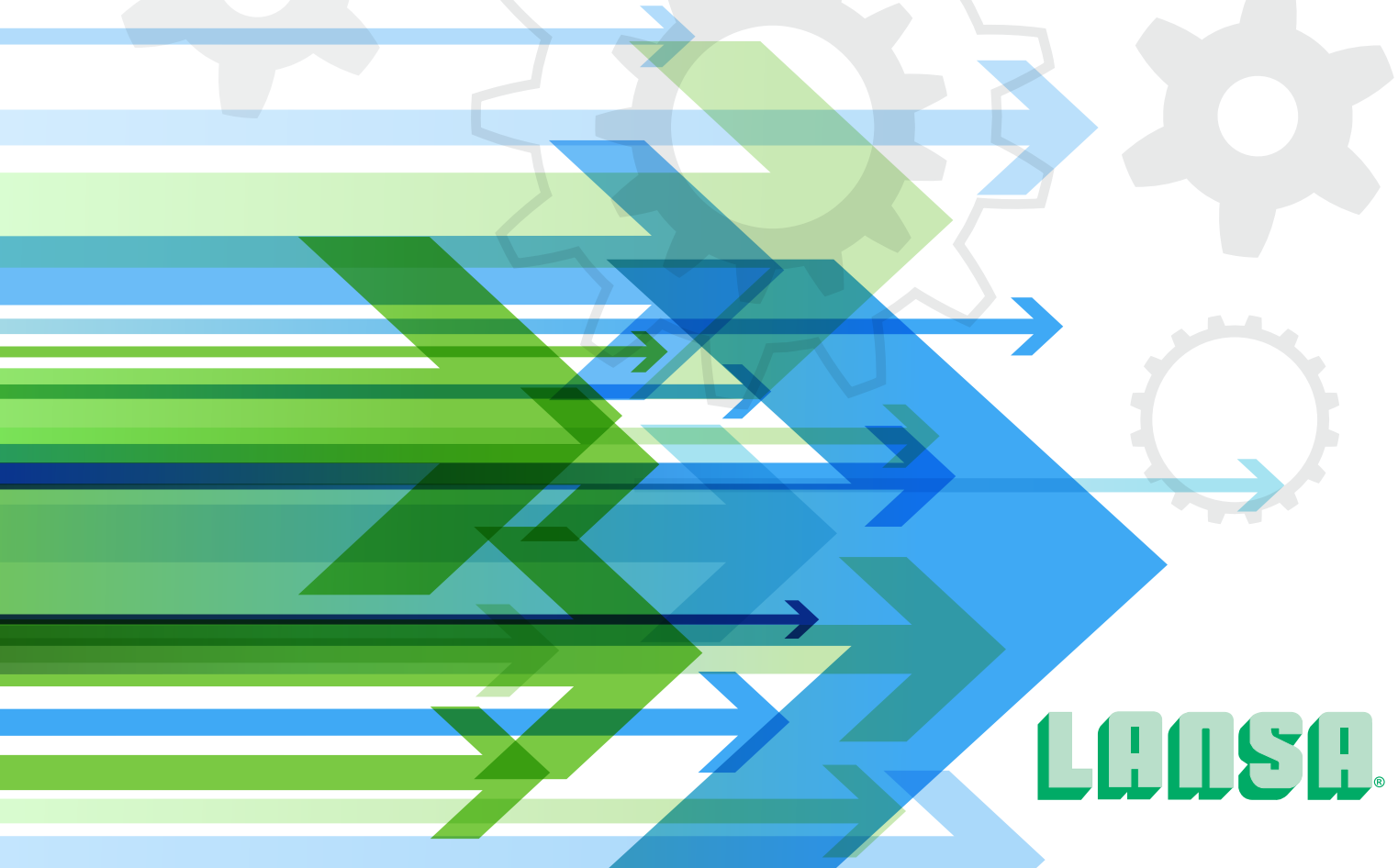
Choosing the right Business Process Integration solution



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Introduction

Whether working with purchased or custom applications, on premise or in the cloud, every organization has a need to automate its manual processes, integrate its various internal applications and share data with external parties.

Business Process Integration (BPI) is more than a collective name for a set of technologies that keep data and documents in sync between systems and trading partners. The goal of BPI is to improve business outcomes by achieving consistent, coherent and effective business operations despite our application silos.

BPI can substantially lower processing costs and improve data accuracy by reducing the amount of paper, fax, email and human effort required to complete repetitive tasks and routine transactions. Similar to how robots are used at assembly lines for dealing with physical objects, you can think of BPI as robotic assistants that deal with digital objects.

In this paper we aim to give you a better understanding of where BPI solutions fit into the overall IT scheme of things, what kind of results you can expect from a proper BPI solution and some tips on getting your first BPI project right the first time.

Chapter 1 – Defining Business Process Integration

"BPI typically operates at the fringes or boundaries of existing applications and fills-in the gaps between them and the outside world."

The pace of change in the business environment in which IT works can be bewildering. Corporate acquisitions and mergers, new trading relationships, different product and service offerings and rapidly changing consumer expectations require a great level of agility.

Many organizations have in place sound, reliable and functional applications that serve their core business needs. These applications frequently encapsulate many years of experience and knowledge and represent millions of dollars of investment that continue to yield dividends for the organization day-in and day-out.

Typically the most frequent and demanding changes to the business environment do not directly affect the core functions of those applications. Rather, they have to do with the ways in which those applications need to interact with each other and with the outside world.

For example, ABC Company may have acquired new business units, each with their own ERP and CRM systems running on different platforms in different geographic locations. However, management still requires visibility to this information across all business units. XYZ Company may outsource the manufacturing or storage of its products, but still requires visibility to inventory levels and manufacturing schedules for cost control, order fulfilment and timely updates to its customers.

The challenge of Business Process Integration (BPI) is to open up those applications so that the enormous value contained in them can remain relevant and effective in a connected world.

BPI typically operates at the fringes or boundaries of existing applications and fills-in the gaps between them and the outside world. It provides the means for those applications to interact and exchange data, by providing ready-made implementations of the relevant protocols and standards. And, as far as possible, a BPI solution has to do so non-invasively – that is, with no or minimal changes to the applications themselves.

Effectively implemented, BPI adds value to your existing application portfolio and helps your organization to improve the way it does business.

Defining a successful BPI Strategy

When looking at how you can improve the way you do business, you typically evaluate how effective you are at meeting customers' needs, how efficient you are in using resources, and how agile you are in adapting to change. Key drivers in achieving these goals include:

- **Automation** allows you to reduce points of failure, mitigate risk and lessen resource bottlenecks by removing or reducing human intervention and effort.
- **Optimization** focuses on streamlining existing business processes for improved operational efficiency, while adding capacity to absorb increases in business volume.
- **Collaboration** involves the interaction between people, processes and systems to increase the accuracy, timeliness and completeness of information. Collaboration may be required internally across business units and externally across the supply chain.

What's the Difference between BPI and BPM?

"Each manual link in the data chain is an opportunity for delay, keying errors and other mistakes."

