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ISSUE 39

Review

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Extending your Core Applications

Sir Charles Gairdner Hospital manages medical equipment with eMED

ViaTech Publishing offers customers total control

Web shop Bestel XL handles 60 percent of **Deli XL** orders

Wells & Young's standardizes on LANSA Composer

OBOS scores top marks for Onscreen Marking

Also in this issue:

APPLICATION DEVELOPMENT | E-BUSINESS SOLUTIONS | TECHNOLOGY INTEGRATION | DATA ACCESS

CONTENTS

THE LANSA REVIEW
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LANSA®
ADVANCED SOFTWARE MADE SIMPLE

Extending the value of your core enterprise applications

A WORD FROM PETE DRANEY
Director and CEO

LANSA offers a wealth of options across a choice of platforms for extending and enhancing the functionality of your core enterprise application. Whether you want to provide new and modernized functionality to your users, share information with business partners or provide better systems integration, LANSA can meet and exceed the challenge.

The **Showcase** in this issue illustrates this with dozens of high ROI and low risk project examples that have been delivered by small and productive IT teams. It's just a fraction of the customer case studies and project examples that you can find on www.lansa.com/builtwithlansa

The **Architects Corner** is about LANSA Composer, LANSA's code-free Business Process Integration (BPI) tool for use by business analysts rather than developers. Version 3 of LANSA Composer, soon to be released, further simplifies the task of building BPI solutions with the addition of a framework that provides out-of-the-box solutions for the most common BPI patterns.

The **Wells and Young's Brewing Company** case study provides one refreshing example of the myriad of ways for using LANSA Composer. Wells and Young's initially used LANSA Composer for its EDI communication with external parties. More recently they have standardized on using LANSA Composer for all their formal information exchange, both external and internal.

A second **Technical Article** in this issue is about the LANSA Repository and Data Management Services (DMS). The Repository and DMS are vital to LANSA's golden rule for software development: 'Never define logic more than once; re-use should be the norm.' From Version 12 onwards, business rules and data validations defined in the LANSA Repository are not only available to LANSA programs, but also available to any other program or utility that accesses data that has been described in the LANSA Repository. That means LANSA defined rules and validations can now protect your data even when accessed by DFU.

ViaTech Publishing Solutions is one of our many customers who developed its systems based on the LANSA Repository. ViaTech is a leading authority in on-demand destination printing. The process of uploading print files, customizing them and ordering copies to be delivered anywhere in the world is entirely automated using LANSA. The ViaTech case study shows that the major benefits of the LANSA Repository are the ease of making changes and the fact that LANSA ensures data integrity.

We certainly think of LANSA Composer as a tool for non developers, but we were a little surprised to see that even Visual LANSA is used by non-developers. The bio-Engineers of the Medical Technology and Physics department at **Sir Charles Gairdner Hospital** used Visual LANSA to develop eMED, a Windows and SQL Server based system that manages the maintenance and quality assurance for over AU$80 million of medical equipment. 'Developed by bio-engineers, for bio-engineers'.

Another case study is about **Deli XL**, a leading wholesale supplier to the Dutch foodservice market, that runs one of the largest eCommerce Web sites of Europe, both in number of orders and number of items in the assortment. Deli XL processes over two million order lines each month, of which 60 percent arrive via Bestel XL, a LANSA-based Web site.

Last but not least, please read the case study about the exam marking system of the **Office of the Board of Studies** (OBOS) in New South Wales, Australia. If you have children of your own, after reading this article you will wish that their high school exams were marked using the OBOS Onscreen Marking System. It provides instantaneous marker reliability data and promotes objective and consistent marking. It involves the uploading of several hundred thousand exam writing booklets in PDF format, while capturing oral exams in MP3 format. An outstanding achievement.

As always, the companies featured in these case studies have remarkably small and productive IT teams.

Announcing: LANSA Version 12

LANSA Version 12 marks another milestone in LANSA's ongoing quest to simplify the task of building advanced software. While LANSA Version 12 brings many new features and enhancements, some of the more significant ones listed below, it continues to support all of your existing applications.

LANSA Installation and Upgrade

The new Visual LANSA Installation and Upgrade Wizard simplifies installations, upgrades and repairs. The Wizard's layout has diagrams to make it easier to select from available configuration options. You tell the wizard what you want to do by answering a few simple questions:

- Choose the type of installation – New, Upgrade or Modify/Repair.
- Nominate the deployment architecture – Master/Slave or Local.
- Select the database.

The installation and upgrade includes SQL Server 2008 Express as the Visual LANSA development database and components of the Visual Studio 2008 Express C++ compiler and runtime.

Update Databases on Windows Servers from IBM i Programs

Do you need to read and update databases on Windows servers from your IBM i? You could already do that with LANSA Integrator and now you can do it directly from Visual LANSA as well.

From an IBM i Visual LANSA-based application, establish a connection (LANSA SuperServer) to a Windows server using a built-in function and the IBM i application can read and update databases residing on the Windows server. This feature helps preserve database consistency where data is distributed across IBM i and Windows platforms.

Wizard to Create Web CRUD Apps

Visual LANSA now includes application Wizards to help you build browser-based CRUD (Create, Read, Update, Delete) applications quickly. Just start the Wizard, answer a series of questions and the Wizard will generate a complete LANSA Web Application Module (WAM), compile it and optionally execute it.

You can use the generated WAM as a finished application, or as a framework to build upon.

LANSA Enforcement Triggers

LANSA Enforcement Triggers (database triggers or stored procedures) simplify the task of ensuring data integrity. The LANSA Repository defined rules and triggers are enforced regardless of whether the database is accessed by COBOL, Java or RPG programs, utilities such as DFU or the SQL processor or from programs using ODBC or ADO database access.

Use SQL Database Tables

You can load definitions of SQL views on tables and MySQL tables as 'Other Files' into the LANSA Repository. This feature caters for files created with SQL (without DDS).

SSL Encryption

OpenSSL Encryption to IBM i for client/server communications is available as a server-side option for secure encryption of network communications. SSL does carry a processing overhead and may reduce transfer speeds.

The handshake between server and client uses anonymous ephemeral Diffie-Hellman keys, with subsequent data transfers encrypted with a per-session symmetric key. DES and Twofish encryption algorithms are still available, but we recommend using SSL.

Unicode Support for Files

Version 12 extends support for Unicode with the Store in Unicode (SUNI) attribute to indicate that Char, String or CLOB fields are to be stored in Unicode (UTF-16) in the database.

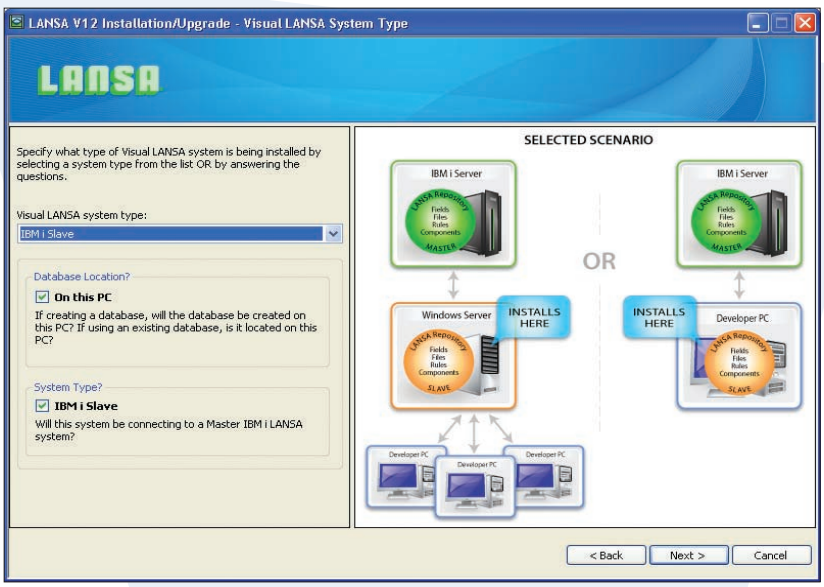
Transfer Applications to any Server

Do you need a fast method to send objects or entire applications from your development environment to a systems testing environment on another machine? With LANSA Version 12, you can specify any server as a remote server in your Visual LANSA environment and transfer objects or entire applications to the remote server with only a couple of clicks: Open the Repository tab, choose the objects (or Editor Lists) you want to transfer and select the Deliver-To option.

Long User ID and Password

Long and complex passwords assembled from a mix of upper and lower case letters, numbers and special characters are harder to crack than short and simple passwords. LANSA products in Version 12 support long user names and passwords. For example, the CONNECT_SERVER built-in function supports a 256 character user name and password.

For a more complete overview of what's new in version 12 visit
www.lansa.com/whatsnewV12



The new Visual LANSA Installation and Upgrade Wizard simplifies installations, upgrades and repairs.

Sir Charles Gairdner Hospital manages medical equipment with eMED

Sir Charles Gairdner Hospital, based in Perth, is one of Australia's leading teaching tertiary hospitals. The bio-engineers of the Medical Technology and Physics department used LANSA to develop eMED, a Windows and SQL Server based system that manages the purchasing, maintenance and quality assurance for over AU$80 million worth of medical equipment, as well as radiation safety services. eMED has proven to be such a success that, with the help of LANSA partner Lateral WA, the system is now being implemented at other facilities.

Alan Thomas, Biomedical Engineering Manager (Projects), says, "We have put our subject knowledge and empathy with Biomedical Engineering into building the eMED system. Using LANSA, we have been able to deliver a very professional solution. eMED helps us to manage the equipment from cradle to grave, provides technical support and complies with strict regulations."

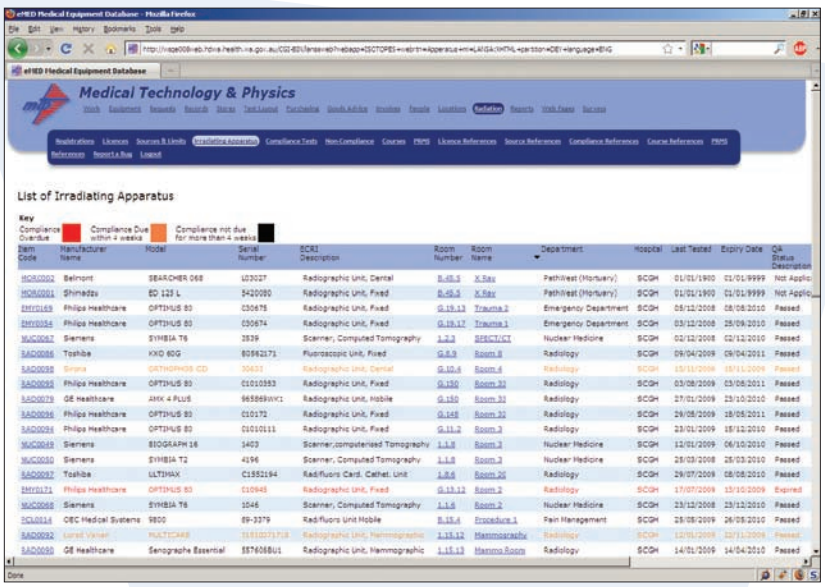
No Suitable Packaged Solution

Sir Charles Gairdner Hospital (SCGH), a major hospital within Western Australia's North Metropolitan Area Health Service, has over 600 beds and 5,000 staff who treat over 420,000 patients every year.

The Medical Technology and Physics department (MTP) of SCGH provides management and training services in medical and scientific equipment, medical physics, radiation health, radiopharmaceutical production and diagnostic services in visual electrophysiology. MTP also offers technical and scientific advice on radiation management, the purchase and operation of medical equipment, software and consumable items, and solving of problems related to their use.

MTP's customers include over 30 departments of SCGH, such as the operating theaters, intensive care and emergency departments. Various other medical and educational institutions in the Perth area also make use of MTP's services.

MTP manages sophisticated and expensive medical equipment, such as: Medical Networks, Patient Monitoring Systems, Anaesthesia Systems, Operating Theater Equipment and Instrumentation, Ultrasound, MRI, CT Scanning and Radiation Monitoring.



eMED manages all activities throughout the life of medical equipment, including the scheduling of regular performance and compliance tests.

In any modern hospital, biomedical engineering plays a vital role in positive patient outcomes. Due to the critical nature of these activities, there are very strict procedures that need to be followed, such as regular compliance and safety checks. The people who use or maintain medical equipment need to have suitable qualifications and expertise. Records need to be kept of all activities within the department, including patient records.

"We have been able to streamline the process from start to finish."

Until recently MTP was using an in-house developed Clipper based system that had been fine-tuned over a period of 25 years. "It did exactly what we wanted it to do, but it was limiting our ability to interact with customers," says Alan. "Only MTP staff could access the system and all customer inquiries were dealt with by phone or email. As both the volume of data and the number of customers were growing, that system could not continue to support us efficiently."

