

SAP Process Orchestration Makes System Technical Integration Transform into Business Integration (Including How SAP PI integrate with SAP BPM in SAP PO)



Applies to:

SAP Process Orchestration 7.31 and 7.40. For more information, visit the [SAP Process Orchestration SCN Homepage](#) and latest [SAP Process Orchestration Road Map](#).

Summary

SAP Process Orchestration (PO) combines the power of SAP Process Integration (PI), SAP Business Process Management (BPM) and SAP Business Rules Management (BRM) into one integrated offering. It provides tools to quickly automate and optimize business processes - from simple workflows to integrated processes that span applications, geographies, and organizational boundaries.

Even in the future SAP Process Orchestration combine with SAP Operational Process Intelligence (OPInt) will enable intelligent business operations.

So starting from SAP Process Orchestration, the new ONE Integration Solution came out. SAP Process Orchestration not only a composite system combine PI,BPM and BRM together, but also makes system technical integration transform into business integration from high level integration view.

However it is not easy to understand this superior integration concept of SAP PO until you really implemented some complex integration scenario.

In this article, I will present two scenario implementation with detail procedures as practice to let PI consultant adapt to PO consultant model and get the idea about how SAP PI integrate with SAP BPM in SAP PO from technical view.

Note: The usage of the sub-brand "SAP NetWeaver" has been reevaluated and the SAP NetWeaver prefix will be dropped from most of the components. This will be publicly announced at SAPPHIRE NOW in June 2014. New names will be SAP Process Orchestration, SAP Process Integration, SAP Business Process Management, and SAP Business Rules Management.

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Author Bio



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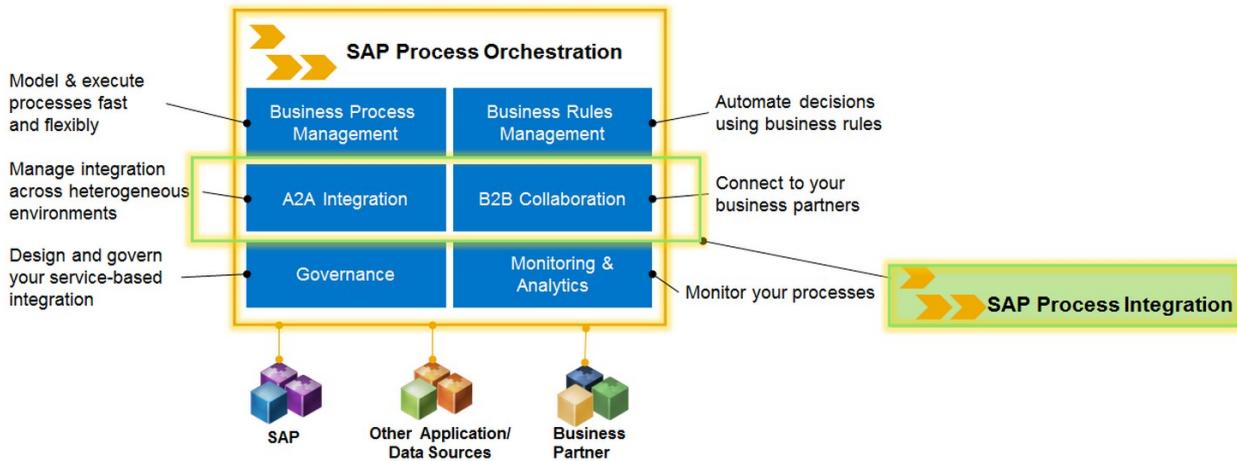
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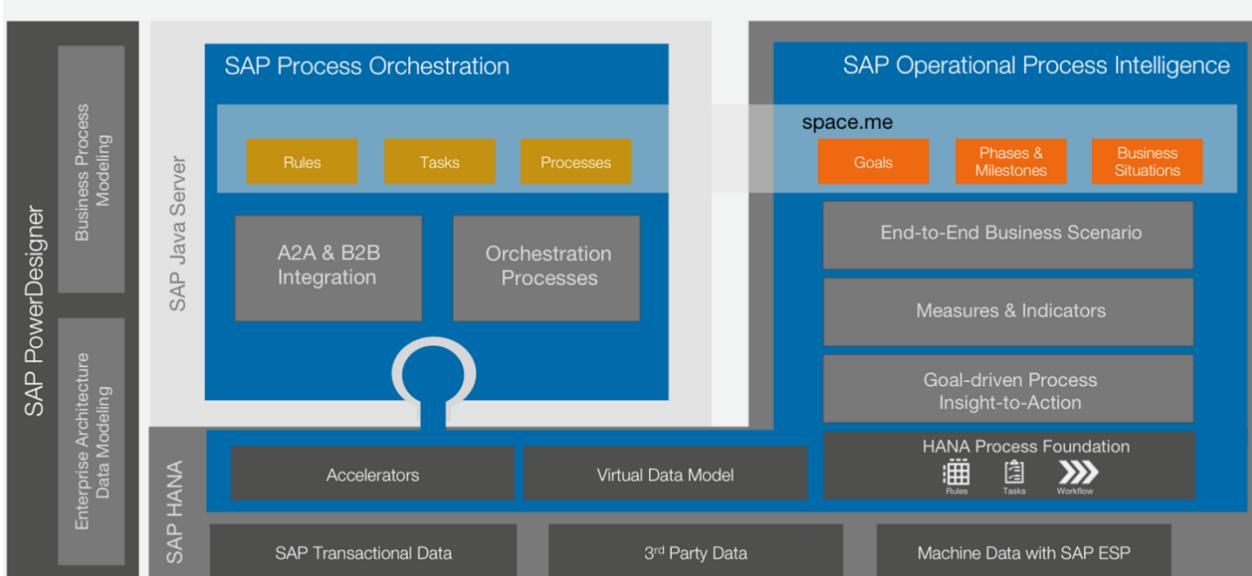
1 Abstract

SAP Process Orchestration (PO) combines the power of SAP Process Integration (PI), SAP Business Process Management (BPM) and SAP Business Rules Management (BRM) into one integrated offering. It provides tools to quickly automate and optimize business processes - from simple workflows to integrated processes that span applications, geographies, and organizational boundaries.



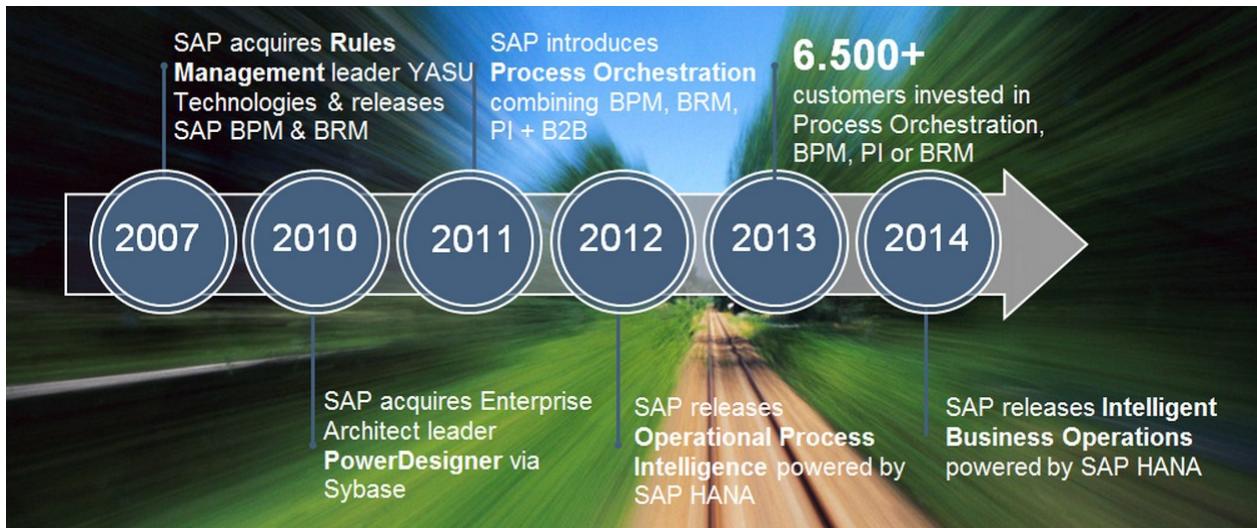
Even in the future SAP Process Orchestration combine with SAP Operational Process Intelligence (OPInt) will enable intelligent business operations.

Intelligent Business Operations with SAP HANA



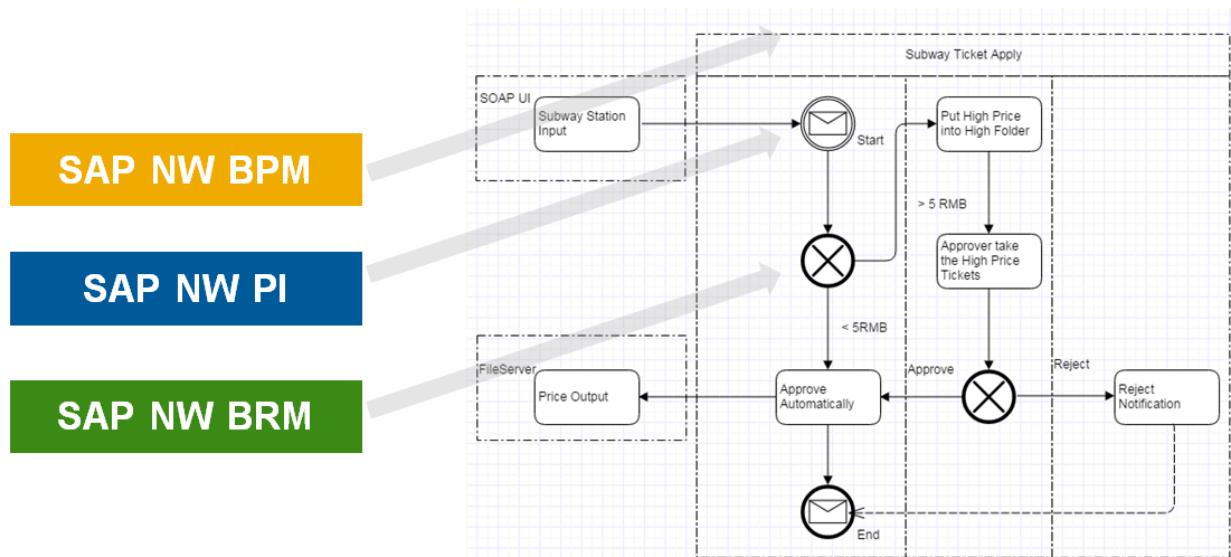
So starting from SAP Process Orchestration, the new ONE Integration Solution came out. SAP Process Orchestration not only a system combine PI,BPM and BRM together, but also makes system technical integration transform into business integration from high level integration view. From below diagram you can clearly understand major milestones in SAP's IBO journey.





However it is not easy to understand this superior integration concept of SAP PO until you really implemented some complex integration scenario.

In this article, I will present two scenario implementation with detail procedures as practice to let PI consultant adapt to PO consultant model and get idea about how SAP PI integrate with SAP BPM in SAP PO from technical view.



Each scenario implemented by two different approaches. One is by pure PI integration scenario model, another one is by PI integrate with BPM in PO model.

Practice 1 is quite simple, that is SOAP to File scenario. The purpose is to prove that every traditional PI integration scenario can also be implemented by PO (PI integrate with BPM) from pure technical view.

Of course for simple scenario without business logic, it is no need to involve BPM. But for complex scenario, especially several different systems involved with specific business logic, using PO (PI integrate with BPM, PI handle technical system message processing and BPM handle business process management) significant advantages. So scenario 2 came out.

Practice 2 is to simulate real life in Shanghai, China. The business logic of this scenario is to calculate the price of subway ticket base on the start station and end station, then send the price result to different price server (e.g. if the price of ticket is 4 RMB, then this price information send to SubwayAutoSystem_Price4)

In this article, we call only using PI as **pure PI integration scenario model**; using PI integrate with BPM scenario as **PI integrate with BPM in PO model**.

2 Best Practice and Recommendation before Implementation

2.1 Develop Environment

SAP NetWeaver Developer Studio as develop environment, it can be not only used to develop iFlow for PI integration scenario but also used to develop process for BPM. It is necessary to keep Process Orchestration release equal to the NWDS release, or un-expectation may happened during deploy process into SAP Process Orchestration AS Java server. You can download different versions of NWDS via link:

<https://nwds.sap.com/swdc/downloads/updates/netweaver/nwds/nw/731/>

For example my environment is SAP Process Orchestration 7.40 SP07, so NWDS 7.31 SP12 should choose. (5 SP phases between 7.40 and 7.31)

2.2 Draw Business Requirement Flow (for scenario business requirement)

If implemented by pure SAP PI, the scenario should be simple. However if SAP BPM involved, it is better to draw the business requirement flow to show what kinds of business data exchanged from what system.

2.3 Draw BPM Modeling Flow (for scenario using SAP PO)

If implemented by SAP PO (PI and BPM), the scenario should be complex. It is better to draw the BPM Modeling draft flow base on the business requirement flow firstly. Then you can adjust it in NWDS.

2.4 Draw Technical Message Flow (for scenario using SAP PI or SAP PO)

If implemented by SAP PO (PI and BPM), the scenario should be complex. With huge numbers of Service Interfaces involved with similar naming conversions may confuse you a lot. So it is better to draw the technical message flow with service interface and adapters. Then while you modeling BPM process in NWDS later, you can easy to find out which service interface will be used at each step.

2.5 iFlow or ICO for PI integration scenario

For PI scenario implementation, it is better to using iFlow. Because it also can be implemented in NWDS and can show end to end flow diagram. However after you deploy iFlow on SA PO, one ICO (Integration Configuration Object) will be generated automatically. So iFlow and ICO are same basically, except you can see the end to end flow diagram in NWDS for iFlow. In the document, I still using ICO to implement SAP PI integration scenario, but for naming I using iFlow1, iFlow2 to make description clear.

2.6 The sequence of implementation

After we finished business requirement flow, BPM modeling flow and technical message flow, the whole scenario presented clearly. Then base on the service interface name and data type, we develop interfaces in ESR.

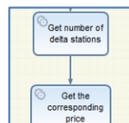
After that, we should create iFlow/ICO for PI integration scenario, because from PI view, even you using BPM process, but this process have related PI message, and PI message have to come from one completed iFlow/ICO. So during PI integrate with BPM in PO model, we should treat BPM as business system/component just as normal system.