You may also have heard of BPM (Business Process Management). How do BPI and BPM differ? In the table below we have provided a (somewhat simplified) comparison.

Table 1-1 BPI versus BPM

BPI	BPM
Works between systems	Works between people
Integrates existing systems	Architects new systems
Provides a highly practical, accessible, and low-risk solution	Typically requires extensive investment in training and toolsets before results can be realized.
Improve the efficiency of execution of a process	Changes a process

BPI is about joining the dots. The goal of BPI is to streamline and automate manual or multistep processes with the emphasis on the integration part. The presumption is that the repetitive process in question is fundamentally sound and that technology can be used to improve the efficiency of its execution.

BPM can span complex human workflows, modelling and simulation, data management, and so on. With BPM solutions, there usually is a premise that the target process is broken or no longer reflects best practice. BPM typically incorporates substantial new business logic and a 'let's model a better one" kind of reengineering.

A BPI solution provides a subset of the functionality of a formal BPM and is by some described as the poor cousin of BPM. BPI is certainly easier to implement and does what most organizations need most of the time. BPI carries a substantially lower price tag and complexity threshold than a typical BPM implementation.

Chapter 2 – Understanding Data Chains

Business processes are often chained together by a mixture of computer interfaces and human effort. Think of data chains as the steps that are linked together to complete a business process.

A few home truths about data chains:

- **Data chains often contain too many manual steps**. Each manual link in the data chain is an opportunity for delay, keying errors and other mistakes, leading to increased costs and risk of failure.
- **Data chains only ever seem to get longer and more complex**. You may need to stretch your data chain to a new maximum to meet the requirements of a new customer. Your dealings with business partners become more varied and what used to be one link, now branches into several.
- **Data chains have a direct impact** on operating costs, employee productivity and business relationships.

"It's almost automated, except for someone having to press a button here-and-there."

Data chain example

Can you relate to the below scenario of a data chain that grows longer and more complex?

When we first put this business process into play, 20 years ago, it was pretty straightforward. A customer would phone us and request a copy of their invoice to be mailed to them.

- We would go to the ERP - Print off the invoice - Stick in in an envelope - Put in the mailbox.

A few years later, customers were starting to ask to have their invoices faxed to them.

- We add a fax link to our data chain. No big deal.

Then email took off and customers started to ask that their invoices to be emailed, in this new format called PDF. We buy an application that can generate PDFs.

- Feed the ERP invoice into this PDF generating application - Transfer the PDF to an email server -Email the PDF to the customer

That's only a little bit more work, right? It's almost automated, except for someone having to press a button here-and-there.

Then, several of our larger customers ask us to FTP their invoices. Some want the data in Excel documents, others want them as flat files. We buy FTP software.

- Write programs to map the data to Excel. There are a few data manipulations and checks needed, no big deal, that's just a few key-strokes.
- Write programs to convert the Excel documents to the required file format.
- Write the FTP scripts to move the files around

Then, our largest customer rings us and says they want us send invoices in XML format. "Not a problem", we say. "What's the IP address of your FTP server?" "FTP?" they ask. "We want to use Web services". We buy software to handle Web services.

- We hire a new developer with XML skills.
- Unfortunately the new developer does not understand our ERP system. So we need to have two developers working on this project. Plus we need two people to trouble-shoot when a live production transmission goes wrong.

The above is a simplified example. We didn't even include the many EDI-varieties customers may have asked for!

From a high level it may seem we have automated all steps, but when you drill down you can see how human effort and computer interfaces are now intertwined with (chained to) each other. We now need someone to

- print invoices from the ERP system
- mail out invoices
- send out faxes
- generate a PDF invoice
- manipulate and check the spreadsheet documents
- manage the email server
- maintain the PDF, Excel, CSV, EDI, XML mappings as database changes are made
- check the logs from the FTP servers to see whether transmission were successful
- maintain the Web services and check that documents have reached their destination

Automating Data Chains

"Each repetitive business process should be executed with the minimum amount of human intervention."

Automating data chains with a BPI solution can lower operating cost and reduce the risk of not meeting SLAs (service level agreements). Unfortunately, many companies do the opposite of automating data chains — they throw more manpower at the problem, which is an approach that in the long run negatively impacts operating margins.

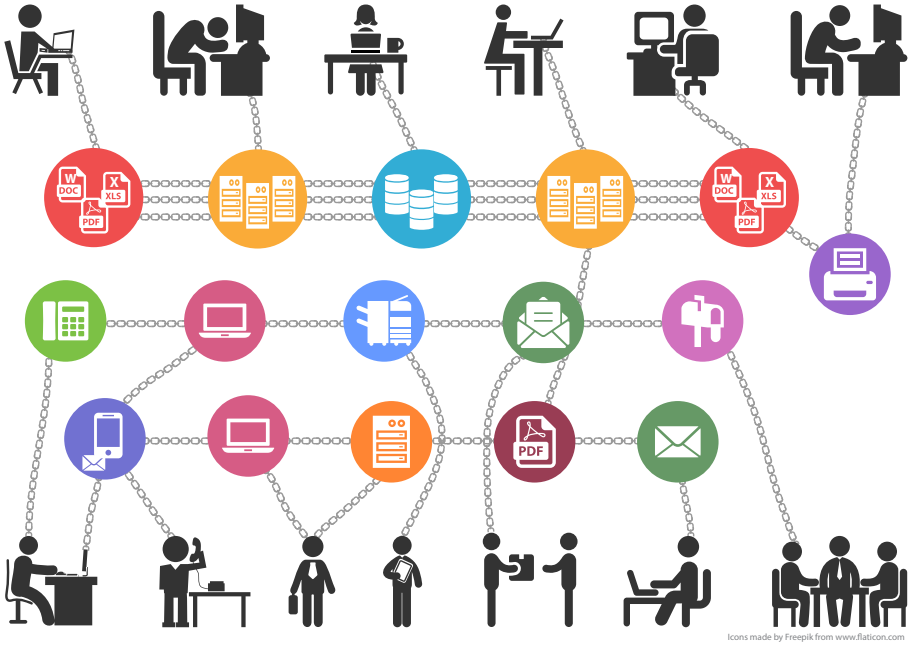


Figure 2-1: The typical data chain

BPI aims to lower operating costs, increase accuracy and improve productivity. It does so by streamlining the data chains in such a way that each repetitive business process can be executed with the minimum amount of human intervention.

