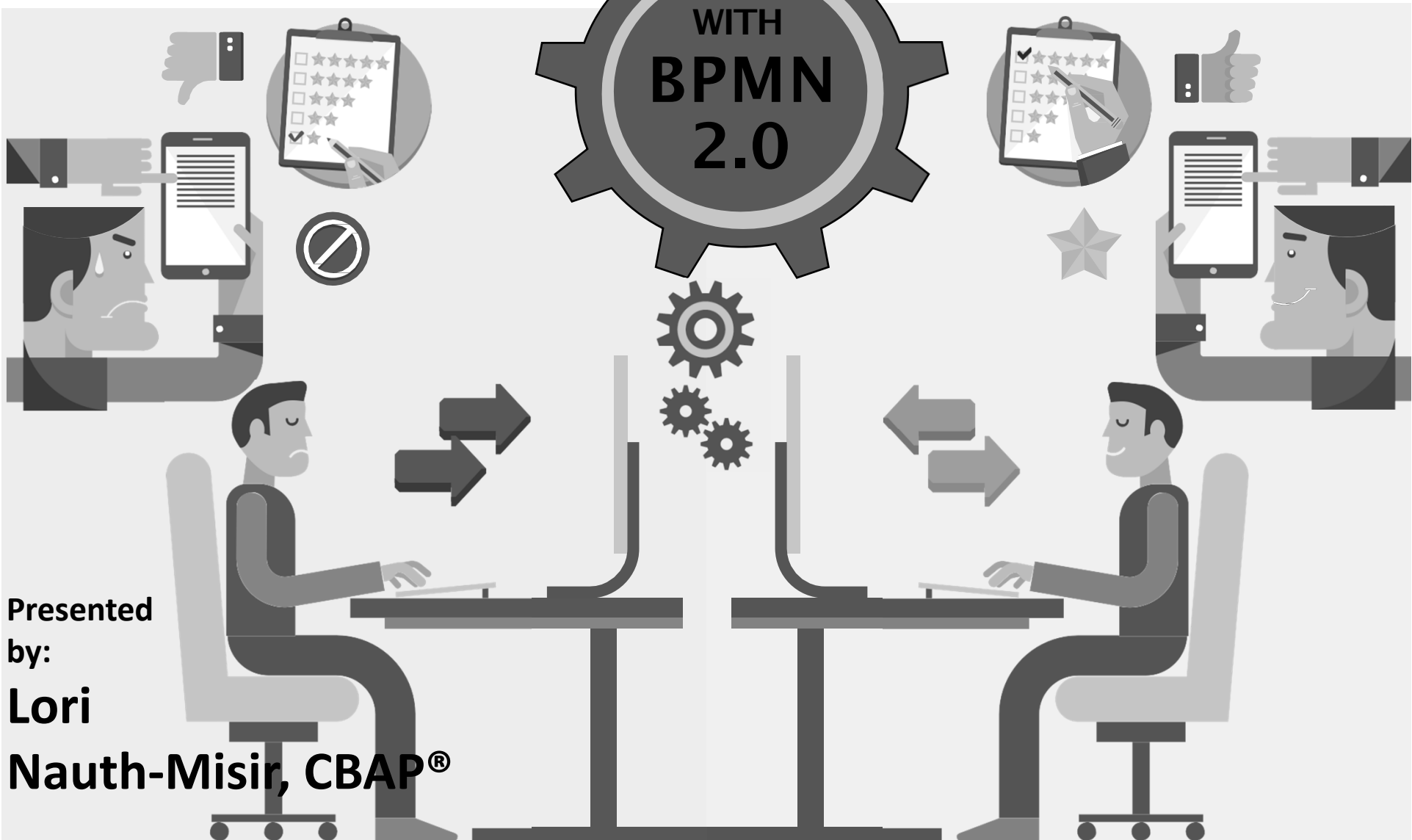


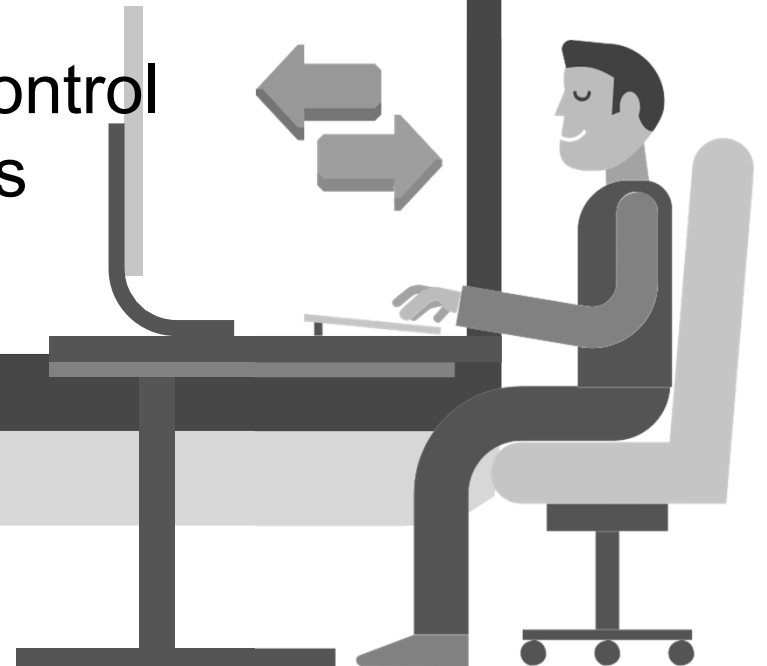
ENHANCING REQUIREMENTS ELICITATION



Presented
by:
Lori
Nauth-Misir, CBAP®

Preface

This presentation introduces the **CORE CONCEPTS OF BPMN 2.0** and describes a structured approach of examining BPMN models to **ELICIT HIGH-QUALITY REQUIREMENTS,** That will give you better control over your requirements elicitation process



Introduction



One of the most challenging parts of eliciting requirements is knowing where and how to start.