"Having developed the existing system ourselves, we had a deep understanding of the application and the knowledge of what works and what does not work. We did not want to lose any of the functionality that we already had."

Alan looked at what other hospitals have implemented and at several packaged solutions, but did not find anything suitable. He stated, "Most packaged solutions are huge and have tons of fields and options that we do not need, but at the same time they lack in some of the precise functionality that we do require. Other packages are too thin, just database recorders with hardly any intelligence built into their programs."

"Our enquiries led us to seek advice from Lateral WA. They suggested that LANSA would be an ideal solution to our management upgrade. We evaluated LANSA and liked its high definition language and data definition Repository. With training and support from Lateral WA we felt confident to embark on the project and develop the new version of eMED ourselves," said Alan. ➔

By Bio-Engineers for Bio-Engineers

The eMED system is designed and developed by MTP's biomedical engineers – Zeljko Maurac and Jonathan Stafford – and Steve Crossley, a radiation physicist. All learnt programming in university, but none of them were trained as software developers.

After a four day Visual LANSA training course by Lateral WA, the engineers set out to develop the system, planning for a rich-client user interface, but very soon realized that a browser interface would be more suitable, as it would not require any other software than a browser on the users' desktop. They attended a few more days training in LANSA Web Application Modules (WAMs) and after that they worked on the system by themselves.

Jonathan Stafford, Biomedical Engineer at MTP, says, "Lateral WA provided the initial training and was available in case we needed assistance. They also assisted us, along with our IT department, to setup the Windows Application server and SQL Database server."

eMED is now available to customers on the SCGH Intranet, allowing them to view details of their medical equipment and request services. eMED's functionality includes Medical Equipment Inventory and Management, Radiation Physics, Statistical Information, Purchasing and Invoicing, Business Contacts and Staff information including training and qualifications.

eMED manages all activities throughout the life of medical equipment. Any repairs or testing of equipment is logged through a work order. Regular performance and compliance tests are scheduled, flagging users when equipment is due to be tested. Spare parts purchase requests are triggered when minimum quantities are reached. LANSA Integrator's email functionality is used to keep all users up-to-date with relevant information.

SCGH will soon implement a wireless real-time patient equipment tracking system which will integrate with eMED, possibly using LANSA Integrator. Future plans also include integration with a Theater Instrument Maintenance system.

ISO Accredited

"We are a technical support facility for the hospital. We have put our subject knowledge and empathy with biomedical engineering into building the eMED system. eMED is not just a generic asset management system. It is a purpose built management system and is tailor-made for medical equipment and radiation physics activities, built by medical engineers," continues Alan.

"We are an AS/NZS ISO 9001:2008 accredited department, which guides all functions within the department. eMED integrates with and enhances our documentation system, simplifying document control and indexes, while also providing easy access to relevant documents. eMED enables us to keep our records paperless and produce reports only when required."

"By giving customers online inquiry and work order access, they are now far better informed. Of course we are still involved in reviewing their requests and giving advice, but because orders are now remotely recorded and the workflow is automated, we have been able to streamline the process from start to finish and record all the steps as requests go through."

"LANSA was easy to learn and we are fortunate that we have people with development skills in our engineering team. If we find something in the system that can be improved, we can do that ourselves immediately. We do not have to wait and budget for the services of a third party."

"Being in control of the solution also allows us to meet special requests from our customers. We have very fine control of all the records of medical equipment, current and archived. We imported the data from the old system and we can now use LANSA-built dashboard facilities in eMED to graphically analyze historical information going back over 25 years, which is very valuable," says Alan.

In any modern hospital, biomedical engineering plays a vital role in positive patient outcomes.

"Using LANSA we have been able to deliver a very professional solution."

Still Evolving

With the help of Lateral WA, eMED is currently being implemented at the Biomedical Engineering Department of the Western Australia Country Health Service, the largest country health system in Australia.

"We want to be the leading biomedical and physics organization in Australia. To that end we are always looking for a better way of doing things. The eMED system is the evolution of all that," said Alan.

"The eMED system is a sophisticated management system that has gone far beyond our original scope and it is still continuously evolving. LANSA gives us the flexibility to let eMED do what we want it to do and to give authorized users secure access to the information. Using LANSA we have been able to deliver a very professional solution," concludes Alan. ■

Company and System Information

- Sir Charles Gairdner Hospital is one of Australia's leading teaching tertiary hospitals and has an international reputation for ground breaking medical research. For more information visit **www.scgh.health.wa.gov.au**
- Lateral WA, a LANSA partner located in Perth, Western Australia, delivers a flexible and cost-effective range of IT and business services. For more information visit **www.lateralwa.com.au**

ViaTech Publishing offers customers total control

ViaTech Publishing Solutions, headquartered in New York, is the authority in on-demand destination printing. Through its facilities and partners in the U.S., Europe and Asia, customers can create content locally and print globally. The process of uploading print files, customizing them and ordering copies to be delivered anywhere in the world is entirely automated. ViaTech's core IT system, Web portal and systems integration are all based on LANSA technology. The solution is developed and maintained by a small team of analyst developers, from both ViaTech's own IT department and LANSA business partner ML Info Design.

Mike Palma, Director of IT, says, "We realize substantial processing efficiencies as ninety percent of our orders are received electronically. Nowadays, the IT services around the printing process are a major selling point. The systems we have developed with LANSA are sophisticated and play a major role in getting new customers."

Maintenance and Data Integrity

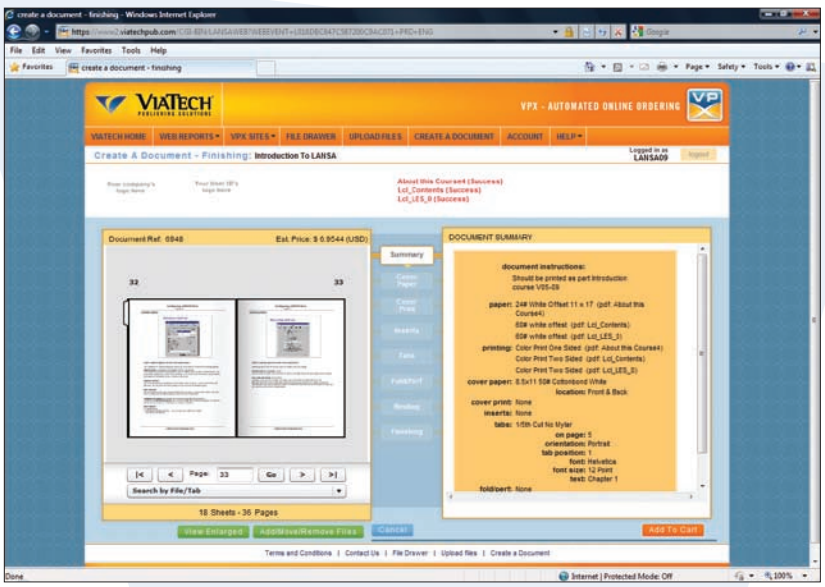
ViaTech's publishing services are based on a combination of advanced JIT (Just-In-Time) manufacturing concepts and emerging print-on-demand technologies, allowing customers to eliminate inventory costs and reduce shipping expenses.

"We store the document file and print it when the customer needs it," explains Palma. "That way the customer saves in costs associated with storing inventory and throwing away out-of-date materials. The other way we save customers money is by printing close to the end destination — this can save our customers hundreds of thousands of dollars in shipping costs."

ViaTech's on-demand business model requires a flexible and robust IT system that can communicate instantly and 24 hours a day with its global customers. "The current system, developed with LANSA, does the job very well. Prior to LANSA we had an RPG legacy system that couldn't meet our requirements anymore."

"Our biggest problem was database integrity. Also, making a small change, such as adding a new field or creating a new file relationship, would take weeks," explains Palma, who came from a PC background and didn't think that database changes should be such a big deal. "I decided early on that we had to redevelop the whole RPG legacy system."

Palma, who after some research had already put LANSA on his short list of tools, then discussed his requirements with LANSA business partner ML Info Design, who helped with further evaluations of LANSA. "I learned that LANSA's central data definition Repository ensures database integrity and practically removes the need for recompiling programs after a database change. The fact that LANSA offered not only development tools, but also integration tools was another big plus. So we made the decision to go with LANSA and reengineer the entire legacy system."



The thumbnail view of the document the customer is working on is continuously updated as they select options.

"Our IT systems play a major role in getting new customers on board."

Core, Web and BPI Solutions

The initial system development, from requirement analysis to implementation, took one and a half man years.

"We cut over during a weekend and we were running with a brand new system that included the entire business logic of order entry, billing, inventory, purchasing and financials. Considering the size of the project and the small development team, we delivered the system really fast. LANSA's framework development tool certainly turned out to be a great investment," reflects Palma.

Having a solid and well architected foundation in place, Palma then started looking at extending it to customers over the Web. "Web and eCommerce were still quite new and no one had any prior experience. Using LANSA's Web tools we started building our Web application from scratch. That project took just over a year and we delivered ViaTech Publishing Express (VPX), a very sophisticated Web solution, even by today's standards."

Using LANSA Integrator, customers can upload PDF files and once the files are on the server, thumbnail images are created. This allows customers to look at their documents online and flip through the pages.

Marc Leonard, Analyst Programmer and Director of ML Info Design, explains, "Some PDF files are set up with input fields, for example, to customize training course details. Using LANSA Integrator, the site allows customers to click on the PDF and input the fields."

Customers can combine multiple PDF files into a single document and re-sequence them

to build the content they want. Next they can select from various finishing options, such as paper quality and cover. They can insert blank pages and tabs and select from several folding and binding options. The price and the thumbnail view of the document the customer is working on are continuously updated as they select options.

After the customer has entered shipping instructions, LANSA Integrator queries the UPS Web site to find out the expected shipping fee. When the customer chooses to pay by credit card, LANSA Integrator connects to the credit card company to process the payment.

"We are using some other tools to create the thumbnail images and flip through them, but the rest is handled by LANSA," explains Leonard.

A growing number of ViaTech's customers have their own internal systems to manage print materials. For example, one of these customers, a global ERP vendor, has a sophisticated learning management system that they use to set up dozens of training classes each day all over the world.

Naturally these customers do not want to do any double data entry and repeat their course material orders on ViaTech's Web site. So Palma put a LANSA Integrator based solution in place that takes the XML order documents from the customer and parses them directly into the core IBM i system for printing and delivery.

A Major Selling Point

"We now receive around ninety percent of our orders electronically," explains Palma. "Taking orders electronically has allowed us to streamline the entire ordering process, ensuring that we are getting the correct information directly from the customer. Accuracy has improved tremendously. Plus we have been able to reduce overhead costs by eliminating most of the manual data entry. We have achieved substantial savings."

"All order methods are seamlessly integrated. Whether an order comes in via XML, our Web portal or whether it is entered by customer service staff, the orders all go into the same database, on the same box and flow through the same billing and inventory processes."

Palma notes that the IT services around the printing process are nowadays extremely important and a major selling point.

ViaTech is a complete resource for printed and collateral materials such as books, binders, index tabs, CD and DVD replication, media packaging, offset printing, posters and more.

"Without LANSA we could never have a team that small."

"Customers don't just ask about our printing capability. You need to be able to offer the complete technology solution, customized to individual needs."

"Customers want to know about our IT capabilities. They ask how they can get their orders to us. How they can look at their documents online and how we can integrate our system with theirs. Through LANSA we are able to provide all these services. The IT systems we have developed with LANSA are sophisticated and flexible, and play a major role in getting new customers on board.

"Using our IT systems, we can offer our customers total control over the coordination of their print materials. They can control the uploading, editing, printing and delivery from any location."

Small Team Handles all Projects

Palma plans to continue using LANSA to enhance existing systems and to deliver new functionality. Recent projects include a new lead management system and building XML/XSL-based browser applications using LANSA Web Application Module (WAM) technology, which will allow the delivery of content in multiple formats from a single WAM component.

"A major benefit of LANSA and its Repository is the ease of making changes, whether it's adding a new field or modifying a screen. That is what first attracted us to LANSA and what we still see as its major benefit today," says Palma.

"The second benefit is the integrity of the data. Referential integrity and accuracy is something LANSA customers take for granted, but a lot of other organizations cannot claim the same. Last, but not least, I like the fact that LANSA keeps coming out with new and improved products, plus the fact that these new technologies integrate flawlessly with the existing core system."

Leonard concludes, "As a software consultant using LANSA I have been able to offer my clients Web site development, business process integration and development of core applications. Many different areas that one person could not possibly master if it would involve learning Java and other tools."