Chapter 3 – Checking out the Four Key Elements of BPI

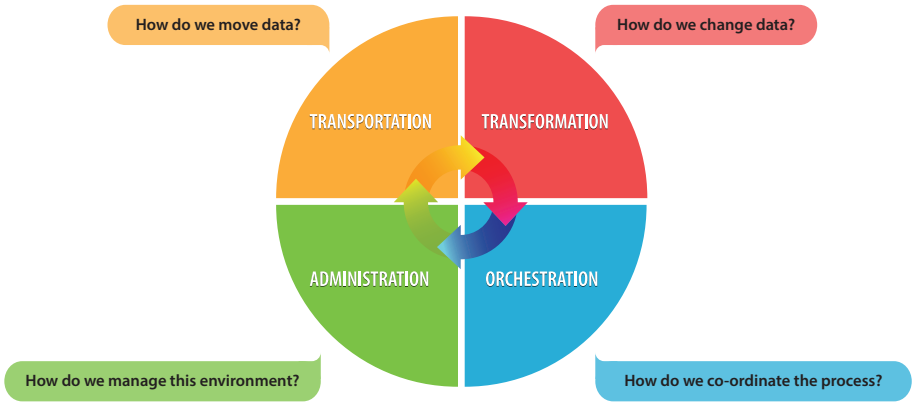
In summary, we have discussed the business outcomes Business Process Integration (BPI) aims to deliver and that it does so by automating and integrating the various links in the data chain, that way allowing for minimal human intervention.

To achieve this level of automation and integration, a proper BPI must address these key elements:

- **Transportation** — moving data between source and target (between the links in the chain).
- **Transformation** — mapping data between the different formats expected at each link.
- **Process Orchestration** — sequential and conditional execution of tasks (the process flow).
- **Administration** — auditing, error-handling/recovery, security and system operations.

"BPI must address:
- Transportation
- Transformation
- Orchestration
- Administration."

These first three areas are needed to meet the functional requirement. The fourth is to cover the operational control and monitoring of the processes that implement the data chains.



Transportation

Transport is the base and most universal element of a BPI solution. Automatically moving the data between the links in the chain is the first step to streamlining those data chains.

Consider the nature of the data to be moved, for example:

- Transactions and documents that you exchange with you trading partners, bank and financial institutions, tax authority and other external parties.
- Transactions and documents that you use within your enterprise, for example between your CRM, ERP and document management systems.

All data must be moved from source to target in a way that's automated, reliable, and traceable.

Where the data is moving between your enterprise and an external party, the transport must be conducted by using agreed protocols. You may find yourself having to conform to agreements or established practices beyond your control. It may be necessary to use a variety of protocols depending on the particular data and parties involved.

If you find yourself having to develop programmatic solutions to constantly changing requirements, you will not be able keep up. The skills, experience and the depth of the technical understanding of the variety of protocols involved make such an approach unsustainable. Your organization may be in danger of being perceived as unresponsive to the changing business environment.

Proper implementation of BPI techniques means that you can adapt to these changes quickly and without the need for coding. For example, your BPI solution should externalize transport details associated with a particular trading partner. So changes can be made almost immediately, without coding.

In Figure 3-1, you see an example of encapsulated transport details for a trading partner in a simple fill-in-the-blanks form that can be completed and altered independently of the processes that use the information.

"Your BPI solution should externalize transport details associated with a particular trading partner."

The example below shows the details for an FTP transport connection, but similar functionality should be available for other transport protocols used in your organization, such HTTP (HyperText Transfer Protocol), HTTPS (idem Secure), E-mail (SMTP and POP) and others.

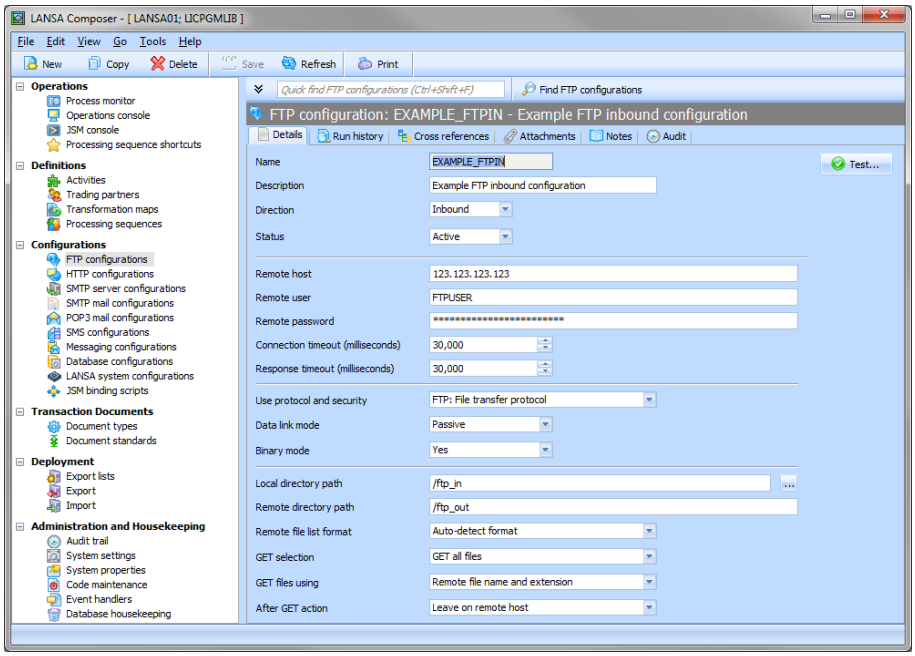


Figure 3-1: An FTP configuration

In Figure 3-2, you see how the encapsulated transport configurations may be dynamically linked (and unlinked) to a trading partner — once again independently of the processes that use the information. This provides a soft-coded link between the trading partners and the transport standards and protocols used in the corresponding trading relationship.

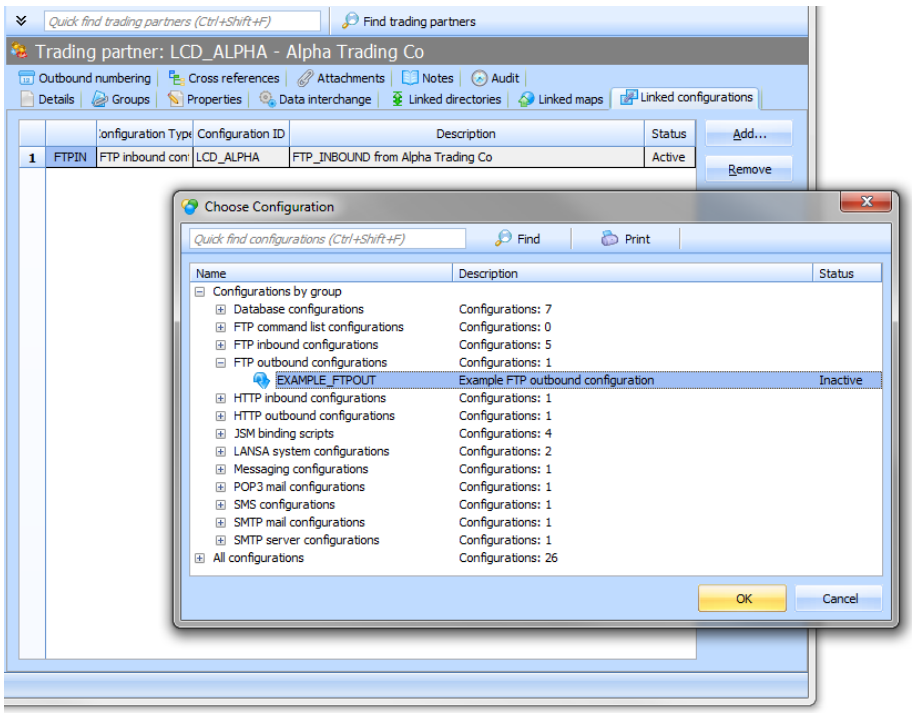


Figure 3-2: Trading partner linked configurations

"A BPI solution must be able to handle outgoing and incoming data in a variety of formats."

