WP3 : Workflow and Procedure Update

Dr. Tarik KHOUTAIF

Nexter Systems

Industrial WORKSHOP July, 2015 - BRUSSELS

Summary

1. Generic results

- Mission system composition
- Actors of mission system
- Context diagram

2. WP3.1 : Operational workflow

- Actors in an operational context
- New LAVOSAR Mission System use cases in an Operational Context
- Activity diagram

3. WP3.2 : Logistics and maintenance procedures

- Review of military operation contexts
- Analysis of the mission systems in a logistics context
- Actors in an logistics and maintenance context
- Main LAVOSAR Mission System use cases
- Activity diagrams

4. Open discussion

Results from LAVOSAR-I

> Review of Mission system composition

Mission System Actors

Mounted Users, can be either a Crew Member or Passenger.

Dismounted Users, any personnel on foot neither Crew nor Passenger.

Dismounting Users, any mounted user who will be dismounted.

Support Users, can be Maintainers, Logisticians or Training Instructors.

Maintainers, responsible for continued platform performance and
       repairs.

Logisticians, responsible for re-supply of the platform.

Training instructors, responsible for Users know-how.

LAVOSAR-II

1. **Generic results**
    * Mission system composition
    * Actors of mission system
    * Context diagram
    * Review of the operating contexts
2. **WP3.1 : Operational workflow**
    * Actors in an operational context
    * New LAVOSAR Mission System use cases in an Operational Context
    * Activity diagram
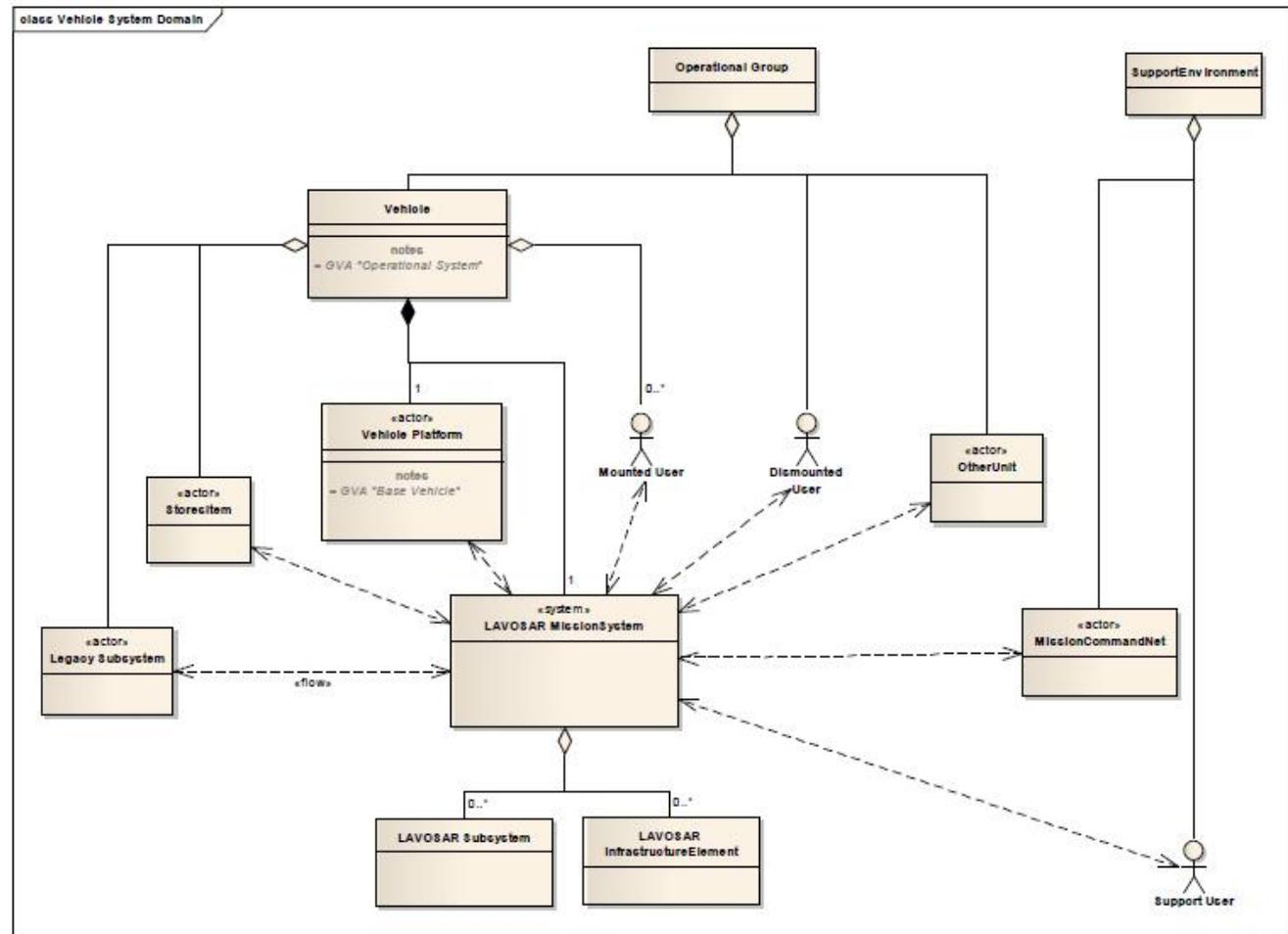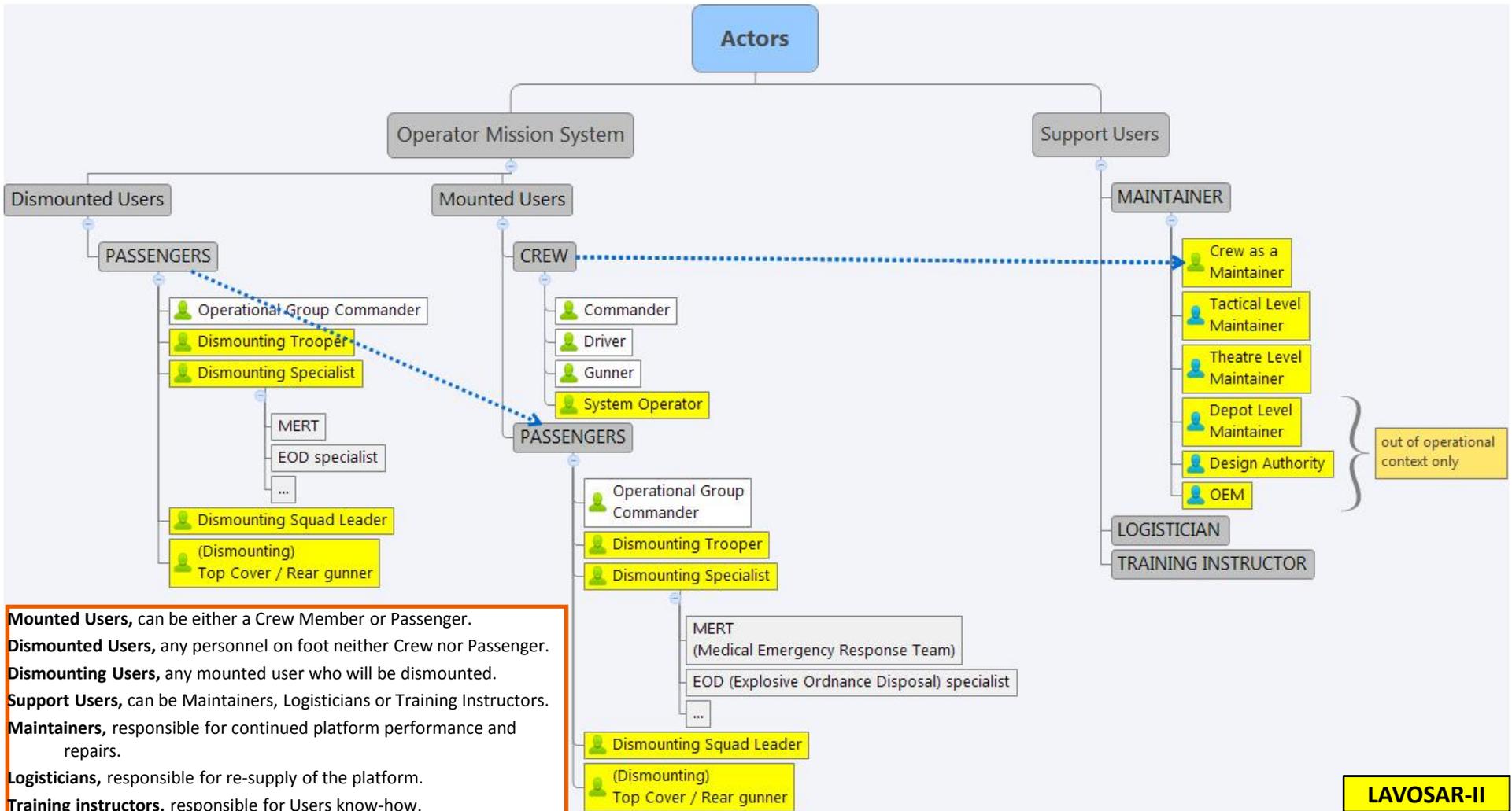3. **WP3.2 : Logistics and maintenance procedures**
    * Definition of "logistics"
    * Analysis of the mission systems in a logistic context
    * Actors in an logistic and maintenance context
    * Main LAVOSAR Mission System use cases
    * Activity diagrams
4. **Open discussion**

Mission systems actors
(Extract of context diagram)