Palma agrees, "With a small development team and using a single LANSA skill set we can develop and maintain our core IT system, Web portal and system integration. Without LANSA we could never have a team that small. ■

Company and System Information

- ViaTech Publishing Solutions is a world leader in worldwide on-demand destination printing. ViaTech serves over 4,000 customers around the world in a variety of industries. ViaTech is a private corporation with over 400 employees, headquartered in Bay Shore, New York. For more information visit www.viatechpub.com
- ML Info Design is a LANSA partner in Haworth, New Jersey, with a proven track record of reengineering business systems across multiple industries. For more information visit www.mlinfodesign.com

Web shop Bestel XL handles 60 percent of Deli XL orders

Deli XL, a leading wholesale supplier to the Dutch foodservice market, offers and reliably delivers an assortment of over 60,000 food and related products and services to its 30,000 customers in the hospitality, catering and institutional markets. Deli XL receives over two million order lines per month, of which 60 percent arrive via Bestel XL, an interactive Web site based on LANSA technology. Deli XL also uses the Visual LANSA Framework for extensions to its core ERP system.

Arnold Hendriks, Application Development Manager at Deli XL, explains, "Because of Bestel XL's flexible architecture, which allows our customers to set up their own Web and order preferences, we are able to support the order process of our large institutional customers, as well as the small restaurants."

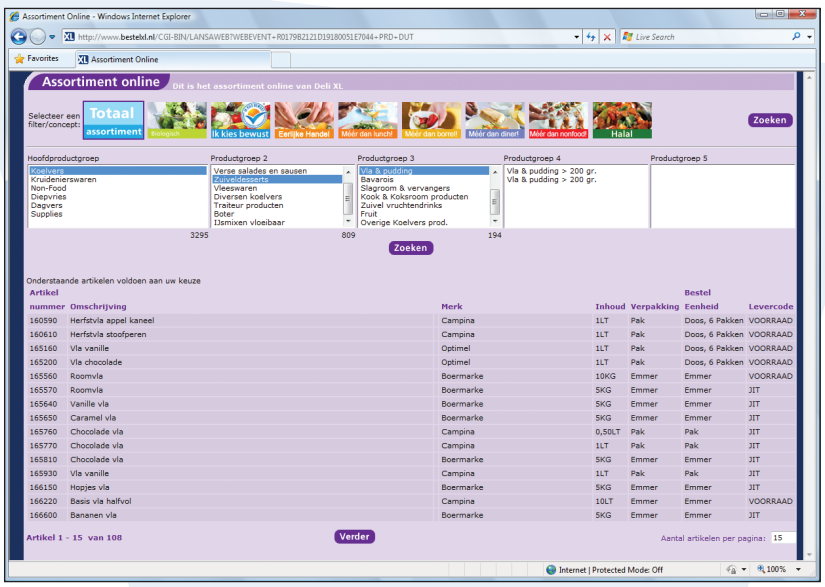
Always a Pioneer

Deli XL has been a pioneer in offering its customers online order facilities since 1999 and was at that time one of the first companies in the Netherlands to build its eCommerce Web site on the AS/400, the predecessor of the IBM i.

Hendriks explains, "We are a long-time user of the IBM midrange platform, at first using the System 38 and after that the AS/400 and its successors. Initially we developed our systems with RPG, but in 1994 we decided to speed up the development process with a 4GL. After gaining advice and evaluating the options, we chose LANSA as it was the best fit for our organization."

"From then on we developed all new applications with LANSA and replaced some hard-to-maintain RPG applications with LANSA as well. LANSA is far more productive than RPG. Moreover we have improved the quality of our programs and reduced maintenance costs by centrally defining and maintaining the business rules in the LANSA Repository."

It was never the intention to invest in the redevelopment of RPG systems that ran without problems, according to Hendriks. That's why there is still a lot of RPG logic to maintain today. Deli XL also uses packaged solutions, such as PeopleSoft Financials and specialized systems for sales support. When the Internet started to gain popularity, Deli XL was the first in the Dutch foodservice industry to offer its customers online ordering. "One of the most important criteria was that the Web site had to be fully integrated with the back-end ERP system, allowing customers to place their orders in real-time against the actual stock-on-hand. LANSA had just launched their first Web development tool in 1998, so we started working with that," says Hendriks.



Assortment Online very smartly clusters products in main groups and sub groups, allowing customers to explore the assortment superfast in a drill-down fashion.

> **"Fast search facilities are essential with an assortment of over 60,000 products."**

Continuous Improvement

Since its initial launch, Deli XL has released a new Bestel XL version at least once a year. Initially all development was in-house, but Web development has been outsourced to LANSA partner SOLAR IT since 2004.

"The current version has a significantly improved 'Search' facility, which is essential with an assortment of over 60,000 products!" remarks Hendriks. "Customers can search within their 'personal work-list' of previously ordered products, or through the entire product range using various search criteria."

"In addition, we offer 'Assortment Online', a supplementary LANSA Web application which makes it easy to quickly find your way through the assortment," explains Hendriks. "Assortment Online very smartly clusters products in main groups and sub groups, allowing customers to explore the assortment superfast in a drill-down fashion."

Other recently introduced improvements include showing product images; being able to work with fixed quantities; extended order history; enhancements to avoid double ordering; and wherever possible, displaying both per item and per kilo prices. Moreover, Bestel XL now remembers the user's preferences, for example a specific sort sequence or whether to show prices including or excluding GST, removing the need to set the preferences for each order session.

Hendriks explains, "Because of Bestel XL's flexible architecture and because users can work according to their own preferences, we are able to support the order process of our large institutional customers, as well as the small restaurants."

Better Customer Service

The Deli XL Customer Contact Center is responsible for the application management

of Bestel XL, from a functional point of view, making sure that relevant customer comments and suggestions are applied in the next version of the site.

Maarten van Riessen, Customer Contact Center Manager at Deli XL, explains how Bestel XL has improved the relationship with customers, "Our overall contact with the customer has become more profound as the superficial routine of going through the order list is now taken care of by the site."

"Traditionally we were the order entry department. Now we are the Customer Contact Center and Bestel XL forms a completely integrated part of our customer service. We improved customer service significantly. The focus is on the customer and how the customer places their order is only one of the topics of conversation."

"Accuracy has improved throughout the entire sales process. We now have less than ten per thousand erroneous order lines. That's including errors caused by the customers themselves, so it is an extremely low error rate."

"The 24x7 availability of Bestel XL is also of importance. Some of our small hospitality customers only know in the evening what they want to order for the next day. Using Bestel XL, customers are always up-to-date with the latest assortment changes and inventory. There is no other media that contributes so much to customer satisfaction."

Complaints Management

Deli XL recently implemented a new Complaints Management System (KMS). The KMS, developed with Visual LANSA Framework, is deployed on Windows rich-clients and uses an IBM i database server.

The KMS supports the entire process of registering and resolving a complaint, providing access to every staff member that may need to get involved, from corporate accounting to branch delivery.

In the last few years, as the order entry workload in the branch offices has evaporated, Deli XL has been gradually working towards a central Customer Contact Center, but the deliveries still take place from local branches. Without a smart Complaints Management System that is accessible by staff throughout all departments and branches, it would be impossible to solve urgent problems quickly.

Deli XL offers an assortment of over 60,000 food and related products and services to its 30,000 customers.

"We have improved the quality of our programs and reduced maintenance costs."

Customer complaints are now centrally reported and registered. The customer automatically and instantly receives a KMS generated email message as a confirmation that their complaint has been registered. At the same time, email alerts, explaining the problem and the desired solution, are sent to the responsible branch or department. The KMS is instantly updated with any status changes to the complaint and its resolution.

Van Riessen explains, "The KMS also supports us tremendously in gaining a better understanding of complaint data and statistics. Some of our customers receive weekly KMS reports. This is especially useful for our bigger accounts where the head office wants to know what complaints their branch locations have reported to us. This overview of Key Performance Indicators is a high quality additional service that we can now offer our customers."

"We deliver a total food and drink service and many customers are completely dependent on us for being able to serve their guests the right meal. Being able to resolve complaints quickly and fix potential problems is of the utmost importance. Complaint management equals customer management. Our annual customer satisfaction survey clearly demonstrates the appreciation our customers have for the new efficient KMS," says van Riessen."We receive on average 2,000 customer calls per week regarding issues that are worth formally registering. With that kind of volume it may be interesting to offer online registration as an alternative. However, even in the online scenario, our thinking is always to follow up with a personal phone call."

A Fantastic Score

"In addition to collecting 60 percent of our orders via Bestel XL, another ten percent arrives via XML," says Hendriks. "So altogether we receive 70 percent of our orders electronically. That's a fantastic score, positioning us well ahead of the pack. The benefit of Bestel XL above the XML order method is that the site immediately shows whether there is enough inventory, and in case there isn't, it will propose a comparable alternative."

"We have provided our customers with a choice of efficient ordering methods. We now consider offering additional functionality via the Web, such as online inquiries to invoice and account details," concludes Hendriks. ■

Company and System Information

- Deli XL employs over 2,000 staff at 18 branch offices across the Netherlands and its head office in Ede. Deli XL has over 30,000 customers, including hotel chains, leading restaurants, fast service companies, hospitals, retirement homes, detention centers, company restaurants, catering companies, recreation and theme parks, convention centers and petrol stations. Deli XL is a member of the Bidvest Group, an international trading and distribution organization headquartered in South Africa.
  For more information visit **www.delixl.nl**

Wells & Young's standardizes on LANSA Composer

Wells and Young's Brewing Company is the U.K.'s largest privately owned brewery and a leader in cask beer and premium lager. The company's portfolio includes some of the U.K.'s best loved beers and premium lagers, including Wells Bombardier, Young's and Courage, Red Stripe and Corona Extra. Wells and Young's is standardizing on using LANSA Composer for its EDI communication with external parties, as well as for establishing a formal process for exchanging customer product information between its System21 ERP implementation and various other internal systems.

Phil Bly, Head of IT at Wells and Young's Brewing Company, says, "With LANSA Composer we now have a toolset that enables us to do native EDI AS2 transmissions directly to our distributor. From an IT point of view that gives us total end-to-end visibility. We didn't have to hire an EDI specialist and managed to deliver the solution in just over eight weeks. The process is now far more efficient."

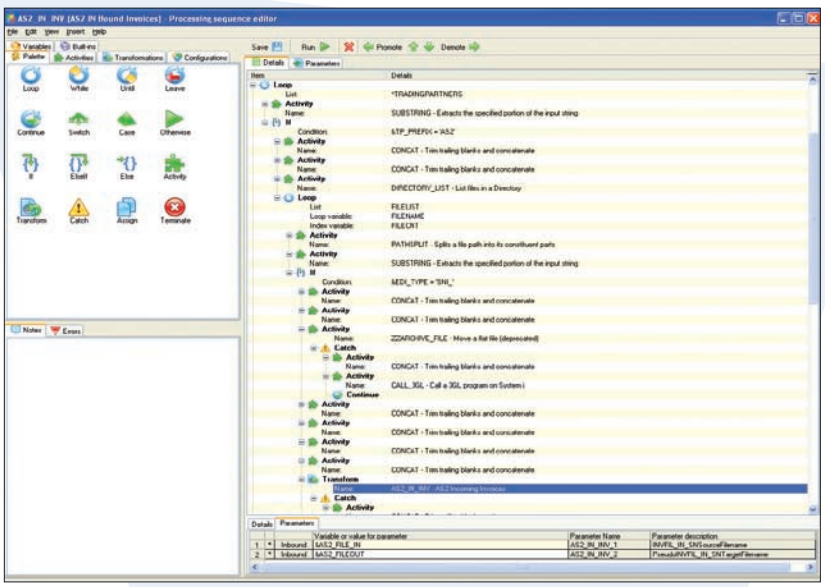
Too Many Links in the Chain

Wells and Young's beers are brewed using techniques over a hundred years old, but in one of the country's most modern breweries. Wells and Young's Brewing Company was formed in 2006 from the brewing and brands divisions of Charles Wells Ltd (based in Bedford) and Young and Co plc (based in Wandsworth), to form Britain's largest private brewery.

The high profile merger gave the company an unrivalled portfolio of cask beer and premium bottled ale to specialty premium lagers, including two of the fastest growing national brands, Young's Bitter and Wells Bombardier. In 2007, the company acquired the iconic Courage portfolio of beers.

Wells and Young's is operated as an independent company and both Young's and Charles Wells continue to operate their pub estates independently of each other.

"The large volume of orders and deliveries of the merged organization required a change in logistical procedures," explains Bly. "Soon after the merge we started a program to outsource our secondary deliveries (pubs) and primary deliveries (wholesalers and retail chains). A Blue Chip logistics company was chosen to initially take on the secondary deliveries for what were previously the Young's deliveries in the London area. This external service was then extended to cover the primary operation and finally in 2009 the secondary deliveries for Wells and Young's Bedford operation.



