

Business Process Modeling Notation

BPMN

- **The Business Process Modeling Notation (BPMN)** is visual modeling language for business analysis applications and specifying enterprise process workflows, which is an open standard notation for graphical flowcharts that is used to define business process workflows.
- Intuitive graphic that can be easily understood by all business stakeholders, users, business analysts, software developers, and data architects.

History

- Original by the Business Process Management Initiative (BPMI), 2004
- Maintained by The Object Management Group (OMG) in 2005
- Version 2.0 of BPMN developed in 2010
- Latest version BPMN 2.0.2 published by ISO as the 2013 edition standard: ISO/IEC 19510

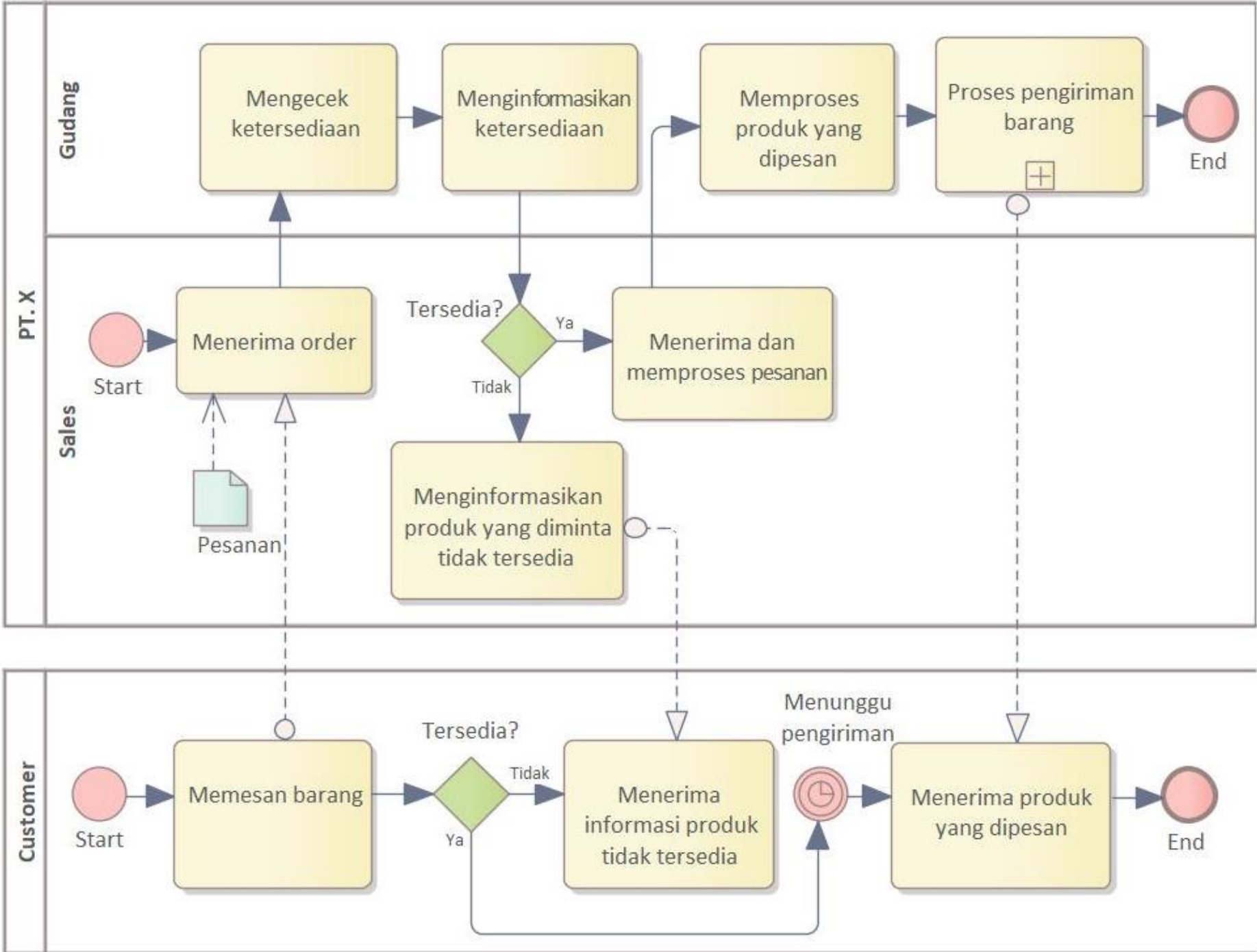
Benefits of BPMN

- Capture and document business processes of an organization in a clear and consistent way
- Team can response to any issues identified in the processes more effectively (such as bottle neck problem, waste processes, etc.)
- BPMN provide comprehensive and yet rich notation that can easily be understood by both technical and non-technical stakeholders

Goal of BPMN

- Technical experts responsible for process implementation
- Business analysts who create and improve the processes
- Managers who monitor and control the processes

BPMN Example



Basic Constructs

- 4 basic categories of BPMN element
 - Swimlanes
 - Flow Elements
 - Connecting Objects
 - Data

Swimlanes

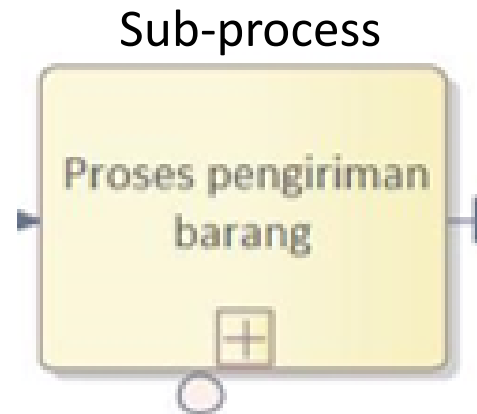