While iFlow/ICO finished, we should assign send system and service interface in each steps in BPM process modeling. The most important thing is that:



1. For Start Event:

It should assign BPM receiver/inbound interface (BPM received from PI) and using output mapping to assign PI message type/value into BPM local data object.



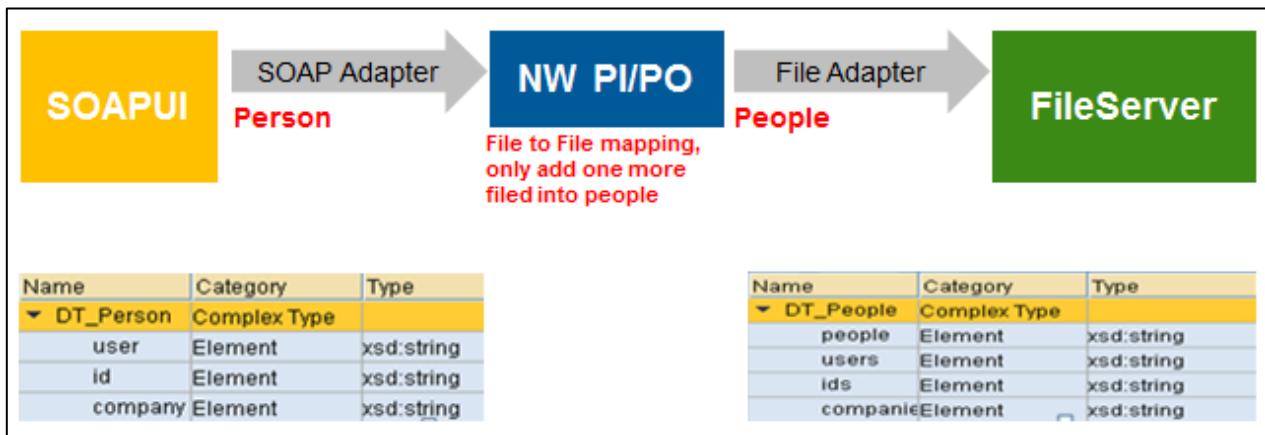
2. For Automated Activity:

It should assign BPM send/outbound interface(BPM send to PI) and using input mapping to assign BPM local data object into PI message type/value to start the corresponding iFlow/ICO, also you can using output mapping to put this iFlow/ICO's receive message type/value into BPM local data object which may be used by next Automated Activity.

3 Practice 1: SOAP to File (simple scenario)

3.1 Business Requirement Flow

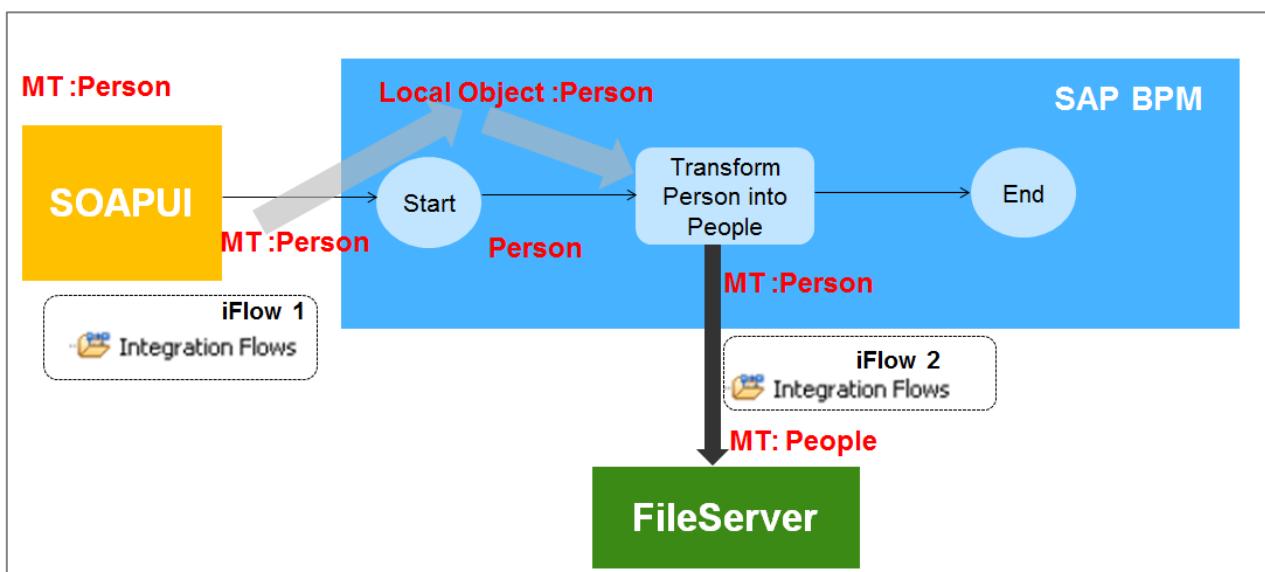
SOAPUI system send Person message, then PI convert it into People message with very simple mapping for test purpose (filed to filed map and only add one more additional filed). To get this business requirement, it can be implemented by SAP PI or SAP PO (PI integrate with BPM). Of course if such scenario in real life, no need to using BPM, the purpose to using BPM here is to improve that normal PI scenario can transform/enhance into PI integrate with BPM in PO model and how to implement them.



3.2 BPM Modeling Flow (if using PI integrate with BPM in PO model)

Two iFlow/ ICO involved, 1st iFlow is from SOAPUI to BPM Start Event via PI, 2nd iFlow is from BPM Automated Activity to File via PI. MT_Person means Person message type in PI, Person means Local BPM Object Variant. The most important thing is that:

IMPORTANT: In iFlow, they are all PI message type (e.g. MT_Person/ MT_People) exchange via PI mapping. In BPM inside, Local BPM object variant (e.g. start event's Person/ Automated Activity's Person) exchange with PI message type via BPM mapping.

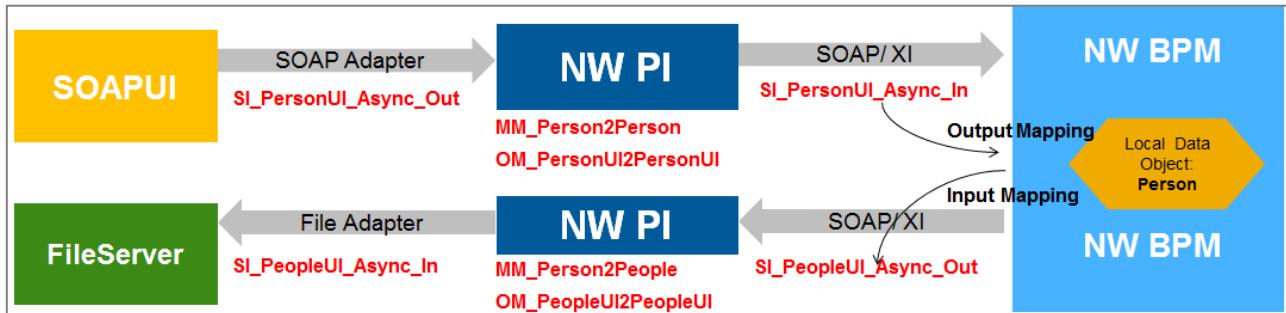


3.3 Technical Message Flow (for scenario using SAP PI or SAP PO)

3.3.1 SAP PI – System Message Technical Integration



3.3.2 SAP PO (PI integrate with BPM) – System Message Technical Integration



3.4 Service Interface with corresponding Message Type Used

Please note that only 2 different date types involved. That are MT_Person and MT_People. To make them easy understand, for PI integrate with BPM in PO model, I add "UI" after original Person and People message type.

	MT_Person	MT_Person																																																	
Message Structure	<p>Display Data Type</p> <p>Name: DT_Person Namespace: http://TechnicalPI_to_BusinessPO Software Component Version: BIT400ADVANCETRAINING 1.0 of leonli Description:</p> <p>Classification: Free-Style Data Type Qualify Schema: None</p> <p>Type Definition: XSD</p> <p>Table:</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Category</th> <th>Type</th> <th>Occurrence</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td>DT_Person</td> <td>Complex Type</td> <td></td> <td></td> <td></td> </tr> <tr> <td>user</td> <td>Element</td> <td>xsd:string</td> <td>1</td> <td></td> </tr> <tr> <td>id</td> <td>Element</td> <td>xsd:string</td> <td>1</td> <td></td> </tr> <tr> <td>company</td> <td>Element</td> <td>xsd:string</td> <td>1</td> <td></td> </tr> </tbody> </table>	Name	Category	Type	Occurrence	Default	DT_Person	Complex Type				user	Element	xsd:string	1		id	Element	xsd:string	1		company	Element	xsd:string	1		<p>Display Data Type</p> <p>Name: DT_People Namespace: http://TechnicalPI_to_BusinessPO Software Component Version: BIT400ADVANCETRAINING 1.0 of leonli Description:</p> <p>Classification: Free-Style Data Type Qualify Schema: None</p> <p>Type Definition: XSD</p> <p>Table:</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Category</th> <th>Type</th> <th>Occurrence</th> </tr> </thead> <tbody> <tr> <td>DT_People</td> <td>Complex Type</td> <td></td> <td></td> </tr> <tr> <td>people</td> <td>Element</td> <td>xsd:string</td> <td>1</td> </tr> <tr> <td>users</td> <td>Element</td> <td>xsd:string</td> <td>1</td> </tr> <tr> <td>ids</td> <td>Element</td> <td>xsd:string</td> <td>1</td> </tr> <tr> <td>companie</td> <td>Element</td> <td>xsd:string</td> <td>1</td> </tr> </tbody> </table>	Name	Category	Type	Occurrence	DT_People	Complex Type			people	Element	xsd:string	1	users	Element	xsd:string	1	ids	Element	xsd:string	1	companie	Element	xsd:string	1
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1. Pure PI Scenario	SI_Person_Async_Out	SI_People_Async_In																																																	
2. PI integrate with BPM	SI_PersonUI_Async_Out SI_PeopleUI_Async_In SI_PeopleUI_Async_Out	SI_PeopleUI_Async_In																																																	

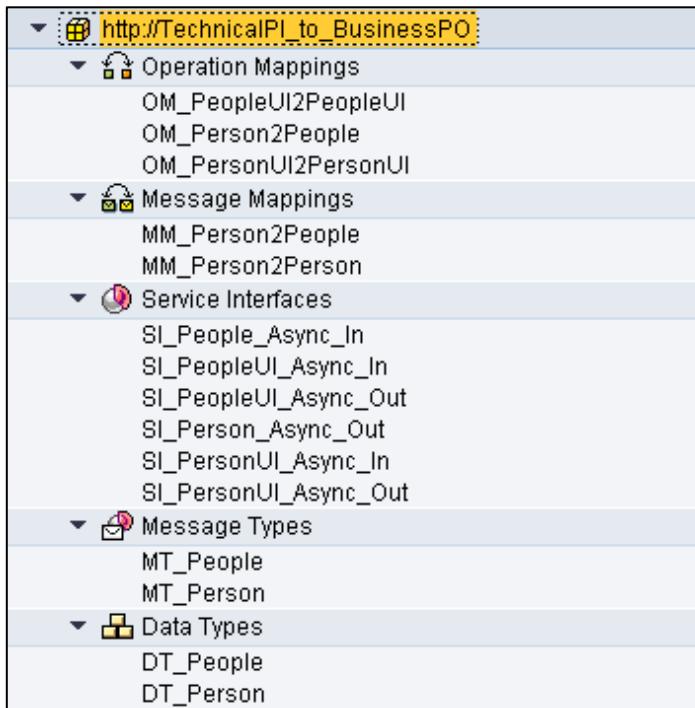
3.5 Operation Mapping with corresponding Message Mapping Used

Only 2 Message Mapping involved. That are MM_Person2Person(MT_Person to MT_Person without change) and MM_Person2People(MT_Person to MT_People to add one additional filed)

	<i>Operation Mapping</i>	<i>Message Mapping</i>
MM_Person2Person	1.Pure PI integration Scenario	
	None	
	2.PI integrate with BPM Scenario	
	OM_PersonUI2PersonUI	
MM_Person2People	1.Pure PI integration Scenario	
	OM_Person2People	
	2.PI integrate with BPM Scenario	
	OM_PeopleUI2PeopleUI	

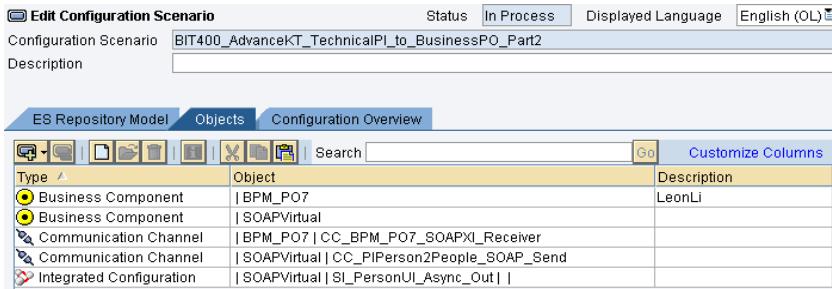
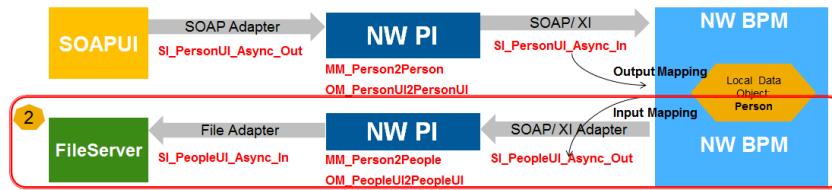
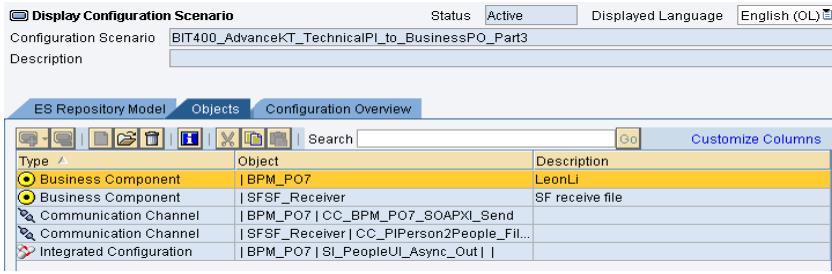
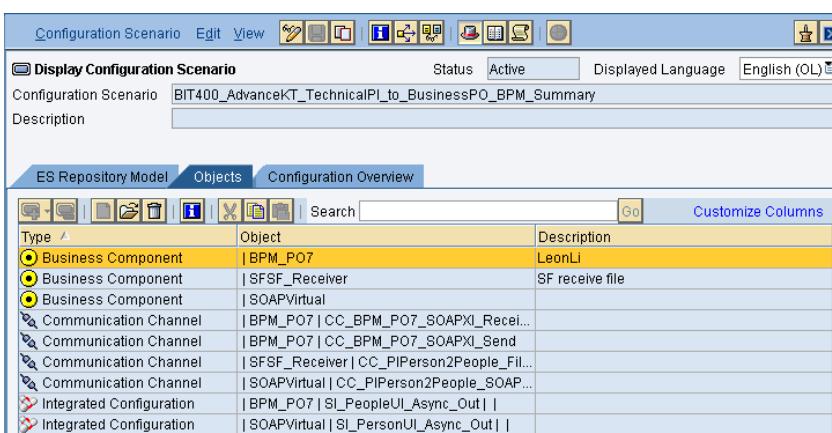
3.6 All Object in ESR

