A.8.3.4 Further Information to the use case for classification / mapping

Classification information
Relation to other use cases
Level of depth
System level use case
Prioritisation
Generic, regional or national relation
View
Further keywords for classification

A.8.4 Step by step analysis of use case

A.8.4.1 Preconditions

Scenario Conditions					
No.	**Scenario name**	**Primary actor**	**Triggering event**	**Pre-condition**	**Post-condition**
4.1	Passer-by calls to report that a car has hit a pole	Customer Service Representative	Car hits a pole	Pole is intact	The pole is repaired.

A.8.4.2 Steps – Normal

Scenario							
Scenario name:		Passer-by calls to report that a vehicle has hit a pole and there is no outage					
Step No.	**Event**	**Name of process/activity**	**Description of Process/activity**	**Service**	**Information producer (actor)**	**Information receiver (actor)**	**Information exchanged**
1	A car hits a pole	N/A	Someone calls to say that a car hit pole (at this time it is not known whether anyone has lost power)	N/A	Customer	Customer Service Representative (CSR)	Verbal – identification of service affected, outage symptoms
2	CSR enters call information	N/A	CSR enters information regarding the time, nature of the problem and the location of the incident. CIS creates a TroubleTicket that is not associated with any electric service.	create	CSR	Customer Information System (CS-TCM)	TroubleTickets
3	CIS sends TroubleTicket to OMS	N/A		created	CIS (CS-TCM)	Outage Management System (NO-FLT)	TroubleTickets
4	OMS operator analyzes TroubleTicket	Outage Analysis	The OMS operator notices the TroubleTicket and creates an Incident and associates it with the TroubleTicket	create			Incidents
5			Time passes (e.g., several minutes) and no additional TroubleTickets, PSRMeasurements or EndDeviceEvents are received.				
6	OMS sends incident to CIS	Outage Analysis	The Incident with its association to TroubleTicket is sent to CIS (CS-TCM)	created	OMS (NO-FLT)	CIS (CS-TCM)	Incidents
7			A TroubleOrder is created within NO-FLT	create			TroubleOrders
8	The OMS operator dispatches the Incident to a field crew	Crew Dispatch	This results in OMS (NO-FLT) sending the TroubleOrder with the Incident information to a field crew (MC-FRD), either directly or through another system such as a dispatching system. The status of the TroubleOrder is set to dispatched	created	NO-FLT	MC-FRD	TroubleOrders
9	OMS sends update to CIS	Outage Analysis	A changed (Incidents) is sent to CIS (CS-TCM) with a status of dispatched, to ensure that CIS is aware of the new status of the Incident.	changed	NO-FLT	CS-TCM	Incidents

Scenario							
Scenario name:		Passer-by calls to report that a vehicle has hit a pole and there is no outage					
Step No.	**Event**	**Name of process/activity**	**Description of Process/activity**	**Service**	**Information producer (actor)**	**Information receiver (actor)**	**Information exchanged**
10	Field crew goes enroute		The field crew (MC-FRD) receives the TroubleOrder and reports that they are enroute to investigate. This causes the status of the TroubleOrder to be changed to enroute.	changed	MC-FRD	NO-FLT	TroubleOrders
11	OMS sends update to CIS	Outage Analysis	A changed (Incidents) is sent to CIS (CS-TCM) with a status of enroute	changed	NO-FLT	CS-TCM	Incidents
12	Field crew arrives		The field crew (MC-FRD) reports that they have arrived at the site of the downed pole. This causes the status of the TroubleOrder to be changed to arrived.	changed	MC-FRD	NO-FLT	TroubleOrders
13	OMS sends update to CIS	Outage Analysis	A changed (Incidents) is sent to CIS (CS-TCM) with a status of arrived.	changed	NO-FLT	CS-TCM	Incidents
14	Field crew makes an assessment.		The field crew (MC-FRD) reports that they have determined what work needs to be done This causes the status of the TroubleOrder to be changed to field complete.	changed	MC-FRD	NO-FLT	TroubleOrders
15	OMS sends update to CIS	Outage Analysis	A changed (Incidents) is sent to CIS (CS-TCM) with a status of field complete.	changed	NO-FLT	CS-TCM	Incidents
16	OMS creates WorkRequest	Outage Analysis	A request to create a WorkRequest is sent to Work Management to perform the repairs. Either the WorkRequest number (mRID or name) is included in the request or it is assumed it will be returned in the reply.	create	NO-FLT	Work Management	WorkRequests
17	Work Management creates a WorkRequest	Work Management	A WorkRequest is created and the reply includes the mRID or name of the WorkRequest, if it was not included in the original WorkRequest.	created	Work Management	NO-FLT	WorkRequests

A.8.5 Information exchanged

Information exchanged		
Name of information exchanged	**Description of information exchanged**	**Requirements to information data R-ID**
TroubleTickets	Location of the problem, nature of the problem, whether there is a hazard (e.g. wire down).	
Incidents	Location, related field crew status information, incident status, hazard information.	