LAVOSAR-II

Presentation Title　　　**WP3 : Workflow and Procedure Update**

1. **Generic results**
   - Mission system composition
   - Actors of mission system
   - Context diagram
   - Review of the operating contexts
2. **WP3.1 : Operational workflow**
   - Actors in an operational context
   - New LAVOSAR Mission System use cases in an Operational Context
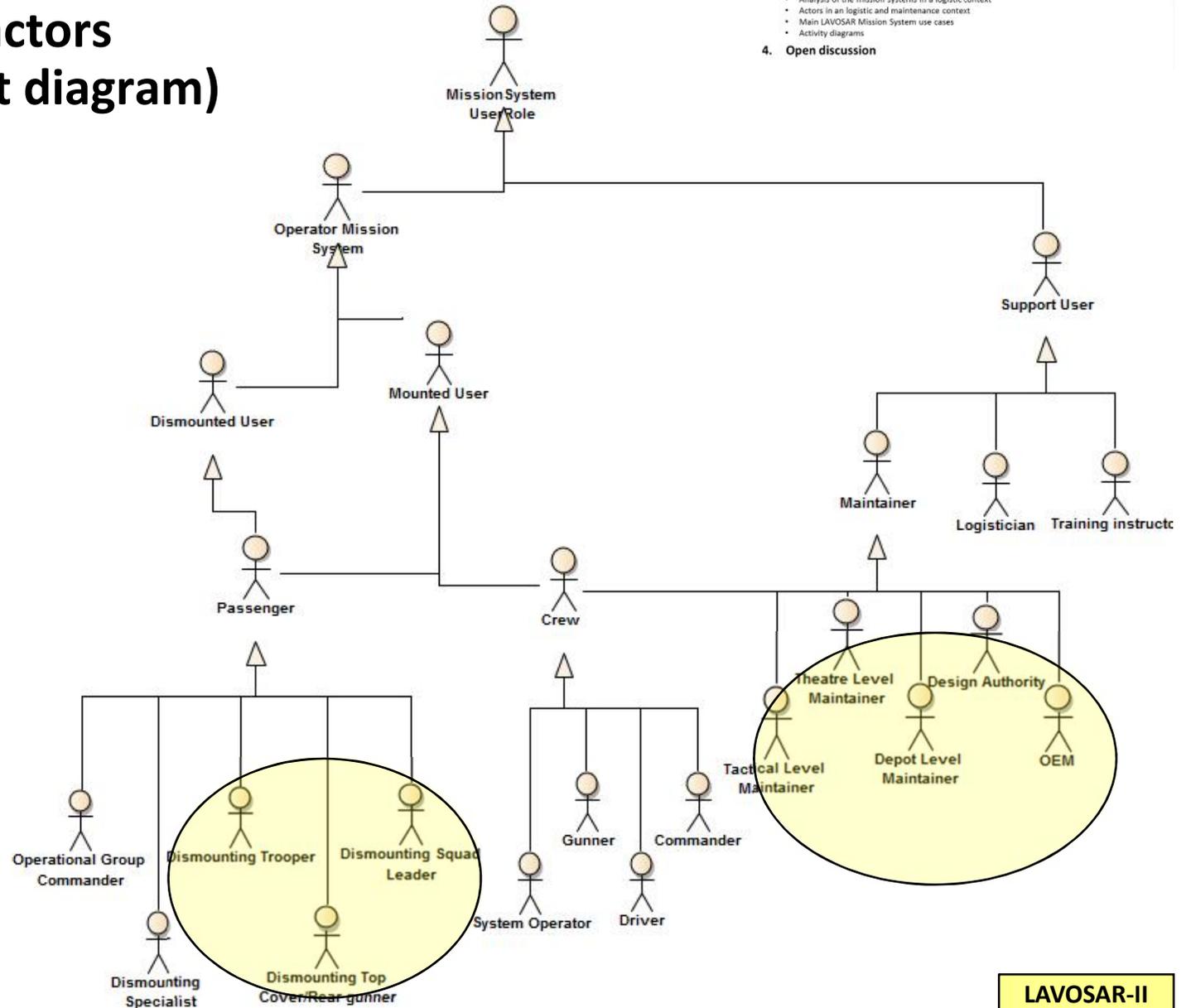   - Activity diagram
3. **WP3.2 : Logistics and maintenance procedures**
   - Definition of "logistics"
   - Analysis of the mission systems in a logistic context
   - Actors in an logistic and maintenance context
   - Main LAVOSAR Mission System use cases
   - Activity diagrams
4. **Open discussion**

WP3.1 : Operational workflow

Actors in an operational context

> ### Crew members

- **Commander**, responsible for the system's operations and the safety of all (mounted) users. [LAVOSAR-I]
- **Driver**, responsible for safe displacement of the Vehicle. [LAVOSAR-I]
- **Gunner**, when present, is responsible for operating the Vehicle's firepower. He may take over at least part of Commander's role if/when Commander dismounts. [LAVOSAR-I]
- **System Operator**, operates a specific subsystem of the Vehicle (e.g. radio, loader, payload operator, robot/drone operator...). He is part of the Crew, and not a Passenger, and does not dismount to accomplish his mission. [LAVOSAR-II]
- **Top cover**, also called Rear Gunner how ensure close protection in the rear arc [LAVOSAR-II].

> ### Passengers

- **Operational Group Commander**, as passenger, he does not participate directly in the completion of the Vehicle System's mission [LAVOSAR-I].
- **Dismounting trooper**, are soldiers carried with the Vehicle. It recover MERT (Medical Emergency Response Team) members. [LAVOSAR-II]
- **Dismounting squad leader**, is the leader of the Dismounting Troopers carried with the Vehicle [LAVOSAR-II].
- **Dismounting specialist**, is a specialist combatant carried by the Vehicle, such as and including FAC (Forward Air Controller), AO (Artillery Observer), JFO (Joint Fires Observer....)[LAVOSAR-II].