The processing sequence editor made it easy to define business activities – such as AS2 inbound invoices – without any coding.

"So our total distribution has gone to a single third party," comments Bly. "From a systems point of view, this meant that we had to feed all the order information to our distribution partner. Previously we did this by extracting order information from our System21 into a flat pseudo EDI file, which we transmitted to our message broker. The broker would translate our pseudo EDI file to proper EDI transactions and transmit these via another VAN (Value Added Network) to our distribution partner."

"Efficient EDI communication is critical in getting product on time to our customers."

"With our large volume of data and the utilization of a message broker and VAN, the EDI transmission became quite expensive. The added EDI volume for our primary and Bedford based secondary deliveries would have pushed up transmission costs even further. So, that was a good driver to make changes to the EDI process."

"But of equal importance to us was that we had no end-to-end visibility. If something didn't work as expected after the file had left Wells and Young's, we didn't know where it went wrong. The orders could be stuck either with our message broker, they could be stuck at the second VAN or maybe our distribution partner had never processed them. There were just too many links in the chain."

There was also a timing issue, according to Bly. "After each transmission we had to wait for an acknowledgement to come back from our distribution partner before the next batch of orders could be sent. The process of sending out a batch of orders and waiting for the acknowledgement could take up to an hour, because of the multiple steps and parties involved."

"If we encounter data or transmission problems, especially at the end of the day, distribution costs could escalate. The standard industry procedure is to place an order on day one and receive the goods on day three. If one day is lost because of EDI problems, then the distributor has effectively been given one day's less notice, which has a cost implication."

"Efficient EDI communication with our distributor is critical in getting product on

time to our customers, so we started to look for a solution that let us speedup the process and give us better visibility," explains Bly. "We wanted a toolset that would enable us to do native EDI transmissions with reusable components directly from Wells and Young's, rather than going through a VAN."

Meeting the Deadline

"Initially we looked at a specific EDI software package. It was good at generating EDI, but it was too complex and didn't solve some of the problems we had. We needed an AS2 solution, as well as mapping and translation into the TRADACOMS format." Bly was already aware of some of the LANSA tools and with further research he became aware of the LANSA Composer product.

"LANSA Composer's AS2 solution with its facility to map to EDI formats like TRADACOMS gave us exactly what we needed," says Bly.

"From the moment of purchase we had a tight deadline of just under 12 weeks. Once the dates had been set for changing over the distribution operation it was critical that the IT solution was delivered on schedule. Using the LANSA Composer software we managed to deliver and implement the solution on time."

"From an implementation point of view, everything went smoothly. The few small issues we had were fixed very quickly. Also, the solution was easy to integrate with our RPG-based Sytem21 implementation."

"We didn't have to hire an EDI specialist. We delivered the solution with internal resources using Composer's mapping facility and Altova's data map examples for TRADACOMS. We now have a mechanism in place to take the raw data as we extract it out of System21 and compose that into the required EDI format and transmit that using AS2."

End-to-End Visibility

"We achieved the budget savings that we were looking for. We save significantly in transmission costs by sending orders directly to our distribution partner and not having to use a VAN service. There are other savings and efficiencies as well," continues Bly.

"The cycle of sending our orders to our distribution partner and receiving their acknowledgment back now takes an average of 10 minutes, rather than the 40 to 60 minutes it took previously."

Phil Bly (middle) with the LANSA Composer project team Colin Lapping and Karen Rich.

"We didn't have to hire an EDI specialist."

"Those 'end of the day' pressure situations where we cannot get our orders through before 6:00 pm have disappeared, together with the penalties that apply in those situations. We have good control over what we are sending and get a quick turnaround."

"From an IT point of view we now have total visibility," continues Bly. "We know the exact status of each transmission and where our orders are at. In case of any delays, it's between us and our distribution partner."

After implementing the initial EDI solution, Bly implemented several other EDI solutions with other partners, also using LANSA Composer. "LANSA Composer is becoming our standard middleware for any external communication and internal ETL (Extract, Transform and Load) solutions."

"Because LANSA Composer let's us work at a high level, the solutions we have created seem all very similar from a technical point of view, even though some of them had a completely different EDI protocol underneath."

A Common Platform

Bly and his team are in the process of re-engineering EDI solutions that were put in place before they had LANSA, both for inbound and outbound EDI. "We are working towards making LANSA Composer our common platform for all inbound and outbound EDI communication," says Bly.

In the near future Wells and Young's are also going to use LANSA Composer for data integration between various internal systems. For example, Bly wants to establish a formal process for managing customer product information between Wells and Young's System21 and Aurora ERP solutions, Kelros CRM, Lotus Notes and an in-house developed Enterprise Information System.

"We are standardizing on using LANSA Composer as the glue between our System21 ERP and formal communications with other systems," says Bly.

Standardizing on LANSA Composer will not remain restricted to the IBM i platform either, as Bly is in the process of using the same LANSA Composer technology in Windows and SQL Server based environments as well.

Bly envisions an IT environment where Wells and Young's core business activity is managed mostly with IBM i-based systems, but where Windows and SQL server-based solutions play an increasing role.

"System integration between the IBM i and Windows-based solutions is of importance and LANSA plays a big role in that as well," concludes Bly. ■

Company and System Information

- Wells and Young's Brewing Company is the U.K.'s largest private brewery. All of the Wells and Young's beers are brewed with the accredited natural mineral water from the brewery's very own well, sunk over 100 years ago. Wells & Young's brews and distributes some of the U.K.'s favorite ale brands and some of the world's most famous lager beers, including: Bombardier, Young's, Courage, Red Stripe, Corona Extra and Estrella Damm. For more information visit www.wellsandyoungs.co.uk

OBOS scores top marks for Onscreen Marking

BOARD OF STUDIES NSW
MARKERS ONLINE

The Office of the Board of Studies New South Wales is the certifying authority responsible for the content of syllabus materials, registration of non-government schools, and delivery of high school examinations for New South Wales, the most populous state in Australia. LANSA's development and integration tools have been at the heart of the Board's IT infrastructure since 1989. Recently the Board chose LANSA to develop and deliver an Onscreen Marking application as part of its eAssessment program. Onscreen Marking allows markers to view and mark onscreen a scanned image of students' written exam responses, or the students' responses entered or spoken online.

Mitra Bhar, Manager IT at the Office of the Board of Studies NSW, says, "It is important that we continue to investigate how advances in technology can provide improvements in our examination and assessment programs. LANSA's technology and the IBM i platform help us to provide accurate, highly reliable and secure solutions to meet the requirements of our core business."

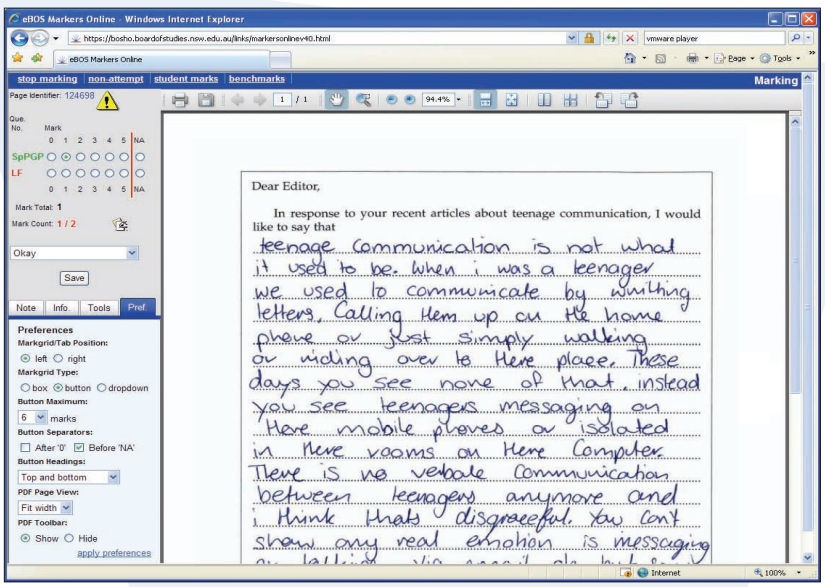
The Logistics of Exams

The two main qualifications which the Office of the Board of Studies (OBOS) administers are the School Certificate (SC) and Higher School Certificate (HSC). In recent years over 87,000 Year 10 students took part in the SC examinations and over 68,000 Year 12 students in the HSC examinations. Most of these students take at least six examinations. Recent HSC exams included over 110 different examinations for a wide variety of subject courses. Students worked from 13 million printed pages of questions and submitted their answers in 1.75 million writing booklets.

The setting, conduct and marking of the examinations is a huge logistical task, which involves over 5,000 examination supervisors at 750 exam centers, 7,000 markers assessing practical and written examinations at over 20 marking centers across the state, and more than 750 casual clerical staff.

The appointment system for exam supervisors and markers and the collection of the actual marks has been managed with a LANSA-based solution for many years, but the marking process itself, except for multiple choice exams, was mostly paper-based.

The marking process consumes a significant proportion of OBOS's annual budget.



Markers can set their screen preferences, such as left or right mark boxes or buttons.

Accordingly, streamlining the marking process can have a major effect on the OBOS's cost-effectiveness.

"The Onscreen Marking System provides instantaneous marker reliability data."

Marking Procedures

In order to assure a fair outcome for all students, the marking process for written exams is highly structured and sophisticated. The process involves chief examiners, who have been involved in designing the exam, supervisors of marking, who manage the marking operation in a subject marking center, senior markers, who are typically teachers with extensive marking experience and markers, who are experienced teachers or academics.

After being briefed about marking guidelines by the chief examiner and supervisor of marking, the senior markers will develop a marking kit for the exam section they are responsible for. A section can consist of one or more questions. There are usually at least two senior markers for each exam section. To develop the kit, they first read through a large number of actual scripts (the written responses by students) to get a feeling for the exam at a practical level.

The marking kit needs to include at least one complete set of scoring benchmark examples, such as scripts scoring '5 out of 5', '4 out of 5' and so on. The kit also contains detailed marking guidelines and sample markings. The kit is then tested by other senior markers, again on a representative sample of actual scripts. During this process 'marking reliability statistics' are calculated to demonstrate whether a kit is working well, or whether further fine-tuning is needed. None of the marking during this process, which may take several days, is final.

Next the markers arrive at the marking centers to prepare for and do the real marking. Again, each marker is responsible for only a specific question or section of the exam. Markers first need to go through a number of 'practice scripts' to get them on the same level of marking as the senior marker has set out. When a marker consistently marks in the

expected range on the practice scripts, he or she is ready to start marking real scripts.

The senior marker, who looks after a team of 5 to 10 markers, will randomly insert so called 'common scripts' in between the real scripts, which serve to check and make sure that the markers stay fresh and accurate and keep marking within the intended range.

Extended responses and essays are marked independently by two markers and the final mark is the average of the two. If the two marks vary by more than one third of the maximum mark, a third marking will be undertaken, and a senior marker will determine a 'resolved mark'.

Onscreen Marking

Muir Mathieson, Senior IT Consultant, OBOS, and technical project leader for the Onscreen Marking System, explains, "The onscreen marking process begins with the color scanning of the writing booklets or question and answer booklets the students have submitted and, using LANSA's integration tool (LANSA Integrator), upload them in PDF format into the IBM i-based marking system."

"In that process a custom written LANSA Integrator PDF service takes care that the number of pages is validated, that student and exam center identification details are masked and that the page images are reassembled as required for marking, so that markers only get to see the exam section they need to mark. The LANSA Integrator service also sets the PDF properties and saves the documents to their proper file name."

Authorized markers can access the scanned scripts remotely over the Internet, or from one of the marking centers, with the OBOS's browser-based Onscreen Marking System, developed with LANSA's high level language. The system has specific functionality for each of the main roles associated with the marking process: markers, senior markers and supervisors of markers.

The system allows markers to set preferences for their comfort, based on the equipment they are using, such as left or right mark boxes or buttons. Markers can view a list of all the scripts they have been working on that day or previous days. They can add notes for themselves or for immediate attention of their senior marker. They also have the ability to search through all the scripts they have marked using several different search criteria, making it very easy to locate scripts they need to revisit. The system navigates the markers efficiently through the work that needs to be marked, automatically and randomly serving up the next script.

Students working on their written HSC exam responses.

"The marking process for written exams is highly structured and sophisticated."

Senior markers have additional functions. They can annotate and upload benchmark examples and practice scripts, and set up a frequency for inserting common scripts in between the real scripts. They have a real-time dashboard view of what their markers are doing and can go to any script to look at the marker's notes and marks awarded.