A.8.6 Common terms and definitions

Common terms and definitions	
Term	**Definition**

A.9 Car hits pole and there is an outage

A.9.1 Description of the use case

A.9.1.1 Name of use case

Use case identification		
ID	**Domain(s)**	
		Car hits pole and there is an outage; resulting interaction between customer service and network operations.

A.9.1.2 Version management

Version management						
Version management changes / Version	**Date (dd/mm/yyyy)**	**Name author(s) or committee**	**Domain expert**	**Area of expertise / Domain / Role**	**Title**	**Approval status draft, for comments, for voting, final**
1	24/04/2019	WG14 Part Teams Focus Community		Customer Information Systems, Outage Management		Draft

A.9.1.3 Scope and objectives of use case

Scope and objectives of use case	
Related business case	Car hits pole and there is no outage.
Scope	This use case includes passer-by interaction with a customer service representative after a car hits a utility pole and there is an outage, interaction between OMS and CIS, and interaction between OMS and field crew dispatch.

A.9.1.4 Narrative of use case

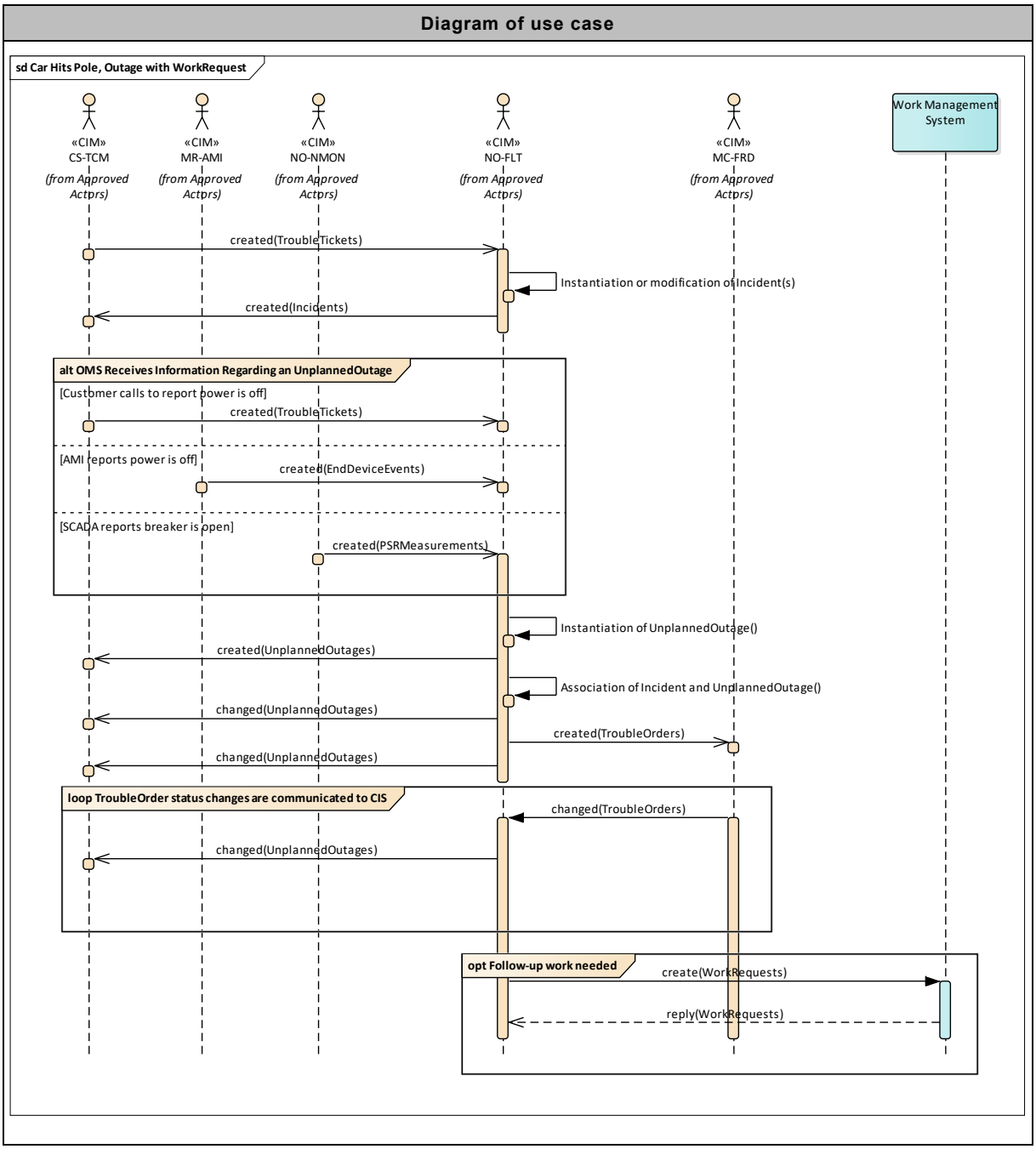
Narrative of use case
Short description – max 3 sentences
A vehicle hits a utility pole and a passer-by calls the utility to report that a pole has been hit. The information about the problem is sent to the OMS; subsequently other information is received that there is an outage. The OMS tracks status changes and reports changes to the CIS including repair of the pole and restoration of power.
Complete description
A vehicle hits a utility pole and a passer-by calls the utility to report that a pole has been hit. The call taker collects information about the problem and records it in the CIS, which sends the trouble call information to the OMS. The information in the TroubleTicket is used to create an Incident, which is dispatched to a field crew to investigate. Subsequently information is received from any combination of customer calls, AMI calls and SCADA status values, indicating that there is also an unplanned outage that resulted from the vehicle hit pole. The incident is associated with the unplanned outage and the association is reported to CIS. Changes in the lifecycle of the unplanned outage are reported to the CIS and the unplanned outage status is changed to field complete after the field work has been completed to repair the pole and restore power. This use case is sufficiently different from the car hits pole but there is no outage to warrant it being a use case in its own right. In the previous use case, the interactions between all parties (CIS, OMS and field crew) were done at the Incident level, while in this use case, the interactions are done at the UnplannedOutage level.

