



## Smart Process Application Specification - Omni Channel Intelligence

This specification document captures all the details related to the Omni Channel Intelligence scenario

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## BUSINESS PROCESS DESCRIPTION

In a typical retail scenario, customers can place order via web(through an ecommerce application), mobile or even call centers. The ecommerce suite can be integrated with SAP ERP for order fulfillment. Once the order gets replicated to SAP ERP the delivery for this order can be triggered & this sends a request to the Warehouse Management system. The warehouse is outsourced to a 3rd party vendor. There is as well a logistics provider who takes care of collecting the goods from the warehouse and then delivering it to customers. Once the goods leave the warehouse, a post goods issue is triggered to update the inventory and this also updates the status of the Sales Order in ERP. The underlying business process for order fulfillment spans across multiple diverse systems like ERP and the 3rd party Warehouse management system. With the high demands in today's retail market, it is extremely important to deliver the order on time and to keep up to the promise made to customers. This means at any given point of time, we need

- Visibility on the number of orders created & its current state
- Early insights on orders that might exceed the defined KPI's

## HIGH-LEVEL PROCESS

Order to Cash Process:



## TARGET PERSONAS

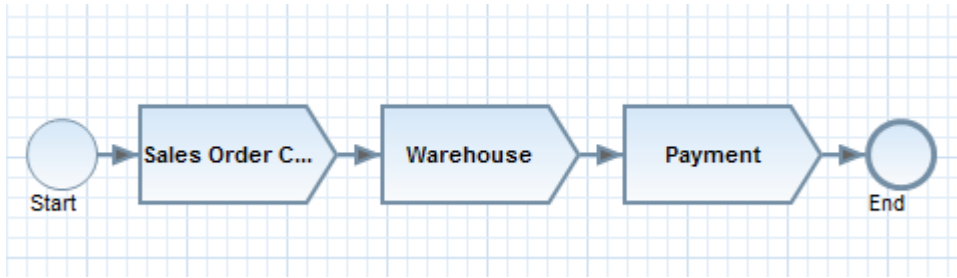
Persona	Role in the Process	Goals	Pain Points
Head of Operations for Order management process	Operations to meet 100% order delivery on promised delivery date and time	<ul style="list-style-type: none"> <li>• Overview of all Orders</li> <li>• Orders under risk (orders that might exceed KPI).</li> <li>• Insight into Order creation, warehouse and Payment phases.</li> </ul>	<ul style="list-style-type: none"> <li>• Lacks real time visibility on the underlying business process</li> <li>• Unable to ensure 100% on time delivery to Customer</li> </ul>

## PROCESS DETAILS

1. The Omni Channel Intelligence scenario starts once an Order placed by customer through an E-commerce application gets replicated to ERP.
2. An outbound delivery is triggered for this order, which results in a request being sent to the warehouse.
3. In the warehouse, the pick & pack of goods happen.
4. Once the good is packed, the logistics provider collects the good from the Warehouse. This is when a Post Goods Issue is triggered, which updates the stock in the inventory.
5. An invoice is generated.
6. Payment needs to be made by customers so that the revenue can be updated.