1. **Generic results**
   - Mission system composition
   - Actors of mission system
   - Context diagram
   - Review of the operating contexts
2. **WP3.1 : Operational workflow**
   - Actors in an operational context
   - New LAVOSAR Mission System use cases in an Operational Context
   - Activity diagram
3. **WP3.2 : Logistics and maintenance procedures**
   - Definition of "logistics"
   - Analysis of the mission systems in a logistic context
   - Actors in an logistic and maintenance context
   - Main LAVOSAR Mission System use cases
   - Activity diagrams
4. **Open discussion**

WP3.1 : Operational workflow

New LAVOSAR Mission System use cases in an Operational Context

> **Commands & Orders, [LAVOSAR-I]**

> **Situation Picture, [LAVOSAR-I]**

- **View Local Situation,** Mission system should provide users means to visually perceive the Local tactical situation.

> **Actions, [LAVOSAR-I] & [LAVOSAR-II]**

Payload could be a dismounting squad or dismounting specialist team, a drone or robot, an antitank mine, …

- **Deploy Payload**, is the action of rendering the Payload operational, usually by separating it from the carrier platform.
- **Control Payload**, is a role for a System Operator user. Can be performed after deployment.
- **Recover Payload**, is the action of reintegrating the Payload into its carrier platform at the end of the Payload's mission, while the vehicle is still operating in the field.

> **Maintain Operative State, [LAVOSAR-I]**

WP3 : Workflow and Procedure Update

WP3.1 : Operational workflow

Use case diagram associated to the commander view

WP3.1 : Operational workflow

Activity diagram associated to **"Deploy PAYLOAD: vehicle-operated nano-drone"**

Description :
This use case is triggered by the decision to deploy the nano-drone.

- After analysing the tactical situation, Commander decides to deploy his nanodrone.
- The Commander prepares the drone mission
- The Commander programs the mission profile in the drone control system, through the LAVOSAR system.
- Before launch, the Commander checks the drone status
- If drone is, the Commander analyses the current local 3D situation to assert the feasibility of the launch.
- If every launch condition is present, the Commander open his hatch, launch the nanodrone and lock back his hatch.
- The Commander controls both the drone, then he can get informations