A.9.1.5 General remarks

General remarks

A.9.2 Use case diagrams

The activity diagram shows the main activities from the main actors and the key deliverables.



A.9.3 Technical details

A.9.3.1 Actors: People, systems, applications, databases, the power system, and other stakeholders

This use case is written using the following actors:

Actors			
Grouping (community)		**Group description**	
Network Operations (NO)		IEC 61968-1 Interface Reference Model (IRM) Business Function	
Actor name **see actor list**	**Actor type** **see actor list**	**Actor description** **see actor list**	**Further information specific to this use case**
Passer-by	Person	A person who is a member of the public and is not acting in the role of a utility customer.	
Customer Service Representative (CSR)	Person		
Trouble Call Management (TCM)	System		
Outage Management System (OMS)	System	An Outage Management System (OMS) is a computer system that keeps track of customers who are out of power and maintains electric system reliability indices.	
Maintenance and Construction Field Resource Dispatch	System		

A.9.3.2 Preconditions, assumptions, post condition, events

Use case conditions			
Actor/System/Information/Contract	**Triggering event**	**Pre-conditions**	**Assumption**
	A vehicle hits a utility pole	The pole was intact and there were no ungoing unplanned outages on the circuit that is associated with the pole.	

A.9.3.3 References / issues

References						
No.	**References type**	**Reference**	**Status**	**Impact on use case**	**Originator / Organisation**	**Link**
	Standards	IEC 61968-3, IEC 61968-6, IEC 61968-8		Use case is being used to validate these three standards.		

A.9.4 Further Information to the use case for classification / mapping

Classification information
Relation to other use cases
Level of depth
System level use case
Prioritisation
Generic, regional or national relation
View
Further keywords for classification

A.9.5 Step by step analysis of use case

A.9.5.1 Preconditions

Scenario conditions					
No.	**Scenario name**	**Primary actor**	**Triggering event**	**Pre-condition**	**Post-condition**
4.1	Passer-by calls to report that a car has hit a pole	Customer Service Representative	Car hits a pole	Pole is intact and there is no outage.	The pole is repaired and power is restored.

