne</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
in the USA and has an office in the UK. Selling worldwide, the product is very deep as well as broad. M any 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; SGM L manual distribution; airline purchasing & finance system link; large M RO 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@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.

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 eBoFlightLogs™, 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 M RO 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 M RO solution for airlines and M RO 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 Jordan Aeronautical to VISAer. There are no new announced 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.

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 M RO 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.

Specialist solutions

This group of solutions represents specific software that is designed to be implemented alongside a core M RO 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 fulfill 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 PM Pro™ and CheckPlan, which are aimed at heavy maintenance facilities. This solution provides significantly more specific functionality for aviation maintenance than a simple M S 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 R10 sys 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 Michael 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 R10sys) 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 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-TIM E, 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.
EmpowerMX

Formerly SINEX, the company re-branded 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.

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 OEM’s 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 (IDM S) solution. The pure XM L-based information management system for EFBs, the IDM S is powered by an advanced XM L content server. It is flexible and can provide a common user interface across fleets.

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.

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.

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). N RCs 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
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, AM D S, 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. M odules include production management, engineering, maintenance planning, maintenance execution, supply chain, purchasing, HR and finance. One key feature is the IFS Business M onitor, 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 presence in the latter through the BAe-IFS joint venture company, IFS Defence.

**Lawson**

In 2006, Lawson Software and Intentia merged to form the new Lawson. Intentia 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 Docm anage 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, 2M oro is a French company specialising in implementing SAP R/3. They have added functionality around the edges of the

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.
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 2M oR O venture has been a success.

**ORACLE**

Oracle has offered the aviation MRO marketplace various solutions over the past 15 years. The current product is ComplexM R O or cM R O, a pre-configured variant of the Oracle ERP suite of modules made for the aviation MRO market. The company’s website still advertises cM R O, 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), Avion InterTec Services, AV-Base Systems, C.A.L.M., Cambridge Online Systems (O penAIR), Amelia, Tracware (UK), Continuum Applied Technologies (Corridor), Interglobal (USA), TRACER Corp, M int M edia 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, RAM CO and Ultrimain, 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. 

To download 100s of articles like this, visit: www.aircraft-commerce.com