



Mortgage Lending: Business Partner Integration

Business Problem

This document discusses an SOA solution to a business partner integration problem involving Title commitments in the mortgage industry.

The title-commitment process is explained in Figure 1. On receipt of loan application forms, requests for property assessment are initiated by the mortgage lender. These requests are sent to respective counties to retrieve property history, legal documents and tax information. The information received from the partner companies is collated into one document manually and it is updated in the back-end database of the enterprise. The commitment data is finally attached to the title and sent back to the mortgage lender.

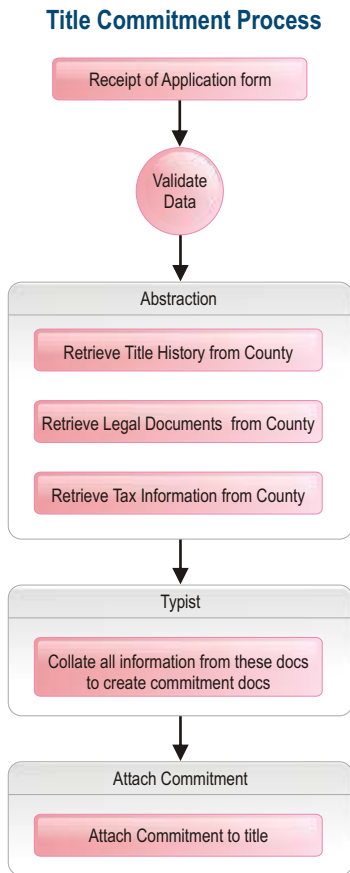


Figure 1 - Business flow of typical Title Commitment Processes

In the entire process, manual intervention is needed in the process of creating the commitment document as illustrated in Figure 2. The information received from the business partners is in the form of images.

To convert these images into PDF format, they are sent to a business partner who only focuses on data format conversion. After the appropriate legal and property information documents are received, they are separated and updated as attachments to the Title.

Typist - Creation of the Commitment Document

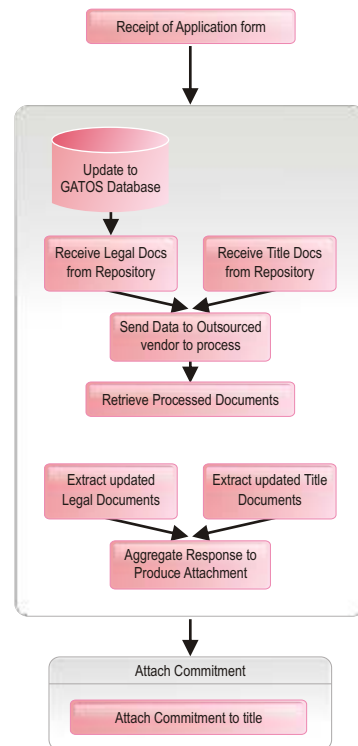
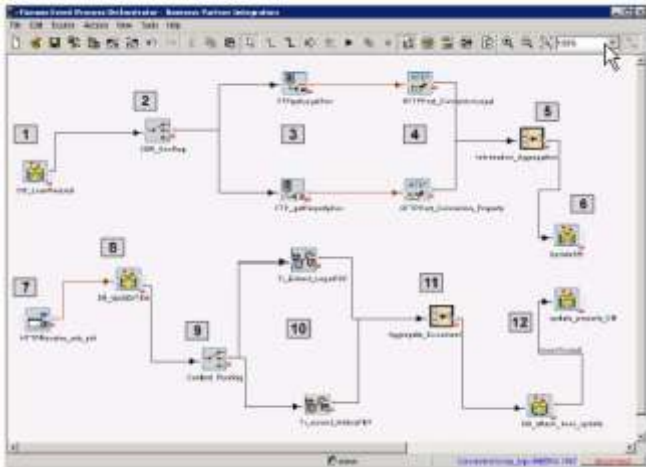


Figure 2 - Manual Intervention in the Collation of documents

The automation of Document Collation as described above, involves message sharing between the enterprise and the business partners. Fiorano's SOA solution, illustrated in Figure 3, represents the Commitment Document Creation process where the information is collected from different business partners and is sent to a business partner for conversion of the required images into PDF formats. The



modified information is aggregated and updated to a back-end database. In the implementation illustrated below, data is sent to the business partner via HTTPS calls.



Fiorano ESB™ Solution - Flow Description

1. The back-end database is polled for loan requests that are waiting for legal and property documents to be attached to them.
2. Every incoming request might not require both kinds of documents. Hence Content Based Routing (CBR) is used to check which documents are required for every request. It could be Legal, Property Information, or both. CBR checks the Title details and based on those routes the business document request on appropriate paths.
3. The documents, which are in the form of images, are obtained via HTTPS from different business partners based on the details of the property sale application.
4. These images are sent to a business partner via HTTP POST Adapters for "image to PDF" conversion.
5. On receipt of each image, a success code and a tracking number for the request is generated automatically and is sent back to the requesting application. This information is collated using the Aggregator Service.
6. The back-end database is updated with the latest status for the property using the DB Adapter.
7. After successful conversion, the business partner sends back the PDFs using HTTP Protocol back to the requesting application. This information is picked up using the HTTPReceive Service, which listens for HTTP Responses. HTTPReceive adapter sends an acknowledgment on receipt of the PDFs.
8. The status of the individual titles is updated in the back-end database accordingly using the DB Adapter.
9. The received information could have either one or two PDFs based on the details of the Title. The routing of the business document requests to appropriate routes is done by the Content Based Routing (CBR) Service so that the received information can be split into individual PDFs.
10. All the information received from the business partner is done over HTTP (i.e. the PDFs over HTTP). In addition to the PDFs, there is other information like file size, creation date, author etc. This information needs to be updated based on the format acceptable by the back-end database on par with the standards of the enterprise.
11. XSLT Transformation Services help in performing these transformations on the XML portions corresponding to each PDF.
12. An Aggregator Service is used to aggregate back the data.
13. The documents are attached to the Title. Accordingly, the back end database is updated using a Database Adapter.
14. The Database Adapter is then used to update the final status of the property sale application by setting the "Process Point".