A.9.5.2 Steps – Normal

Scenario							
Scenario name:		Passer-by calls to report that a vehicle has hit a pole and there is and outage					
Step No.	**Event**	**Name of process/activity**	**Description of process/activity**	**Service**	**Information producer (actor)**	**Information receiver (actor)**	**Information exchanged**
1	A car hits a pole	N/A	Someone calls to say that a car hit pole (at this time it is not known whether anyone has lost power)	N/A	Customer	Customer Service Representative (CSR)	Verbal – identification of service affected, outage symptoms
2	CSR enters call information	Trouble Call Entry	CSR enters information regarding the time, nature of the problem and the location of the incident. CIS creates a TroubleTicket that is not associated with any electric service.	create	CSR	Customer Information System (CS-TCM)	TroubleTickets
3	CIS sends TroubleTicket to OMS			created	CIS (CS-TCM)	Outage Management System (NO-FLT)	TroubleTickets
4	OMS operator analyzes TroubleTicket	Outage Analysis	The OMS operator notices the TroubleTicket and creates an Incident and associates it with the TroubleTicket	create			Incidents
5	OMS sends incident to CIS	Outage Analysis	The Incident with its association to TroubleTicket is sent to CIS (CS-TCM)	created	OMS (NO-FLT)	CIS (CS-TCM)	Incidents
6 alt 1	Customer calls to report power is off	Trouble Call Entry		created			TroubleTickets
6 alt 2	AMI reports power is off	AMI		created			EndDeviceEvents
6 alt 3	SCADA reports breaker is open	SCADA		created			PSRMeasurements
7	The information is analysed by OMS	Outage Analysis	OMS predicts or confirms an UnplannedOutage at a location based on the information received. OMS associates any TroubleTickets with the UnplannedOutage	created	NO-FLT	CS-TCM	UnplannedOutages

Scenario							
Scenario name:		Passer-by calls to report that a vehicle has hit a pole and there is and outage					
Step No.	**Event**	**Name of process/activity**	**Description of process/activity**	**Service**	**Information producer (actor)**	**Information receiver (actor)**	**Information exchanged**
8	The UnplannedOutage and car hit pole TroubleTicket are analysed.	Outage Analysis	The OMS or the OMS operator determines that the UnplannedOutage and the car hit pole TroubleTicket are probably related to the same root cause. The UnplannedOutage is updated to reference the Incident. The Incident also includes the car hit pole TroubleTicket.	Changed	NO-FLT	CS-TCM	UnplannedOutages
9			A TroubleOrder is created within NO-FLT	create			TroubleOrders
10	The OMS operator dispatches the TroubleOrder to a field crew	Crew Dispatch	The OMS operator dispatches the TroubleOrder to a field crew (MC-FRD), with both the UnplannedOutage and the Incident information. The TroubleOrder is sent to a field crew, either directly or through another system such as a dispatching system. The status of the TroubleOrder is set to dispatched	created	NO-FLT	MC-FRD	TroubleOrders
11	OMS sends update to CIS	Outage Analysis	A changed (UnplannedOutages) is sent to CIS (CS-TCM) with a status of dispatched	changed	NO-FLT	CS-TCM	UnplannedOutages
12	Field crew goes enroute	Field Crew Work	The field crew (MC-FRD) receives the TroubleOrder and reports that they are enroute to investigate. This causes the status of the TroubleOrder to be changed to enroute.	changed	MC-FRD	NO-FLT	TroubleOrders
13	OMS sends update to CIS	Outage Analysis	A changed (UnplannedOutages) is sent to CIS (CS-TCM) with a status of enroute	changed	NO-FLT	CS-TCM	UnplannedOutages
14	Field crew arrives	Field Crew Work	The field crew (MC-FRD) reports that they have arrived at the site of the outage or downed pole. This causes the status of the TroubleOrder to be changed to arrived.	changed	MC-FRD	NO-FLT	TroubleOrders
15	OMS sends update to CIS	Outage Analysis	A changed (UnplannedOutages) is sent to CIS (CS-TCM) with a status of arrived.	changed	NO-FLT	CS-TCM	UnplannedOutages

Scenario							
Scenario name:		Passer-by calls to report that a vehicle has hit a pole and there is and outage					
Step No.	**Event**	**Name of process/activity**	**Description of process/activity**	**Service**	**Information producer (actor)**	**Information receiver (actor)**	**Information exchanged**
16	Field crew completes work	Field Crew Work	The field crew (MC-FRD) reports that they have completed repairs. This causes the status of the TroubleOrder to be changed to field complete.	changed	MC-FRD	NO-FLT	TroubleOrders
17	OMS sends update to CIS	Outage Analysis	A changed (UnplannedOutages) is sent to CIS (CS-TCM) with a status of field complete.	changed	NO-FLT	CS-TCM	UnplannedOutages
18 (optional)	OMS sends request for follow-up work to Work Management	Outage Analysis	If the field crew made temporary repairs to get the power back on, a create (WorkRequests) is sent to Work Management to have permanent repairs performed. Either the WorkRequest number (mRID or name) is included in the request or it is assumed it will be returned in the reply.	create	NO-FLT	Work Management	WorkRequests
19 (optional)	Work Management creates a WorkRequest	Work Management	Work Management creates a Work Request.	created	Work Management	NO-FLT	WorkRequests