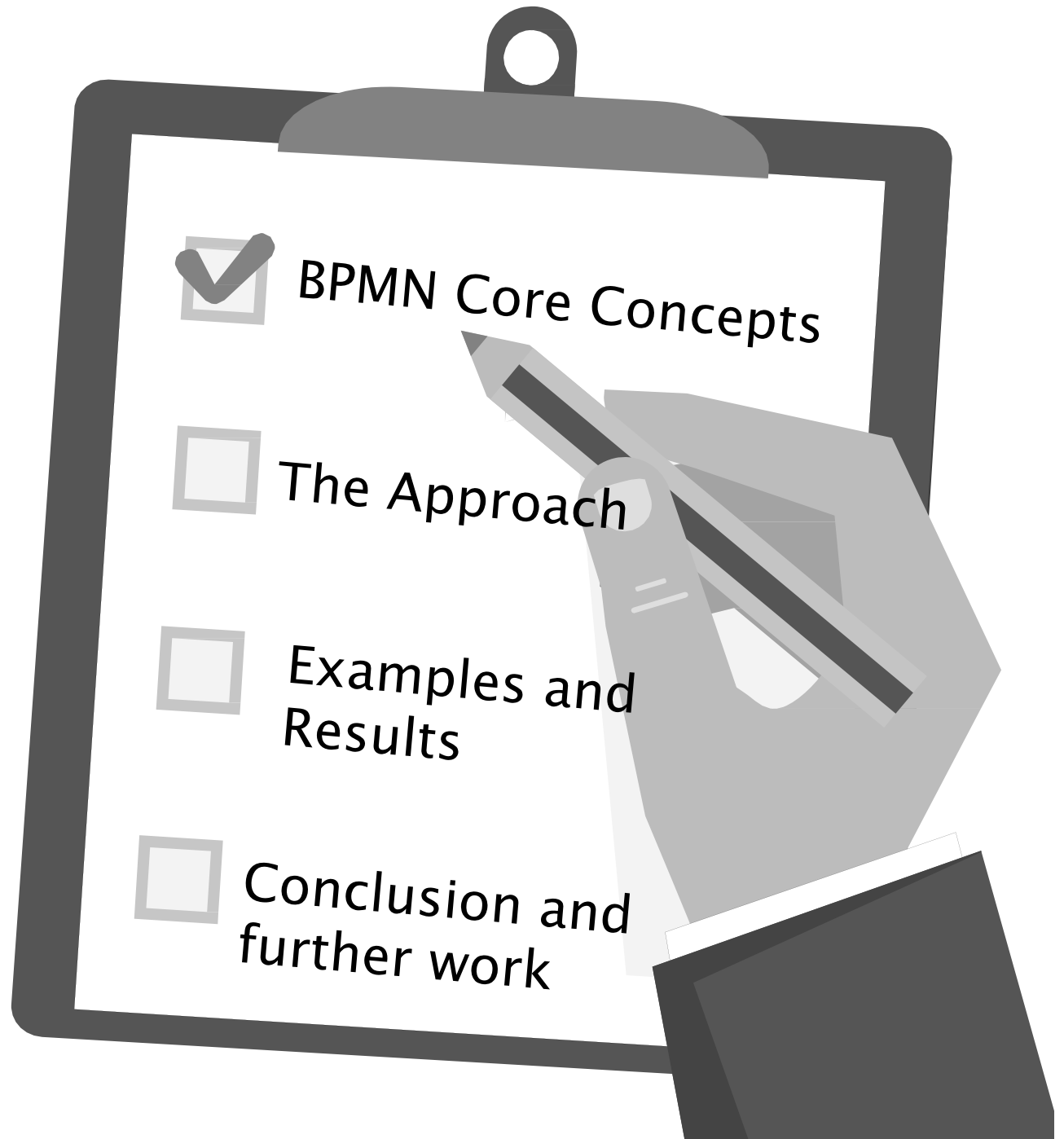
The effectiveness of selecting or enhancing a solution is dependent on how well it can resolve or address the needs of stakeholders...

...**B**usiness **P**rocess **M**odel and **N**otation (BPMN) is a powerful method for eliciting high-quality requirements that are

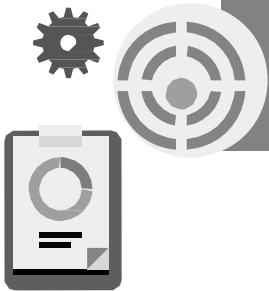
- **COMPLETE** (include all the data needed for a condition)
- **CONSISTENT** (with no internal contradictions)
- **RELEVANT** (include relevant data for the solution)
- **SPECIFIC** (on the required level of granularity)



Topics



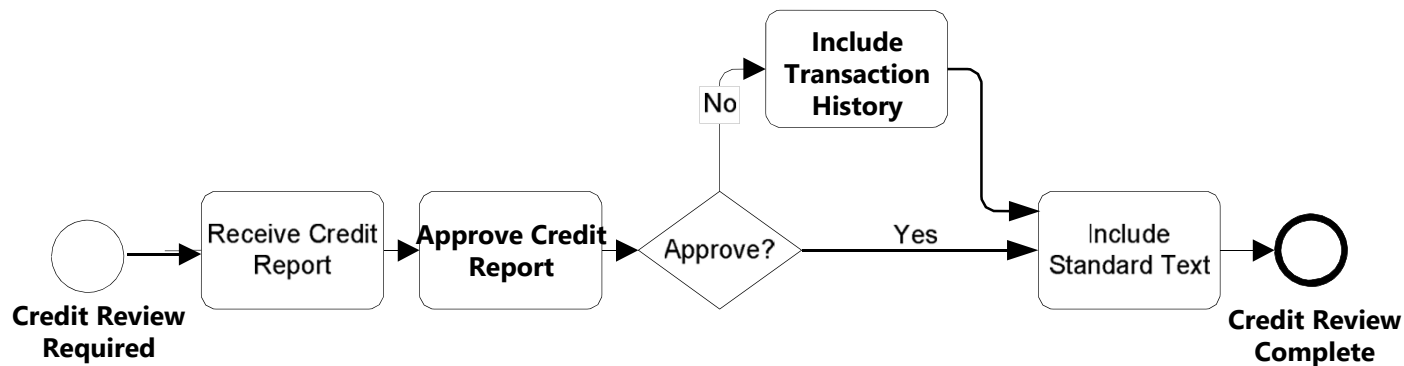
What is BPMN?



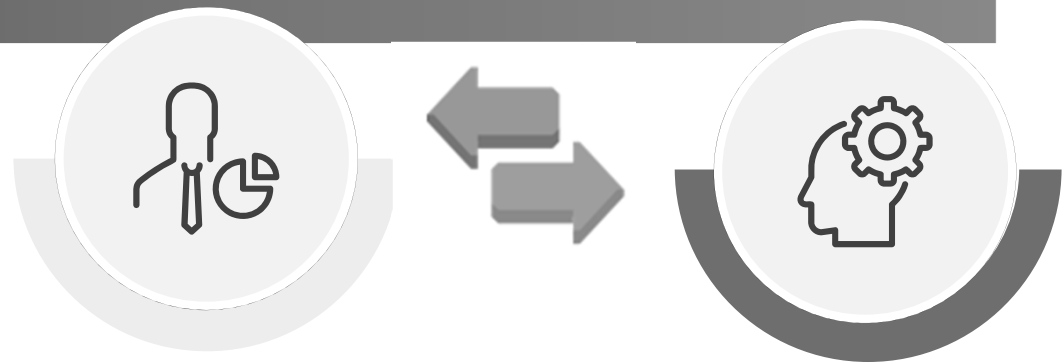
BPMN is flow-chart based notation for defining Business Processes

A multi-vendor agreement to use a single notation for the benefit of end-user understand and trainings