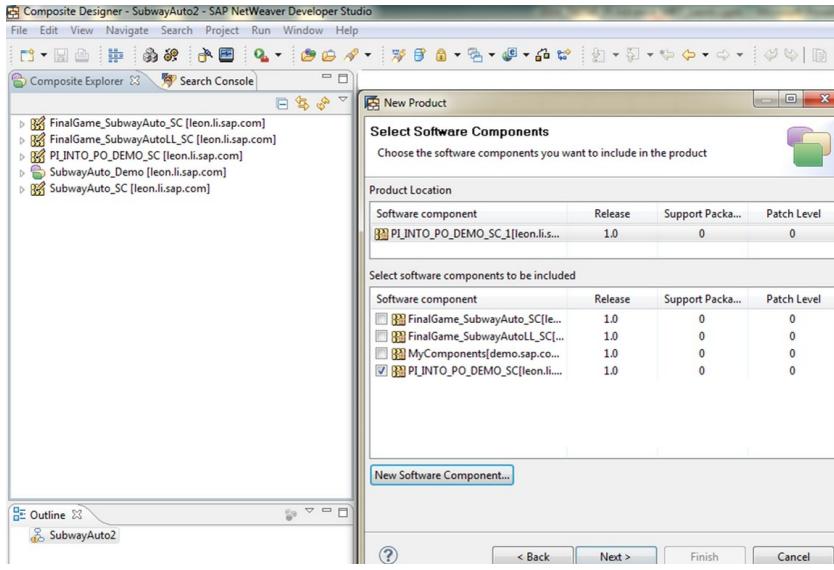
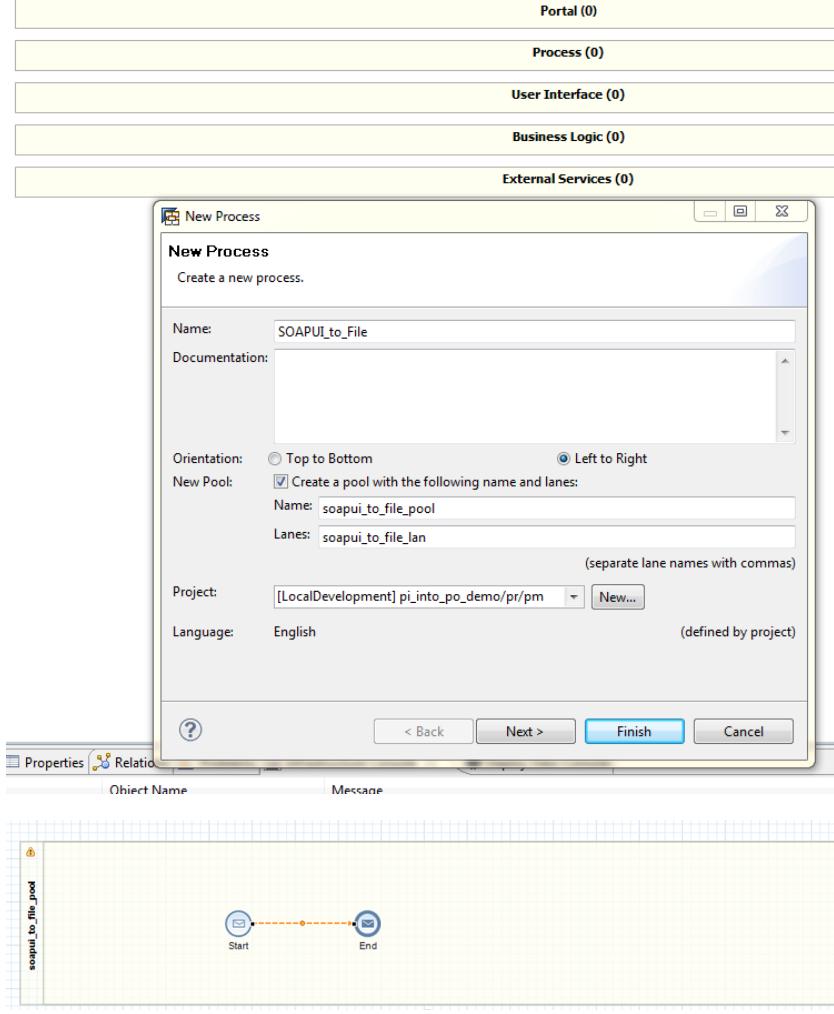
After all data type, message type, service interface, message mapping and operation mapping developed in the ESR.

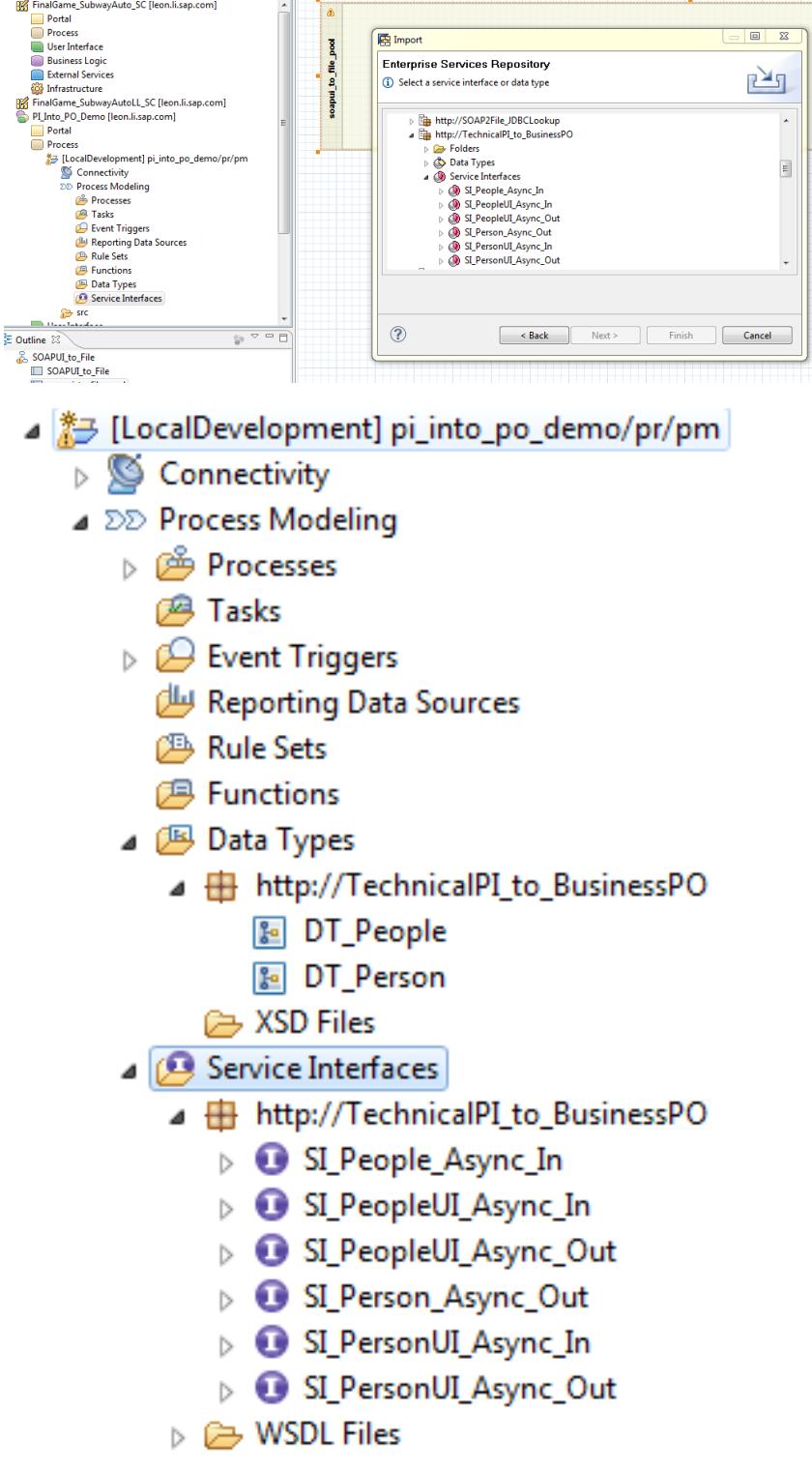


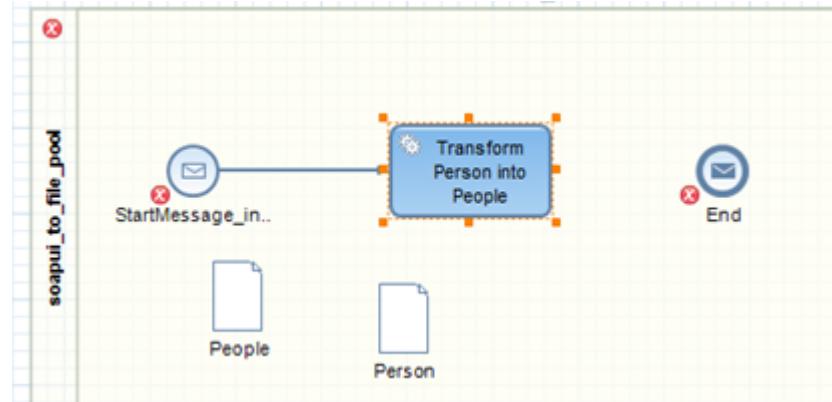
Step	Description	Screenshot
3.7 Pure PI integration Scenario Model		
3.7.1	<p>iFlow in NWDS or ICO in Integration directory.</p> <p>Send Business Component - SOAPVirtual send Person Message to PI via SOAP Adapter, then PI convert it into People Message to Receive Business Component - SFSF Receiver via File Adapter</p>	
3.7.2	Using WS Navigator to send testing message.	
3.7.3	Result	

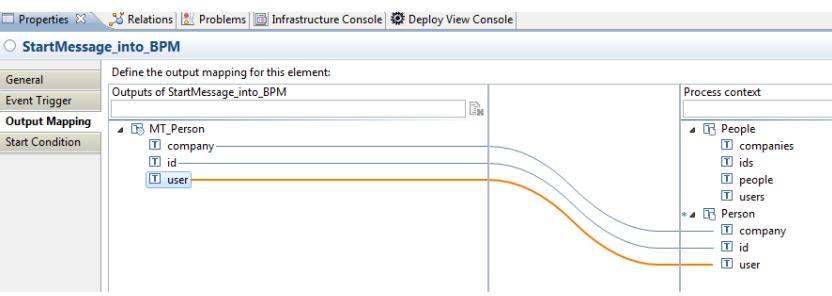
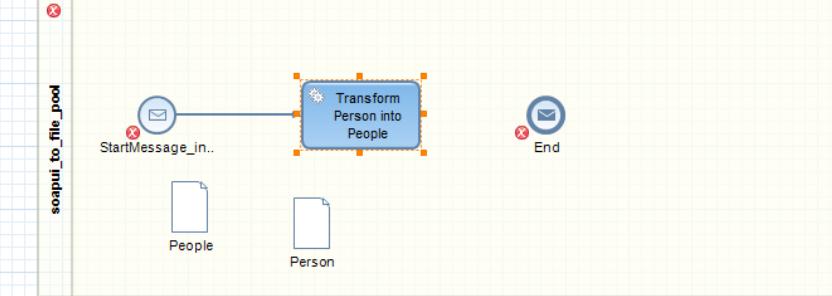
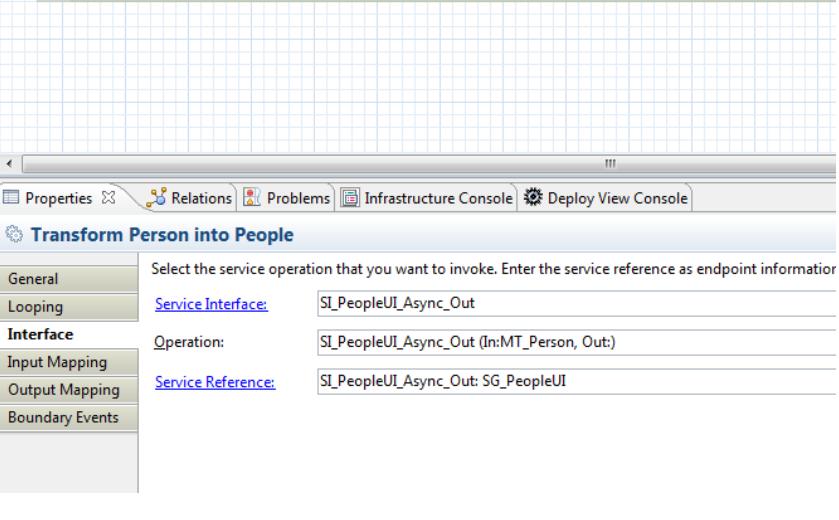
Step	Description	Screenshot
3.8 PI integrate with BPM in PO Model		
3.8.1	Configure SOAP Adapter (based on XI) for BPM send channel and receive channel	
3.8.2	iFlow 1: SOAPVirtual send PersonUI Message to PI via SOAP Adapter, then PI send it into BPM_PO7 without format change via SOAP/XI Adapter. SOAPUI->PI->BPM	

		
3.8.3	<p>iFlow2:</p> <p>BPM_PO7 send PersonUI Message to PI via SOAP/XI Adapter, then PI convert it into PeopleUI Message and received by SFSF Receiver via File Adapter</p>	 
3.8.4	<p>Configuration Summary:</p> <p>Merge iFlow1 and iFlow2 into one CS</p>	 <pre> graph TD subgraph Top SOAPUI((SOAPUI)) --> PI1((PI)) PI1 --> NW_BPM1((NW BPM)) NW_BPM1 --> PI2((PI)) PI2 --> FileServer((FileServer)) end subgraph Bottom SOAPVirtual[SOAPVirtual] --> BPM_PO7[BPM_PO7] BPM_PO7 --> SFSF_Recei[SFSF_Recei..] end </pre>