As outlined above, Fiorano provides a unified view of business process management (converting business requirements into streamlined event driven business process), messaging (communication between the different individual components of the event process) and integration (effective information flow across the extended enterprise).



Implementation of the Title commitment process over the Fiorano ESB™ delivers the following benefits:

- Reduced cycle times for processing of Titles.
- Ease of extension of applications. The Setting of Process point was later modified into a centralized application being used at all places where ever setting of process points were required.
- Automatic error handling strategies helped in encountering and managing network and logical errors that could occur in the flow.
- Fast data conversion using generic XSLT Transformations to avoid human errors

Time taken to 'SOA Enable' the Business processes

As illustrated in the table below, Fiorano ESB™ solutions are rapidly implemented. This is primarily because the solutions have in-built capabilities to accommodate complex business scenarios with minimal programming efforts.

In the "title commitment" process implementation discussed above, the time taken for the different implementation activities is listed below.

Activity	Time taken (in man days)
Defining the event processes	5
Developing new services	0*
Implementing the event Processes	4
Testing and deployment	6
Total Time	15

* - No new services were built.

Changes done after first deployment

- Setting of "process point" required some standard operations like updating a particular table, sending mail to manager, logging of the change, etc. The same was being done at many places. It was made as a separate event processes and the same was then reused everywhere, thereby simplifying the event processes.
- Centralized error handling (like logging some types of errors and sending mails for certain types) was introduced

Time taken for Change Implementation

Activity	Time taken (in man days)
Change for making "setting of process points" and reusing it	
Defining the event processes	½
Developing new services	0
Creating the event process	1
Reusing existing services	1
Testing	1
Centralized error handling	
Defining the event processes	½
Developing new services	0
Creating the event process	1
Using it in other processes	1
Testing	½
Total Change Implementation Time	6 ½

ROI on Fiorano ESB™ SOA Solution

As illustrated in the calculations below, the ROI percentage in the first year is 298%, rising to 814% in three years. The calculations are for a Business with revenues of \$1 Billion per year, with \$500 Million/year in expenses and \$100 Million/year in profit. The resource costs have been taken as \$150,000/person/year (base salary, benefits, overhead).



Quantifiable Costs	Description	Cost for 1st Year (in USD)	Total Cost over 3 years (in USD)
Fiorano Software Costs	Fiorano ESB	95,000	95,000
Annual Software Maintenance Costs	3 years software maintenance @ 20%	19,000	57,000
Development/Testing Costs	2 people over 5 days to implement project	6,255	18,765
Services Costs (Consulting)	Fiorano Consulting Services	40,000	40,000
Other Costs	Training Costs	20,000	20,000
	Total	182,966	238,898

Quantifiable Benefits	Description	Benefit for 1st Year (in USD)	Total Benefit over 3 years (in USD)
Eliminated Development Costs	<ul style="list-style-type: none"> Reduced time to add new business partners by eliminating development costs. Reallocated highend consultants and mid-level developers=\$300,000/year 	350,000	1,050,00
Reduced change implementation cycles	<ul style="list-style-type: none"> Reduced costs and time in implementing modifications to business process flows. Decreased man days to implement new business flows = \$94,120/year Increased Productivity of IT personnel=\$84,450/year 	178,570	535,710
Real-time Deployment of new business partners	Decreased costs to integrate new partners=\$200,000/ year (Assuming 10 counties/year)	200,000	600,000
	TOTAL	728,570	2,185,710

Non-Quantifiable Benefits	Description
Value of better business partner relationships	Improved relationship with business partners strengthening business prospects
Increased business visibility and forecasting	Better accountability - Daily analysis of partner transactions
Improved marketing analysis and reduced operational risk	Improved forecasting and reduced risk in business decisions

In most B2B integration scenarios, projects are traditionally developed as point-to-point applications using different technologies resulting in a tightly coupled integration environment that are:

- Expensive to manage/maintain and change. Heavily dependent on database systems that required significant amount of coding and manual interventions to complete business processes
- Inflexible to addition/removal of partner companies. Any change in business process requires code changes
- Not scalable and low on performance
- Unable to provide for a business analyst view of the business process

With Fiorano's SOA Solution; business partner integration is done in a very cost-effective and easy manner. New partners/business entities can be added/removed from the enterprise business processes in a single step. Dependency on the backend database is reduced by using ESB as the transport protocol for communication between the enterprise backend systems and partners. New services can be rapidly added without having to incur huge IT costs. Business processes can be directly modified by the business analyst optimizing implementation cycles.

ABOUT FIORANO SOFTWARE

Fiorano Software is a leading provider of enterprise class business process integration and messaging infrastructure technology. Fiorano's network-centric solutions set a new paradigm in ROI, performance, interoperability and scalability. Global leaders including Fortune 500 companies such as American Express, Boeing, British Telecom, Lockheed Martin, NASA, POSCO, Qwest Communications, Scottrade, Schlumberger and Vodafone among others have used Fiorano technology to deploy their enterprise nervous systems.

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