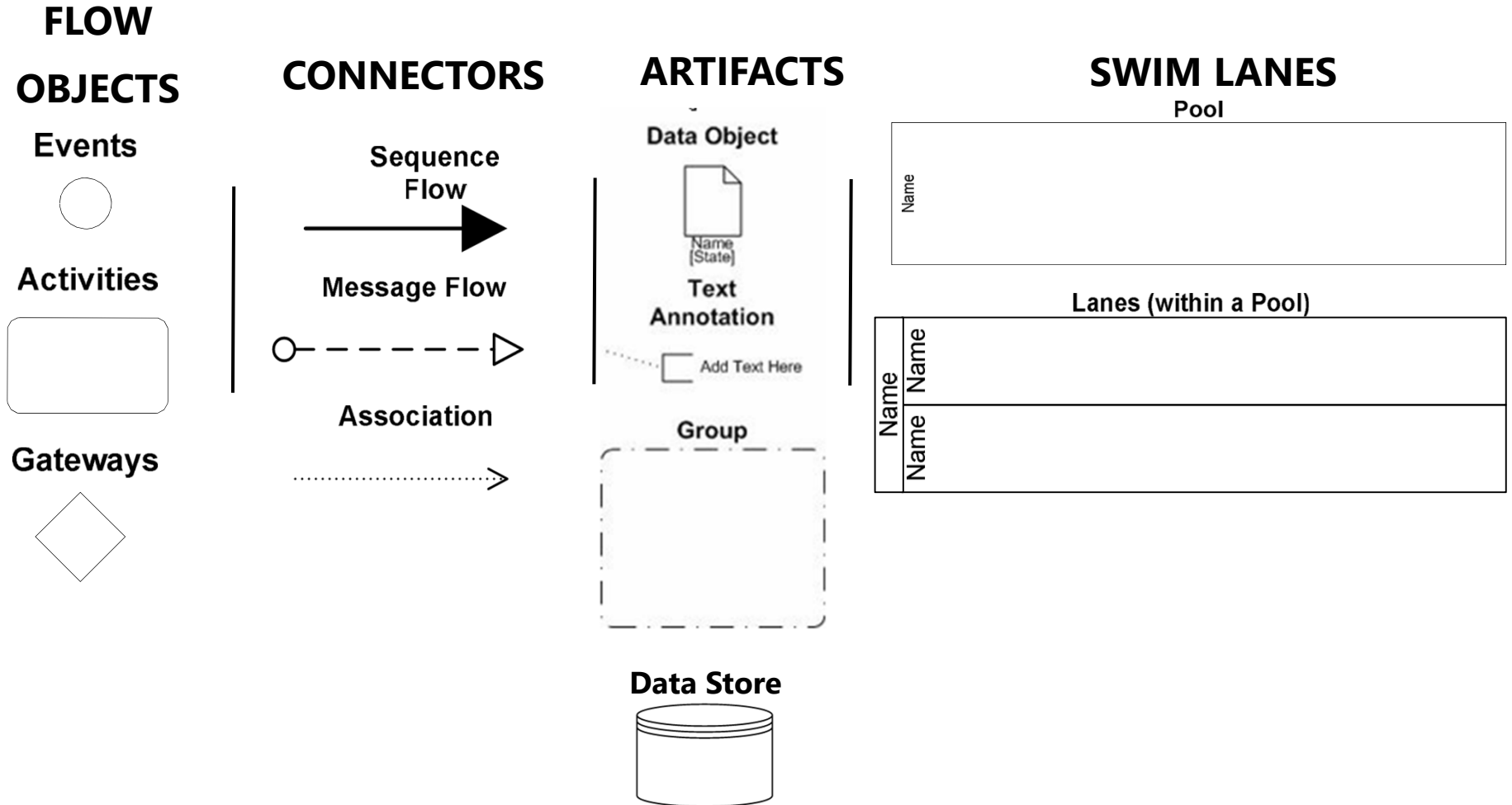
A mechanism to generate an executable Business Process (WS-BPEL 2.0) from the business level notation



BPMN, processes can have complex process semantics while being intuitive to business users. It is a notation that aims to bridge the gap between business users and technical experts.



Core Set of BPMN elements



Activities

Task

Sub-Process



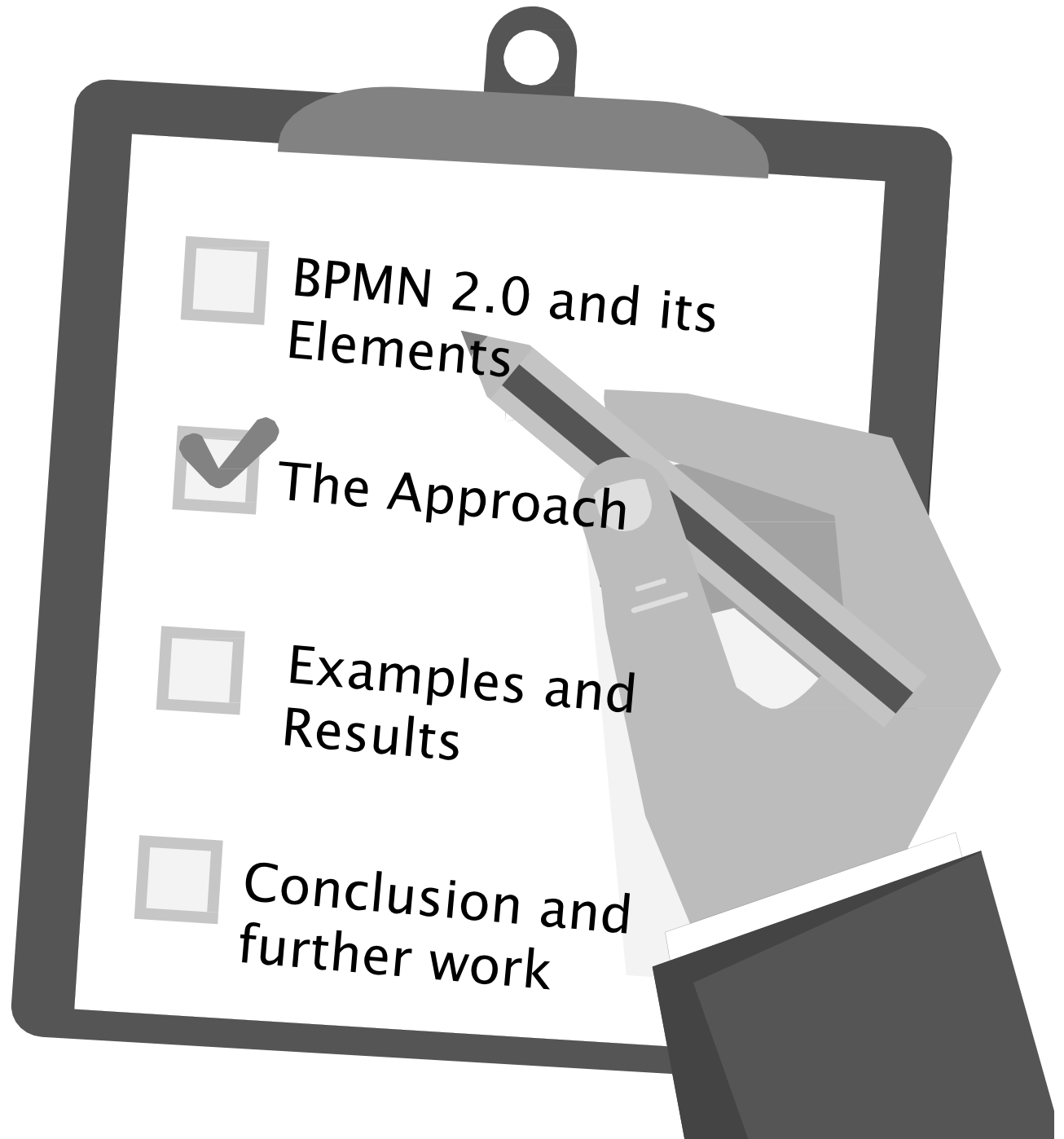
Looped Task



An activity is work that is performed within a business process. An activity can be atomic or non-atomic (compound). The types of activities that are a part of a Process Model are: Sub- Process, and Task
Activities are rounded rectangles