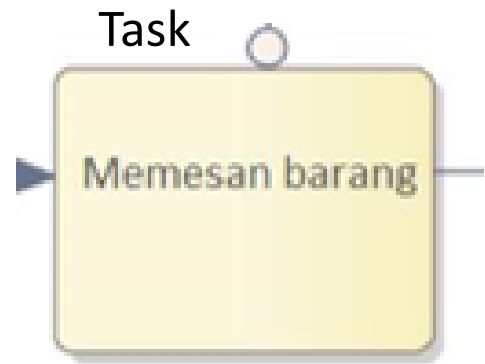
- Swimlanes : represent participant of a business process
 - Pools : participants, can be a specific entity, organization
 - Lanes : sub-partition of pools, department (sales, warehouse), roles (managers, administrator)



Flow Elements

- Activities
































































- Works/tasks that are performed within a business process.
- They are shown as rounded-rectangle
- Verb
- 2 types of activities : task & sub-process



Flow Elements

- Events :
 - Start Event
 - *every process (pool) should have a start event to show the beginning of business process*
 - Intermediate Event
 - *Intermediate event can be attached to an activity for modeling an event that may happen DURING the execution of that activity and it may also be connected by a connecting object for modeling an event that may happen AFTER the execution of the flow element before.*
 - End Event
 - *every process (pool) should have a end event to show the end of business process*

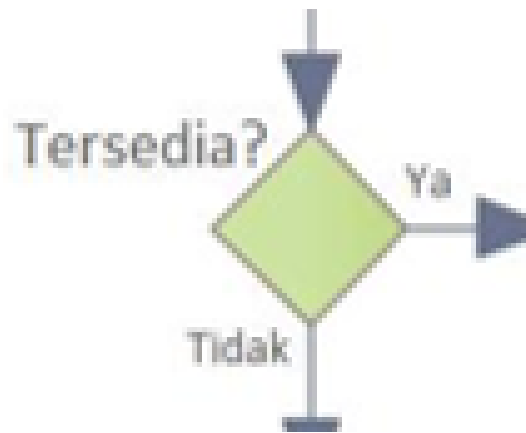
Flow Elements

Events	Start							End
	Top-Level	Event Sub-Process Interrupting	Event Sub-Process Non-Interrupting	Catching	Boundary Interrupting	Boundary Non-Interrupting	Throwing	
None								
Message								
Timer								
Escalation								
Conditional								
Link								
Error								
Cancel								
Compensation								
Signal								
Multiple								
Parallel Multiple								
Terminate								