"Marking deviations in the practice and common scripts are shown in color, making it easy to discuss variations and interpretation of the marking scheme with that marker. Markers who are consistently 'on-target' need not be distracted or taken off the task. Similarly, it's also easy to supervise new markers and decide whether they need to be given more practice scripts or have them start on the real scripts," says Mathieson.

The system allows markers and senior markers to exchange messages. This is helpful when a marker needs assistance or wants the opinion of the senior marker about a certain script. Likewise, the senior marker may feel the need to comment on the marking of a certain script and send an instantaneous message to the marker. The messaging system is especially helpful for remote marking, allowing teachers to mark at home.

At any time, the senior markers can view statistics. They can see how the spread of markings for their exam section is evolving, how many scripts are marked and still need to be marked, how much time markers spend on average and for individual scripts.

All internet traffic is encrypted using SSL 128-bit encryption and no marks ever reside on the marker's desktop. All data (including scripts) are replicated across to a second IBM i server in real-time, with each server residing in separate data centers.

Not directly related to the Onscreen Marking System, but part of the same exam system, is the digital recording of oral language exams. This is still at a trial stage for main languages, but already implemented for some language exams. At the point of examination the student sits in front of a computer that is connected to the OBOS's examination system. After photo identification, the student's response is digitally recorded and for some exams, marks are entered immediately.

Once the exam is over, the examiner submits the digital recording and marks to OBOS's IBM i-based exam system, where LANSA Integrator takes care of the receiving, naming and storing of the file in MP3 format. The digitally recorded exams can then go through a similar marking process as the written scripts, using exactly the same application with modified terminology.

"Using LANSA Integrator, we have been able to create a highly sophisticated application, where PDF and MP3 files are fully integrated with our IBM i-based core examination system," says Mathieson.

The Benefits

Kevin Ford, Manager, Student Support Services Branch at the OBOS, says, "The Onscreen Marking System provides instantaneous marker reliability data and

IT Manager Ms Mitra Bhar (sitting on the left) standing from left to right Jim Watterson, Vince Lazzaro, Brett Ecclestone, Michael Major and sitting Muir Mathieson.

promotes objective and consistent marking. The same strict procedures apply to both paper-based marking and onscreen marking, but the procedures are easier to apply and manage in the onscreen solution."

"Having a real-time view of marking and having the tools and statistics available to spot deviations, allows senior markers to take immediate corrective action. In the paper-based system it could happen that a large batch of scripts would have to be re-marked, as it could take a while for the senior marker to notice that someone was marking outside the range," continues Ford.

"Another advantage is that the script and notes can be separated, which is good when a script needs to be objectively re-marked. In that case you don't want a marker to be influenced by the notes and comments made by someone else. Likewise, the fact that the marker only gets to see the section of the exam that he or she is responsible for, also encourages objective marking."

The common scripts are more effective in the onscreen marking process, because markers cannot differentiate them from the real scripts. In the paper-based system you could recognize them because they are photo copies, while the real scripts are originals. "Although it should theoretically not make a difference to the markers that they are marking a common script, in reality they may give that script extra attention, because they know it will be monitored. Now, every script is marked entirely on its own merits, making for a fairer and more equitable outcome for all students," says Ford.

Not being dependent on paper-based procedures allows OBOS to draw on a larger pool of eligible markers. It is also very useful for teachers to gain practical experience with the marking process, so they can better prepare their students for the exams. As traditional paper-based marking requires markers to come to a marking center, the distance made it impractical for many country teachers to participate. "Now we can give them Internet access and support them with online practice scripts, marking kits and messaging. We can even involve teachers who teach the HSC at overseas schools and colleges," explains Ford.

"The markers are extremely positive about onscreen marking, because of the convenience, the potential for reducing the movement of large quantities of paper and the quick feedback on their marking," says Ford. "There is also a firm belief that the system is fairer and more equitable for the students."

"The logistics involved in securely distributing, storing and collecting nearly two million paper-based writing booklets are staggering. It is a far neater and easier-to-manage process to provide secure access to scripts that are kept on our own server. The solution is also more cost effective," concludes Ford.

Conclusion

The Onscreen Marking System is part of a wider eAssessment initiative. The eAssessment also includes a Computers In Exams (CIE) initiative, which allows for exams to be conducted and marked online, eliminating the need for hand-written responses altogether. Some of the HSC computing exams are already conducted online. When given a choice, a significant proportion of students would prefer to use a computer rather than hand-writing their exam.

OBOS has conducted extensive trials for all eAssessment initiatives, comparing paper-based marking with onscreen marking and handwritten scripts with online exams. Reactions to the CIE initiatives have been very positive from students, teachers and markers.

Bhar, says, "We have tried our Onscreen Marking System with the exam papers from schools in other states and other countries and also with the examinations of universities. The system works equally well in those scenarios."

"Looking at the international experience, onscreen marking and eAssessment are the way of the future. It is important that we continue to investigate how technology can provide improvements in the assessment and examination programs."

"The services we provide are highly visible and critical to the smooth administration of our examinations. We cannot afford to make any mistakes. LANSA's technology and the IBM i platform help us to provide accurate, highly reliable and secure solutions to meet the requirements of our core business. With a small in-house team and using LANSA's productive high level development tool, we can support a system that can be used by virtually all teachers and students in NSW or elsewhere," concludes Bhar. ■

Company and System Information

- The Office of the Board of Studies New South Wales is the certifying authority responsible for the content of syllabus materials, registration of non-government schools, and delivery of high school examinations for New South Wales, the most populous state in Australia. Using LANSA since 1989, the OBOS development team has delivered many systems, such as online services to schools, teachers, students and parents. These include the delivery of HSC results over the Web and the collection of over 1.2 million grades and assessments and over 45 million responses and marks per year.

For more information visit: **www.boardofstudies.nsw.edu.au**

Extending your core applications with LANSA

INDUSTRY SHOWCASE
by Marjanna Frank

The core enterprise applications that run businesses – whether in-house developed, packaged or a hybrid – represent a huge investment. The investment is not just in purchasing or building the code, it is even more in the customizing, testing and implementation.

Many organizations already have a solution in place that's good in essence, but that may need additional functionality, Web extensions, better integration with other parties or applications, and a more productive development and maintenance environment.

This article showcases companies who use LANSA technology to build on the business application foundation they already have in place, by extending the valuable core functionality into open, modern and integrated computing environments that can be shared with customers and business partners

For this article we have categorized the extension examples in four main project areas:

- New and modernized functionality for internal users
- Internet self-service to third parties
- Real-time Data Exchange with other organizations
- Business Process Integration between applications under own control

Most of our customers have used LANSA to improve multiple business areas and could be featured under more than one category heading. The examples below are simplified for clarity.

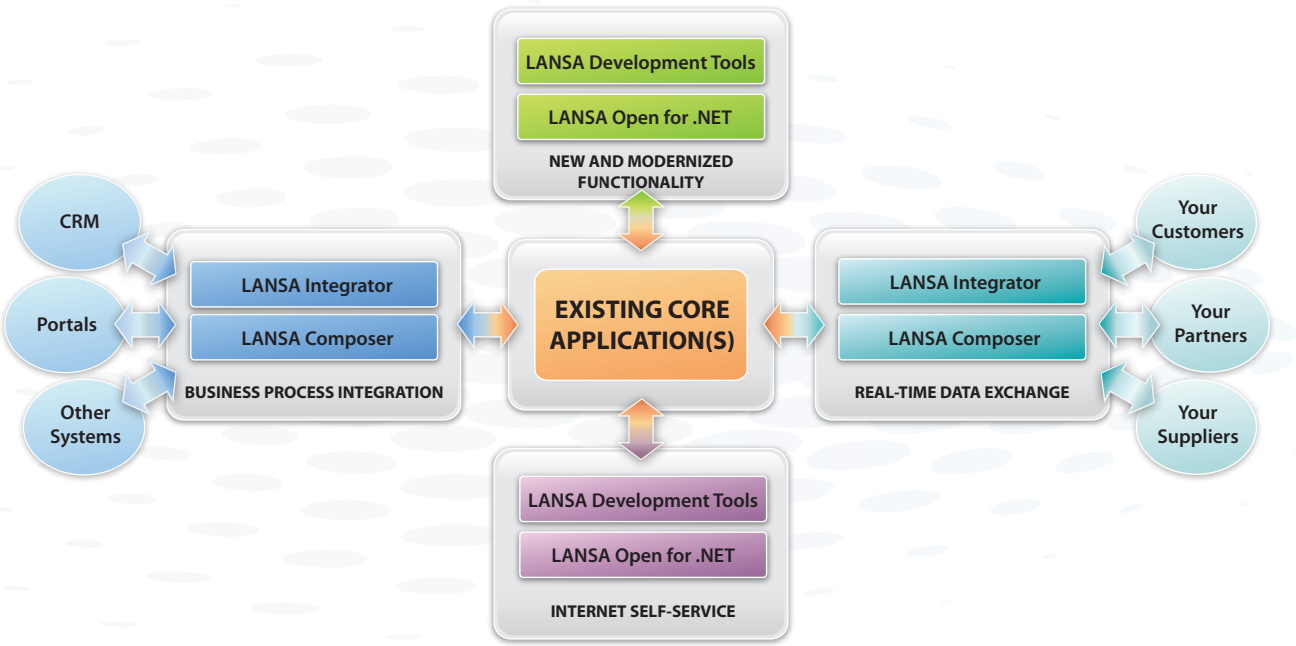
New and Modernized Functionality for Internal Users

Whether you want to modernize existing functionality or develop new functionality, a key role in all LANSA modernization and development products is the LANSA Repository, which allows you to centrally define data and business rules that are then applied whether the data is accessed by a Web, Windows or 5250 application. This removes the need for double and often inconsistent maintenance efforts and protects your data integrity.

Visual LANSA, our flagship application development tool, provides a high level development language that is very productive, as evidenced by the small project teams our customers have. You can build Web, Windows rich-client and 5250 applications with Visual LANSA and it will generate the underlying code that's best suited for the application and deployment platform (C++, RPG, XML, HTML etc). Applications developed with Visual LANSA run independently of the underlying hardware, operating system and database technology.

Visual LANSA includes a framework facility for very rapid development. It also includes Web Application Modules (WAMs), component-based XML/XSL technology for building applications that can deliver content in multiple formats such as HTML, WML, or XML from a single WAM component.

RAMP is a 5250 modernization solution with a prototyping and design framework that enables you to: Reface the best parts of your existing application; Re-engineer the cumbersome parts; Plug-in brand new Windows and Web components. Refacing is with aXes, which was acquired by LANSA in early 2009. Re-engineered and new functionality can be based on Visual LANSA or any other technology. ➔



LANSA Open for .NET, a class library that exposes services (incl. IBM i data and programs), is for those scenarios where Windows developers want to use their existing .NET skills to create applications that access IBM i data and functionality. Using LANSA Open for .NET, data access is fast and secure, plus Windows developers don't have to understand the IBM i platform or duplicate the core enterprise business rules in their Windows applications.

Walon is the leading supplier of finished vehicle logistics services to the UK automotive industry, responsible for over 1.2 million vehicle movements each year on behalf of vehicle manufacturers. Walon used LANSA WAMs to extend its core RPG-based Vehicle Tracking Management System (VTMS).

One of these extensions is a real-time Workshop Management Control system. Historically, Walon would record the budgeted time for modifications that were done to a vehicle, regardless of the actual time taken. For a transparent insight into actual time spent and improved workshop management, Walon installed screens and scanners beside the technicians' work bays, so they can register each job as it is done. Managers can monitor the efficiency of the workshop and individual technicians in real-time through a WAM-based dashboard application.

Colin Williams, Head of IT at Walon, said, "Using the skills of our own development team, we have been able to deliver major new products and services. Our VTMS still sits virtually unchanged behind the new functionality, but with LANSA we now have better tools to develop new functionality and front-end applications."

Francis Marion University (FMU) is one of South Carolina's 13 state-supported universities, providing strong liberal arts based programs. FMU is using RAMP to progressively modernize a large RPG-based student administration system.

Robin Moore, Director of Campus Applications and Data Services, said, "We decided to modernize the student registration module first, because registration only happens a few times each year and 5250 programs are especially hard to navigate for new and infrequent users. Another good reason to tackle this module first was that it needed new functionality, such as photo identification and email integration."

The modernized module contains about 45 tabs with refaced RPG programs, while five tabs contain completely new functionality developed in Visual LANSA. In addition, the search, sort and navigation programs are all new and automatically generated by the RAMP framework.

Moore commented, "Eventually we want to have an environment where there is no reliance on RPG and deployment is graphical and cross-platform. Our student administration system includes about 8,000 programs and 4,000 files. Using RAMP we can cost-effectively modernize and redevelop those modules that have a high priority and gradually get there."