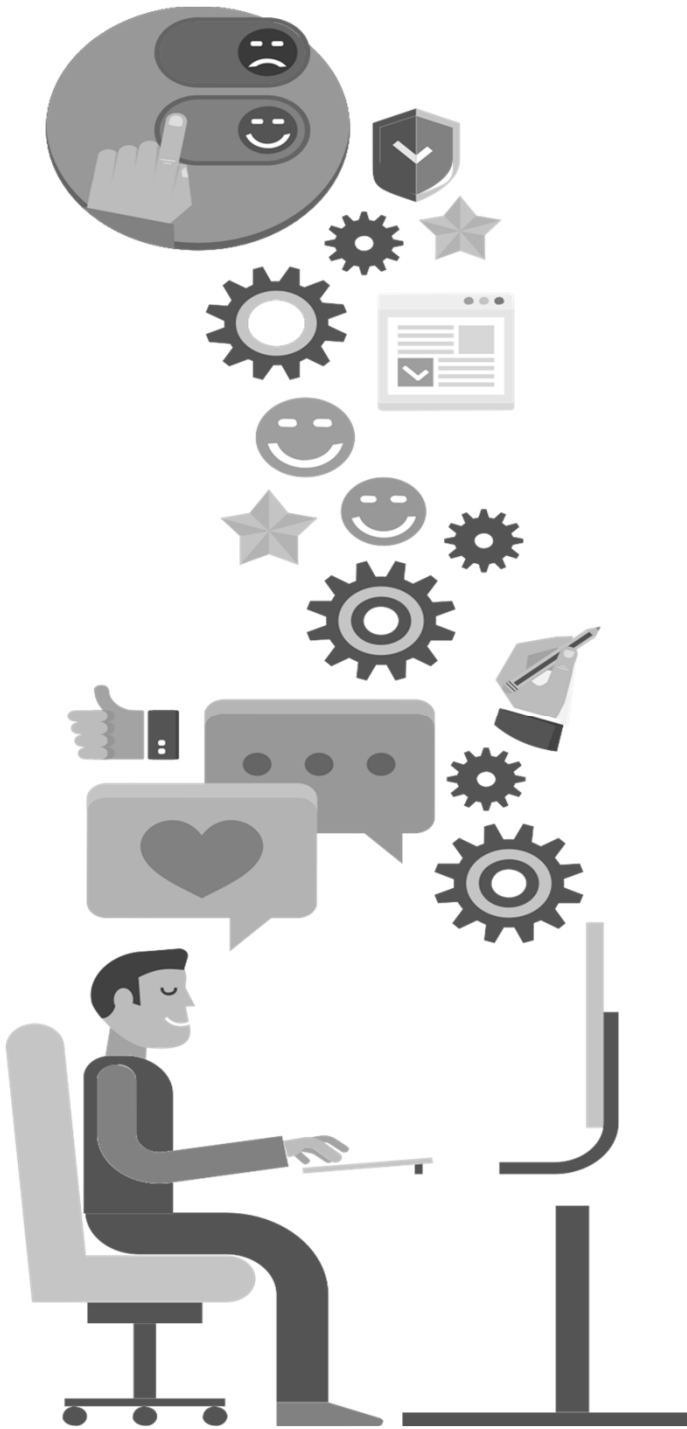


Topics



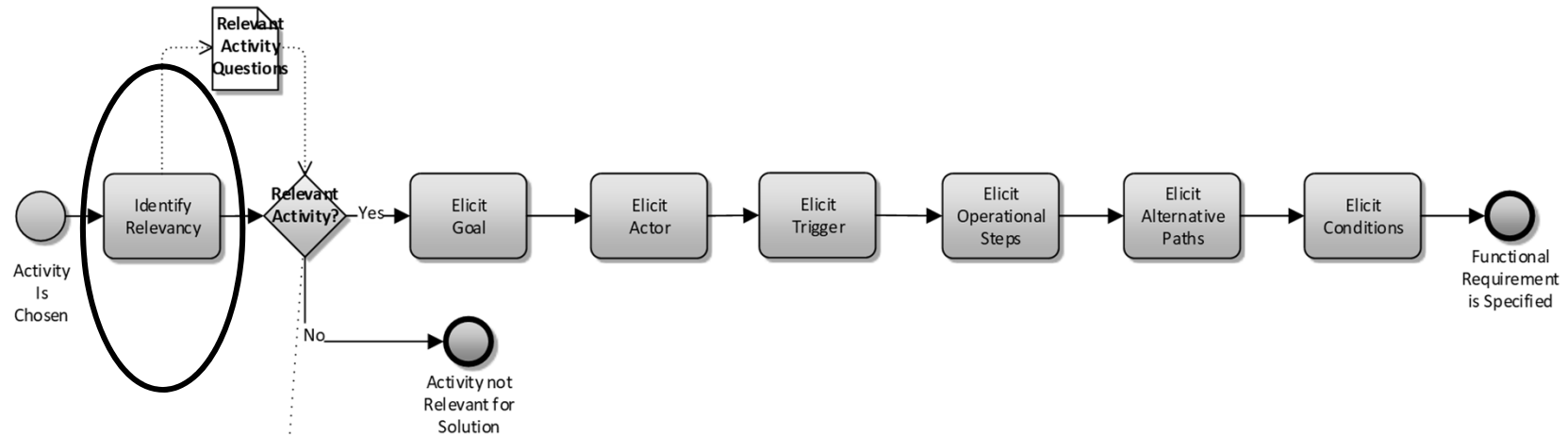
The Elicitation Approach

1. Identify the Activity's relevancy to the to-be solution
2. Determine the goal of the Activity
3. Elicit the actor performing the Activity (could be a system)
4. Elicit the trigger of the Activity
5. Elicit the operational steps contained in the Activity
6. Explore the alternative paths by which the purpose of the Activity can be achieved
7. Elicit and manage the failure conditions



Component	Description
ID:	REQ001
Business Process (optional):	Supply chain security (purchase)
Activity:	Check the order confirmation and update the order
Goal:	Updated order in ABC System (suggested delivery date and order status updated)
Primary Actor:	Purchase department
Trigger:	Order confirmation received by e-mail
Activity Steps (positive scenario)	<p>Operational steps:</p> <ol style="list-style-type: none"> 1. Open PDF format order confirmation received by email 2. Find the relevant purchase order in ABC System 3. Check that ordered materials are the same as on the order <p>Invokes BR001</p> <ol style="list-style-type: none"> 4. Enter suggested delivery date and change the status to "Confirmed" <p>Invokes BR002</p> <ol style="list-style-type: none"> 5. Reply to the email confirming the order confirmation 6. Save the order <p>Alternative paths:</p> <ol style="list-style-type: none"> 1. If order confirmation differs from the order (e.g. quantity smaller than ordered), contact the person who created the order and ask for advice; if changes OK, then follow the normal flow. 2. If suggested delivery date is later than the needed delivery date, take same actions as in alternative path 1.
Failure conditions and handling:	<ol style="list-style-type: none"> 1. If order confirmation differs from the order and is not acceptable, the order will be deleted, and the process will be interrupted.

1. Identify the Activity's Relevancy to the To-be Solution



Business Rule:

If any of the *Relevant Activity Questions* answer is **Yes**, then the Activity is considered relevant and its functional requirements must be specified.