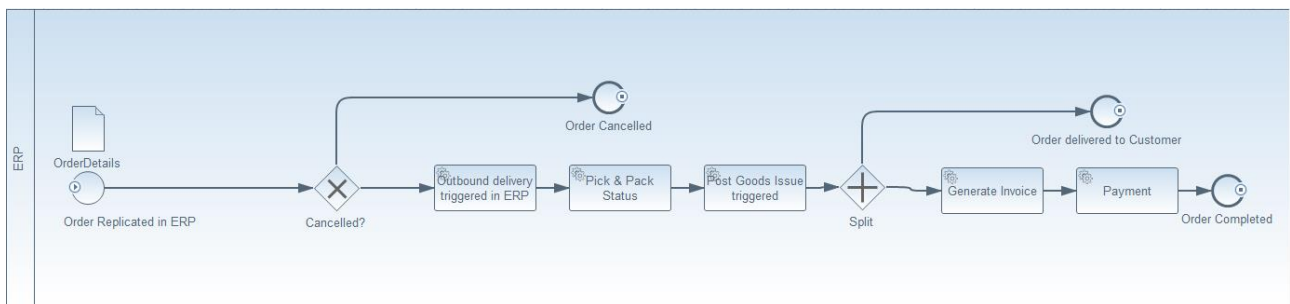
## Phase and Milestones

Figure 1: High-Level Phases and Milestones in the Process



## Process Model

Figure 2: Detailed Process Model of the end-to-end process



## Process Events

No	Process Step	Description	Events
1	Order Replicated in ERP	<ul style="list-style-type: none"> <li>Order replicated to ERP</li> </ul>	ORDER_REPLICATED Completed
2	Outbound Delivery triggered in ERP	<ul style="list-style-type: none"> <li>Outbound delivery is triggered from ERP</li> </ul>	OB_DELIVERY_TRIGGERED Completed
3	Pick and Pack Status	<ul style="list-style-type: none"> <li>The Warehouse Personnel picks and packs the goods</li> </ul>	PICK_PACK_STATUS Completed
4	Post Goods Issue triggered	<ul style="list-style-type: none"> <li>Warehouse triggers Post Goods Issue and inventory is updated</li> </ul>	PGI_TRIGGERED Completed
5	Generate Invoice	<ul style="list-style-type: none"> <li>Invoice is generated for the goods</li> </ul>	GENERATE_INVOICE Completed
6	Payment	<ul style="list-style-type: none"> <li>Customer makes the Payment &amp; the status is updated</li> </ul>	PAYMENT Completed
7	Order Completed	<ul style="list-style-type: none"> <li>The Order status is set to complete once the accounting document is cleared.</li> </ul>	ORDER_COMPLETED Completed
8	Order Cancelled	<ul style="list-style-type: none"> <li>The order can be cancelled any time after it is created.</li> </ul>	ORDER_CANCELLED Cancelled

## Process Instance Attributes

No	Attribute	Description	Data Type
1	DOC_NUM	<ul style="list-style-type: none"> <li>Order number</li> </ul>	NVARCHAR
2	DOC_TYPE	<ul style="list-style-type: none"> <li>Type of Order</li> </ul>	NVARCHAR
3	CUSTOMER_ID	<ul style="list-style-type: none"> <li>Unique customer ID</li> </ul>	NVARCHAR
4	CUSTOMER_NAME	<ul style="list-style-type: none"> <li>Name of the Customer</li> </ul>	NVARCHAR
5	CUSTOMER_REGION	<ul style="list-style-type: none"> <li>Region where the customer is located</li> </ul>	NVARCHAR
6	ORDER_DATETIME	<ul style="list-style-type: none"> <li>The date and time when the Order is created</li> </ul>	TIMESTAMP
7	PROMISE_DATETIME	<ul style="list-style-type: none"> <li>The date and time when the Order delivery is requested</li> </ul>	TIMESTAMP
8	PGI_DATETIME	<ul style="list-style-type: none"> <li>The date and time when the post goods is issued</li> </ul>	TIMESTAMP
9	INVOICE_DATE	<ul style="list-style-type: none"> <li>The date and time when the invoice is issued</li> </ul>	TIMESTAMP
10	DELIVERY_DATETIME	<ul style="list-style-type: none"> <li>The date and time when the delivery is done</li> </ul>	TIMESTAMP
11	DOC_AMOUNT	<ul style="list-style-type: none"> <li>The net amount of the order</li> </ul>	DECIMAL
12	DOC_CURR	<ul style="list-style-type: none"> <li>The currency of the amount</li> </ul>	NVARCHAR
13	STATUS	<ul style="list-style-type: none"> <li>The current status of the order</li> </ul>	NVARCHAR
14	SALES_ORGANISATION	<ul style="list-style-type: none"> <li>An organizational unit responsible for the sale of certain products or services, which is defined in ERP</li> </ul>	NVARCHAR
15	DISTRIBUTION_CHANNEL	<ul style="list-style-type: none"> <li>The way in which products or services reach the customer. Typical examples of distribution channels are wholesale, retail, or direct sales</li> </ul>	NVARCHAR
16	DIVISION	<ul style="list-style-type: none"> <li>A way of grouping materials, products, or services. The system uses divisions to determine the sales areas and the business areas for a material, product, or service.</li> </ul>	NVARCHAR
17	STATUS	<ul style="list-style-type: none"> <li>Status of the order</li> </ul>	NVARCHAR
18	ORDER_REASON	<ul style="list-style-type: none"> <li>The reason for the business transaction</li> </ul>	NVARCHAR
19	PAYMENT_DUE_DAYS	<ul style="list-style-type: none"> <li>Payment due by how many days after the invoice is generated.</li> </ul>	SMALLINT

20	SCENARIO_CYCLETIME	• Cycle Time of the Order to Cash process	TIMESTAMP
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**Process Statuses**

No	Status	Description	Event Which event corresponds to this status?
1	In Progress	<ul style="list-style-type: none"> <li>When an order gets replicated in ERP</li> </ul>	triggered
2	Completed	<ul style="list-style-type: none"> <li>The accounting document for an order is cleared which completes the Sales Order.</li> </ul>	Completed
3	Cancelled	<ul style="list-style-type: none"> <li>The order is cancelled before the invoice is created and the cancellation process is complete in ERP</li> </ul>	Cancelled