3.8.5	<p>Process in BPM:</p> <p>Go to NWDS to create Product and SC via Composite Explorer or create process standalone via Process Development.</p>	
3.8.6	<p>Process in BPM:</p> <p>Then create Process with pool.</p>	
3.8.7	<p>Process in BPM:</p>	

	<p>Import the interfaces which will be involved</p> <p>Note: BPM outbound interface need Service Group/reference.</p> <p>Because it need maintain BPM as sender with XI Adapter. No need for inbound BPM interface. It can be deleted later or deploy may failed.</p> 
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	<p>Service References</p> <p>▼ List of Service References</p> <ul style="list-style-type: none"> SG_PeopleUI http://TechnicalPI_to_BusinessPO <ul style="list-style-type: none"> SL_PeopleUI_Async_Out SampleTimerServiceGroup <p>Service References</p> <p>Properties Relations Problems Infrastructure Console Deploy View Console</p> <p>Service Reference</p> <p>Overview Service Reference Details</p> <p>Reference Details</p> <table border="1"> <tr> <td>ID</td> <td>c199fd84-5b3e-4be9-8574-052b278213b6</td> </tr> <tr> <td>Type</td> <td>XI</td> </tr> <tr> <td>Port Type Name</td> <td>SL_PeopleUI_Async_Out</td> </tr> <tr> <td>Port Type Namespace</td> <td>http://TechnicalPI_to_BusinessPO</td> </tr> </table> <p>Custom Properties</p> <p>Sender Component: BPM_PO7</p>	ID	c199fd84-5b3e-4be9-8574-052b278213b6	Type	XI	Port Type Name	SL_PeopleUI_Async_Out	Port Type Namespace	http://TechnicalPI_to_BusinessPO
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Port Type Name	SL_PeopleUI_Async_Out								
Port Type Namespace	http://TechnicalPI_to_BusinessPO								
3.8.8	<p>Process in BPM:</p> <p>Import MT_Person and MT_People into pool, and rename them to treat Person and People data objects as BPM Local objects.</p> 								

3.8.9	<p>Process in BPM:</p> <p>Create service reference for start. Combine Service Interface to Trigger.</p> <p>And using output mapping to map PI message type MT_Person into BPM Local data object Person.</p>	<p>Overview Define general information such as the trigger name and documentation</p> <p>Name: ST_StartMessage</p> <p>Documentation:</p> <p>Endpoint Name: <a href="http://<hostname>:<port>/bpm/leonisapcom/piintopodemo/pr/pm/STStartMessage">http://<hostname>:<port>/bpm/leonisapcom/piintopodemo/pr/pm/STStartMessage</p> <p>Locale: English</p> <p>Settings Define properties such as service interface and operation:</p> <p>Service: SI_PersonUI_Async_In</p> <p>Operation: SI_PersonUI_Async_In (In:MT_Person, Out:)</p> <p></p>
3.8.10	<p>Process in BPM:</p> <p>Create service reference for Automated. Combine Service Interface to it. BPM send out interface.</p> <p>And using input mapping to map BPM Local data object Person into PI message type MT_Person.</p> <p>This Automated should be iflow2, then assign BPM sender with BPM sender interface in Service reference. That means trigger this Automated's iFlow.</p>	<p></p> <p></p>

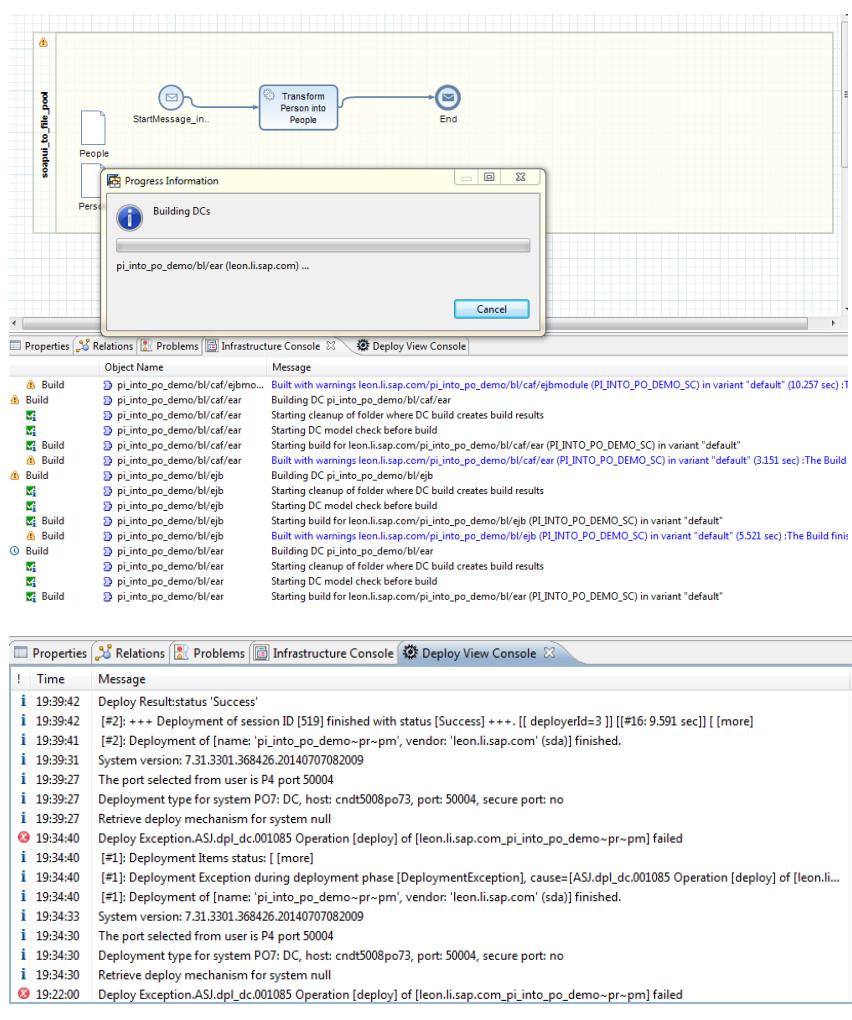
		<p>The screenshot shows two SAP Process Orchestration interface windows. The top window is titled 'Service Reference' under 'Service References', showing details for a reference named 'c199fd84-5b3e-4be9-8574-052b278213b6'. It includes fields for 'ID' (c199fd84-5b3e-4be9-8574-052b278213b6), 'Type' (XI), 'Port Type Name' (SI_PeopleUI_Async_Out), and 'Port Type Namespace' (http://TechnicalPI_to_BusinessPO). The bottom window is titled 'Transform Person into People' under 'Properties', showing the 'Input Mapping' tab. It defines the input mapping for this activity, mapping 'Process context' (People, company, id, user) to 'Inputs of Transform Person into People' (MT_Person, company, id, user). The 'Process context' is expanded to show 'People' (companies, ids, people, users) and 'Person' (company, id, user). The 'Inputs of Transform Person into People' is expanded to show 'MT_Person' (company, id, user).</p>
3.8.11	<p>Process in BPM:</p> <p>Connect to End Event, process modeling finished</p>	<p>The screenshot shows a BPMN process diagram. It starts with a 'StartMessage_in...' message, which flows into a rounded rectangle labeled 'Transform Person into People'. This activity is connected to an 'End' event, represented by a circle with a double-lined exit arrow. On the left side of the diagram, there is a vertical pool labeled 'sapui_to_file_pool' containing two objects: 'People' and 'Person', each represented by a document icon.</p>

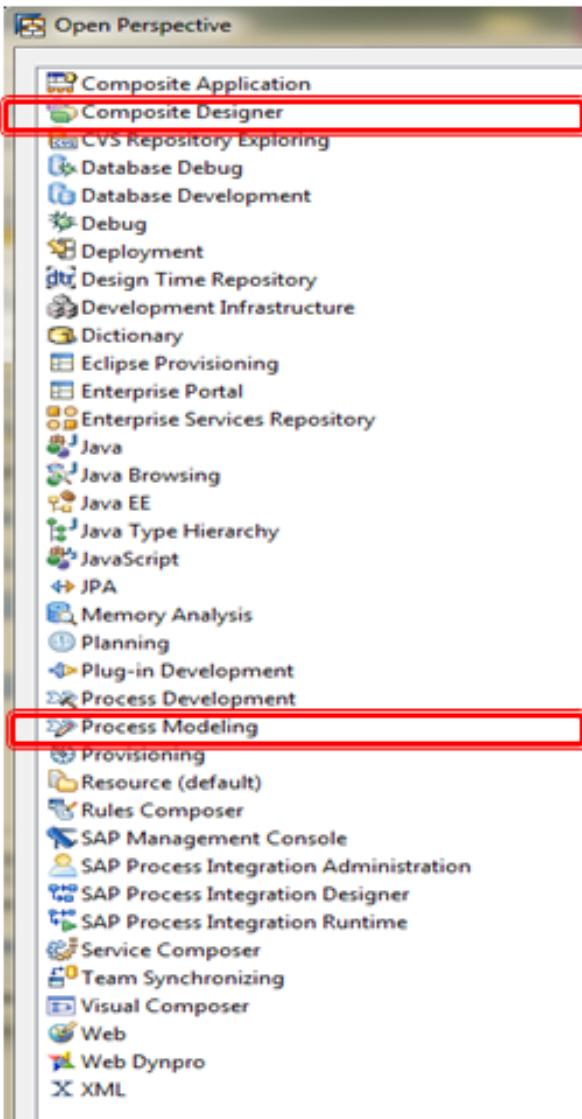
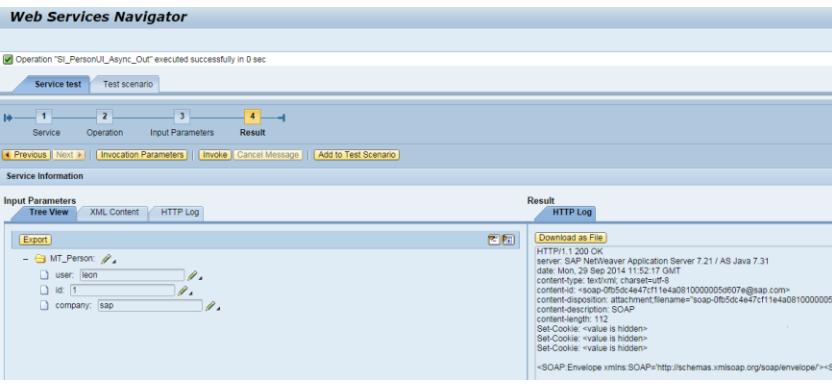
3.8.12

Deploy BPM:

Note: Process can be created in Composite Designer with under product. However it may cause additional SC generated. some exception may happen while deploy.

So process also can be created in process development under software component.



	
3.8.13	<p>Testing: Using WS Navigator</p> 

3.8.14	<p>Result</p> <div style="display: flex; flex-direction: column; height: 100%;"> <div style="flex-grow: 1;"> <div style="border-bottom: 1px solid #ccc; padding-bottom: 5px;"> <p>Message Monitor: Monitor Messages</p> </div> <div style="background-color: #f9f9f9; padding: 5px;"> <p>Time Range: Sep 29, 2014 7:00:00 PM - Sep 29, 2014 8:00:00 PM</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Integration Scenario</th> <th>Sender Party</th> <th>Sender Component</th> <th>Receiver Party</th> <th>Receiver Component</th> <th>Interface</th> <th>Interface Namespace</th> </tr> </thead> <tbody> <tr> <td>SI_PersonUI_Async_Out</td> <td>BPM_P07</td> <td>SOAP/Receiver</td> <td>SI_PersonUI_Async_Out</td> <td>SI_PersonUI_Async_Out</td> <td>http://TechnicalPI_to_BusinessPO</td> <td></td> </tr> <tr> <td>ISODAP/VirtualSI_PersonUI_Async_Out</td> <td>SOAP/Virtual</td> <td>BPM_P07</td> <td>SI_PersonUI_Async_In</td> <td>SI_PersonUI_Async_In</td> <td>http://TechnicalPI_to_BusinessPO</td> <td></td> </tr> </tbody> </table> </div> <div style="flex-grow: 1;"> <p>Manage Processes: Process Instances</p> <div style="border-bottom: 1px solid #ccc; padding-bottom: 5px;"> <p>Show: <Modified View> Actions Show Archive Recover Export Add administrator</p> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>User:</th> <th>User Role:</th> <th>Reporting Data:</th> <th>Error Status:</th> <th>Completed From / To:</th> </tr> </thead> <tbody> <tr> <td>All</td> <td>All</td> <td>All</td> <td>All</td> <td>All</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Status</th> <th>Lifecycle Status</th> <th>Process Name</th> <th>Process Subject</th> <th>Process Instance ID</th> <th>Started at</th> </tr> </thead> <tbody> <tr> <td>OK</td> <td>Completed</td> <td>SOAPUI_to_File</td> <td>soapui_to_file_pool</td> <td>12342b547cf11e4963e0000005d907e</td> <td>Sep 29, 2014 7:52:22 PM CST</td> </tr> </tbody> </table> <p>Details of the Process Instance SOAPUI_to_File</p> <p>soapui_to_file_pool</p> <p>Diagram:</p> <pre> graph LR Start((StartMessage_into_BPM)) --> Transform[Transform Person into People] Transform --> End((End)) subgraph soapui_to_file_pool [soapui_to_file_pool] direction TB subgraph People [People] direction TB P1[Person] --> P2[user] P2 --> P3[id] P3 --> P4[company] end Start End Transform end </pre> <p>File Explorer:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Filename</th> <th>Filesize</th> <th>Filetype</th> <th>Last modified</th> <th>Permissions</th> <th>Owner/Gro...</th> </tr> </thead> <tbody> <tr> <td>people20140929-162033-965.txt</td> <td>216</td> <td>TXT File</td> <td>9/29/2014 4:20:...</td> <td></td> <td></td> </tr> <tr> <td>people20140929-195227-231.txt</td> <td>215</td> <td>TXT File</td> <td>9/29/2014 7:52:...</td> <td></td> <td></td> </tr> </tbody> </table> <p>Notepad:</p> <pre> C:\Users\i076352\AppData\Local\Temp\fz3temp\2\people20140929-195227-231.txt - Notepad ++ 文件(F) 编辑(E) 搜索(S) 视图(V) 格式(M) 语言(L) 设置(T) 宏(O) 运行(R) 插件(P) 窗口(W) ? 1 2 </people><users>leon</users><ids>1</ids><companies>sap</companies></ns0:MT_ </pre> </div> </div> </div>	Integration Scenario	Sender Party	Sender Component	Receiver Party	Receiver Component	Interface	Interface Namespace	SI_PersonUI_Async_Out	BPM_P07	SOAP/Receiver	SI_PersonUI_Async_Out	SI_PersonUI_Async_Out	http://TechnicalPI_to_BusinessPO		ISODAP/VirtualSI_PersonUI_Async_Out	SOAP/Virtual	BPM_P07	SI_PersonUI_Async_In	SI_PersonUI_Async_In	http://TechnicalPI_to_BusinessPO		User:	User Role:	Reporting Data:	Error Status:	Completed From / To:	All	All	All	All	All	Status	Lifecycle Status	Process Name	Process Subject	Process Instance ID	Started at	OK	Completed	SOAPUI_to_File	soapui_to_file_pool	12342b547cf11e4963e0000005d907e	Sep 29, 2014 7:52:22 PM CST	Filename	Filesize	Filetype	Last modified	Permissions	Owner/Gro...	people20140929-162033-965.txt	216	TXT File	9/29/2014 4:20:...			people20140929-195227-231.txt	215	TXT File	9/29/2014 7:52:...		
Integration Scenario	Sender Party	Sender Component	Receiver Party	Receiver Component	Interface	Interface Namespace																																																								
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ISODAP/VirtualSI_PersonUI_Async_Out	SOAP/Virtual	BPM_P07	SI_PersonUI_Async_In	SI_PersonUI_Async_In	http://TechnicalPI_to_BusinessPO																																																									
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3.9 How to Send Testing Message to SAP BPM

As SAP BPM can accept XI, WS and RFC protocol, using following two approaches can send testing message to SAP BPM.