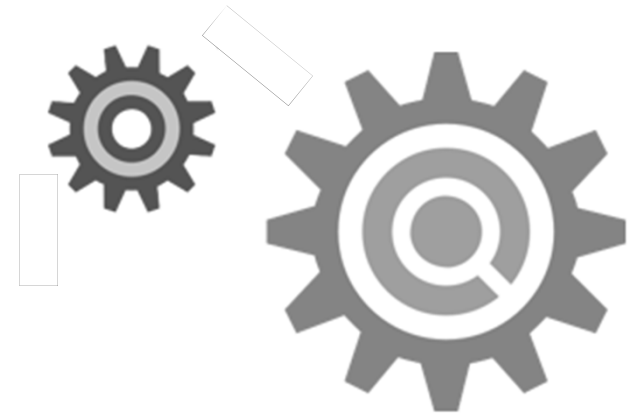
...Activity's Relevancy



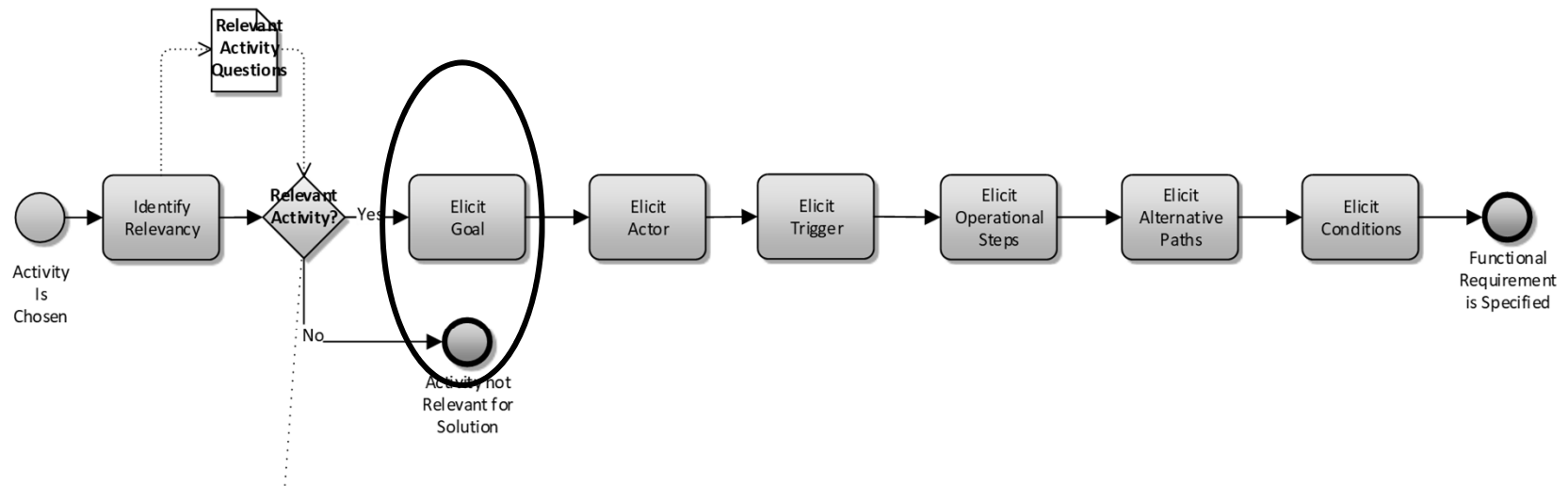
Business Rule:

If any of the Relevant Activity Questions answer is Yes, then the Activity is considered relevant and its functional requirements must be specified.

1. Does the Activity provide, execute, or receive data from the support system?
2. Does the Activity communicate with an external system?



2. Determine the Goal of the Activity

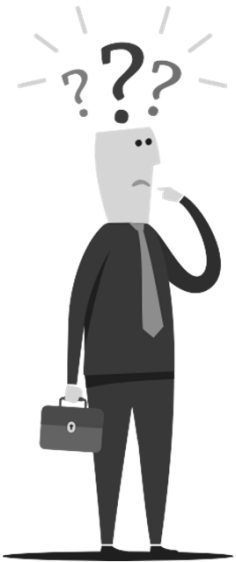


Business Rule:

If any of the **Relevant Activity Questions** answer is **Yes**, then the Activity is considered relevant and its functional requirements must be specified.

...Activity's Goal

An Activity is performed to meet a stakeholder's need; in this step, ask the following question to elicit and describe the goal.



What changed after the Activity was performed?

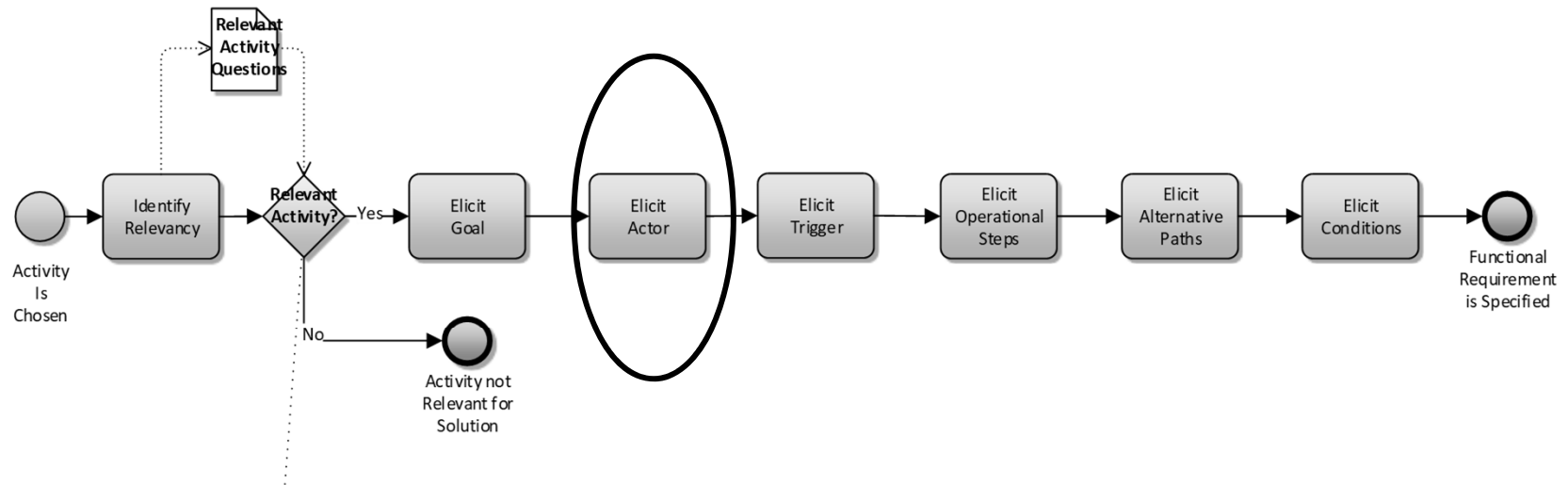
In a BPMN model, the following elements form (at least a) part of the Goal of an Activity:

An *OUTGOING MESSAGE FLOW* attached to the Activity indicates that, during the Activity, a message was created and sent to an external stakeholder.

A *DATA OBJECT* (as an output) indicates that during the Activity a Data Object is created or updated (e.g. a report is created).

A *DATA STORE* attached to the Activity, with a data association, indicates that data has changed (created, updated or deleted) (e.g. an invoice is saved to the database).

3. Elicit the Primary Actor Performing the Activity



Business Rule:

If any of the *Relevant Activity Questions* answer is **Yes**, then the Activity is considered relevant and its functional requirements must be specified.

...Activity's Primary Actor

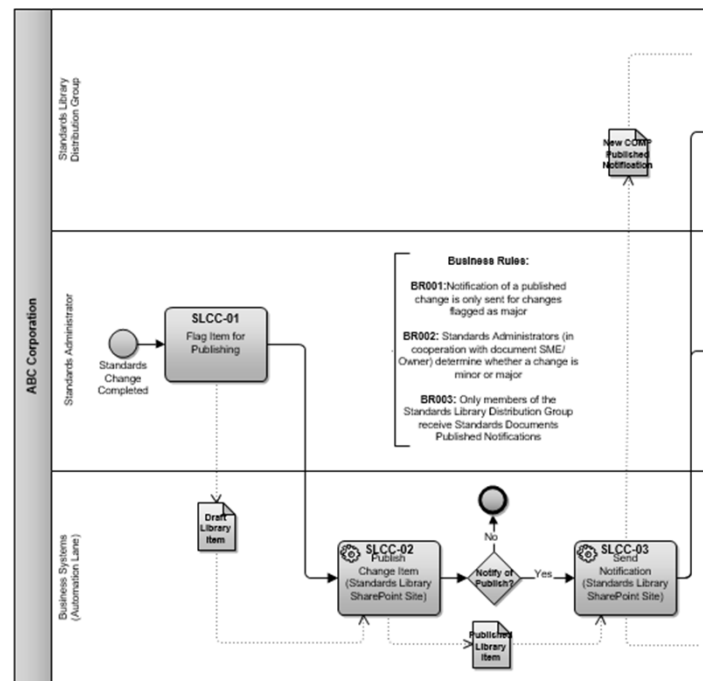
In this step, the Primary Actor performing the Activity is elicited. The actor can be human (a role) or a resource (a system). The actor elicited here will be performing most of the operational steps needed to finish the Activity.