Your BPI solution should also provide full visibility and traceability into the data flows, both for audit purposes and as an evidential record. In Figure 3-3, you can see an example of a fully-searchable transaction document register in a BPI solution that uniquely tags each incoming and outgoing document to meet these requirements.

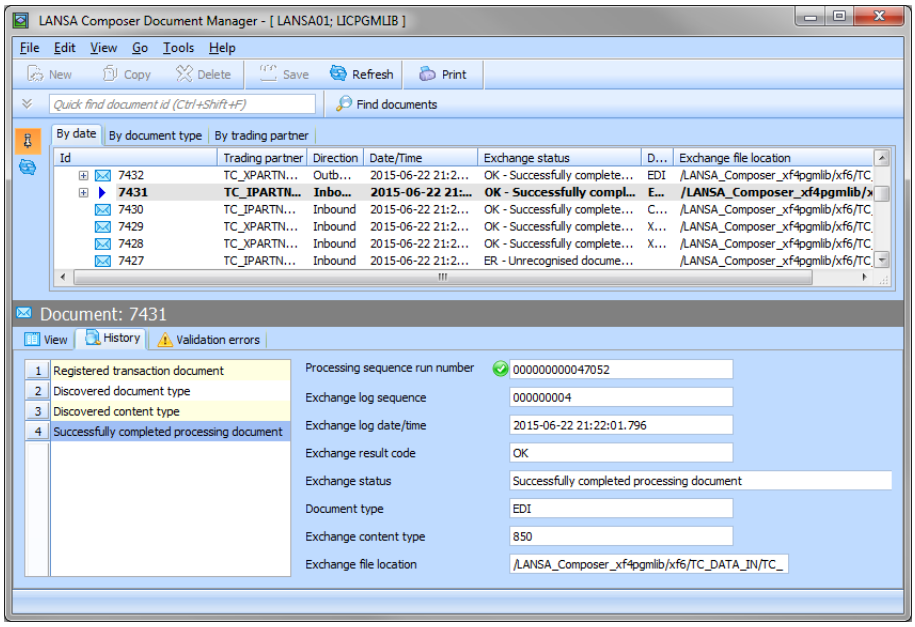


Figure 3-3: Transaction document register

Transformation

Both the format of the data and some of the actual data contents may need to be transformed.

Transforming the Data Format

An effective BPI solution needs to be capable of dealing with an almost infinite variety of data and transaction documents by using a common methodology and toolset.

A BPI solution must be able to handle outgoing and incoming data in a variety of formats

As with the transportation protocols, for some data exchanges you may be in a position to dictate the format in which data is exchanged. However, more frequently you may find yourself obliged to prepare outgoing data and receive incoming data in a variety of predetermined formats that may include:

- Electronic Data Interchange (EDI), which has many standards, such as X12, EDIFACT and Tradacoms and many iterations or versions of each of those standards and, within each standard a large array of transaction types.
- Extensible Markup Language (XML) is a generic and self-describing content form, which has a daunting array of specializations in the form of XML Schemas and DTDs (Data Type Declarations).
- Text files, frequently conforming to looser and ill-defined standards, such as comma- separated (CSV), tab-separated (TSV) as well as fixed-length and many other variations.

"A BPI solution must be able to transform data contents, using formulas, look-up tables and other rules."

- A variety of binary formats, including presentation formats, such as PDF (Portable Document Format), compression formats, such as ZIP, as well as proprietary data formats such as MS Excel workbooks (XLS and XLSX) and MS Word documents (DOC and DOCs).
- Database tables such as IBM DB2, MySQL, Oracle and Sybase. Access to these databases may require specific DBMS (Database Management System) software, or they may be accessible using open standards such as SQL, ODBC and JDBC.

Now, streamlining the data chains that use these documents almost inevitably involves transforming the data from one format to another. For example, you may need to

- Transform an EDI document received from a trading partner to an XML format used by an internal application.
- Transform a received CSV file by writing the data to a set of database tables.
- Extract data from your application database into an outbound EDI document to send to a trading partner.

Transforming Data Content

Organizations and systems may all have slightly different ways of keeping their data. When transforming data from one party to another, or from one system to another, it is therefore sometimes necessary to change the contents of the data. Some typical examples follow below:

- Changing from one unit or measurement to another. For example from centimetres to inches, from pounds to kilograms, and so on.
- Changing the format of a specific field. For example, change a date field from DDMMYY to YYMMDD.
- Using a formula to add a calculated field. For example multiply price and quantity to create a value field.
- Using a look-up table to change a field. For example, the file sent by your trading partner may contain their standard for country codes that needs to be converted to your organization's coding. Idem item codes that your trading partner uses may need to be converted to the item codes used in your organization.

Hand-code or High Level Definition?

While software developers may or may not find such tasks "interesting," a hand-coded approach to data transformations will fail the tests of agility and adaptability, as well as being expensive and error-prone.

A code-free solution is ideal for streamlining the data transformation links in your data chains. Your BPI solution should therefore provide a highly visual approach to data transformation, allowing the task to be completed by business analysts without resorting to programming tools. An effective visual mapping approach, seen in Figure 3-4, should permit such data transformations to be developed or altered very quickly, permitting rapid response to the changing trading environment.

The visual mapping solution that you use as part of your BPI solution should, at a minimum, include

- Comprehensive support for all the industry standard transaction data and document formats.
- Comprehensive support for your database formats and DBMSs (DataBase Management Systems).

"A hand-coded approach to data transformations will fail the tests of agility and adaptability."

- Support for functionality beyond simple mapping of one data item to another as part of the data transformation, such as simple calculations, aggregations, lookup-tables and other data manipulations.
- The ability to integrate with the remainder of your BPI toolset.

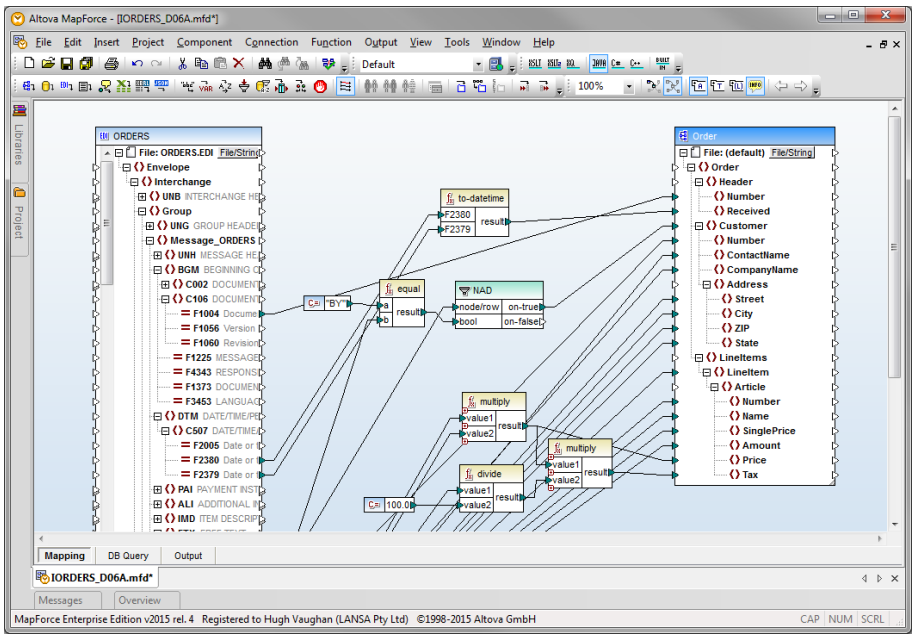


Figure 3-4: A data transformation map

In addition, a desirable feature of a BPI toolset is that it provides alternate mapping views. For example, a "rules" based view is helpful where you need to communicate the data mappings with another party as a specification.