1. Any kinds of type messages. Sender Send message to PI, then using corresponding send adapter (e.g. SOAP, IDoc, JDBC) convert into PI-XML, then using SOAP adapter base on XI protocol send to BPM. In such mode, you can treat PI as a huge adapter support several message protocol into XI protocol then connect with BPM. In our above practice1, 1st iFlow is used for this purpose. SOAPUI send Person message type, then 1st iFlow transport it to BPM still with Person message type.



Publish 1st iFlow 1, then using WS navigator or SOAPUI send testing message to BPM.

Integrated Configuration | Edit | View |

Display Integrated Configuration

Sender

Communication Party:

Communication Component: SOAPVirtual

Interface: SI_PersonUI_Async_Out

Namespace: http://TechnicalPI_to_BusinessPO

Receiver

Communication Party:

Communication Component:

Description:

Inbound Processing | Receiver | Receiver Interfaces | Outbound Processing | Assigned Users | Advanced Settings

Configuration for Interface SI_PersonUI_Async_Out

Communication Channel: CC_PIPerson2People_SOAP_Send

Adapter Type: SOAP | http://sap.com/xi/XI/System | SAP BASIS 7.31

Adapter Engine: Central Adapter Engine

Software Component Version of Sender Interface: BIT400ADVANCETRAINING 1.0 of leonli

Display WSDL

Integrated Configuration: SOAPVirtual | SI_PersonUI_Async_Out |

WSDL URL: http://:50000/dir/wsdl?p=ic/dcd966ce13be3c6bb8bb297683139f56

```

<wsdl:definitions xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/" xmlns:wp="http://schemas.xmlsoap.org/ws/2004/09/policy" xmlns:p1="http://TechnicalPI_to_BusinessPO" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" name="SI_PersonUI_Async_Out" targetNamespace="http://TechnicalPI_to_BusinessPO">
  <wsdl:documentation />
  <wp:UsingPolicy wsdl:required="true" />
  <wp:Policy wsu:id="OP_SI_PersonUI_Async_Out" />
  <wsdl:types>
  
```

The WSDL is <http://host:port/dir/wsdl?p=ic/dcd966ce13be3c6bb8bb297683139f56>, you can import it into WS navigator or SOAPUI to test.

Web Services Navigator

Service test | Test scenario

1 Service | 2 Operation | 3 Input Parameters | 4 Result

Previous | Next | Invocation Parameters | Invoke | Cancel Message | Add to Test

Service Information

Operations

Operation Name: SI_PersonUI_Async_Out

2. Only Web Service message. While you deploy the process into PO successfully, you will find the BPM send interface as web service in **NWA→SOA**.

My Workspace | Availability and Performance | Operations | Configuration | Troubleshooting | SOA

Technical Configuration | Application and Scenario Communication | Logs and Traces | Monitoring

Single Service Administration Views
Provides functions for administration and configuration of single Web services and Web service clients

Application Communication
Configure the inbound and outbound communication of an application - provisioned services and service references, grouped in Service Groups.

Business Scenario Communication
Configure the communication of an entire business scenario

Publication Rules
Create publication rules that define the services to be published in a Services Registry

User Account Management Views
Manage user accounts and their associated roles

Single Service Administration: Service Definitions

Favorites | Related Links | Go To | Support Details

Service Definitions | Consumer Proxies | **Search** | **Browse**

Find: Search by: WSDL Port Type Name | State: (All) | **Go**

Found Service Definitions: 139

WSDL Port Type Name	Namespace	State
SI_PersonUI_Async_In	http://TechnicalPI_to_BusinessPO	Configured
SI_PersonUI_Async_In	http://TechnicalPI_to_BusinessPO	Activated/Depl...

WSDL Port Type Name	Namespace
SI_PersonUI_Async_In	http://TechnicalPI_to_BusinessPO
SI_PersonUI_Async_In	http://TechnicalPI_to_BusinessPO

Details about service definition "SI_PersonUI_Async_In"

General | **WSDLs** | Configuration | Logs and Traces | Classifications

ZIP Download | **Test**

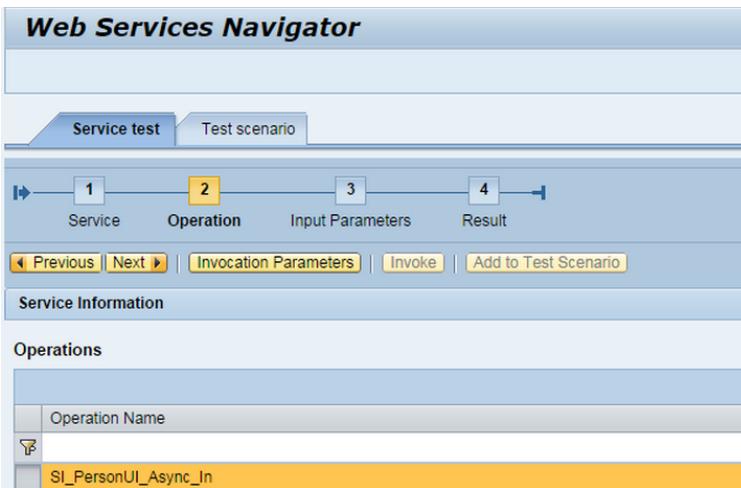
WSDL

http://50000/bpm/leonlisapcom/piintopodemo/pr/pm/STStartMessage?wsdl&mode=ws_policy

The WSDL is

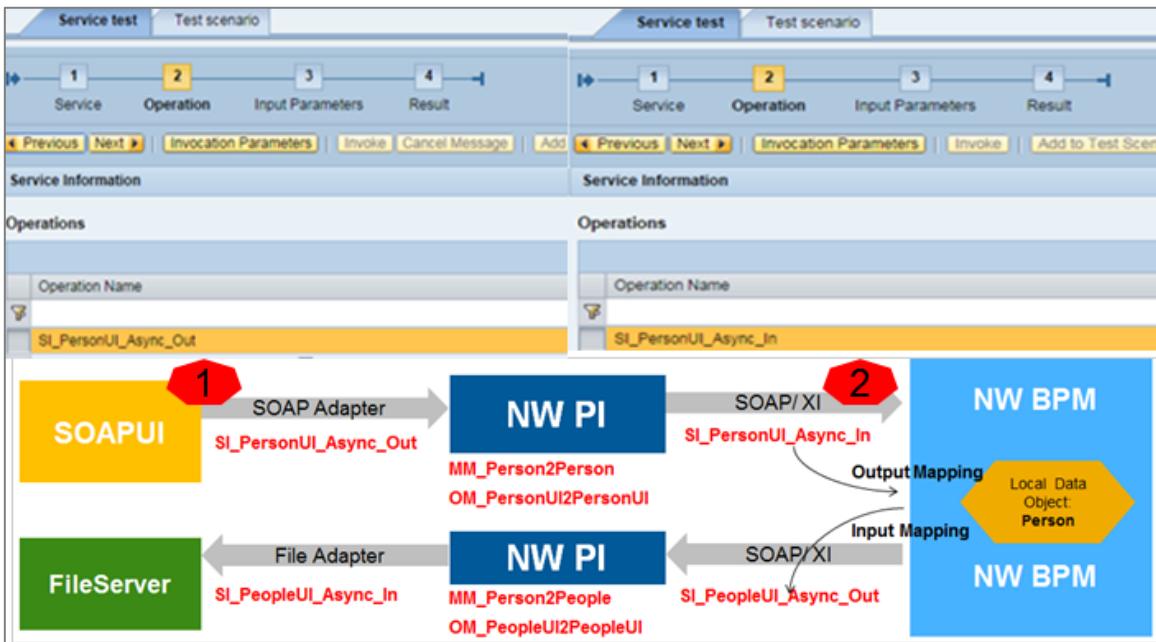
http://host:50000/bpm/leonlisapcom/piintopodemo/pr/pm/STStartMessage?wsdl&mode=ws_policy

You can import it directly click "Test" button then jump into WS navigator or import it into SOAPUI to test.



From the test sender interface, we can see that following difference between two approaches.

- 1: SOAP->PI->BPM starting testing from point 1 (SI_PersonUI_Async_Out)
- 2: WS->PI->BPM starting testing from point 2 (SI_PersonUI_Async_In)



From above simple demo practice, you can understand that the pure PI scenario model can implement by PI and BPM in PO model. But you may still have a question: Why or When should we input BPM in the PI scenarios? Then let me show you following complex scenario with practice 2, then you will get an idea.

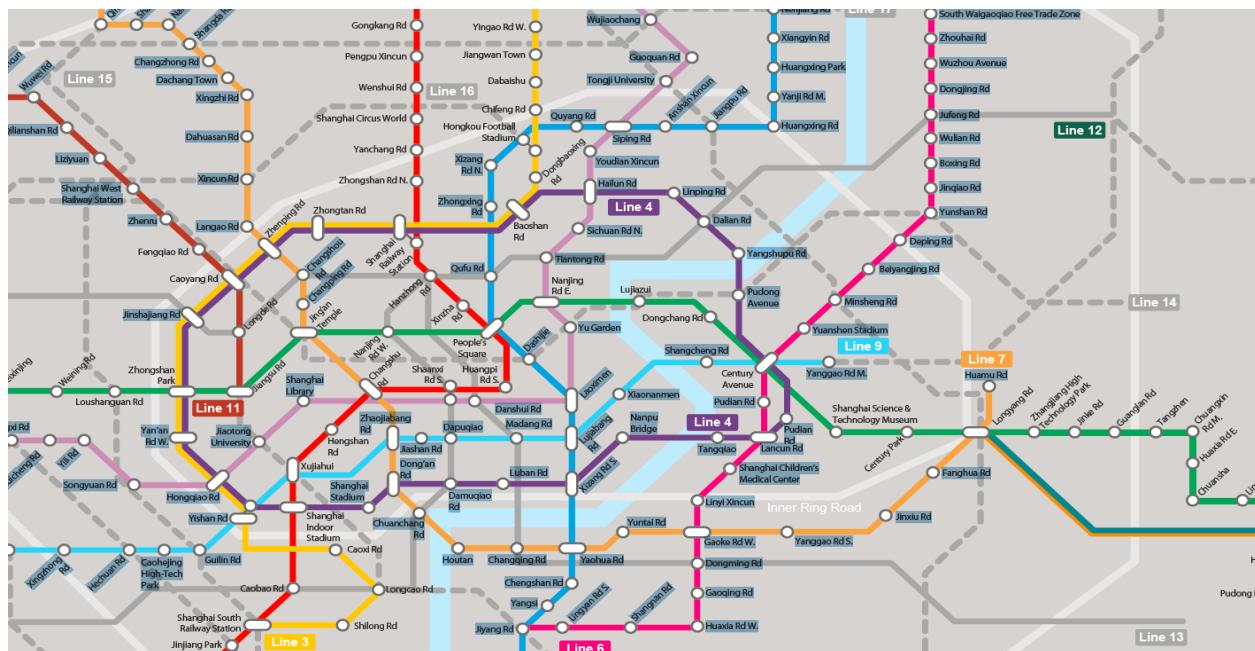
4 Practice 2: Get the price of the Subway tickets base on the numbers of stations (complex scenario)

4.1 Business Requirement Description

This is the really life in Shanghai, China, 1~3 stations cost 3 RMB; 4~10 stations cost 4 RMB; 11~17 stations cost 5 RMB etc. This practice scenario simulate one subway auto-system to deal with tickets price. Just take Shanghai Subway Line-2 as a sample.



Subway map is Chinese, let me translate it into following English name. Line2 marked in green line.