Ask the following question to elicit the Primary Actor:

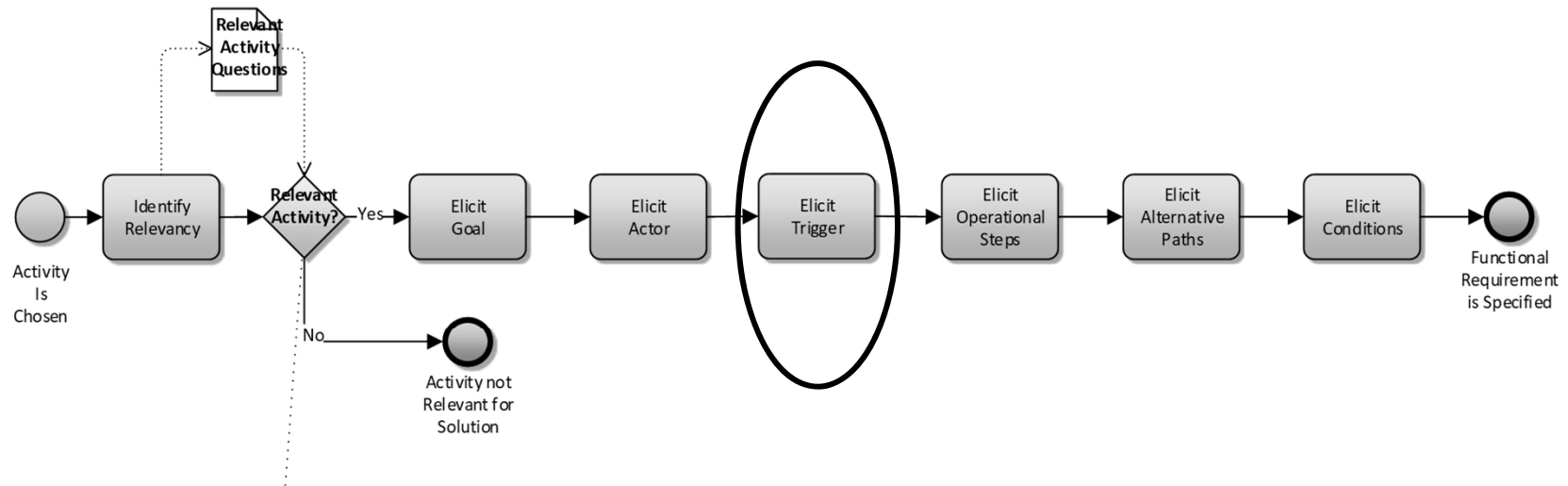
Who are the actors that execute the Activity to achieve its Goal?

In a BPMN model, POOLS and LANES indicate the actor of an Activity:

If the Activity is inside a Pool or in both a Pool and a Lane, the Pool and Lane name indicates who the performing actor of the



4. Elicit the Trigger of the Activity



Business Rule:

If any of the **Relevant Activity Questions** answer is **Yes**, then the Activity is considered relevant and its functional requirements must be specified.

...Activity's Trigger

The actor performing the Activity needs to know that it is time to start the Activity (i.e. what triggers the Activity).

There are **THREE** ways to trigger an Activity:

1. The actor *RECEIVES A MESSAGE*

2. The Activity *STARTS AT A CERTAIN TIME*

3. The Activity *STARTS RIGHT AFTER A PRECEDING ACTIVITY* is finished

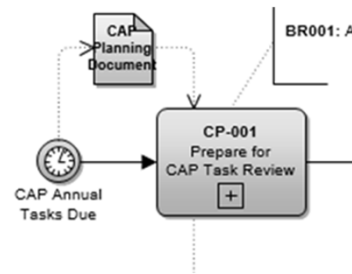
Ask the following questions to elicit the trigger:

How does the actor (human or resource) know when to start the Activity?

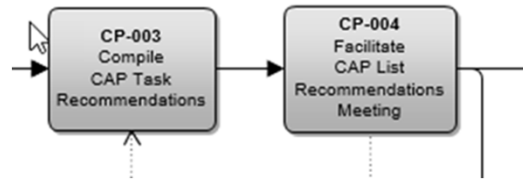
1. Is the actor informed by a message? If yes, in what form or format does the message arrive?
2. Does it start depending on time? If yes, how is the actor aware of time?
 1. Is the actor also responsible for the preceding Activity in the process?

In a BPMN model, the following elements indicate the trigger of the Activity:

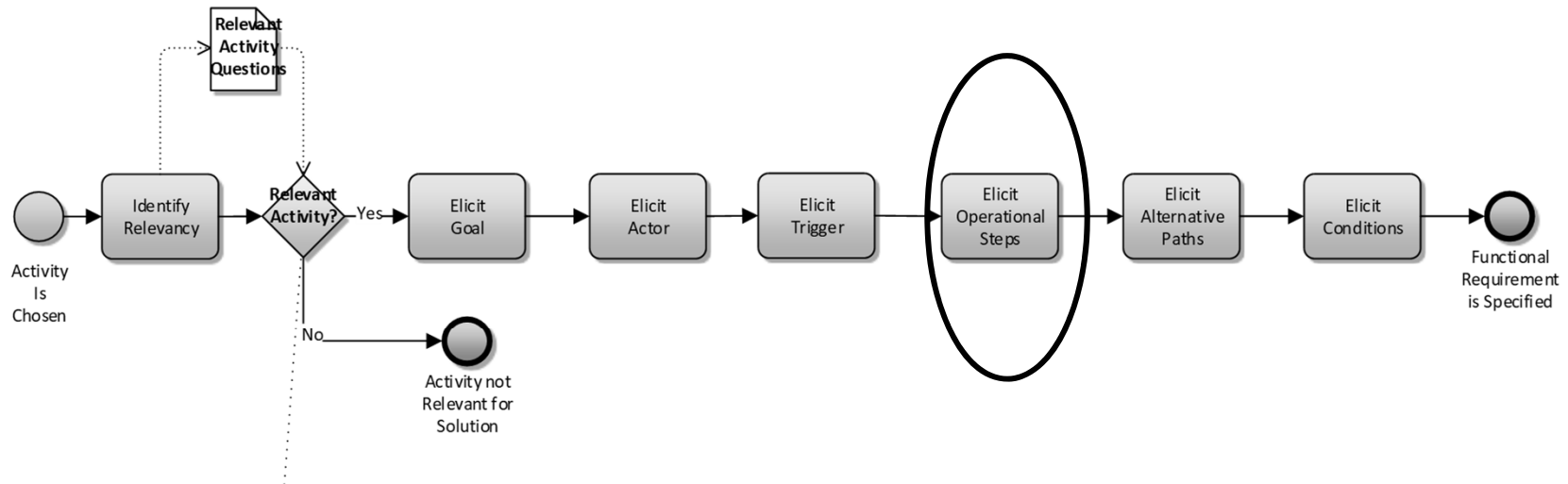
A preceding Event element



A preceding Activity element



5. Elicit the Operational Steps Contained in the Activity

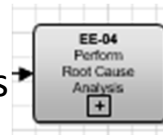


Business Rule:

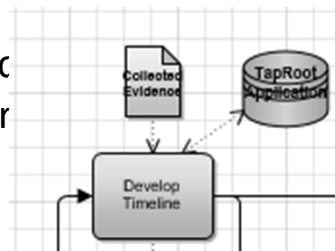
If any of the *Relevant Activity Questions* answer is **Yes**, then the Activity is considered relevant and its functional requirements must be specified.