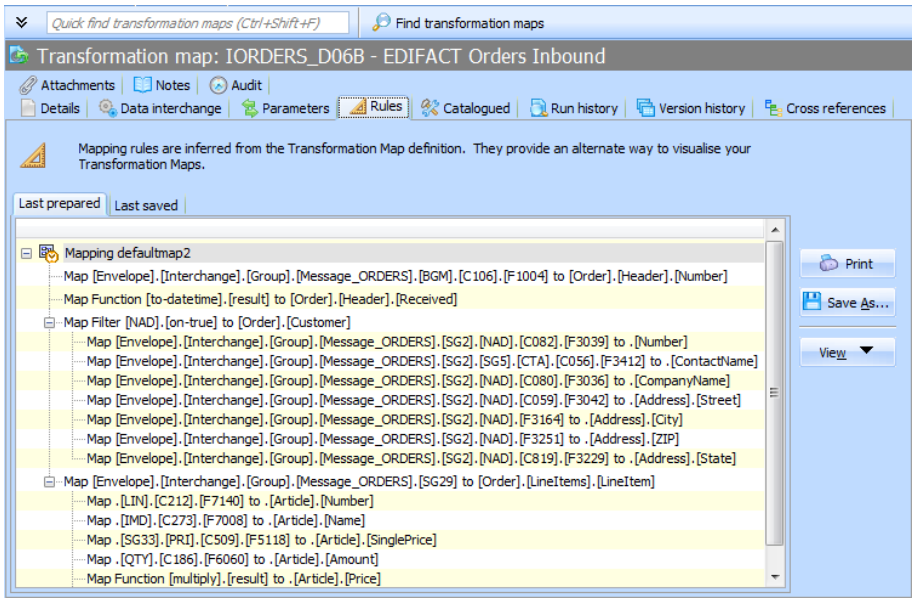


Figure 3-5: A transformation map in "Rules" view

Orchestration

"A BPI solution should automate all tasks, including repetitive and conditional processing directives."

If all you did is to streamline the Transportation and Transformation links in your data chains, then, although undoubtedly an improvement, you would've failed to benefit from the third great opportunity of BPI techniques — process orchestration.

The entire business process represented by a streamlined data chain typically consists of multiple steps, which may in addition to Transportation and Transformation, include other elements, such as:

- Repetitive processing: for example, to process each of a number of incoming sales order transactions or to repeat polling for a group of trading partners.
- Processing that will suspend and wait for new items to arrive in "watched" file system folders or in message or data queues.
- Conditional processing: for example, to process the transactions from certain trading partners different from other trading partners.
- Other routine activities, such as for file system operations (copy, move, and delete files), compressed file archive (ZIP) support, and more.
- Integration with a transaction document register to provide a record of inbound and outbound transaction document flows.
- Integration with Web services
- Exception handling capable of detecting, handling and recovering from routine operational failures such as a communications line or database server being unavailable when required.

But above all, the BPI solution you employ must permit your processes to integrate with your existing business applications wherever necessary. This application integration may be as simple as calling an existing program. While that is a minimum, you should also look for the ability to extend the BPI solution with custom functionality, such that a deeper level of integration can be accomplished where it is justified.

Occasionally, some (legacy) applications may not offer suitable APIs and the necessary domain knowledge for integrating through the application database may be unavailable. A fall-back integration option for such applications can help you to complete the "last-mile" of integration. For example, if your chosen BPI toolset can act, in robot-fashion, as a human data-entry operator, using the existing application screens, it just might make possible a level of integration that could not be accomplished by any other means.

In any event, the focus of BPI efforts is to automate all these tasks — the transportation, the transformation, the business application integration, along with repetitive and conditional processing directives — in such a way that the process can be performed, monitored, and managed as a single unit. This element is process orchestration.

Why it's usually not a good idea to have developers work on BPI

While 'Orchestration' may sound like a task for a developer, it's usually not a good idea to have developers work on this:

- It is usually not necessary! While the specific details of individual processes or data chains will vary, the fundamental nature of these tasks is now a well-understood science. This wheel has been well-and-truly invented. No need for another developer to re-invent it.
- The sheer range of protocols, standards, and techniques and the depth of the technical understanding required to implement them is often beyond the practical reach of the development team, in all but the very largest enterprises.

"Your developers should be allowed to focus on the business issues at hand, not the plumbing work needed to connect them "

Your developers should be allowed to focus on the business issues at hand, not the plumbing work needed to connect them.

- Because these processes typically are operating at the points where your internal business applications meet the outside world, they are particularly subject to the constantly changing dynamics of the world around your enterprise. They tend to change frequently and significantly. Increasingly modern enterprises need to be seen as ready and able to respond rapidly and effectively to such changes. If neglected, this can become an issue that goes to the heart of the very viability of the enterprise. Agility and adaptability are king!

There are BPI toolsets available that provide comprehensive support for these types of orchestrations — not only for the transport protocols, data formats, and application integration that you need today, but also to accommodate all of those that you may be required to implement following the NEXT acquisition, take-over, or the establishment of a new business trading relationship.

Key features of a BPI Orchestration Engine

Some of the key features of an Orchestration Engine that you should be on the lookout for include

- Code-free, visual design environment.
- Comprehensive support for routine exception handling.
- The ability to resume processes at the point of failure following routine operational mishaps.
- Seamless integration with the Transport and Transformation components, as well as support for the full range of other Orchestration activities described above.
- Ability to call business application programs.
- Extensible with custom-developed functionality.
- Ability to apply processing to abstracted trading partner definitions, such that the process is unaffected by changes and additions to those trading partner definitions, which are made separately from the process definition.

Administration

The fourth essential element of BPI is Administration. After the thrill and excitement of completing your first BPI task, consideration of the Administration element may seem mundane and boring. But in reality, the Administration element ensures that your work goes beyond the proof-of-concept stage, to become a routine and reliable part of your IT operations.

The Administration component of BPI helps to deliver a reliable and predictable solution. Administration is somewhat of an umbrella term to cover a number of aspects of how BPI solutions integrate into your operational environment. Some of the features to look for are covered in this section.