Eagle Systems, Inc. (ESI) is part of the Eagle Group based in Washington, USA, and a leader in intermodal transportation with locations throughout the USA and Canada. Using Visual LANSA Framework and WAMs, ESI built a dispatch system, called eDray, which extends and integrates with ESI's core Synon 2E-based logistics system.

The graphical interface of eDray creatively mimics the card-based manual system. Small boxes, representing containers, can be dragged from one location to another and right-clicked to select functions like re-scheduling and changing drivers or status. LANSA Integrator is used to exchange dispatch information via SMS with drivers and send status updates to customers.

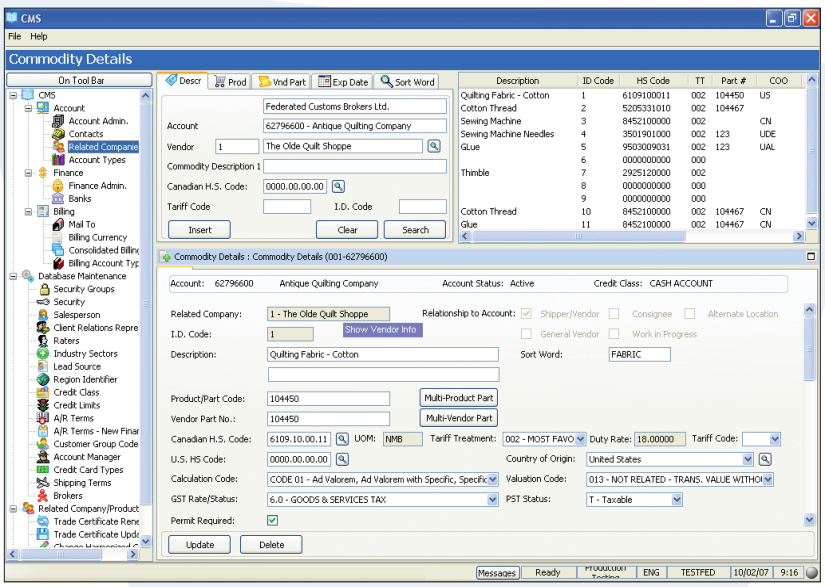
Larry Ronhovde, President of Eagle Information Systems, said, "Our decision to use the Visual LANSA Framework saved us a lot of time, especially considering we were new to large Windows-based projects. The framework acts like an on-site mentor who helps get things done the right way the first time. It gave us a head start on proper coding techniques and standards, instead of starting with a blank page."

The Federated Group, based in Mississauga, Ontario, Canada, provides a complete range of customs and logistics services across North America and around the world. Federated used the Visual LANSA Framework to deliver a Client Management System (CMS) that integrates directly with multiple IBM i back-end systems. The Windows rich-client system is distributed to hundreds of users in over 50 locations using LANSA Just-in-Time deployment.

Nancy Riddell, IT Director at the Federated Group, said, "Using LANSA triggers to update the existing databases saved us from having to customize over 400 programs and let us continue to use the existing customs, accounts receivable and freight systems without major modification. With this approach, we can modernize and redevelop these systems at our own pace with minimal disruption to the business."

Chantiers Chibougamau, based in Québec, Canada, has been manufacturing highly competitive wood products for over 40 years whilst addressing concerns about sustainable development. To enhance the efficiency of the interactions between Windows applications and the IBM i server, the company's developers used LANSA Open for .NET. Windows integration is with ScoopSoft, a solution for the wood products industry from LANSA Partner GFI Business Solutions.

"LANSA Open for .NET allows client applications developed in Visual Studio to access IBM i data much faster than before by using the server's functions," said a representative from the company's IT team. "Applications that use this middleware include a fuel distribution and a mass weighing solution. We are impressed with the LANSA Open for .NET response time." ➔



The Federated Group used the Visual LANSA Framework to deliver a Client Management System that integrates directly with multiple IBM i back-end systems.

Internet Self-service to Third Parties

To open up your core application for self-service access to customers and other third parties, you can use the same tools as described in the previous section.

In addition we offer **LANSA Commerce Edition**, a self-service framework solution for order entry, plus account, price and inventory inquiry. It meets most, if not all, standard B2B (Business-to-Business) eCommerce requirements and can be "bolted on" to any ERP solution. It also contains B2C (Business-to-Consumer) functionality.

Honda Australia Motorcycle and Power Equipment distributes motorcycles, marine power equipment and personal watercraft through over 1,000 dealers. Honda uses the Movex ERP for its completely built units business, while parts and warranties are managed with HiPack, a custom RPG solution built by Honda's head office in Japan.

Honda provides its dealers with a LANSA-based Web solution for sales registration and warranty claims. The site also allows dealers to upload orders directly from their system to Honda's using LANSA Integrator technology. The real-time integrated LANSA Web solution proved far more popular than the hosted solution Honda previously used.

"We find LANSA the most efficient way to deliver a Web application. The LANSA site runs on the same server as our core HiPack and Movex systems, calls some of their logic and uses the same databases. There is nothing to install or maintain on the client side, so any authorized dealer with a PC and browser can securely access the application," said Craig Bassett, IT Manager at Honda Australia MPE.

Blackmer, located in Michigan, North America, is the world's leading manufacturer of pumps and compressors for the transfer of liquid and gas products. Blackmer used LANSA Commerce Edition to give distributors online access to orders and account information in its BPCS ERP, along with a rules-based configurator for custom assembly orders.

The Web configurator reuses thousands of questions/answers and business rules, which were already available in BPCS, and feeds specifications directly into the BPCS file structure. It allows for the configuration of the most complex and diverse application pumps.

Christopher Kanous, IT Director at Blackmer, said, "LANSA provided rapid delivery of standard eCommerce functionality plus the tools and services for a Web configurator for custom orders at a significantly lower price than the competitor's solution. Another major decision point was LANSA's direct integration into our ERP system."

Many more wholesalers and manufacturers use LANSA-based Web solutions alongside their BPCS, JD Edwards, MAPICS, Movex, PRMS, System21 and other packaged and in-house developed ERP systems.

Many LANSA customers have achieved significant efficiencies by providing their business partners with self-service Web access.

Similarly, **many insurance companies** use LANSA to provide agents and policyholders with Web self-service access. MDC, a LANSA business partner in Ireland, developed a Web-based insurance framework, called InsureIT. Key features include a rating engine, presentation templates, a rules database and audit trail logging.

Allianz Ireland is one of Ireland's largest multi-line general insurance companies. Allianz's back-end solution is Insure/90, an RPG-based solution from Computer Sciences Corporation (CSC). After the success of several B2C quote & buy sites for car, home and pet insurance (based on InsureIT). Allianz chose LANSA as their strategic Web development tool for all B2C and B2B projects.

Allianz also extended its broker communication with LANSA Integrator-based Web services, allowing direct exchange of information with its largest broker.

Merchants Insurance Group (MIG), with its headquarters in New York, markets tailored property and casualty insurance products through over 500 independent insurance agents. MIGs back-end system is a heavily customized COBOL-based WINS package.

MIG extended their WINS insurance system with a LANSA-developed Web site. Using the site agents can get quotes, issue policies, enquire on policies and claims and view different aspects of billing. Policyholders can view their policies and bills and pay online.

Save the Children USA is the leading independent organization creating lasting change for children in the U.S. and around the world. Save the Children's core donor system is IBM i and Synon-based.

Save the Children USA used LANSA WAMs to deliver a Web site that allows prospective child sponsors to use sophisticated search functions to identify a child to sponsor. LANSA Integrator is used to manage and process various donor communications, including a personalized PDF welcome kit. Sponsors can also obtain a PDF of their official charitable tax deduction receipt.

Agilysys, Inc. provides one of the world's most popular integrated hotel and casino property management solutions. The company's Lodging Management System® (LMS) powers many of the largest hotels in the world, including most of the mega-hotel-casinos in Las Vegas.

The LMS has been extended with LANSA-based Web solutions since 1997. One of these was LMS ResNet, the first real-time, fully integrated Internet hotel booking system in the world. A large proportion of today's U.S. Internet room sales are still made via LMS ResNet. LANSA was also used for LMS GuestExpress, a wireless facility that enables hotel agents to program room keys and to check in and check out guests in or nearby the property.

More recently, Agilysys used Visual LANSA to develop its new generation property management system called Guest 360™, expanding the company's market share as the application can now be deployed cross-platform. ➔

Real-time Data Exchange with Other Organizations

Direct Application-to-Application (A2A) or Business-to-Business (B2B) integration avoids the need for manual intervention in the process flow between business partners. There are a multitude of methods for integration, in which XML, EDI-INT and Web services have emerged as worldwide standards.

LANSA Integrator enables integration of A2A and B2B transactions through XML and Java services. It allows bi-directional XML – and other data formats – to be exchanged between business partners, regardless of platform. It also enables integration of user-written Java services with RPG, COBOL and other non-Java applications.

LANSA Composer is built on the same technology as LANSA Integrator, but in addition to the transport and transformation services, it also offers data mapping, process flow orchestration and administration facilities, making it easy to set up procedures for EDI and other co-ordinated exchange of transactions.

LANSA Data Sync Direct is another product built on LANSA Integrator technology. It is a GS1-specific solution for manufacturers and distributors wanting to comply with retailer requests for exchanging item information via the GDS Network.

E. P. Barrus Ltd, located in the U.K., designs and manufactures engines and distributes a diverse range of products. Barrus' core ERP system is a customized System21 implementation. Barrus uses LANSA Integrator to exchange EDI messages with its trading partners including B&Q, the largest do-it-yourself chain in Europe.

Barrus also uses LANSA Integrator on its dealer Web site to utilize the Web services from Epitomy, a company specializing in exploding diagrams, so dealers can search for parts without knowing the part number. A LANSA Integrator-built Web service links from Barrus' order site to Epitomy's Web site, where dealers dissect engine diagrams to select the part they need. Once the part is selected, a SOAP message is relayed back to the Barrus Web site, where the dealer can continue with the order.

Dave Hansford, IT Manager at Barrus, said, "With LANSA we have the flexibility to accept and send business transactions in a variety of formats, using many different communication methods. LANSA is easy to use and complements our existing skill set, allowing us to handle EDI and SOAP projects with our own business knowledgeable staff."

ViaTech Publishing Solutions, headquartered in New York, is the authority in on-demand destination printing. The process of uploading print files, customizing them and ordering copies to be delivered anywhere in the world, is entirely automated.

LANSA Integrator is used when customers upload their PDF print files to ViaTech's Web site, when the site connects to UPS for a shipping price estimate and for validation of credit card payments. LANSA Integrator is also used to accept and process the XML orders of customers who have their own internal systems to manage print materials.

The Terminix International Company, headquartered in Memphis, Tennessee USA is part of the ServiceMaster family of brands and the largest termite and pest control company in the world. The Terminix LANSA-based core system is used by 12,000 employees at over 400 locations and 5,500 service specialists with wireless hand-held devices.

Recently, Terminix used LANSA Composer to automate the remittance processing with third parties, such as mortgage providers, who include with their monthly statements an insert advertising Terminix's services. Homeowners who take up the advertised offer will see the fee for Terminix's services added to their next monthly statement. The process of accepting the customer's order, invoicing and payment processing is completely automated between Terminix and its partners, with LANSA Composer processing multiple EDI transmissions for each customer.

Body Corporate Services (BCS), with over 20 branches on the eastern seaboard of Australia, provides a comprehensive range of services to facilitate the smooth running of strata plans and other title schemes.

BCS uses LANSA Integrator to extend its core Property Management System with integration points to third parties. These include integration with the Australian Taxation Office for the preparation and filing of tax statements. Also integration with a mailhouse for outsourced printing and mailing of periodic statements. Plus integration with debt collection agencies, insurance companies and banks.

BCS also uses LANSA Integrator for integrating internal applications, such as its WebSphere customer portal and a Windows-based document management system, and for generating legal documents in PDF format.

R.C. Bigelow, Inc. is a family-owned company based in Fairfield, Connecticut that has been producing quality teas for over 60 years. Bigelow uses LANSA Data Sync Direct (DSD) to synchronize its BPCS Item Master information to Wal-Mart and other retailers.

The project leader of Bigelow's GS1 implementation team, said, "LANSA Data Sync Direct complements BPCS with a large number of attributes. For example, we didn't describe aspects such as the height, weight, and depth of finished products in BPCS. We only had this information in individual PC documents. Now we keep the data centrally in the DSD data Repository. And because the BPCS and LANSA solution are integrated, we don't have double file maintenance. We have ended up with a much cleaner and more complete set of data."

Over 300 companies use LANSA Data Sync Direct as their Global Data Synchronization Network (GDSN) integration solution. LANSA DSD includes facilities for managing Global Trade Item Numbers (GTIN) and workflow management. ➔

LANSA's integration solutions automate the exchange of information between trading partners.