In a BPMN model the following elements indicate the steps of the Activity:

A Sub-Process Marker indicates the actions of an activity are described in a separate model

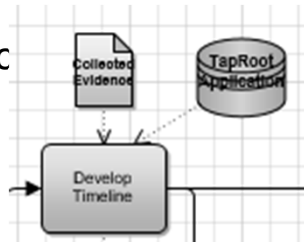


A Data Store connected with a bi-directional connection indicates that data is changed (created, updated or deleted) in some Data Store



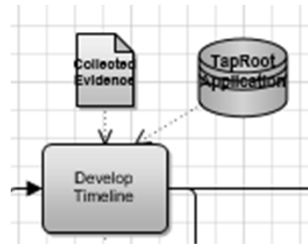
A Data Store connected with a direct connection indicates that data is changed (created, updated or deleted) in some Data Store

A Data Store connected with a direct connection indicates that data is retrieved from a Data Store (e.g. customer data is fetched)

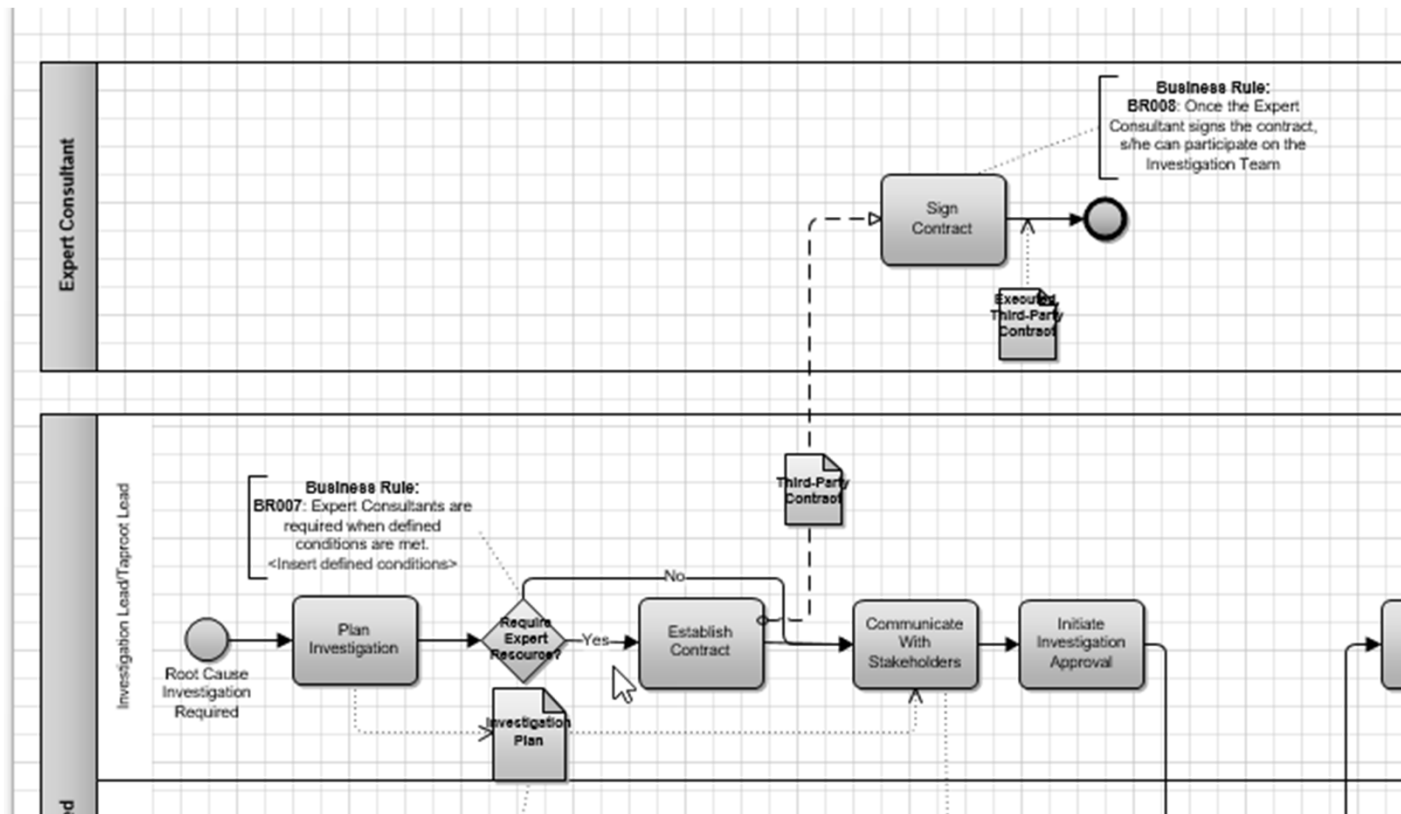


A Data Store connected with a direct connection indicates that data is retrieved from a Data Store

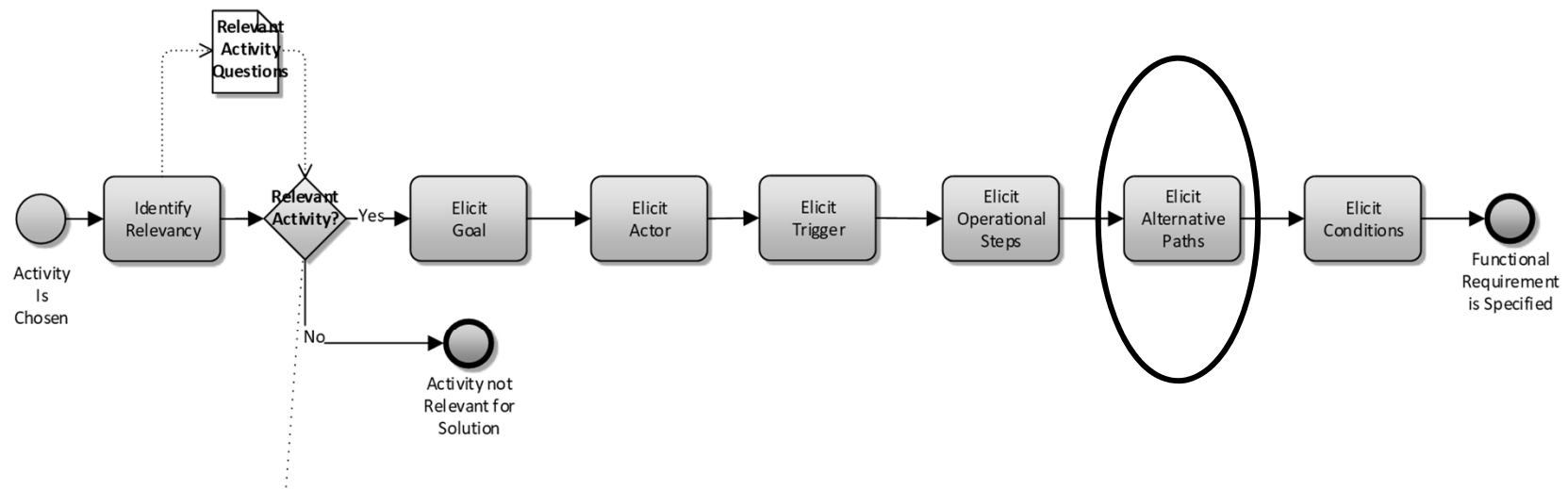
A Data Object associated to the Activity, indicates that one of the operational steps is either creating or reading that Data Object (e.g. a received document is read)



An associated Message Flow indicates a message exchange with external stakeholders