LAVOSAR	CREW	Commander	Dismounting Squad Leader	Top Cover	Dismounting Trooper

Decision to deploy the nanodrone

Prepares the nanodrone

Integrate the mission profile in the nanodrone ← Program the mission profile

Check the drone status

Drone is ready? — No / Yes

Analyse the current local 3D situation

Launch is feasible? — No / Yes

Open Commander hatch

Launch the nanodrone

Lock Commander hatch

Control drone/payload

Receive informations from the drone

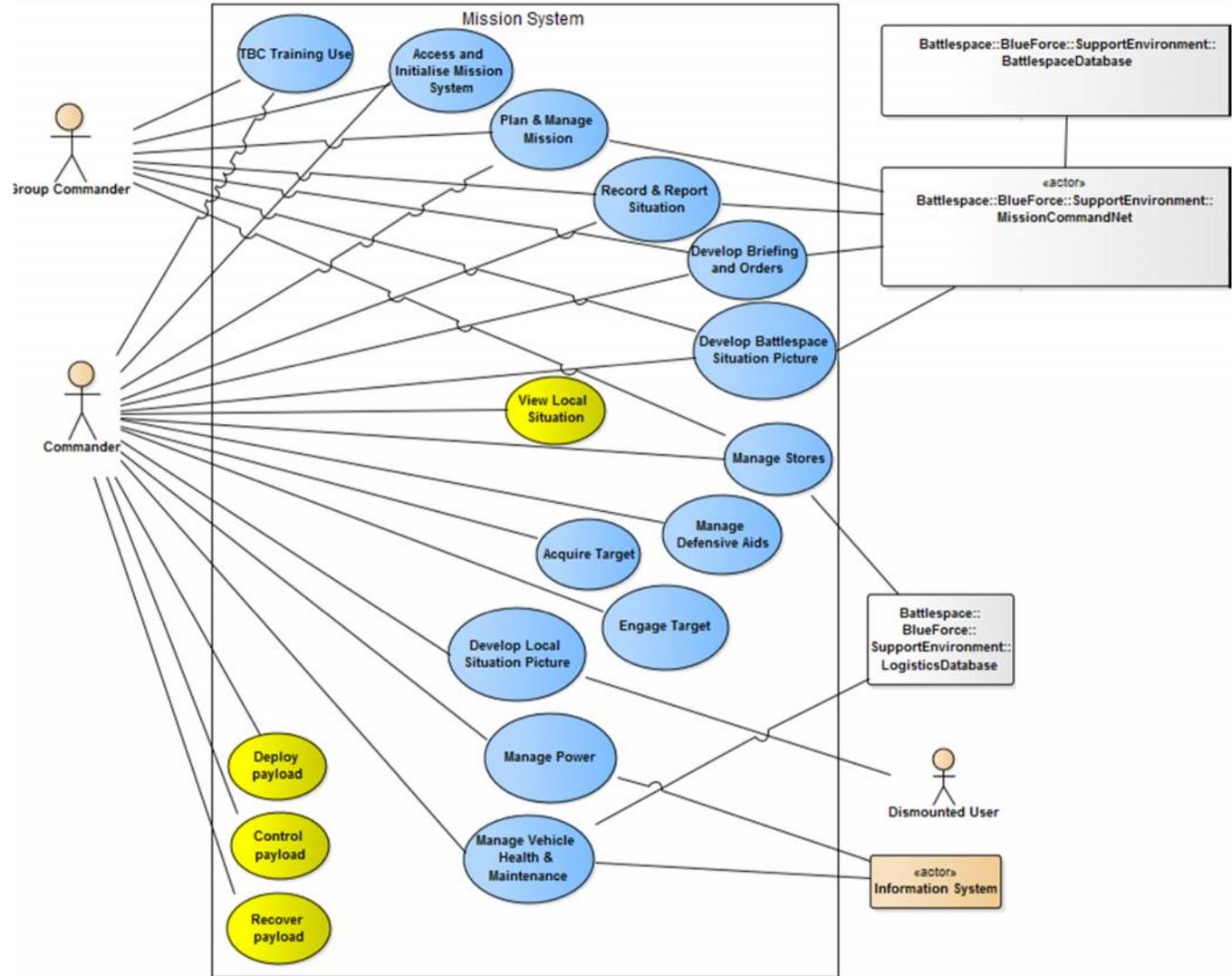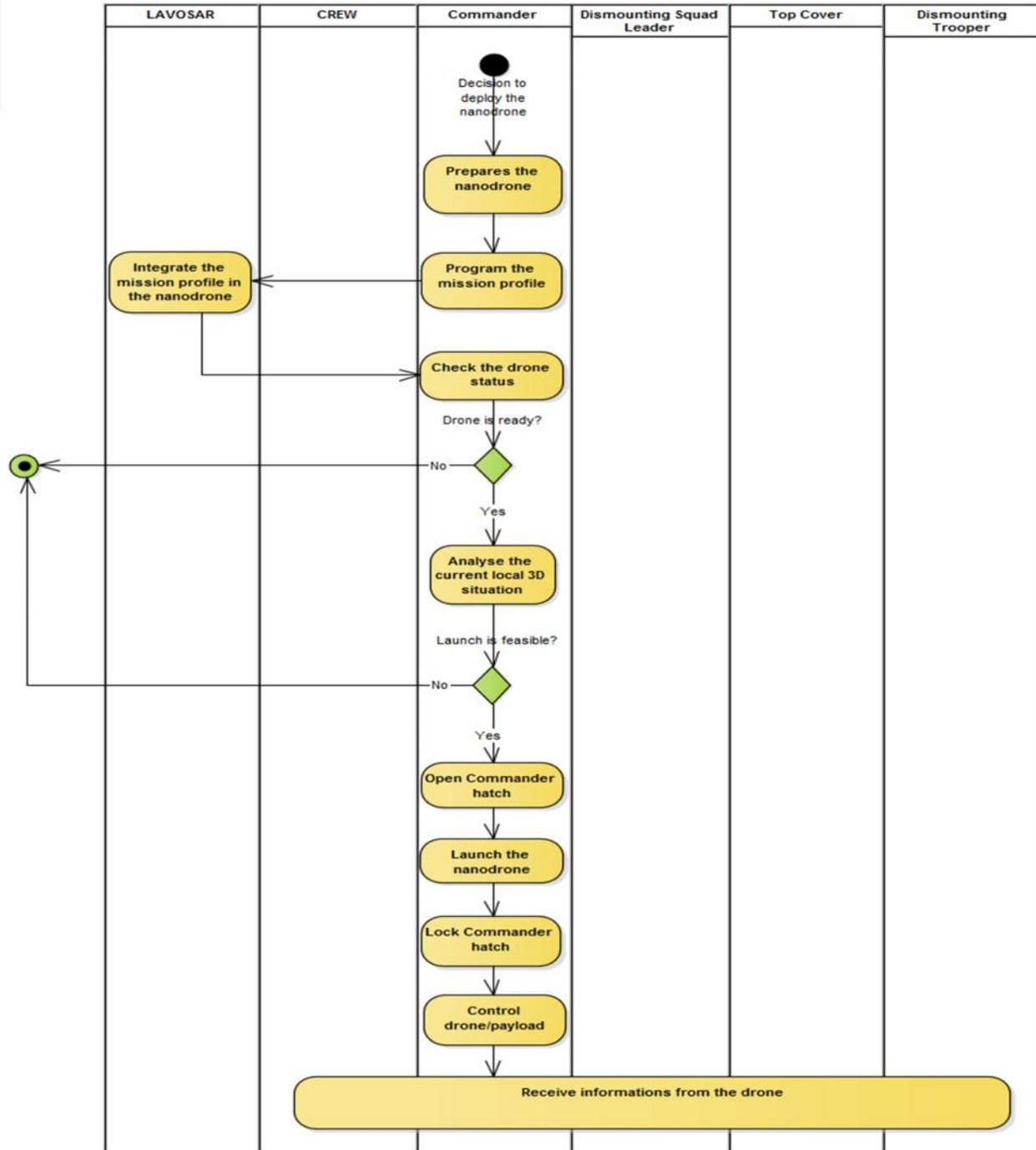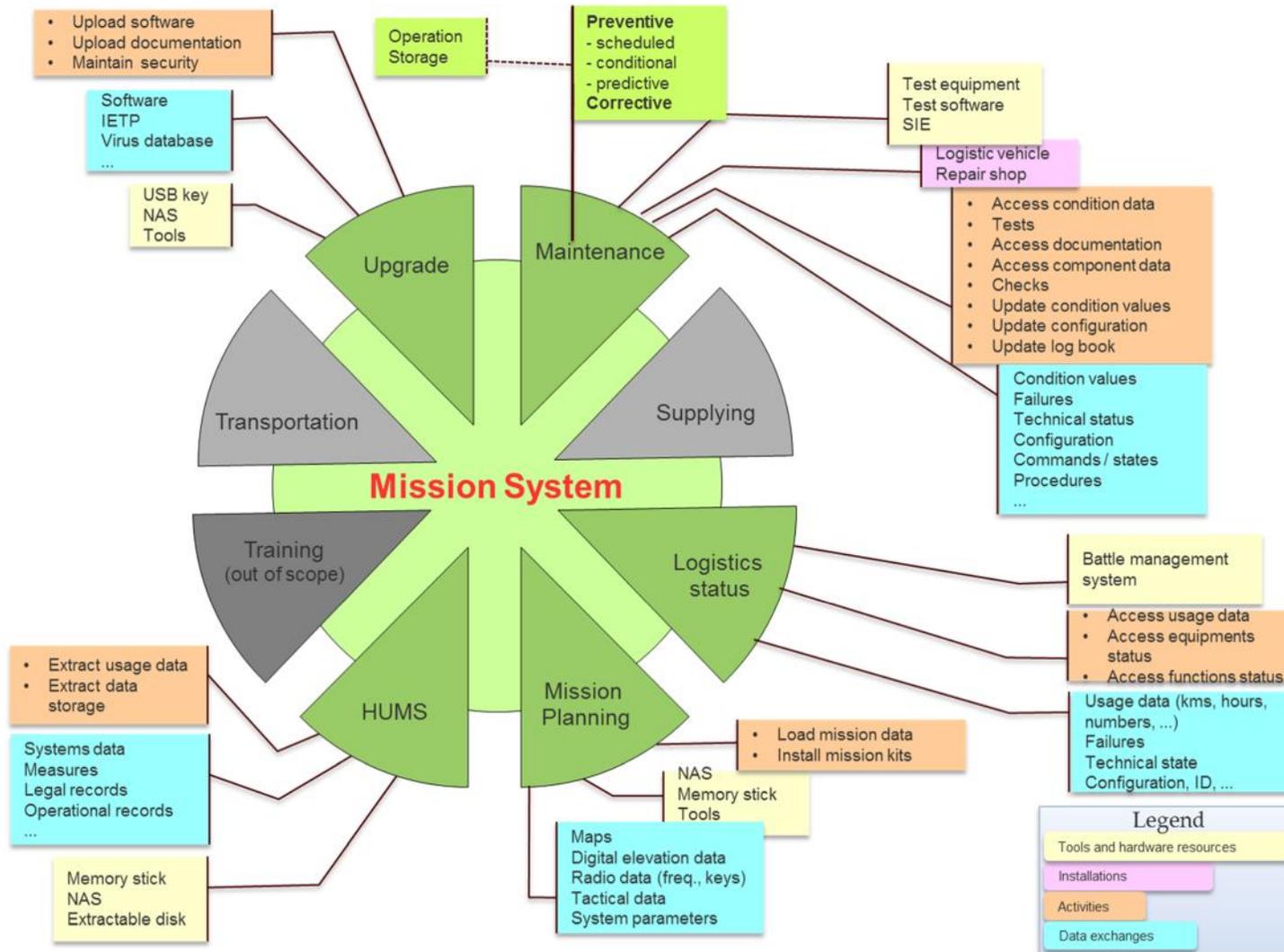**Presentation Title**   **WP3 : Workflow and Procedure Update**

