



## SAP BizTalk Integration & Windows Workflow



### SAP BizTalk Integration and Windows Workflow Foundation - Case Study

#### The Summary

Client wanted to provide seamless integration of Internal Purchase Requisition with ERP and other internal systems to automate Change Request Management and Incident Reporting workflow. AG Technologies met their requirement by implementing the following:

- Developed an SAP BizTalk Integration platform that would provide an EAI backbone for their Internal Purchase Requisition systems using BizTalk 2006.
- Automated and streamlined the entire workflow process of Change Request Management and Incident Reporting using Microsoft Windows Workflow Foundation.
- Developed a front-end to trigger the query that displayed the query output.

#### The Client

Client is US \$ 1.5 billion, Service Supplier' of engine & chassis components. It is the largest exporter of auto components from India and leading chassis component manufacturer in the world. With manufacturing facilities spread over 9 locations and 6 countries - two in India, three in Germany, one in Sweden, one in Scotland, one in North America and one in China, the company manufactures a wide range of safety and critical components for passenger cars, commercial vehicles and diesel engines. It also manufactures specialized components for the railway, construction equipment, oil & gas and other industries. Company is capable of producing large volume parts in both steel and aluminium.

#### The Business Requirement

Following were the requirements of the client:

1. **Change Request Management and Incident Reporting Workflow Management:** Client had manual Change Request Management process in place. They were looking for streamlining or establishing Change Request Management procedures and processes. The manual Change Request Management process was using Word documents, Excel spreadsheets, manual emailing, manual data updates, manual report preparation, etc., they needed an automation tool designed to make this cleaner (reduce defects) and reduce the labor hours involved (cost and cycle times) with managing change requests.

#### Project Summary

**Industry:** Automobile

**Client Profile:**

Largest exporter of auto components and leading chassis component manufacturer in the world

**Business Requirement:**

Following were the requirement  
Create change Request Management and Incident Reporting Management  
SAP Purchase Requisition  
Time Office Queries

**Solution:**

The above requirements were met by automating workflow process of Change request and incident reporting Management using WWF and provided EAI backbone for seamless integration of Purchase requisition systems using BizTalk Server 2006

**Solution Benefits**

- Improved access to information.
- Better response to new business needs.
- Reduction in data redundancies.
- Eliminated Errors and Miscommunications



2. **SAP Purchase Requisition:** They wanted to create web application in ASP.NET that sends the mandatory data elements of Purchase Requisition BAPI to SAP using BizTalk Server.
3. **Time Office Queries (Oracle):** They wanted front-end to trigger the query and display the query output.

## The Solution

AG Technologies provided the following solutions for the above three requirements:

### 1. SAP Purchase Requisition:

AG Technologies created web application in ASP.NET that sends the mandatory data elements of Purchase Requisition BAPI to SAP using BizTalk Server. BizTalk Orchestration was exposed as a web service that received the mandatory data elements from web application and forward the same to SAP.

The solution details for the system were as follows:

- User enters mandatory data into the web application.
- Web application makes a web service (BizTalk Orchestration) call and sends the mandatory data.
- Web Service (BizTalk Orchestration) composes the BAPI equivalent XML message using the mandatory data elements received from the web application and sends the XML message to SAP using SAP adapter.
- SAP processes the XML message and sends the response back to the web service (BizTalk Orchestration).
- Web Service (BizTalk Orchestration) processes the XML response message and sends the same back to the web application informing user about the process result – basically it send backs the new generated Purchase Requisition Number.
- Web Application processes the XML response message and displays the response message to the user. It also displays errors if the mandatory data is not filled properly, also if the Material ID/name is incorrect.

### 2. Change Request Management and Incident Reporting Management using WWF:

AG Technologies implemented the workflow for the two activities; change request form and Incident Report Management. Both the activities had a three level Workflow application (Originator, Reviewer, Approver) which keeps track of the request send by Originator.

- The workflow starts when a user belongs to originator role submits Change Request or Incident Report request using ASP.NET page.
- The request sent by Originator goes to users who belongs to Reviewer role, the status of the request becomes "waiting for Reviewer approval". Any reviewer can either accept or reject the request .
- If any reviewer rejects the request it goes back to that originator who has made that request for modification and status of the request becomes "rejected by Reviewer". (start step1 again)



- If reviewer approves the request then it goes to the approvers. The status of the request become "waiting for the Approver approval".
- If any Approver rejects the request then it goes back to that originator who has made that request for modification and status become "rejected by Approver" ( Start step 1).
- If Approver approves the request then whole workflow is completed and the request is finally approved.
- Email are sent at each levels.
- User can monitor and view the status of all previous requests.

### 3. Time Office Queries (Oracle)

AG Technologies created a front-end to trigger the query (provided by client) and display the query output. Based on the query selected, front-end sends the request to BizTalk which in turn sends the SQL query request to Oracle DB engine using the Oracle adapter.

Basically it sends the information about the Employee, Attenadance and Leave information of logged in user.

The solution details for the system were as follows:

- User selects the query on the windows application (C#, .NET)
- Windows application sends the SQL query to BizTalk Server
- BizTalk Server sends the SQL query, using Oracle adapter, to Oracle DB engine
- Oracle DB engine sends the query result back to the BizTalk Server
- BizTalk Server sends the result back to the windows application

### Technology and Tools:

The above 3 solution was built using the following technologies:

- Visual Studio 2005 (framework 2.X.XXXX)
- SQL Server 2005
- WWF Beta 2.X
- Biztalk server 2006
- SAP Adapter for Biztalk
- Oracle 9i server
- Oracle 9i client for Biztalk (Oracle adapter to connect Oracle server)
- SAP version R3 ECC 5.0



## The Solution Benefit

- Better response to new business needs and improved decision making due to on-time availability of critical information for analysis
- Reduction in data redundancies and sources of multiple data entry thus improving data quality and reliability
- Use of BizTalk Server 2006 to reduce development time and maintenance effort
- Ability to achieve more complex orchestration and interaction between its channels and various back-office systems and to rapidly scale up the number of orchestrated transactions
- Speeds Internal Routing Processes
- Shortens the Change Process time
- Process Automation and Flexible Workflow
- Eliminates Errors and Miscommunications