Station Chinese Name	Station English Name
中山公园	Zhongshan Park
江苏路	Jiangsu Road
静安寺	Jingan Temple



南京西路	West Nanjing Road
人民广场	Peoples Square
南京东路	East Nanjing Road
陆家嘴	Lujiazui
东昌路	Donchang Road
世纪大道	Century Avenue
上海科技馆	Shanghai Science Technology Museum
世纪公园	Century Park
龙阳路	Longyang Road
张江高科	Zhangjiang Hight Technology Park
金科路	Jinke Road
广兰路	Guanglan Road

For example, If you take subway from West Nanjing Road to Jinke Road, this trip contain 9 stations, so the price of the ticket should be 4 RMB. While SubwayAutoSystem get the price result, it will send the price information to different price system. (e.g. if price is 4 RMB, the price information will send to SubwayAutoSystem_Price4, if price is 5 RMB, the price information will send to SubwayAutoSystem_Price5)

Base on the above logic, the input and output of this scenario should be following:

		Test Data 2
User Input	Start Station: Zhangjiang Hight Technology Park End Station: Century Avenue	Start Station: Zhongshan Park End Station: LongyangRoad
Result	"Welcome to take Line2, Your ticket price is 4 RMB" And the output information will send to one file folder named “4 元收费处”	"Welcome to take Line2, Your ticket price is 5 RMB" And the output information will send to one file folder named “5 元收费处”

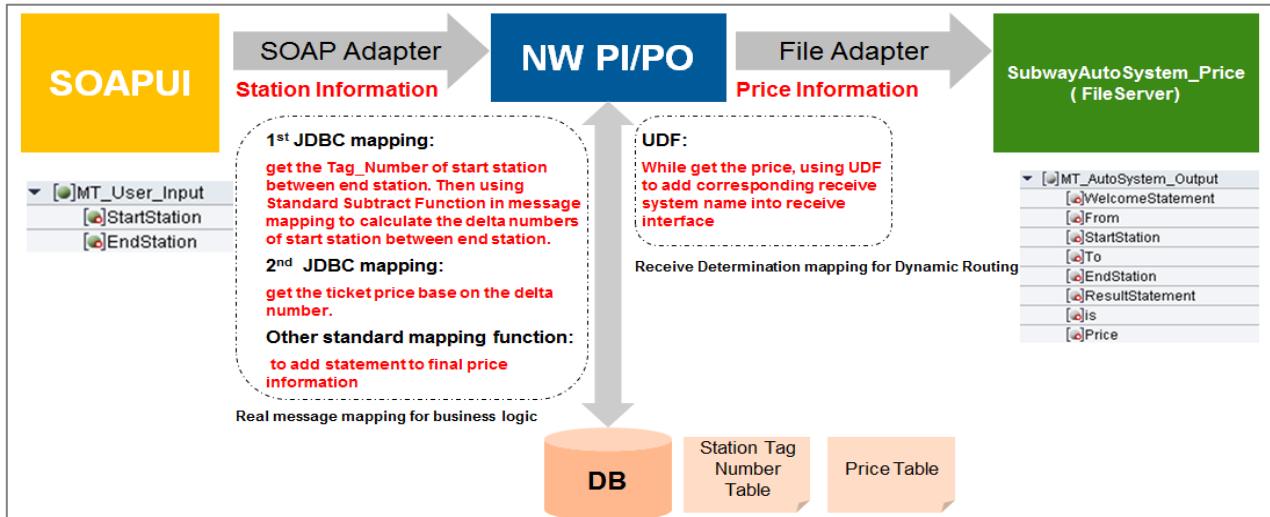
4.2 Business Requirement Flow

3rd party system (SOAPUI) send station message (start station and end station), then PI convert it into price message (the price of this trip base on the number of stations), then put final price information to corresponding price system.

To get this business requirement, it can implement by SAP PI or SAP PO (PI integrate with BPM).

1. If using pure PI integration scenario, this scenario will use two JDBC Lookup in one message mapping to get the price result base on the number of stations, UDF mapping and Enhanced Receiver Determination to send different price to corresponding different price system.
2. If using PI integration BPM scenario, this scenario will use two JDBC Lookups in two iFlow's message mapping. And no need to using UDF mapping and Enhanced Receiver Determination, BPM will handle the receiver routing base on the price condition maintained in BRM.

The purpose of this complex scenario is to improve that why and when it should implement by PI integrate with BPM model.



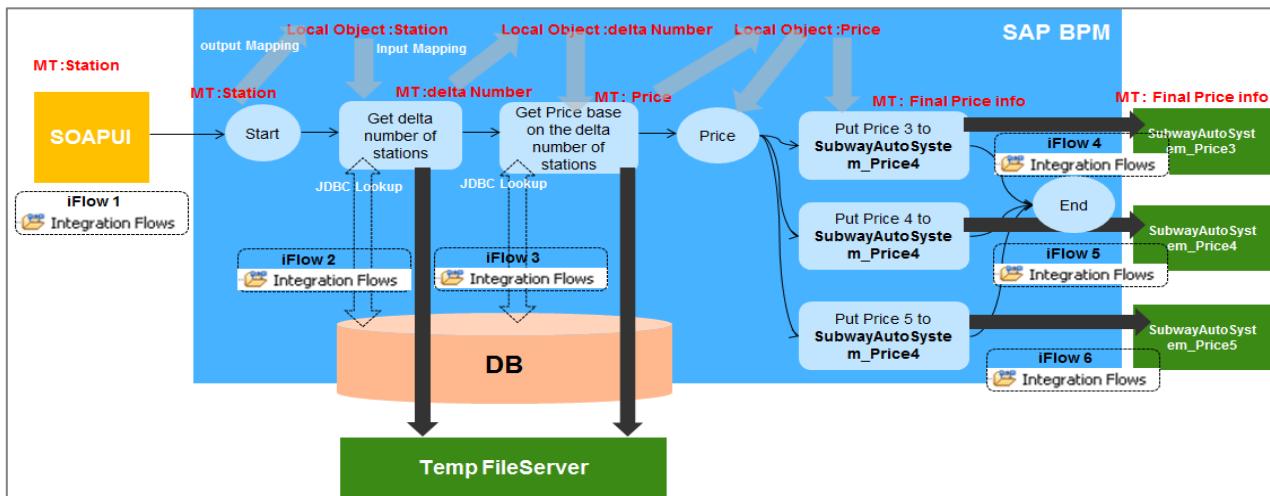
4.3 BPM Modeling Flow (if using PI integrate with BPM in PO model)

Six iFlow/ ICO involved, 1st iFlow is from SOAPUI to BPM start event via PI, 2nd iFlow is from BPM Automated Activity to get the delta number of stations via PI JDBC Lookup, 3rd iFlow is from BPM Automated Activity to get the ticket price base on the delta number of stations via another PI JDBC Lookup. Then base on the price condition in BRM, the price information will send to different price system via 4th, 5th and 6th iFlow.

MT_Station means station message type in PI, Station means Local BPM Object Variant. So do delta Number and Price. The most important thing is that:

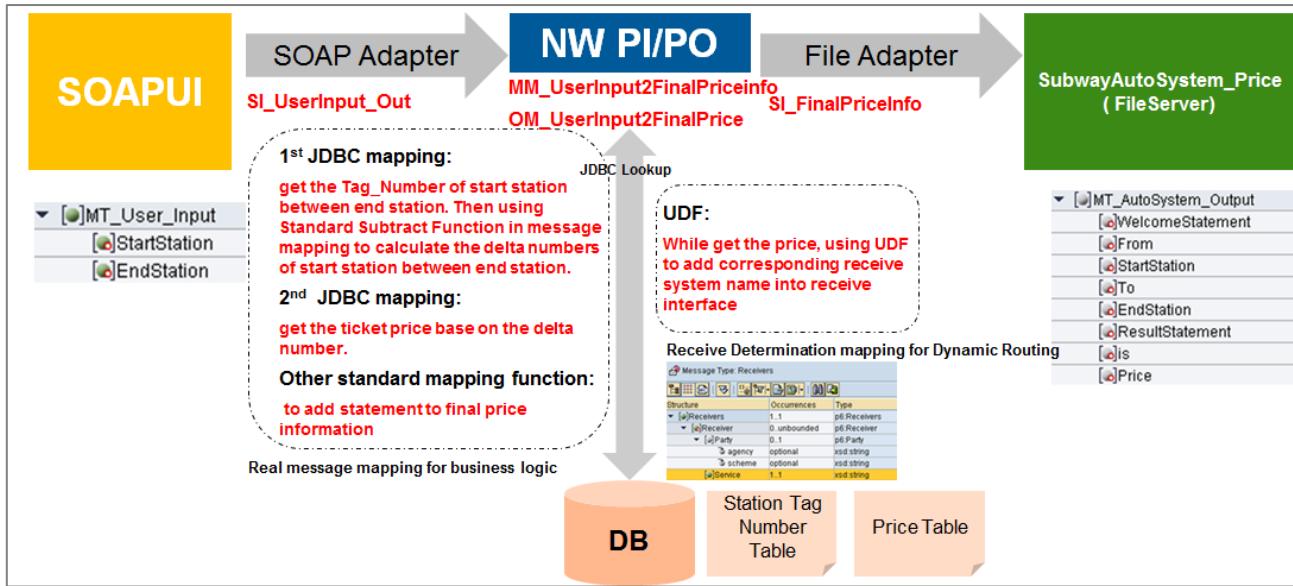
IMPORTANT: In iFlow, they are all PI message type (e.g. MT_Station/MT_deltaNumber/MT_Price/MT_FinalPriceInfo) exchange via PI mapping. In BPM inside, Local BPM object variant (e.g. start event's Station/ Automated Activity's deltaNumber,Price,FinalPriceInfo) exchange with PI message type via BPM mapping.

The reason to using temp file server is that, this scenario is asynchronous. However using JDBC Lookup get the result receive message in iFlow2 and iFlow3. To complete one iFlow or ICO we have to fill Receiver System during configuration. So we using a temp file server to store those temp information which we do not needed. In the real scenario, it can be replaced by JDBC receiver channel instead of JDBC Lookup in mapping or RFC receiver, then we do not need temp file server. Another tricky point is that, even you input File Temp Server in iFlow or ICO, you can choose the option "If cannot find receiver, ignore" in receiver tab. Then the temp file message will not go to temp file server.

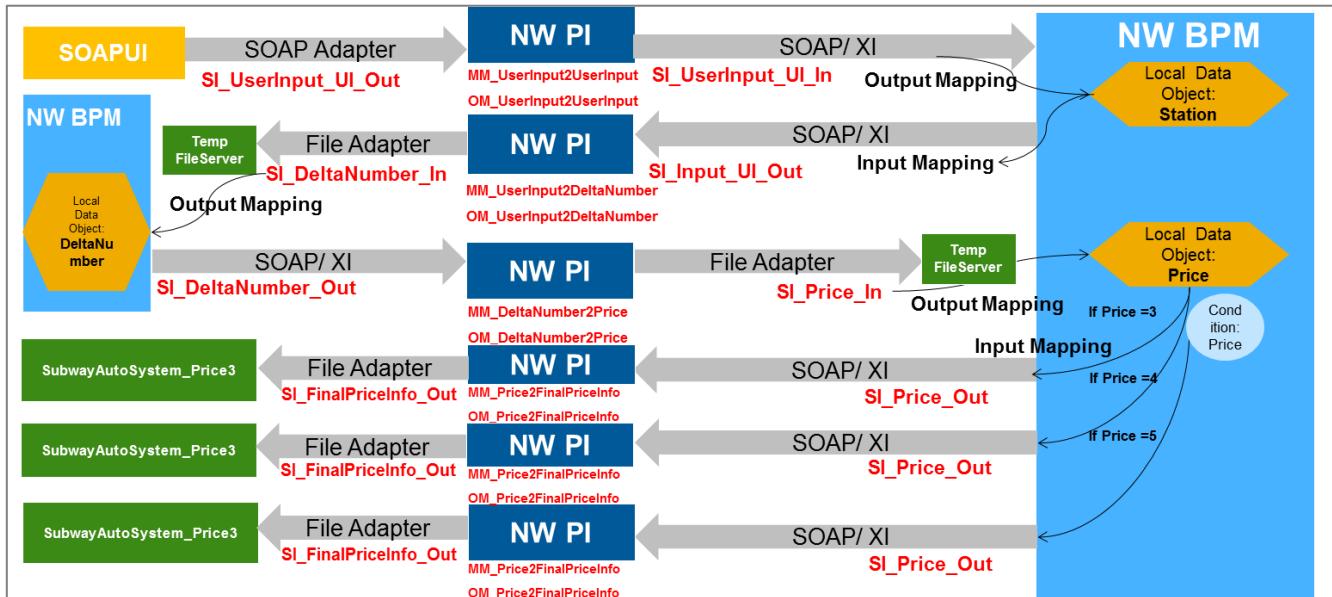


4.4 Technical Message Flow (for scenario using SAP PI or SAP PO)

4.4.1 SAP PI – System Message Technical Integration



4.4.2 SAP PO (PI integrate with BPM) – System Message Technical Integration



4.5 Service Interface with corresponding Message Type Used

Please note that only 2 different date types involved in pure PI integration scenario model. That are **MT_Station** and **MT_FinalPricelInfo**.

However for PI integration BPM scenario model, there are 2 additional intermediate message types involved. That are **MT_DeltaNumber** and **MT_Price**.

	MT_Station	MT_DeltaNumber	MT_Price	MT_FinalPricelInfo
1. Pure PI Scenario	SI_UserInput_Out	None	None	SI_FinalPricelInfo

	MT_Station	MT_DeltaNumber	MT_Price	MT_FinalPriceInfo
2. PI integrate with BPM	SI_UserInput_UI_Out SI_UserInput_UI_In SI_Input_UI_Out	SI_DeltaNumber_In SI_DeltaNumber_Out	SI_Price_In SI_Price_Out	SI_FinalPriceInfo_In

4.6 Two JDBC Lookup Function Used

There are 2 JDBC Lookup Function used. The first one is input station information (start station and end station), the result JDBC Lookup should be the number tag of stations. Then using subtract function to get delta numbers of stations between. The second one is input delta number of stations, the result JDBC Lookup should be corresponding price.

Following 2 DB table used, the first one is store station name with corresponding Tag_Number, the second one is store station Tag_Delta with corresponding price.

LEONLI.SUBWAYSTATION		LEONLI.SUBWAYPRICE	
STATIONNAME [CHAR(128)]	STATIONTAG [CHAR(128)]	TAGDELTA [CHAR(128)]	PRICE [CHAR(128)]
中山公园	1	3	...
江苏路	2	3	...
静安寺	3	3	...
南京西路	4	3	...
人民广场	5	3	...
南京东路	6	4	...
陆家嘴	7	4	...
东昌路	8	4	...
世纪大道	9	4	...
上海科技馆	10	4	...
世纪公园	11	4	...
龙阳路	12	5	...
张江高科	13	5	...
金科路	14	5	...
广兰路	15	5	...

The mapping test result as following, input start station: Jingke Road and end station Longyang Road which contain 1 station. So the result is Price = 3 人民币 RMB with other constant statement information.

The screenshot shows the SAP Process Orchestration (ICO) interface. The top navigation bar includes tabs for 'Definition', 'Test', 'Signature', 'Functions', and 'Compare Versions'. The main area is divided into two sections: 'Instance "Internal Resource (Can Be Edited)"' on the left and 'Result' on the right.