6. Explore the Alternative Paths to Achieve the Goal of the Activity



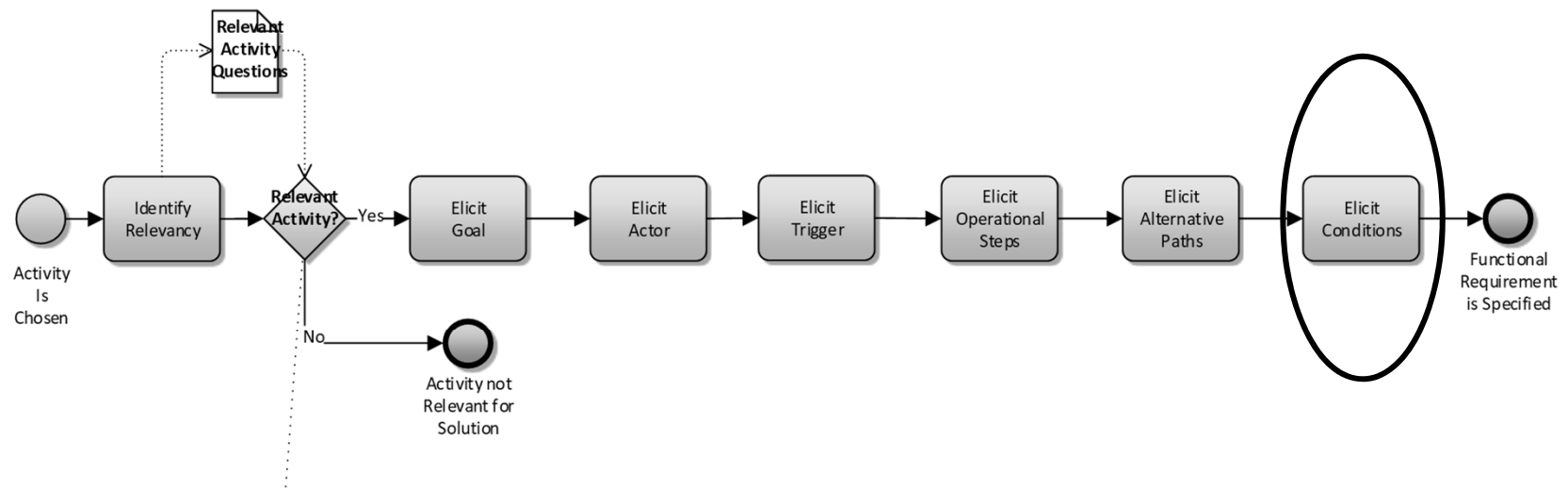
Business Rule:

If any of the **Relevant Activity Questions** answer is **Yes**, then the Activity is considered relevant and its functional requirements must be specified.

...Alternative Paths

Some Situations require other operational steps (alternative paths) to be taken. For instance, entering an order when the customer is not registered in the system, requires a deviation from the standard set of operational steps. An alternative path needs to be taken to add the customer. This aspect is elicited and described in this step of the method.

7. Elicit and Manage the Failure Conditions



Business Rule:

If any of the **Relevant Activity Questions** answer is **Yes**, then the Activity is considered relevant and its functional requirements must be specified.

...Failure Conditions

Sometimes it is not possible to execute all the steps needed to finish an Activity successfully. When an Activity is interrupted, its goal is not reached In this step, conditions that stop or interrupt an Activity from being initiated are elicited.

...Failure Conditions

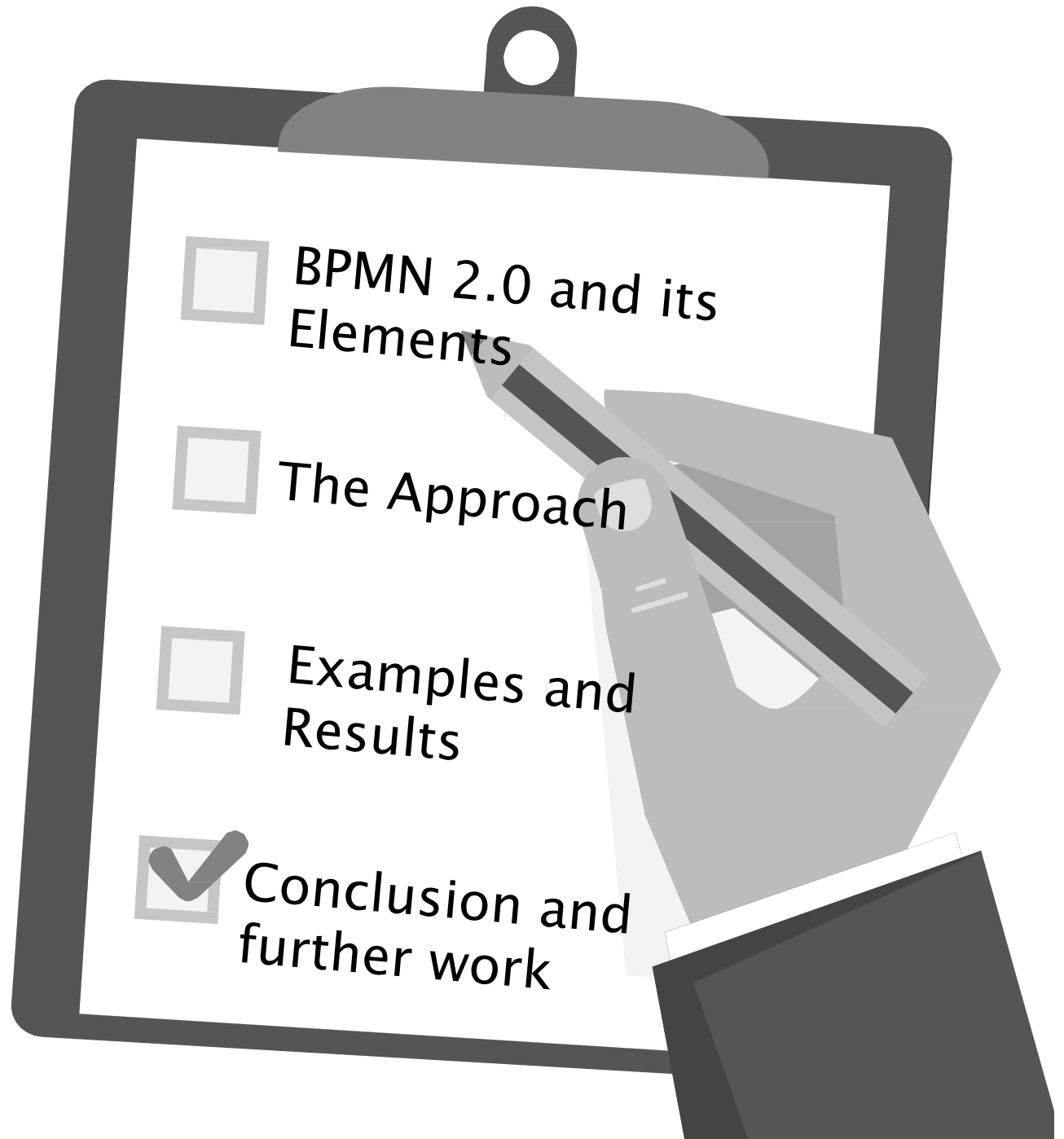
The following questions must be asked to elicit the failure conditions and how the conditions should be managed:

In what case the Activity should not be started (i.e. What are the preconditions that must be fulfilled to carry out the Activity?)

In what case the Activity should not be continued? What might interrupt the Activity?

What actions are necessary in case of a failure (e.g. undo of actions, error log, notification of stakeholders, etc.)?

Topics





Conclusion and Further work

Following this structured approach maps the components of a requirement to the elements of a BPMN process model. This approach provides a set of questions that ensure the elicitation of complete and consistent requirements when using process models as the source of information. The main idea of the approach is to study each relevant Activity of a process model.



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