Business Process Integration (BPI) for Applications under own Control

Many companies use a mix-and-match approach for their IT solutions, whether by choice or inherited, packaged or in-house developed. Typically some of these solutions are Windows-based (client as well as server), some are IBM i-based and a growing number are hosted applications.

Rather than duplicate data and functionality, these applications should share and integrate. For BPI between these internal systems, you can use the same LANSA integration tools as for third party integration.

The Greenery, headquartered in the Netherlands, is one of Europe's leading fruit, vegetable and mushroom auctioneers. The Greenery uses LANSA Integrator for exchanging information between its IBM i core administration system and several packaged Windows-based applications, such as the GreenMate auction system.

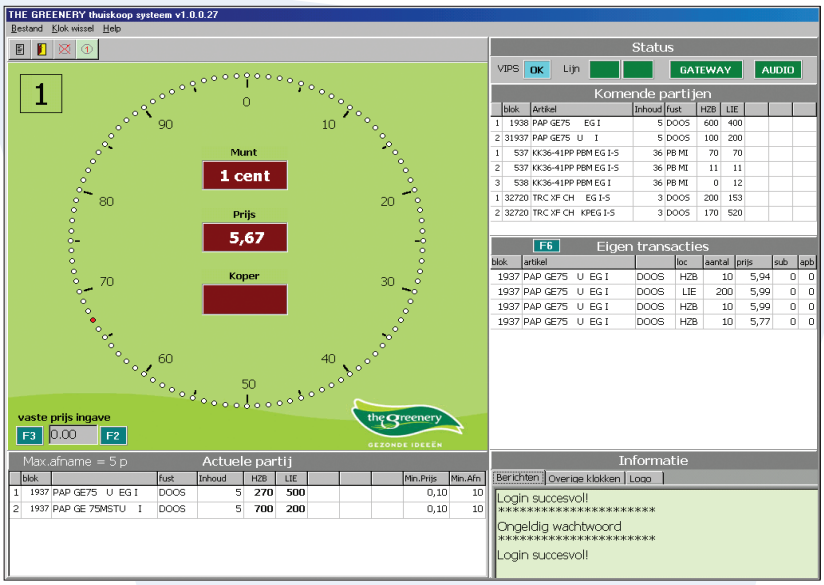
GreenMate automatically collects and publishes produce information from the IBM i using LANSA Integrator. This happens a short while before a product is scheduled to be auctioned and again at auction time.

"Where available, we prefer packaged solutions above in-house development. Company mergers and acquisitions have contributed to the variety of systems as well," said the Greenery's Development Manager, "Creating fast and reliable links between these heterogeneous systems is becoming more and more important."

Brewers' Distributor Ltd (BDL) is Western Canada's leading distribution and container return service for the brewing industry. BDL's core ERP system is JD Edwards World. BDL used LANSA Integrator and Visual LANSA to deliver a solution that integrates with an automated production line system. The integrated Warehouse Automation System saves BDL nearly $500,000 per year.

Andrew Hobbs, Manager of IT Applications at BDL, said, "I strongly favour Web services for any system integration, as it fits in our plan to gradually move to an SOA environment. We used LANSA Integrator SOAP Web service requests to have JD Edwards communicate with our line control software, Red Prairies labor management and other systems."

The Hillman Group, based in Cincinnati, Ohio, keeps over 21,000 retailers stocked with an assortment of over 55,000 small hardware items. Hillman runs three different ERP systems. They made a customized version of LANSA Data Sync Direct the main Product Information System to feed their ERP systems as well as the product catalog (and, last but not least, the GDSN).



The Greenery uses LANSA Integrator for exchanging information between its IBM i core administration system and GreenMate, a Windows-based auction systems.

Hillman also uses LANSA Integrator for integration with a WebSphere portal, through which the company runs its corporate reporting. "Instead of having to hire Java experts, we are able, with our own staff and using LANSA Integrator, to deploy RPG and other non-Java applications in our WebSphere portal environment," said Kirk Townsley, Application Development Manager at the Hillman Group.

Export Development Canada (EDC) is Canada's export credit agency, offering innovative commercial solutions to help Canadian exporters and investors expand their international business. EDC uses ACBS, a largely LANSA-based commercial lending and trading system, and has recently delivered three SOAP Web services integration solutions, using LANSA Integrator.

EDC's first Web services project was to automate the disbursement process workflow, as it involves multiple business areas. A second project has improved the delivery method of customer statements, by generating and distributing a graphical PDF document. A third BPI project exposes ACBS information to EDC's Siebel CRM implementation.

Robinson Manufacturing Company, based in Dayton, Tennessee in the U.S., is a supplier of basic and fashion boxer underwear, loungewear and activewear to both the retail and wholesale markets.

Recently Robinson started a wide variety of integration projects using LANSA Composer, including: Moving inbound EDI Purchase Orders from Gentran to the ERP system; Processing Web visit logs into a database for reporting; Processing logs regarding PC backups and email alerting users with missed/failed backups; Report distribution that includes scheduling, creating and emailing of reports.

Truvo Belgium is the market leader in local search and advertising and publishes the printed and online Golden and White Pages phone directories. Truvo uses LANSA for its core IBM i information system. Truvo's 400 sales reps use a .NET sales application.

Using LANSA Integrator-built Web services, sales reps can download customer portfolios from the core IBM i application into their .NET sales application. Next, with input from the customer they can build a number of new advertising scenarios on their laptop. When the customer selects a scenario, the sales contract and advertisement specifications are created in the .NET application and uploaded to the IBM i via a LANSA Web service, which parses it into the DB2 database for further processing by the back office systems.

The graphics department then works on the advertisement based on the specifications and instructions that are kept on the IBM i. The actual graphical design is done on Apple Macintosh computers and the resulting advertisement is stored on Truvo's UNIX server.

Conclusion

LANSA provides practical tools and solutions to extend, modernize and integrate applications across multiple platforms. By practical we mean that LANSA is easy to learn, productive and cost-effective, allowing companies to deliver solutions with their own small development teams. ■

Protect your data once and for all

TECHNICAL ARTICLE
by Richard Lancaster

Information is the life blood of business. Making decisions based on out-of-date or incorrect information may result in lost revenue, upset customers or compliance violations and may threaten the viability of the company.

Managing the data is easier when the data definitions and business rules are centrally defined outside the program code. If any of the definitions or rules need to be changed, you only have to make that change in one place! Secondly, you will want to make sure that any program or utility that accesses the data uses the most recent definitions and business rules. In other words, to protect your data, you want the definitions and rules centrally deployed, without exception.

Considering that many companies use a variety of programming languages and utilities that may access the same set of data, that's easier said than done.

LANSA provides tools, collectively called the LANSA Repository, that describe, store and deploy data definitions and their related business rules.

This Repository facility has always been available to programs developed in LANSA and programs that use LANSA Open for .Net to access data. However, from Version 12 onwards, LANSA Enforcement Triggers can provide the same level of protection to any program or utility that accesses data that has been described in the LANSA Repository, even Data File Utility (DFU).

Describing the Data and Rules

The Repository allows you to describe data items ("fields" in IBM i terminology) and their business rules, plus tables ("files" in IBM i terminology) and their business rules.

Data item definitions may include:

- Name – a variable programs can refer to
- Labels – for the user interfaces
- Data type – strings, numbers
- Formats – such as dates in various representations
- Validation rules – for example the data item must not be blank
- Actions – actions that need to happen under certain conditions
- Help text – for a better understanding

A table definition may include:

- A list of the data items in the table. Data items can be physical or derived. The latter meaning that their value is based on the value of other data items from the same table or from other tables.
- Validation rules specific to the table context, for example a validation for a customer table could be that you are not allowed to delete a customer if invoices or orders exist for that customer.
- Actions specific to the table context, for example, if a customer record is updated in this table, update customer information in other tables as well (a typical CRM scenario).
- Indexes and relationships with other tables.

All of the specifications are declarative, describing what the objects (data, tables and rules) are like, rather than the code to create them. LANSA stores the descriptions in database tables in the Repository.

The Repository typically contains thousands of definitions and rules, depending on the size of the application. That's really where the logic is or should be defined, so the applications that use the data don't have to repeat the same definitions and rules.

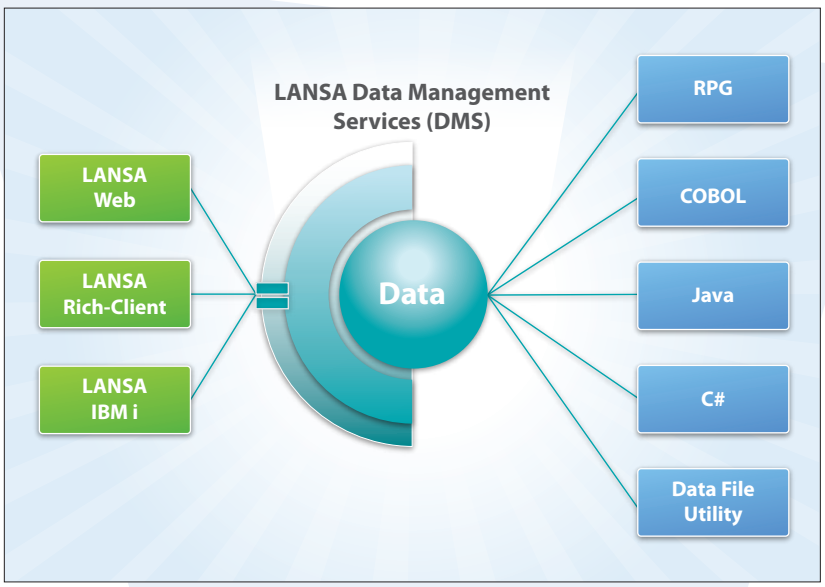


Figure 1: The LANSA Data Management Services have always protected data when accessed by programs developed with LANSA.

Deploying the Definitions

From the data, table and business rule descriptions stored in the Repository, LANSA generates an executable program to manage access to the data. This could be a compiled

C#, C or RPG program, depending on the platform. This executable is a component of LANSA's Data Management Services (DMS).

The DMS provides independence for the data from the applications that use it and provides independence from the database management systems in which the data resides. This means that when you want to move your application to another platform, you simply move and deploy the Repository definitions to the other platform. This is a feature that our solution partners specifically like, because it provides complete cross platform capabilities for their solution.

Enforcing the Rules to All

The LANSA Data Management Services have always been available to programs developed with LANSA and programs that use LANSA Open for .Net to access data.

But how can you enforce the LANSA DMS routines that deploy the definitions and business rules (potentially thousands) to other applications and utilities? This is where LANSA's Enforcement Triggers come in. Deployed as triggers at the database level, from Version 12 onwards LANSA Enforcement Triggers can provide the same level of protection to any program or utility that accesses data that has been described in the LANSA Repository.

A few Enforcement Triggers may activate hundreds of LANSA DMS defined rules and validations.

How About Existing Datasets?

You can import the definitions of any existing dataset into the LANSA Repository and then optionally further enhance the definitions using the LANSA Repository tools. This process of making a file known to LANSA does not affect the file itself, nor does it involve any duplication of data.

Many companies use the Repository on top of a packaged solution, such as JD Edwards or Insure/90. It allows them, for example, to define more user friendly field names, add formula/derived fields and define additional rules and actions, without affecting the packaged solution itself. It is like putting a mask on top of a dataset or viewing the dataset through a different pair of glasses.

The Benefits of the DMS

With the LANSA DMS you have one resource to manage the data, acting as a guard to ensure that programs cannot perform inappropriate actions to the data.

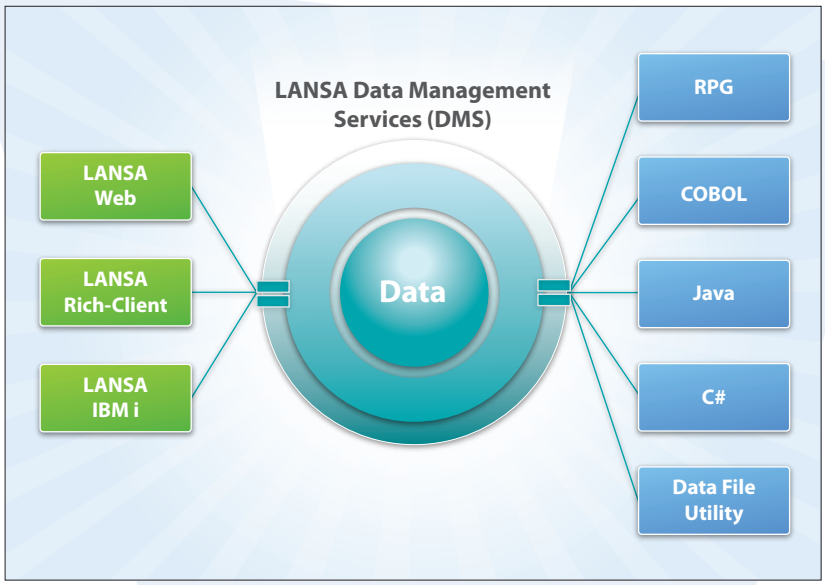


Figure 2: From Version 12 onwards, LANSA Enforcement Triggers can provide the same level of protection to any program or utility that accesses data described in the LANSA Repository.