Integrating a BPI solution into your operational environment

You have completed streamlining your data chains and the resulting BPI solutions are tested and ready to go live in production. What's next? Think about how your BPI solutions are going to be initiated and how they integrate into your operational environment.

"Think about how your BPI solutions are going to be initiated."

- If the process needs to be initiated on-demand by an operations or business end-user, what do you have to do to make that functionality available to the user? How easily can the process be integrated into existing user menus and/or applications?
- Some BPI processes may need to be integrated into existing IT procedures, for example by becoming part of the nightly 'batch run'. Whether that batch run is defined in some form of job control language, or simply documented as a manual procedure for an operator to execute, you need to establish whether your BPI solution can be accommodated in that scenario.
- In other cases, you may need to incorporate a BPI process in your automated job scheduling, so it runs every ten minutes, or every hour, or every third Tuesday of the month, or whatever. If so, can your BPI solution integrate into your existing job scheduling software?
- Alternatively, perhaps your business application needs to initiate the BPI process. For example, a database trigger may need to initiate a specific BPI process when stock levels of a particular item fall below a specified threshold. In these cases, how easy is it for your existing development tools to initiate such a process?

You need to understand how BPI toolsets or techniques that you adopt will facilitate integration into your operational environment. Make sure to understand these points before committing to a particular approach.

Event notifications

BPI deals with multiple external parties, multiple internal parties, applications and databases, communication links and a constantly evolving trading environment, so it pays to expect the unexpected. If something does go wrong, the cost and the potential damage of the failure can usually be minimized by prompt and decisive action to correct the error and allow processing to continue.

The most reliable and effective way to ensure that this happens is to have the BPI solution notify the responsible person(s) when an exception occurs. Such notifications may take the form of e-mail, SMS, sending a system message, or whatever other means is appropriate to your circumstances.

When looking for features in your BPI toolset, make sure they support this type of automated event notification.

Error recovery

Many types of fairly routine operational mishaps can interfere with the successful completion of your business processes. In BPI, such mishaps may not always be within your control. Some typical examples include

- The FTP server at one of your trading partners is temporarily down.
- The database server used by your enterprise accounting software is offline to apply an upgrade.

Routine failures are absolutely predictable and expected in the BPI area, perhaps even more than in any other area of IT activity. Therefore, it's especially important that the BPI solution you implement is able to take routine events in stride. If such failures aren't factored into the plan from the beginning, the likely outcome is that they'll require extensive and complex procedures to remediate and recover. This may limit the success of your BPI solution or even prevent its acceptance.

"Your BPI solution should provide a full history overview and processing logs."

You can approach failures in two ways:

1. At the process design level, the BPI toolset should provide an exception handling mechanism that can be designed into the business process solution and allows custom handling of exceptions in whatever way is desired or appropriate. Check out the section "Orchestration" earlier in this chapter for more on this approach.
2. Your business process engine should fully support the ability of interrupted processes to be restarted and resumed from the point of failure. This approach is simple and elegant, inexpensive and effective. For example, in the event of a failed communications link, the following sequence of events may occur:
    a. The failed process notifies on-call operations staff by using an event notification mechanism.
    b. The responsible operations staff connects to the process engine from a remote location via their Web browser and quickly identifies and corrects the failed communications link.
    c. The operations staff member then restarts the failed process.
    d. Even though the process may have been in the 7th of 42 iterations of a repetitive loop and/or three deep in conditional directives, the process simply picks up and continues from the point of failure as if nothing happened.

The ability to resume a failed process from the point of failure is a highly desirable feature of a BPI implementation that helps to ensure success, even in a volatile operating environment.

Operational control and monitoring

Your BPI solution should provide a full history overview and processing logs relating to the process execution. It should also provide a user interface that allows system operators to monitor and interrogate that history and to examine detailed processing logs where necessary, as well as initiate process runs or restart failed runs.

Failures have a funny way of occurring in the wee, small hours of the morning when they're inconvenient for everyone involved. Therefore it's important that the operational interface be readily accessible and easy to use for your operations staff, even when they've just tumbled out of bed. A Web browser interface, at least as an option, is often ideal for this purpose, and even better if it is optimised for use on mobile devices.

Process Logging

There can be a substantial amount of technical detail associated with the execution of your processes. Usually such detail only becomes significant in the event of an error. When your processes complete normally, you don't need to wade through pages of unnecessary details.

A useful feature to look for in a BPI solution is the ability of your processing engine to escalate the level of logging with an appropriate level of detail in the event of a failure. This results in process logs that are clear and uncluttered for the successful cases, but that provide the depth of diagnostic information you need when things go wrong.

Management of transaction document flows

Much of the data that flows along your data chains may take the form of transaction documents exchanged with external parties, such as trading partners.

"estimate the number of man-hours that are spent at each link in the data chain reading, manipulating, re-keying, processing and moving data "

Frequently, a single process may handle multiple transaction documents, likewise a single transaction document may be processed by multiple processes. Therefore, the process-centric view alone may not provide full visibility and traceability into the flows of inbound and outbound transaction documents.

Look to your BPI solution to provide an alternate transaction document-centric view of your data flows that satisfies the requirements of auditability as an evidential record.

Chapter 4 – Tips for BPI Success

The primary goal for any Business Process Integration (BPI) project is to bring efficiencies to your business processes. In order to successfully do so, you need to assess the current processes within your organization, devise an improvement strategy, implement the improvements, and evaluate the results.

Below are some tips for success.

Assess your current Data Chains and formulate Metrics

Take a step back and review the current flows of information within your organization. Include flows with external entities. Arrange a meeting with the relevant business process owners in your company and together map on a whiteboard the data flows and how they are accomplished today.

Highlight the flows that are inefficient or in need of improvement. Call them the 'Magma flows' (slow, with the ability to inflict major damage). For each flow, formulate metrics (for example, number of daily …. email orders, catalogue updates, shipping notifications, and-so-on. Then estimate the number of man-hours that are spent at each link in the data chain reading/manipulating/re-keying/processing and moving data. Don't forget to include the man hours that may seem trivial at first, such as 'pressing a button', 'opening an email attachment' or 'copying data from one screen to another'. Having such measurements is important, as they can be used to justify and prioritize BPI projects, as well as serve as a benchmark for the assessment of success after implementation.

Devise an Improvement Strategy

Start devising an improvement strategy by first identifying possible improvements for the Magma flows. You may start discussions such as, "Our Web site hosting company might be able to accept electronic catalogue updates, let's see which formats they can handle." Or "ABC Inc. might not be able to send us EDI orders, but maybe they can send us orders in Excel format rather than by fax?" Or, "Our courier might be able to offer a Web service that allows us to check item shipping cost automatically." Or, "We may not have to re-enter that information into Salesforce, if we can trigger an automatic update from our ERP system."

During this phase, follow these key tips:

- **Identify document types/formats and transfer protocols available to your organization**. Both those that can potentially already be offered by your business partners and those that might be activated/created between your internal applications. Where applicable, identify the particular standards and/or versions that apply to those document types.

"Beware of growing an uncoordinated patchwork of BPI solutions 'as you go'."