Instance "Internal Resource (Can Be Edited)"

- Structure: MT_User_Input
- Value:

StartStation	金科路
EndStation	龙阳路

Result

Structure: MT_AutoSystem_Output

Structure	Value
>WelcomeStatement	Welcome to BIT400 Advance
From	from
StartStation	金科路
To	to
EndStation	龙阳路"
ResultStatement	Your ticket price
is	is
Price	3人民币RMB

4.7 Extended Receiver Determination/ Dynamic Routing and UDF used

The extended receiver determination or so-called Enhanced receiver determination used for deciding the receiver system during mapping.

The receiver condition in Standard Receiver Determination tab in ICO can also send the message to the specific receiver. However the condition can only select from send/source message field (e.g. send message contain one field with location information).

So if some logic should be performed on source message, then the result to be conditaion. In such model, the receiver condition cannot get the goal. Just in this practice, we have to calculate price from source station information, then using price as condition to dynamic routing receiver.

Because we may have serval receiver more than 2, so no standard function in mapping can used. I develop following simple UDF. While input 3, the output will be SubwayAutoSystem_Price 3 which one receiver system name; if input 4, the output will be SubwayAutoSystem_Price 4 and so on.

Title DynamicReceiver

Description

Execution Type All Values of Queue

Category User-Defined

Signature Variables

Type	Name	Java Type	Title
Argument	price	int	
Result	result	ResultList	

```
public void DynamicReceiver(int[] price, ResultList result, Container container) throws StreamTransformationException
{
    for(int i = 0; i<price.length; i++)
    {
        if(price[i] == 3)
        {
            result.addValue("SubwayAutoSystem_Price3");
        }
        else if(price[i] == 4)
        {
            result.addValue("SubwayAutoSystem_Price4");
        }
    }
}
```

Row: 3

The final receiver determination mapping as following:

Display Message Mapping

Name	MM_ExtendedReceiverDetermination
Namespace	http://FinalGame_Subway_Autosystem
Software Component Version	BIT400ADVANCETRAINING 1.0 of leonli
Description	

Definition **Test** **Signature** **Functions** **Compare Versions**

Message Type: MT_User_Input

Structure	Occurrences	Type	Description
MT_User_Input	1..1	p4:DT_User_Input	
StartStation	1..1	xsd:string	
EndStation	1..1	xsd:string	

Message Type: Receivers

Structure	Occurrences	Type	Description
Receivers	1..1	p5:Receivers	
Receiver	0..unbounded	p5:Receiver	
Party	0..1	p5:Party	
agency	optional	xsd:string	
scheme	optional	xsd:string	
Service	1..1	xsd:string	

Diagram

```

graph LR
    StartStation[StartStation] --> JDBC1[JDBC Loop...]
    EndStation[EndStation] --> JDBC2[JDBC Loop...]
    JDBC1 -- subtract --> JDBC2
    JDBC2 --> DynamicReceiver[DynamicReceiver]
    DynamicReceiver --> Service[Service]

```

The receiver determination mapping test as following:

Definition **Test** **Signature** **Functions** **Compare Versions**

Test1

Instance "Test1"

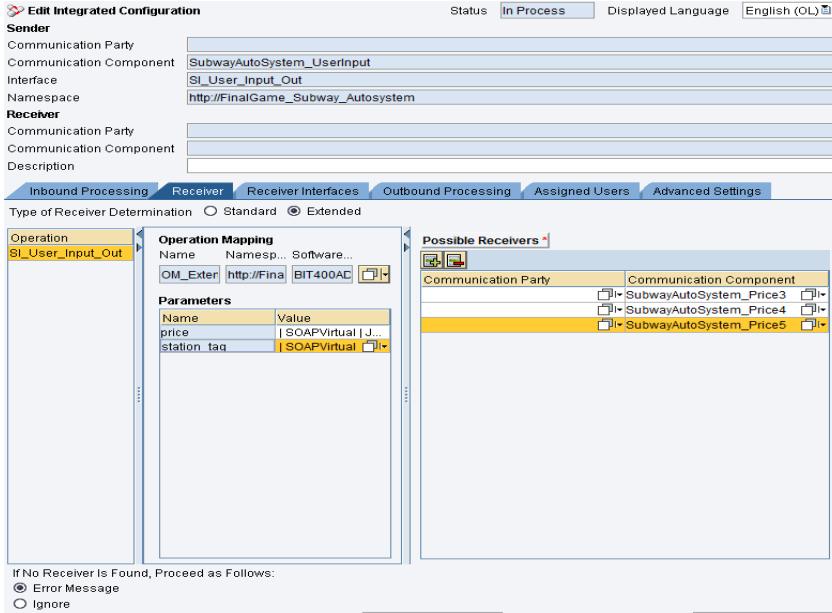
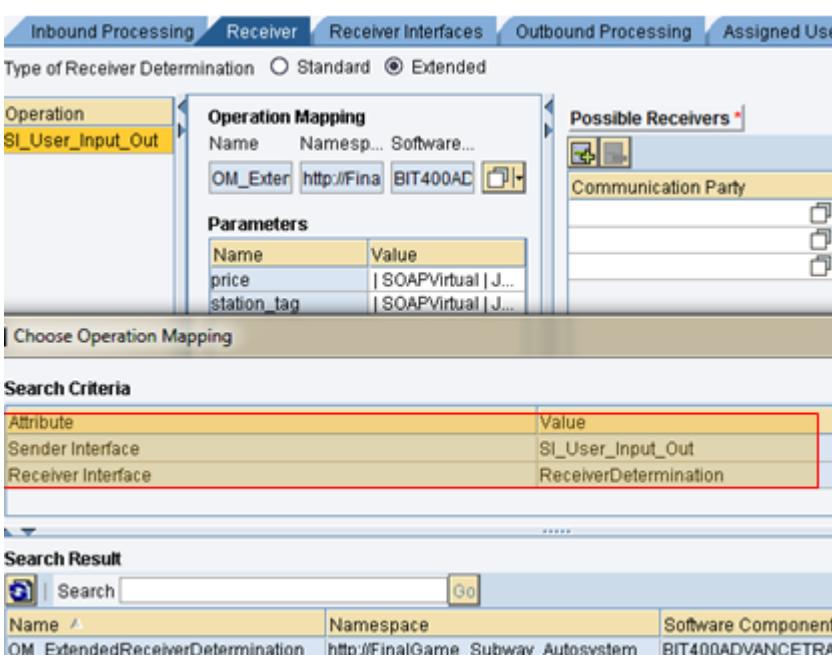
Structure	Value
MT_User_Input	
StartStation	金科路
EndStation	金科路

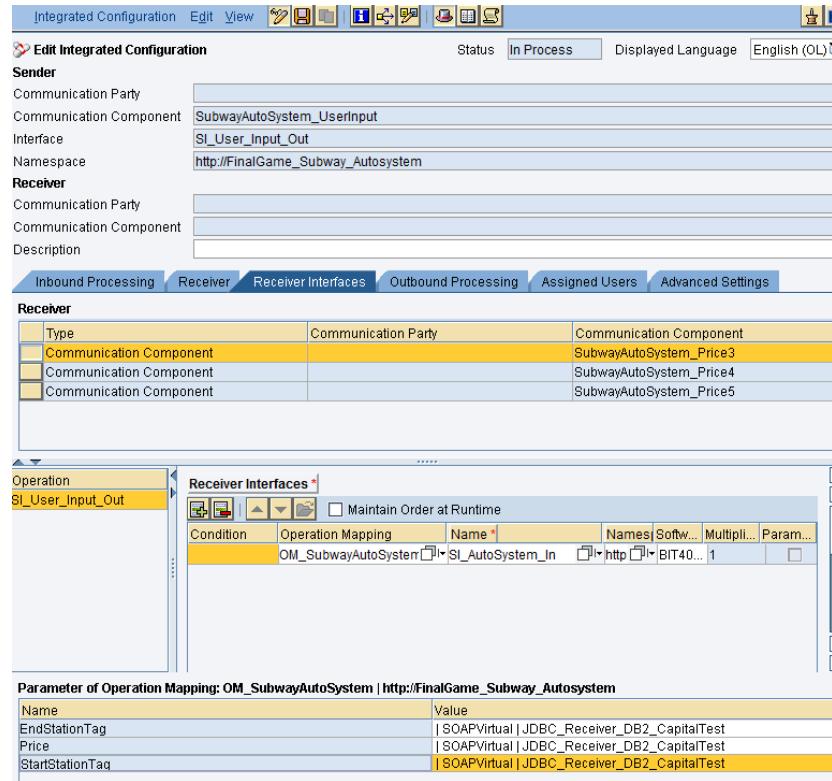
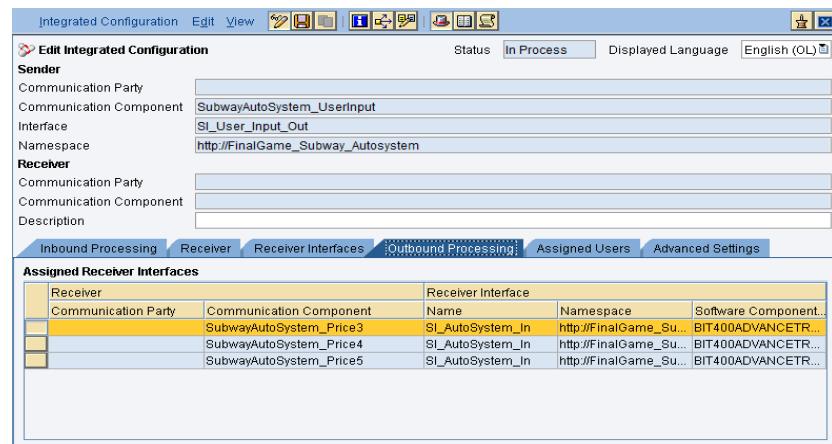
Result

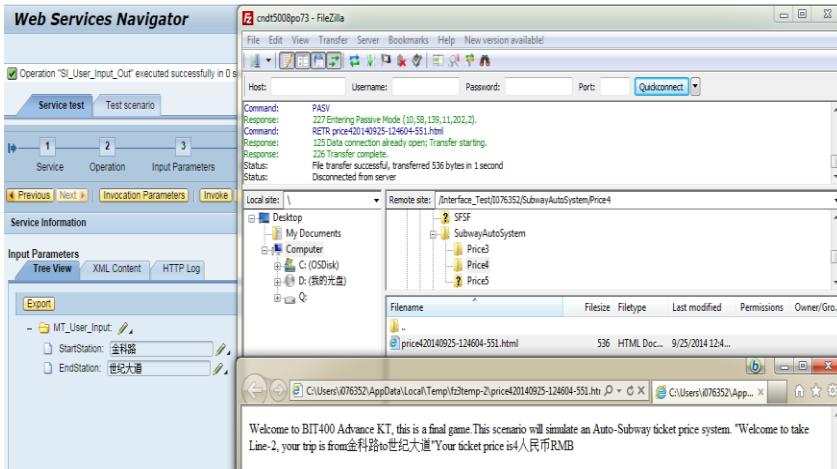
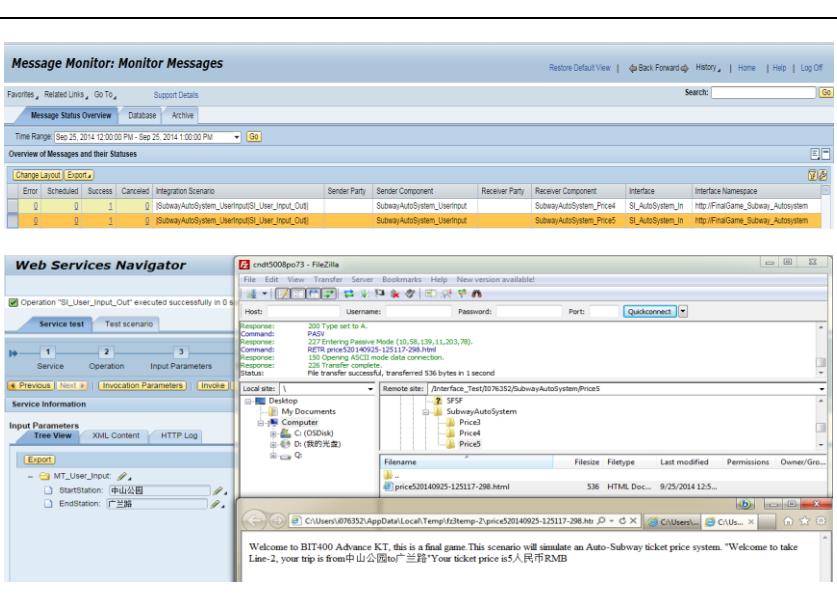
Structure	Value
Receivers	
Receiver	
Service	SubwayAutoSystem_Price3

Input start station: Jinke Road, end station: Jinke Road. It contain no station, but should be treat as one station. The price is 3 RMB, so the receiver system should be SubwayAutoSystem_Price3.