Flow Elements

- Gateways

Gateways are responsible for controlling how a business process flows. They are shown as diamond shapes. In a process, the work to do and the output may vary under different external or internal conditions.



Exclusive Gateway

Flow Elements

- Gateways



Exclusive



Event Based



Parallel



Inclusive



Exclusive
Event Based



Complex



Parallel Event
Based

Connecting Objects

- Sequence Flows
 - Sequence flow is used to connect flow elements. It is shown in solid line with an arrowhead. It shows the order of flow elements.
 - *You can only use sequence flow to connect flow elements within the same pool*



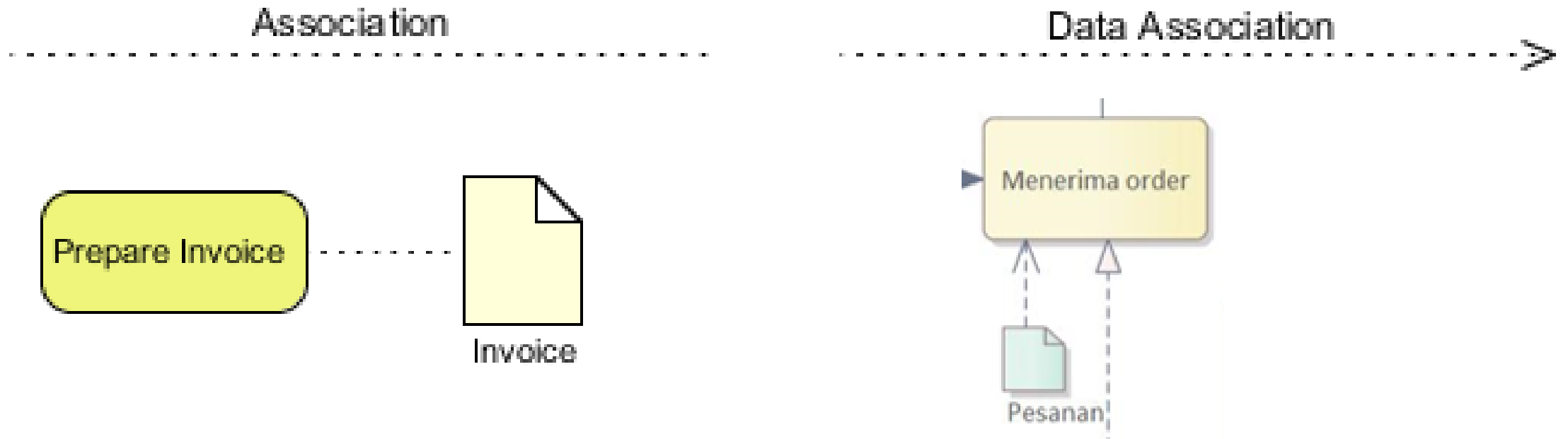
Connecting Objects

- Message Flows
 - In BPMN, the communication between pools is achieved by the use of message. Message flow is used to show the flow of messages between pools or flow elements between pools.
 - A message flow is shown in dotted line with an arrow head.



Connecting Objects

- Association / Data Association
 - Association is used to connect flow elements with produced data or note. It is shown in dotted line



Data

- Very often, when executing a business process, there may be data produced, either during or after the end of the process.
- For example, a successful execution of the Place Order task will produce data like purchase order, invoice, receipt, etc.
- In BPMN, data can be modeled by several types of 'data' objects such as data objects, data inputs, data outputs and data stores.