- **Understand your application integration points:** Identify the existing application(s) with which your BPI solution will be required to integrate. Understand the APIs the application offers and/or the relevant database files/ fields and any rules that govern them. Devise a strategy to allow interactions with these applications.
- **Understand where you may need to adapt operational procedures** to accommodate a BPI solution. For each data chain/business process, determine the procedures and steps that need to be added or modified to incorporate automation. Also determine how to handle exceptions, within the capabilities of the toolset you propose to use. Agree how you allocate responsibility for monitoring and acting on those exceptions.

Identify a BPI Solution to Meet Your Needs

With your business requirements clearly defined, don't try and reinvent the wheel. Tackle your requirements with a purpose-designed BPI solution.

- Look for a BPI toolset that addresses the four key elements as explained in chapter 3: Transformation, Transportation, Orchestration and Administration.
- Make sure that these four key elements of the BPI toolset are able to work together (don't assume they do, simply because they come from the same vendor)
- Make sure the BPI toolset you select is able to work with your application and operational environment. E.g. with the database systems and operating systems in your organizations, and being able to call existing application programs.
- Beware of
    - Creating new layers of integration challenges by selecting BPI tools that don't integrate with each other.
    - Growing an uncoordinated patchwork of BPI solutions 'as you go', each requiring training and implementation effort.
    - Needing developers to get involved. None of the definitions and rules should be coded in programs. All rules should be maintainable at the level of a business analyst, in a central self-documenting BPI solution.

Implement and Evaluate in Stages

More often than not, the types of challenges that BPI seeks to address lend themselves well to an incremental implementation approach. Try to avoid a throw-away proof-of-concept BPI exercise. Rather aim for a pilot project of limited scope, of which the success has ongoing value. Such a pilot project will yield its own rewards and naturally leads to further related implementations by using, what is now, a proven recipe for success. Better to experience a series of small successes than a grand plan that fails to realize its intended objectives.

Plan for a pilot implementation that involves a limited, but representative selection of transaction types and/or trading partners. This will help you to understand the features and capabilities of your chosen BPI solution and give you a benchmark to evaluate the effectiveness of its tools. A limited scope pilot project also gives you the opportunity to acquire skills and experience with lower risk and to adapt your implementation where needed for future projects.

"Plan for a pilot that involves a limited, but representative selection of transaction types and trading partners."

Stay Focused

BPI solutions can easily spill over into application modifications. Stay focused on the job at hand. Keeping the task focused and well-defined increases the prospects of timely success and provides real and measurable benefits for your enterprise BPI initiative.

Chapter 6 – About LANSA Composer

Product information

LANSA Composer is a design and execution platform for integrating business activities involving transport, data transformation and custom business processing. LANSA Composer offers a practical and affordable Business Process Integration solution to help organizations streamline procedures, reduce human effort and minimise errors. LANSA Composer's visual environment allows system designers and business analysts, rather than developers, to rapidly automate and integrate business processes. It offers a simple and cost-effective way to get a wide variety of business transactions in and out of your ERP system with less human effort.

LANSA Composer Product information:
www.lansa.com/products/application-integration.htm

Case studies and usage examples

Below is an excerpt of Business Process Integration case studies and usage examples:
www.lansa.com/builtwithlansa/process-integration.htm

American Health Care Software Enterprises Inc. (AHC), located in South Burlington, Vermont, USA, is a solution provider to the healthcare industry with its Harmony Health Care Management System. AHC's Harmony customers use LANSA Composer for the exchange of HL7 and NCPDP secure medical information documents between their nursing home and other parties, such as pharmacies, local hospitals, labs and the American EHR (Electronic Health Records) applications.

Balitrand SA, based in Cannes, is one of France's leading hardline retailers, with over 20 stores spread over the south of France. The information for Balitrand's product catalogue comes from many suppliers who send their files in various formats, such as CSV, XLS and XML, by email or FTP. Previously supplier product and pricing updates were applied manually to the catalogue. This was a time consuming task occupying a full time resource from Balitrand's sales team. Balitrand is now using LANSA Composer to integrate and automate the process.

Baustoff Union (BU), is a leading provider of building materials, construction services and equipment rental services in Bavaria, the largest state of Germany. BU uses SMH ERP, a solution from LANSA's German business partner S.M.Hartmann. BU uses LANSA Composer to send and receive orders in XML and EDI format and to send invoices in EDIFACT, PDF and customized formats.

Casa International NV, headquartered in Belgium, is a specialist retailer of interior decorations, gifts, tableware and garden furniture. Casa's 500 stores carry about 6,000 items in their catalogue, a large part of which is also presented online at www.casashops.com, a site maintained and hosted by an external marketing company. Casa and its marketing partner have implemented a new digital assets management system using an Adobe InDesign environment. The solution uses LANSA Composer to

automate the transmission of product updates in real-time from Casa's ERP system to the digital asset management database. The information is exchanged in XML format and includes item specifications, special promotions, and so on.

Eagle Systems, Inc. (ESI) is part of the Eagle Group based in Wenatchee, Washington, USA, a leader in intermodal transportation and container repair with locations throughout the USA and Canada.

Eagle has recently implemented NetSuite Financials, a cloud-based solution, but will keep using its heavily customised IBM i-based ERP system to run its transportation management business. To synchronize and integrate the two disparate systems in this hybrid cloud environment, Eagle uses LANSA Composer and Web services. The solution

- keeps the customer master and other key files in synch
- posts tens of thousands of ERP invoices and credit notes to NetSuite, and
- lets Eagle's on premise ERP system interrogate its cloud-based instance of NetSuite in real time to check customer account balance.

Eagle is also using LANSA Composer to automate EDI and other transactions with its partners and to streamline the individual process flows and FTP transmissions with its container maintenance customers.

Frederic Printing, an RR Donnelley company located in Colorado, USA, offers an extensive range of printing services, including advanced mailing and fulfilment and the latest in print technology platforms. Frederic Printing uses LANSA Composer to automate the workflow of order processing, allowing its clients the flexibility to use a variety of data formats and delivery methods. The LANSA Composer solution is implemented in a Windows MSSQL environment and manages receiving of orders and shipping information, order acknowledgement and confirmation, shipping notifications and invoicing, file management and archiving, and several internal administrative tasks. The solution has significantly reduced manual labor, hugely increased print-on-demand capabilities, and facilitates better responsiveness and quality of service for its customers.

Green's General Foods, based in Australia, produces and distributes food products, such as baking and pancake mixes, crackers, cereals and popcorn. Green's has found a way to wind back their RPG-developed ERP modifications without losing any custom functionality. It took one business analyst only two or three months to replace over 150 RPG programs with LANSA's BPI solution. Green's evaluated several other middleware/BPM products and estimates that the cost of implementation would have been at least double, as compared to the solution implemented with LANSA Composer

Groupama AC is a subsidiary of Groupama Assurance, the 5th largest insurance company in France. When rating their potential future clients, Groupama AC uses several risk assessment criteria. Agents, responsible for customer management, use the services of specialized companies to collect the required information. Access is through Web portals, by manually querying a database, or by using third party software to the back-end systems of the service provider. Groupama AC uses LANSA Composer to provide a fully automated data collection process using Web services, removing the need for agents to manual query and navigate to a Web portal. The application triggers a LANSA Composer process which sends the data to the rating server for direct integration into the back-end system.