1. **Generic results**
   - Mission system composition
   - Actors of mission system
   - Context diagram
   - Review of the operating contexts
2. **WP3.1 : Operational workflow**
   - Actors in an operational context
   - New LAVOSAR Mission System use cases in an Operational Context
   - Activity diagram
3. **WP3.2 : Logistics and maintenance procedures**
   - Definition of "logistics"
   - Analysis of the mission systems in a logistic context
   - Actors in a logistic and maintenance context
   - Main LAVOSAR Mission System use cases
   - Activity diagrams
4. **Open discussion**

WP3.2 : Mission System in a logistics context
Considerations/analysis of the mission systems in a logistics context

WP3.2 : Mission System in a logistics context

Review of military operation contexts

Land army vehicles can be used either in operational theatres "operation" or outside of the operations "Garrison"

Garrison

The vehicles are either stored or used for training in their organic unit home base, including school and training units, or in a dedicated pool.

Operations

The vehicles are deployed out of their home garrison for operational duties, either in a single-nation or multinational (EU, NATO, UN or ad-hoc coalition) operating environment.

Presentation Title   **WP3 : Workflow and Procedure Update**

1. **Generic results**
   - Mission system composition
   - Actors of mission system
   - Context diagram
   - Review of the operating contexts
2. **WP3.1 : Operational workflow**
   - Actors in an operational context
   - New LAVOSAR Mission System use cases in an Operational Context
   - Activity diagram
3. **WP3.2 : Logistics and maintenance procedures**
   - Definition of "logistics"
   - Analysis of the mission systems in a logistic context
   - Actors in an logistic and maintenance context
   - Main LAVOSAR Mission System use cases
   - Activity diagrams
4. **Open discussion**

WP3.2 : Mission System in a logistics context

Actors in maintenance context
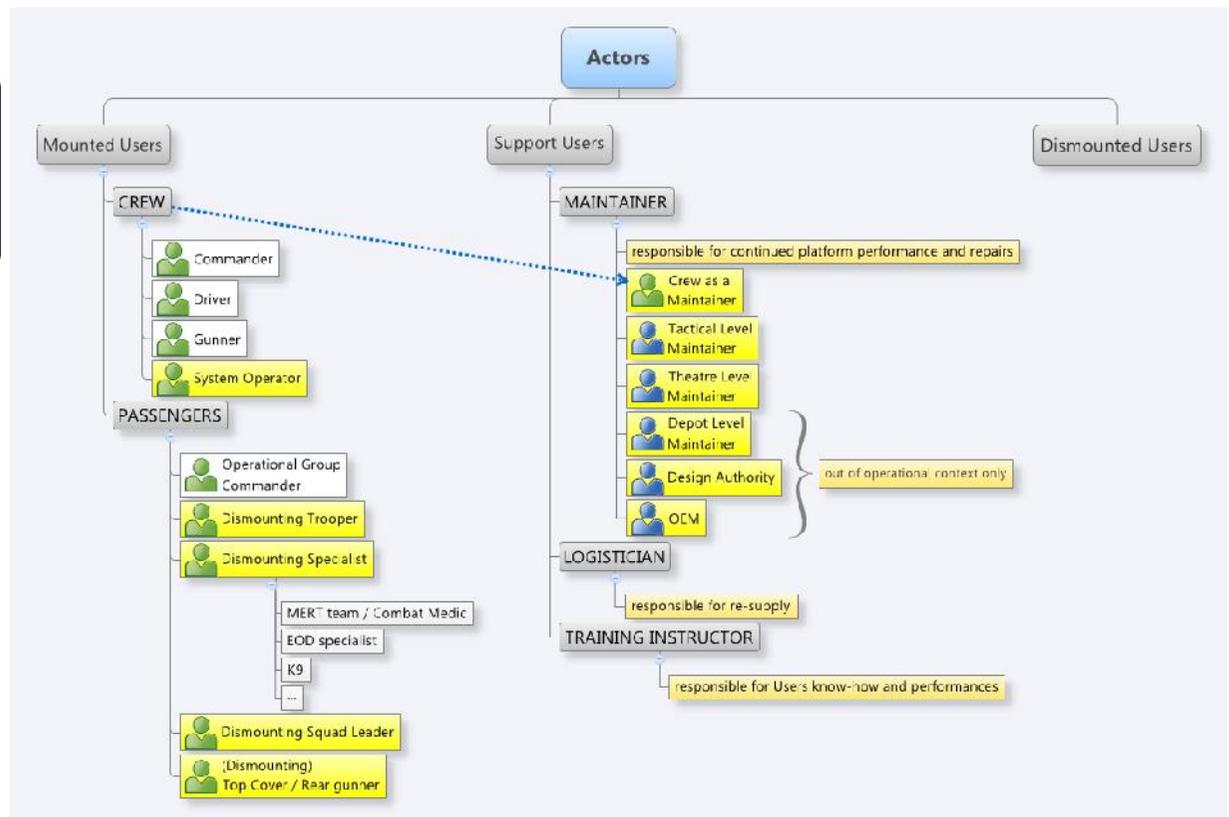
> **Mounted users**
> - Crew
> - Tactical-level Maintainers

> **Support users**
> - Theatre-level Maintainers
> - Depot-level Maintainers
> - Design Authority
> - Equipment / subsystems suppliers (OEM)

> **Dismounted users**

Presentation Title   **WP3 : Workflow and Procedure Update**

1. Generic results
   - Mission system composition
   - Actors of mission system
   - Context diagram
   - Review of the operating contexts
2. **WP3.1 : Operational workflow**
   - Actors in an operational context
   - New LAVOSAR Mission System use cases in an Operational Context
   - Activity diagram
3. **WP3.2 : Logistics and maintenance procedures**
   - Definition of "logistics"
   - Analysis of the mission systems in a logistic context
   - Actors in an logistic and maintenance context
   - Main LAVOSAR Mission System use cases
   - Activity diagrams
4. **Open discussion**

WP3.2 : Mission System in a logistics context
Description of the main Use Cases of LAVOSAR Mission System

> **Maintain Information System Security : access to the mission system**

Mission system should preserve its Confidentiality, Integrity, and Availability is at the heart of information security.