"A major benefit of LANSA and its Repository is the ease of making changes. That is what first attracted us to LANSA and what we still see as its major benefit today. The second benefit is the integrity of the data. Referential integrity and accuracy is something LANSA customers take for granted, but a lot of other organizations cannot claim the same. LANSA's central data definition Repository ensures database integrity and practically removes the need for recompiling programs after a database change."

– Mike Palma, Director of IT, ViaTech Publishing Solutions

You have one place to maintain when change occurs. You do not need to find every program that has access to the database and then modify, compile and test each program – and risk that you may overlook a program.

The LANSA DMS protects your data from any application that wants to access the data, including COBOL programs, C# programs, Java programs, RPG programs and utilities like DFU. The protection applies even when you implement access to your data via Web services or Microsoft Excel.

LANSA Data Management Services provide:

Single point of protection for your data but universal coverage – Whether by mistake or intentionally, no program or utility can corrupt your data or cause referential integrity problems. Not even using DFU.

Reduced maintenance costs – With LANSA you change the definition once, rebuild the Data Management Service and deploy it – no need to change a class and repair the repercussions, no need to change a /COPY (copybook) and recompile every program that uses the copied code.

Consistency – The business rules associated with a dataset reside in one place and when the rules change you only need to maintain it in the one place. All programs that access the dataset through the LANSA DMS instantly use the same changed rule.

Business level definitions – When the rules are described at a business level, rather than being coded in a particular programming language, maintenance is easier. The LANSA tools use data abstraction to remove details specific to program language, database and platform deployment.

Cross platform capabilities – It's easy to generate the Data Management Services for another platform from the same Repository definitions.

LANSA's Data Management Services protect your data once and for all. ■

Transaction Document Processing with LANSA Composer Version 3.0

ARCHITECTS CORNER
by Hugh Vaughan

Since its release two years ago, LANSA Composer's transport, transformation and process orchestration features have provided a very flexible and code-free framework that can be used to solve almost any type of Business Process Integration (BPI) challenge.

LANSA Composer Version 3 further simplifies the task of building processes with the addition of ready-made transaction document processes. The enhanced framework provides complete Processing Sequences that you can copy and extend, or use as a basis for custom processes.

With LANSA Composer you can solve virtually any BPI challenge. However, we have found that many BPI requirements follow a common pattern that is characterized by:

- Transaction documents (EDI, XML, etc.) are to be exchanged with trading partners.
- Each transaction document may contain one or more discreet business transactions.
- The information in the transaction document is to be mapped to or from an application database.
- Application-specific functionality is to be executed to process the transaction.
- An acknowledgement is to be sent to the originating trading partner.

Although LANSA Composer has always provided the means to solve this type of BPI challenge, this particular pattern is so universal that Version 3 will add a pre-built solution to make handling of this common BPI pattern even easier. It comprises:

- A transaction document processing framework to handle inbound and outbound document flows that may be modified and extended to suit specific requirements.
- A transaction document database and a new Document Manager application, that provides visibility and an audit trail of the inbound/outbound document flows.

LANSA Composer is a highly visual and code-free tool that is intended for use by business analysts to design and implement solutions to integration problems. Without writing any program code, LANSA Composer allows you to automate manual processes, eliminate re-keying of data and reduce the amount of paper, email, fax and human interaction required to complete a given business process.

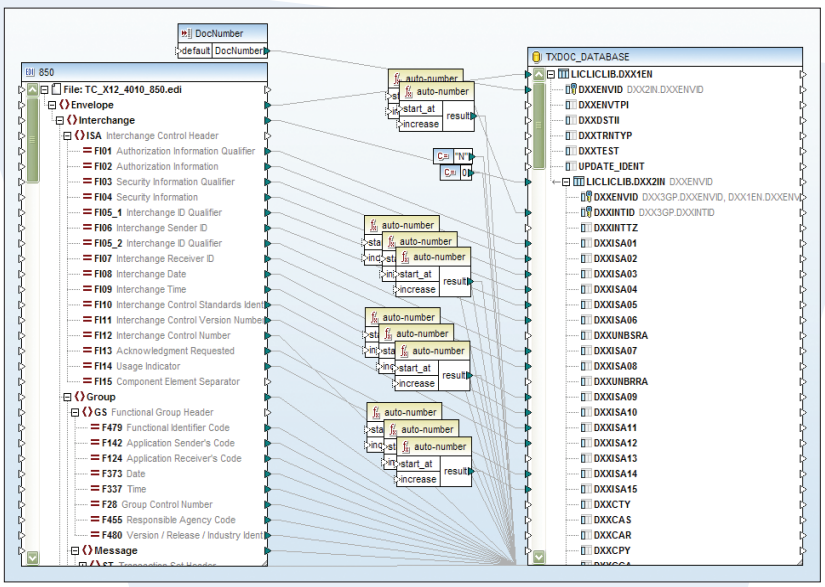


Figure 1: Example inbound map for an EDI X12 850 (purchase order) transaction as shipped with LANSA Composer.

Transaction Document Processing (TDP) Framework

Version 3 of LANSA Composer will include a near ready-to-use TDP framework. Customers will be able to very quickly modify and extend the framework to handle the types of transaction documents in use and to accommodate the specific requirements of their trading and processing environment.

The new framework fully exploits the proven LANSA Composer engine, but in addition provides a model transaction document implementation, which includes the following new components:

Activities, the building blocks of a LANSA Composer process orchestration, encapsulate the functionality to perform a specific task (often a file transport task). Version 2 shipped with over 50 activities, Version 3 will ship with even more.

Processing Sequences in LANSA Composer provide the orchestration function by allowing you to combine Activities and Transformation Maps with processing directives, such as loops and conditions to complete a business process. Version 3 will ship with pre-built Processing Sequences that implement the inbound and outbound TDP. They can be used as shipped or as the basis for a custom solution.

Transformation Maps define how to transform or map data between disparate formats including XML, EDI, Excel, text files, Web service functions, and database tables. Version 3 will ship with example Transformation Maps for two common EDI X12 transactions.

Inbound TDP

Because most of the variables specific to an implementation are captured in trading partner definitions and transport configurations, the supplied Processing Sequence for inbound TDP can generally be used "as is". Its main steps are: ➔

- Loop for each trading partner.
- Receive transaction documents from the trading partner.
- Loop for each received transaction document.
- Register the received transaction document in the transaction document database (each subsequent processing step updates the history and status).
- Determine the document type and the specific transaction type(s) in it.
- Identify and execute the transformation map that applies to the combination of document type, transaction type and trading partner.
- Invoke customer-specific processing.
- Send an acknowledgement.

Implementation-specific variations on these steps can easily be accommodated by copying and adapting the supplied Processing Sequences using LANSA Composer's Processing Sequence Editor.

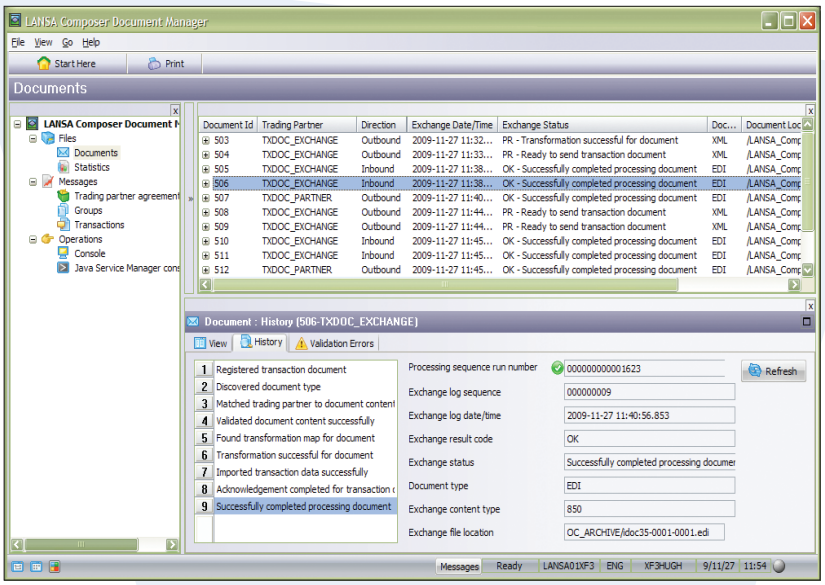


Figure 2: The LANSA Composer Document Manager provides the ability to monitor and interrogate inbound and outbound transaction documents.

Outbound TDP

Typically the outbound processing is triggered by some event in the application, such as a sales order triggering an invoice.

For this purpose, Version 3 supplies an API that allows your application to register a pending outbound transaction document in the transaction document database. The API allows you to supply application-specific "key" values to enable selection of the applicable transaction dataset. These values can be referenced in the Transformation Map that generates the document.

Once registered, each subsequent processing step updates the history and status, allowing you to monitor progress using the new Document Manager.

Either immediately or at a scheduled time, the outbound transaction document process runs to create and send any registered pending outbound transactions. Its main steps are:

- Loop for each trading partner.
- Loop for each outbound transformation map type linked to the trading partner.
- Determine the matching outbound transaction documents that are pending.
- For each, execute the transformation map using application-defined keys to identify the specific set of transaction data that is to be extracted to generate the outbound transaction document.

As for the inbound process, the outbound processing steps may be customized using the Processing Sequence Editor.

Mapping Transaction Documents

There are two typical approaches to mapping the data contained in the transaction documents to or from the database.

The simplest approach is to map directly to or from the application database tables. However, this effectively bypasses the checks that are implemented in your application to validate the data before it becomes part of your application. In some cases, especially where the inputs and outputs are well known and controlled, this is not a problem.

For EDI transactions in particular it is safer and clearer to map the data to or from an intermediate staging database first, before processing it further with application logic to cleanse and accept it. The example Transformation Maps for selected EDI X12 transactions that ship with LANSA Composer Version 3 use this approach.

Figure 1 shows the example inbound map for an EDI X12 850 (purchase order) transaction. It maps the transaction data into a set of database tables supplied with LANSA Composer specifically to receive the 850 transaction data. The supplied Processing Sequence that executes this map calls a generic transaction import activity, into which you can plug your code to receive the transaction data into your application database.

The Document Manager

For TDP solutions that make use of LANSA Composer's built-in transaction document database, Version 3 provides a completely new Document Manager.

The Document Manager provides the ability to monitor and interrogate inbound and outbound transaction documents. This is true even if the processes have been customized, provided the supplied activities that register and update the status of transaction documents have been used.

Using the Document Manager's search facilities, you can search for transaction documents by a variety of criteria, such as by trading partner, status, transaction document and content type.

Version 2 of LANSA Composer introduced the ability to restart a failed Processing Sequence from the point of failure – for example, in the event of a communication failure with a remote FTP host. This capability is exploited in the Document Manager to enable you to resume processing for failed transaction documents after diagnosing and correcting the cause of the failure.

Roll your Own

LANSA Composer's TDP framework may not suit every implementation – which is why its use is entirely optional. Users can continue to implement custom solutions using LANSA Composer's proven transport, transformation and orchestration features (and there are many other new features and capabilities in LANSA Composer Version 3 to ease the task).

For information on just some of the business integration challenges our customers have solved using LANSA Composer, visit www.lansa.com/builtwithlansa/integration.htm

Keep your Eyes on the Road, your Hands upon the Wheel

Previous versions of LANSA Composer provided a powerful and flexible integration engine and let you add your own wheels to take it where you want. For many customers the new TDP features will add a handsome set of magnesium alloy wheels. All you have to do to complete your implementation is fill the tank and tell it where you want to go. ■

A **performance** worthy of a standing ovation

Everything just falls into place with LANSA Composer

LANSA Composer is a Business Process Integration solution for automating manual processes. Automation eliminates re-keying of data by reducing the amount of paper, email, fax and human interaction required to complete a given business process. LANSA Composer can also replace any batch processing or semi-automated file transfers with real-time interfaces between applications and databases.

The result is a more robust and efficient systems environment in which computer automation is, once again, making people more productive.

Discover the possibilities at: **www.lansacomposer.com**

- Streamline manual processes, such as sales order processing
- Replace batch processing with real-time communication
- Link your back-office and ERP systems to new applications like CRM
- Easily share data between IBM i, Windows and Web
- Connect any application on any platform via XML Web services

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LANSA Composer