Kawasaki Motors Manufacturing Corp, USA (KMM), is part of Kawasaki Heavy Industries, Ltd. KMM uses LANSA Composer and LANSA Integrator for the entire process of generating purchase orders, packing slips, box labels and invoices, plus for EDI transacting with its Rail Car Division, who runs SAP.

Norfolk Iron & Metal, Co. , (NIM), a Steel Service Center headquartered in Norfolk, Nebraska USA, has evolved from a hide and scrap metal company to become one of the industry's largest carbon steel providers. NIM uses LANSA Composer in a Windows environment to exchange data with trading partners, such as steel vendors, outside processors and customers.

- Composer's automated FTP/SFTP retrieval and processing capabilities are used to poll file locations to retrieve EDI documents, as well as flat files from those trading partners that are not EDI capable. Where agreed with a trading partner, PKI encryption and authentication is applied.
- Composer's processing sequences are used to validate the files against EDI standards, add data fields and rename files.
- Data is then mapped to temporary database files and verified against business rules, before being transferred to NIM's ERP platform.
- Composer's MOVE activity is used to move files between Receiving, In Progress, Error and Archive, depending on the status of the transformation.
- Last but not least, Composer's ZIP activity is used to move files from the Windows Server to long term storage.

The integration solutions have helped NIM to increase accuracy and efficiency and to lessen the amount of time needed to respond and make decisions.

The Pantry, headquartered in North Carolina, USA, is a leading convenience store chain with over 1500 stores in the south eastern states, operating under select banners, including Kangaroo Express®. Its stores offer a broad selection of merchandise, as well as fuel and ancillary services. The Pantry has to report monthly on fuel sales and tax in the 13 states it operates. The reporting standard is EDI ANSI X12 813, but each state requires a different version and one state has moved to Web services. Monthly processing involves preparation of the tax data in Excel spreadsheets. LANSA Composer automates the transformation of the spreadsheets to the required format for each state, by working out which map to use and which fields to map. It has allowed The Pantry to standardize its reporting, improve accuracy and reduce the number of retransmissions due to errors.

The Pantry doesn't have developers on staff and the company's Tax Analyst for Motor Fuels/Sales is self-sufficient in using LANSA Composer. LANSA Composer runs on a Windows VM Server.

Port Autonome of Dunkerque is the leading French maritime port of the North Sea, the third most important port in France, and the seventh largest port in Northern Europe. The port uses LANSA Composer for a solution that serves as a hub to collect tax related data from the shipping companies that make use of the port's facilities. The data is converted to XML format and sent to the French customs authorities via secure SMTP. Customs sends back the statements of the taxes these shipping companies have to pay and the taxes are collected by the port authorities. LANSA Composer's auditing facilities log the email transmission and receipt acknowledgements of every email message, ensuring that all the checkpoints are met.

Promese is the largest manufacturer of CDs and DVDs in the Benelux region. Promese offers each of its retailer customers their own individual Web site, built with Magento, where consumers can order products. Promese takes care of the administrative and logistic fulfillment of these orders.

- The integration between the Magento Web shop application and Promese's distribution system is handled with LANSA Composer using XML transactions, both for the outbound updates to the Web shop and the inbound orders.

- Retailers can request to receive an overview of their sales orders, stock movements and returns in Excel format via email or they can download the same information via the Web portal. PDF invoice documents are encrypted using LANSA Integrator's PKI (Public Key Infrastructure) services and are either emailed or FTP-ed to the customer with LANSA Composer.
- LANSA Composer also integrates Promese's tailor-made LISA system, which handles the order intake, credit control and invoicing, and their SAP system using CSV transactions. Integration with the fulfillment and logistic area is based on the Web service capabilities of LANSA Composer.

R&R Marketing LLC is one of New Jersey's largest distributors of wines and spirits. R&R Marketing uses LANSA Composer for the routing of its fleet of 50 trucks. Using Web services, LANSA Composer exchanges information with a third party solution from UPS Logistics Technologies, refreshing the information about the location and status of deliveries every 15 minutes to R&R's DB2/400 database. The solution allows customers to get a near real-time update on the status of their deliveries via R&R's Windows-based customer Web portal, which connects to the DB2/400 database via LANSA. LANSA Composer is also used to transmit daily sales and inventory information to suppliers as CSV files.

Robinson Manufacturing Company, based in Dayton, Tennessee in the US, is a supplier of basic and fashion boxer underwear, loungewear and activewear to both the retail and wholesale markets. Robinson uses LANSA Composer for numerous projects:

- UPS address validation, where LANSA Composer validates the address and classification with UPS via a Web service Request and Response.
- 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 alert users by email about failed backups.
- Converting spool files to CSV and PDF formats
- Report Distribution that includes scheduling, creating, printing and emailing of reports
- Converting SQL files to CSV for one-time report requests by Excel users

STRATTEC Security Corporation, headquartered in Milwaukee, Wisconsin, is the world's largest producer of automotive locks, keys and related security access control products. STRATTEC uses LANSA Composer to streamline parts of its System21 ERP system, in order to provide better customer service and improved productivity to users. LANSA Composer automatically retrieves aftermarket customer orders from iConnect (its EDI VAN) in XML format, and transform them to a System21 interface file for processing. Strattec plans to move all its EDI transacting to LANSA Composer.

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, safeguarding over three million homes and businesses in the U.S. and 14 other countries. 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 services. Homeowners who take up on the advertised offer will see the fee for Terminix services added to their next monthly statement. The process of accepting the customer's order, invoicing and processing of the payment is completely automated between Terminix and its partners, with LANSA Composer using processing multiple EDI transmissions for each customer.

Wells and Young's Brewing Company is the UK's largest privately owned brewery and a leader in cask beer and premium lager.

- Wells and Young's is standardizing on using LANSA Composer for its EDI communication with external parties. The company's first EDI project involved an AS2 solution for exchanging EDI transactions in TRADACOMS format with its main distributor.
- LANSA Composer is also used to establish a formal process for exchanging customer product information between various internal systems, such as the System21 ERP system, Kelros CRM, Lotus Notes and an in-house developed Enterprise Information System.

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. Wells and Young's first EDI project involved an AS2 solution for exchanging EDI transactions in TRADACOMS format with its main distributor. LANSA Composer is also used to exchange customer data between internal systems, such as the System21 ERP system, Kelros CRM, Lotus Notes and an in-house developed Enterprise Information System.

About LANSA

LANSA is a leading provider of mobile and desktop application development tools, modernization solutions and integration software. LANSA's powerful suite of cross-platform development tools lets organizations overcome the complexity inherent in creating and maintaining business applications. LANSA's integrated tool set is also the technology foundation for a wide range of business solutions from LANSA and over 300 Business Partners. Established in 1987, LANSA supports thousands of companies around the world with its products and services.

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