## PROCESS PERFORMANCE

**Measures** (also known as process metrics)

No	Measure	Description	Measure Type Count/Duration/Business Measure
1	Orders placed through Web	Count of all Orders placed online	Count
2	Orders placed through Direct Sales	Number of Orders placed by Customers through Direct Sales	Count
3	Cancelled Orders	Number of cancelled orders	Count
4	Returned orders	Number of Returned Orders	Count
5	Average time taken for Pick and Pack	Average time taken for picking and packing of goods	Duration
6	Average time taken for PGI	Average time taken for goods for posting Goods Issue in ERP	Duration
7	Revenue	Revenue generated for all Orders	Count

## Actions

No	Name	Description
1	Call Customer	Make a phone call to the Customer
2	Display Order	This navigation link displays the Order in the ERP system

## Business Situation

No	Name	Description
1	Overdue Payments	A business situation is triggered whenever there are Overdue payments. The action in the business situation displays a list of Overdue payments containing details like (Order No, Customer Number, Overdue Amount ). This information can then be used to track such payments.

## SOLUTION CHARACTERISTICS

**Landscape/Underlying Systems**

Solution Components used	<ul style="list-style-type: none"> <li>SAP Operational Process Intelligence/SAP HCP smart process services</li> </ul>

### Data Integration

The data integration from ECC is done using SAP HANA Smart Data Integration (SDI) to replicate and transform the data into the event log and context tables.

### Replication Artifacts

Replication and transformation of various data is achieved by the .hdbflowgraphs. These flowgraphs will create “real-time” replication task which extract data from the virtual table, transforms and loads into the event log and context tables. Following are the hdbflowgraphs created to capture various events that occur in the ECC system and bring it to the HANA tables in real time.

Note: The flowgraphs have been tested against the following Database/OS combinations.

Database/OS	Database Version
Oracle/Linux	11.2.0.3.0
DB2/Windows NT	10.01.0003
HANA/Linux	1.00.85.00.3975

### Sales order lifecycle events

No	Flowgraph Name	Purpose	Generated events
1	SalesOrderCreation	<ul style="list-style-type: none"> <li>To capture the creation of a standard sales order and its details like Sales organization, Distribution Channel, Promise Date etc.</li> <li>To capture the list of Returned orders in the system.</li> </ul>	ORDER_REPLICATED Completed
2	OutboundDelivery	<ul style="list-style-type: none"> <li>To capture the completion of outbound delivery of a sales order.</li> <li>To update the context table with the Delivery completion time</li> </ul>	OB_DELIVERY_TRIGGERED Completed
3	PickPackAndPGI	<ul style="list-style-type: none"> <li>To capture the completion of pick and pack of a sales order.</li> <li>To capture the completion of Post Goods Issue of a sales order and also to update the context table with the PGI completion time.</li> </ul>	PICK_PACK_STATUS Completed PGI_TRIGGERED Completed
4	Invoice	<ul style="list-style-type: none"> <li>To capture the creation of Invoice document(s) of a sales order.</li> <li>To update the context table with the Invoice creation date.</li> </ul>	GENERATE_INVOICE Completed



5	Payment	<ul style="list-style-type: none"> <li>To capture the payment completed i.e clearing of accounting document(s) of a sales order. This also represents the end of the Order to Cash scenario.</li> </ul>	PAYMENT Completed  ORDER_COMPLETED Completed
6	Cancelled Order	<ul style="list-style-type: none"> <li>To capture the cancelled orders in the system..</li> </ul>	ORDER_CANCELLED Cancelled

The various events of a sales order are captured at the order header level. For e.g. ; if an order has multiple order items, then an "Outbound Delivery completed" event will be added in the event log table only if the outbound delivery of all the order items belong to that sales order is complete.

### Currency conversion data

No	Flowgraph Name	Purpose
1	ReplicateTCURC	These flowgraphs are responsible for replicating the TCUR* tables from the ECC system to the HANA tables. These data are mandatory to compute the generated revenue in the specified currency.
2	ReplicateTCURF	
3	ReplicateTCURN	
4	ReplicateTCURR	
5	ReplicateTCURV	
6	ReplicateTCURX	

### Master data

These flowgraphs replicate data which are required to show additional details of the sales order.

No	Flowgraph Name	Purpose
1	ReplicateCustomerData	Replicates additional details of the customer like name, telephone number etc ;
2	ReplicateCustomerRegionText	Replicates the customer region related information
3	ReplicateDistributionChannels	Replicates the distribution channel codes and its details.
4	ReplicateOrderReasonText	Replicates the Order reason codes and its details.
5	ReplicateSalesDivision	Replicates the Sales Division codes and its details.

6	ReplicateSalesOrganisations	Replicates the Sales Organization codes and its details.
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