Step	Description	Screenshot
4.8 Pure PI integration Scenario Model		
4.8.1	<p>Extended Receiver Determination</p> <p>Input receiver determination operation mapping</p> <p>Input 3 receivers</p>	 

4.8.2	Input JDBC Lookup import parameter(JDBC Channel Name) Input 3 receivers Input real business message mapping	 <p>Integrated Configuration Edit View  Status In Process Displayed Language English (OL)</p> <p>Sender</p> <p>Communication Party <input type="text"/> SubwayAutoSystem_UserInput</p> <p>Communication Component <input type="text"/> SI_User_Input_Out</p> <p>Namespace <input type="text"/> http://FinalGame_Subway_Autosystem</p> <p>Receiver</p> <p>Communication Party <input type="text"/></p> <p>Communication Component <input type="text"/></p> <p>Description <input type="text"/></p> <p>Inbound Processing Receiver Receiver Interfaces Outbound Processing Assigned Users Advanced Settings</p> <p>Receiver</p> <table border="1"> <thead> <tr> <th>Type</th> <th>Communication Party</th> <th>Communication Component</th> </tr> </thead> <tbody> <tr> <td>Communication Component</td> <td><input type="text"/> SubwayAutoSystem_Price3</td> <td><input type="text"/></td> </tr> <tr> <td>Communication Component</td> <td><input type="text"/> SubwayAutoSystem_Price4</td> <td><input type="text"/></td> </tr> <tr> <td>Communication Component</td> <td><input type="text"/> SubwayAutoSystem_Price5</td> <td><input type="text"/></td> </tr> </tbody> </table> <p>Operation SI_User_Input_Out Receiver Interfaces <input type="checkbox"/> Maintain Order at Runtime</p> <table border="1"> <thead> <tr> <th>Condition</th> <th>Operation Mapping</th> <th>Name</th> <th>Namespace</th> <th>Software Component</th> <th>Multiple</th> <th>Parameter</th> </tr> </thead> <tbody> <tr> <td>OM_SubwayAutoSystem</td> <td><input type="text"/> SI_AutoSystem_In</td> <td><input type="text"/> http</td> <td><input type="text"/> BIT40...</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table> <p>Parameter of Operation Mapping: OM_SubwayAutoSystem http://FinalGame_Subway_Autosystem</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>EndStationTag</td> <td><input type="text"/> SOAPVirtual JDBC_Receiver_DB2_CapitalTest</td> </tr> <tr> <td>Price</td> <td><input type="text"/> SOAPVirtual JDBC_Receiver_DB2_CapitalTest</td> </tr> <tr> <td>StartStationTag</td> <td><input type="text"/> SOAPVirtual JDBC_Receiver_DB2_CapitalTest</td> </tr> </tbody> </table>	Type	Communication Party	Communication Component	Communication Component	<input type="text"/> SubwayAutoSystem_Price3	<input type="text"/>	Communication Component	<input type="text"/> SubwayAutoSystem_Price4	<input type="text"/>	Communication Component	<input type="text"/> SubwayAutoSystem_Price5	<input type="text"/>	Condition	Operation Mapping	Name	Namespace	Software Component	Multiple	Parameter	OM_SubwayAutoSystem	<input type="text"/> SI_AutoSystem_In	<input type="text"/> http	<input type="text"/> BIT40...	<input type="checkbox"/> 1	<input type="checkbox"/>	<input type="checkbox"/>	Name	Value	EndStationTag	<input type="text"/> SOAPVirtual JDBC_Receiver_DB2_CapitalTest	Price	<input type="text"/> SOAPVirtual JDBC_Receiver_DB2_CapitalTest	StartStationTag	<input type="text"/> SOAPVirtual JDBC_Receiver_DB2_CapitalTest	
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4.8.3	Input 3 receiver channels	 <p>Integrated Configuration Edit View  Status In Process Displayed Language English (OL)</p> <p>Sender</p> <p>Communication Party <input type="text"/> SubwayAutoSystem_UserInput</p> <p>Communication Component <input type="text"/> SI_User_Input_Out</p> <p>Namespace <input type="text"/> http://FinalGame_Subway_Autosystem</p> <p>Receiver</p> <p>Communication Party <input type="text"/></p> <p>Communication Component <input type="text"/></p> <p>Description <input type="text"/></p> <p>Inbound Processing Receiver Receiver Interfaces Outbound Processing Assigned Users Advanced Settings</p> <p>Assigned Receiver Interfaces</p> <table border="1"> <thead> <tr> <th>Receiver</th> <th>Communication Party</th> <th>Communication Component</th> <th>Name</th> <th>Namespace</th> <th>Software Component</th> </tr> </thead> <tbody> <tr> <td>SubwayAutoSystem_In</td> <td><input type="text"/> SubwayAutoSystem_Price3</td> <td><input type="text"/> SI_AutoSystem_In</td> <td><input type="text"/> http://FinalGame_Su...</td> <td><input type="text"/> BIT400ADVANCETR...</td> </tr> <tr> <td>SubwayAutoSystem_In</td> <td><input type="text"/> SubwayAutoSystem_Price4</td> <td><input type="text"/> SI_AutoSystem_In</td> <td><input type="text"/> http://FinalGame_Su...</td> <td><input type="text"/> BIT400ADVANCETR...</td> </tr> <tr> <td>SubwayAutoSystem_In</td> <td><input type="text"/> SubwayAutoSystem_Price5</td> <td><input type="text"/> SI_AutoSystem_In</td> <td><input type="text"/> http://FinalGame_Su...</td> <td><input type="text"/> BIT400ADVANCETR...</td> </tr> </tbody> </table> <p>Configuration for Interface SI_AutoSystem_In http://FinalGame_Subway_Autosystem BIT400ADVANCETRAINING 1.0 of leonli</p> <table border="1"> <thead> <tr> <th>Communication Channel</th> <th>CC_SubwayAutoSystem_File_Price3_Rec</th> </tr> </thead> <tbody> <tr> <td>Adapter Type</td> <td><input type="text"/> File <input type="text"/> http://sap.com/xi/XI/System <input type="text"/> SAP BASIS 7.31</td> </tr> <tr> <td>Adapter Engine</td> <td><input type="text"/> Central Adapter Engine</td> </tr> <tr> <td>Software Component Version of Receiver Interface</td> <td><input type="text"/> BIT400ADVANCETRAINING 1.0 of leonli</td> </tr> <tr> <td>Virus Scan</td> <td><input type="checkbox"/> Use Global Configuration</td> </tr> <tr> <td>Schema Validation</td> <td><input type="radio"/> No Validation <input type="radio"/> Validation by Adapter</td> </tr> <tr> <td>Header Mapping</td> <td><input type="checkbox"/> Sender Communication Party <input type="checkbox"/> Sender Communication Component <input type="checkbox"/> Receiver Communication Party <input type="checkbox"/> Receiver Communication Component</td> </tr> </tbody> </table>	Receiver	Communication Party	Communication Component	Name	Namespace	Software Component	SubwayAutoSystem_In	<input type="text"/> SubwayAutoSystem_Price3	<input type="text"/> SI_AutoSystem_In	<input type="text"/> http://FinalGame_Su...	<input type="text"/> BIT400ADVANCETR...	SubwayAutoSystem_In	<input type="text"/> SubwayAutoSystem_Price4	<input type="text"/> SI_AutoSystem_In	<input type="text"/> http://FinalGame_Su...	<input type="text"/> BIT400ADVANCETR...	SubwayAutoSystem_In	<input type="text"/> SubwayAutoSystem_Price5	<input type="text"/> SI_AutoSystem_In	<input type="text"/> http://FinalGame_Su...	<input type="text"/> BIT400ADVANCETR...	Communication Channel	CC_SubwayAutoSystem_File_Price3_Rec	Adapter Type	<input type="text"/> File <input type="text"/> http://sap.com/xi/XI/System <input type="text"/> SAP BASIS 7.31	Adapter Engine	<input type="text"/> Central Adapter Engine	Software Component Version of Receiver Interface	<input type="text"/> BIT400ADVANCETRAINING 1.0 of leonli	Virus Scan	<input type="checkbox"/> Use Global Configuration	Schema Validation	<input type="radio"/> No Validation <input type="radio"/> Validation by Adapter	Header Mapping	<input type="checkbox"/> Sender Communication Party <input type="checkbox"/> Sender Communication Component <input type="checkbox"/> Receiver Communication Party <input type="checkbox"/> Receiver Communication Component
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4.8.4	Testing result 1: 金科路 to 世纪大道/4 人民币/ 票据信息放置到 4 元收	 <p>Message Monitor: Monitor Messages</p> <p>Restore Default View Go Back Forward History Home Help Log Off</p> <p>Favorites Related Links Go To Support Details</p> <p>Message Status Overview Database Active</p> <p>Time Range: Sep 25, 2014 12:00:00 PM - Sep 25, 2014 1:30:00 PM <input type="button" value="Go"/></p> <p>Overview of Messages and their Statuses</p> <table border="1"> <thead> <tr> <th>Change Log Export</th> <th>Error</th> <th>Scheduled</th> <th>Success</th> <th>Canceled</th> <th>Integration Scenario</th> <th>Sender Party</th> <th>Sender Component</th> <th>Receiver Party</th> <th>Receiver Component</th> <th>Interface</th> <th>Interface Namespace</th> </tr> </thead> <tbody> <tr> <td></td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>SubwayAutoSystem_UserInputSL_User_Input_Out</td> <td>SubwayAutoSystem_UserInput</td> <td>SubwayAutoSystem_Price4</td> <td>SI_AutoSystem_In</td> <td>http://FinalGame_Subway_Autosystem</td> <td></td> <td></td> </tr> </tbody> </table>	Change Log Export	Error	Scheduled	Success	Canceled	Integration Scenario	Sender Party	Sender Component	Receiver Party	Receiver Component	Interface	Interface Namespace		0	0	1	0	SubwayAutoSystem_UserInputSL_User_Input_Out	SubwayAutoSystem_UserInput	SubwayAutoSystem_Price4	SI_AutoSystem_In	http://FinalGame_Subway_Autosystem													
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<p>费处</p> <p>Jinke Road to Century Avenue, it contained 4 stations. So the price should be 4 RMB. And the final price result should be send to SubwayAutoSystem_Price4</p> <p>Using Message Version, you can see the message before mapping and after mapping.</p>	 <p>Web Services Navigator</p> <p>Operation "SI_User_Input_Out" executed successfully in 0 seconds.</p> <p>Service test Test scenario</p> <p>Service Operation Input Parameters</p> <p>Service Information</p> <p>Input Parameters Tree View XML Content HTTP Log</p> <p>Export</p> <p>MT_User_Input</p> <p>StartStation: 金科路</p> <p>EndStation: 世纪大道</p> <p>Local site: \ Remote site: \ Interface_Test076352/SubwayAutoSystem/Prices</p> <p>Filesize: 536 Filetype: HTML Doc... Last modified: 9/25/2014 12:44:55 Owner/Grou...</p> <p>Filename: price20140925-124604-551.html</p> <p>Welcome to BIT400 Advance KT, this is a final game. This scenario will simulate an Auto-Subway ticket price system. "Welcome to take Line-2, your trip is from金科路 to世纪大道" Your ticket price is 4人民币RMB</p> <p>Message Editor: Versions</p> <p>Restore Default View Back Forward History Home Log Off</p> <p>Message ID: daa14a39-446e-11e4-ad6f-00000005d607e</p> <p>Direction: OUTBOUND</p> <p>Node ID: 6119550</p> <p>Quality of Service: EO</p> <p>Sequence Number: 0</p> <p>Archived: false</p> <p>Save Edit Resend Cancel Change Layout Export</p> <table border="1"> <thead> <tr> <th>Version</th> <th>Caption</th> <th>Status</th> <th>Start T...</th> <th>End T...</th> <th>Manua...</th> <th>Admin...</th> <th>Send...</th> <th>Subw...</th> <th>Send...</th> <th>Interfa...</th> <th>Interfa...</th> <th>Receiv...</th> <th>Receiv...</th> <th>Editable</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>BI</td> <td>Obsolete</td> <td>9/25/2...</td> <td>9/25/2...</td> <td>No</td> <td>System</td> <td>Subw...</td> <td>St_U...</td> <td>Subw...</td> <td>St_U...</td> <td>Subway...</td> <td>No</td> <td>Subway...</td> <td>No</td> </tr> <tr> <td>1</td> <td>VI</td> <td>Obsolete</td> <td>9/25/2...</td> <td>9/25/2...</td> <td>No</td> <td>System</td> <td>Subw...</td> <td>St_U...</td> <td>Subw...</td> <td>St_U...</td> <td>Subway...</td> <td>No</td> <td>Subway...</td> <td>No</td> </tr> <tr> <td>2</td> <td>MS</td> <td>Obsolete</td> <td>9/25/2...</td> <td>9/25/2...</td> <td>No</td> <td>System</td> <td>Subw...</td> <td>St_U...</td> <td>Subw...</td> <td>St_U...</td> <td>Subway...</td> <td>No</td> <td>Subway...</td> <td>No</td> </tr> <tr> <td>3</td> <td>AM</td> <td>Obsolete</td> <td>9/25/2...</td> <td>9/25/2...</td> <td>No</td> <td>System</td> <td>Subw...</td> <td>St_Au...</td> <td>Subw...</td> <td>St_Au...</td> <td>Subway...</td> <td>No</td> <td>Subway...</td> <td>No</td> </tr> <tr> <td>4</td> <td>VO</td> <td>Deliver...</td> <td>9/25/2...</td> <td>9/25/2...</td> <td>No</td> <td>System</td> <td>Subw...</td> <td>St_Au...</td> <td>Subw...</td> <td>St_Au...</td> <td>Subway...</td> <td>No</td> <td>Subway...</td> <td>No</td> </tr> </tbody> </table> <p>Message Header Message Attributes Payload Attachments</p> <p>Character Format: utf-8 File: 选择文件 未选择任何文件 Upload Download</p> <p>Content Type: text/xml; charset=utf-8 Size: 318 Characters</p> <p><?xml version="1.0" encoding="UTF-8"?></p> <p><ns0:MT_AutoSystem_Output xmlns:ns0="http://FinalGame_Subway_Autosystem" xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"><WelcomeStatement>Welcome to BIT400 Advance KT, this is a final game. 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Step	Description	Screenshot
4.9 PI integrate with BPM in PO Model		
4.9.1	<p>Process Modeling in BPM.</p> <p>Same steps as Practice 1.</p>	

5 Summary

Practice 1 improve that traditional PI integration Scenario can be transfer/ enhance into PI integration BPM model in PO model. You can treat PI as a huge adapter support several message protocols into XI protocol connect with BPM.

Practice 2 improve that in complex scenario especially several systems involved, even some business logic can implement by pure PI integration scenario, but it may put heavy load in PI which is design for system message exchange not business process management. So with PI integrate with BPM in PO model, it release the business logic out from PI into BPM which is design for business process management.

At this moment, we can understand that with SAP Process Orchestration, it makes system technical integration transform into business integration from high level integration view.

5.1 Reduce TCO due to an optimized architecture and simplified operations

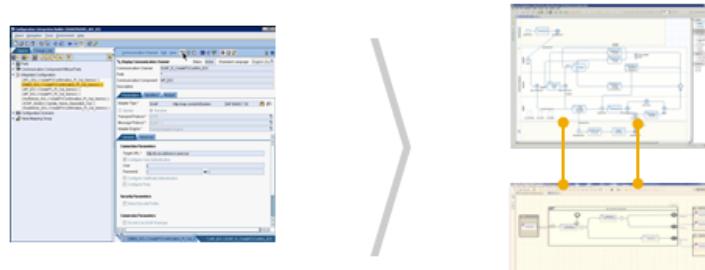


up to **80%**
TCO
reduction

- **Reduced hardware cost** due to an optimized architecture (Java only, single instance)
- **Reduced implementation costs** due to model-driven development and one harmonized development environment
- **Reduced training costs** due to simplified administration (one monitoring infrastructure) & model driven development
- **Reduced operations cost** due to simplified operations; e.g. application & lifecycle management in one central place



5.2 Become more efficient through process-driven integration



	SAP NetWeaver PI	SAP NetWeaver Process Orchestration
Implementation of integration scenarios	IT-centric	Collaborative (Business & IT), process-driven
Flexibility of integration scenarios	Static	Flexible (powered by business rules)
Development environment	Fragmented	Harmonized

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