> **LAVOSAR self-maintenance & evolution :**

This part covers the maintenance (and occasional evolution) of the LAVOSAR Mission System proper. LAVOSAR is thus the direct target of the action.

> **LAVOSAR assistance to Vehicle & Platform system maintenance**

This part covers using LAVOSAR Mission System in aiding the maintenance of the Automotive Platform and the Vehicle System as a whole. Thus LAVOSAR is not the target of, but a tool for accomplishing the action.

1. **Generic results**
   - Mission system composition
   - Actors of mission system
   - Context diagram
   - Review of the operating contexts
2. **WP3.1 : Operational workflow**
   - Actors in an operational context
   - New LAVOSAR Mission System use cases in an Operational Context
   - Activity diagram
3. **WP3.2 : Logistics and maintenance procedures**
   - Definition of "logistics"
   - Analysis of the mission systems in a logistic context
   - Actors in an logistic and maintenance context
   - Main LAVOSAR Mission System use cases
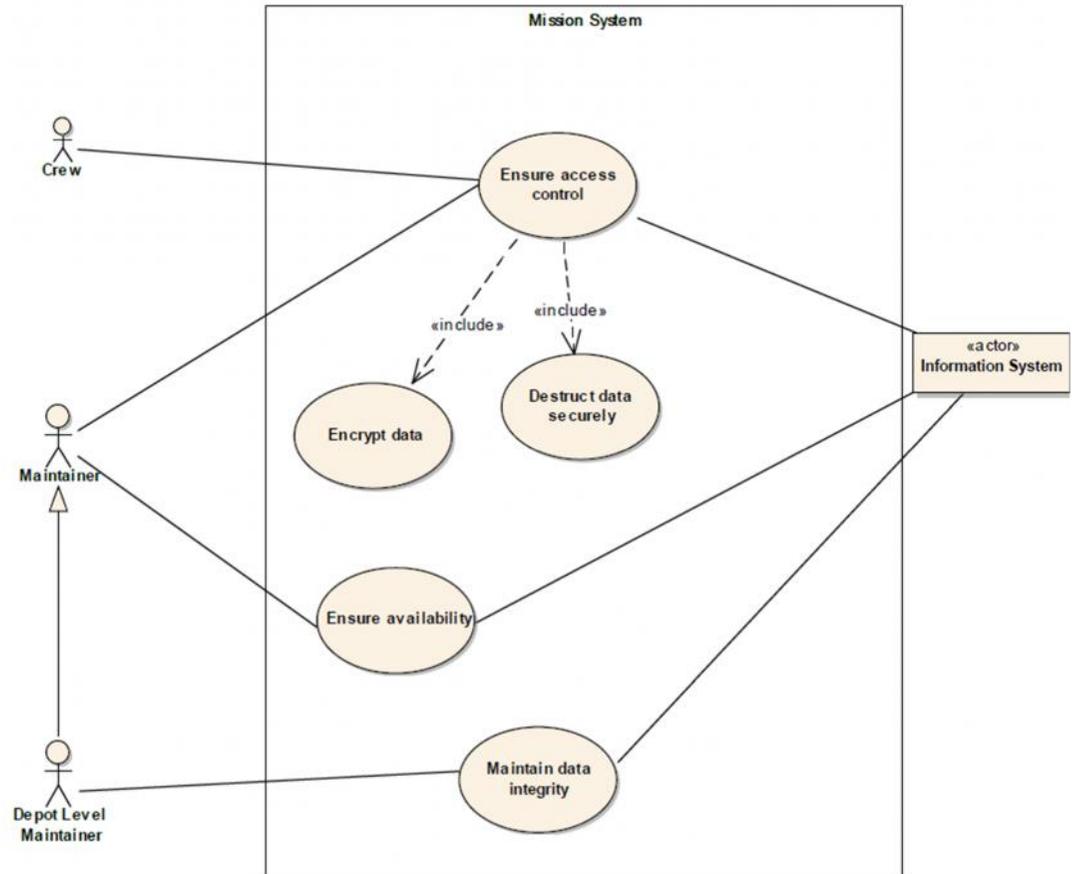   - Activity diagrams
4. **Open discussion**

WP3.2 : Mission System in a logistics context

Mission System use cases in a logistics context

> **Maintain Information System Security**

- Ensure Access Control : Access Control also includes Data Encryption and Secure Data Destruction
- Maintain Data integrity
- Ensure Availability

WP3.2 : Mission System in a logistics context

Mission System use cases in a logistics context

> **LAVOSAR self-maintenance & evolution**

- Monitor LAVOSAR Configuration data
- Modify LAVOSAR Configuration data
- Monitor LAVOSAR Condition data
- Modify LAVOSAR Condition data
- Monitor LAVOSAR Usage data
- Modify LAVOSAR Usage data
- Access LAVOSAR Software
- Modify LAVOSAR Software
- Replace LAVOSAR Hardware component
- Repair LAVOSAR Hardware component
- Add / Remove LAVOSAR hardware Terminal / Crew Station

1. **Generic results**
   - Mission system composition
   - Actors of mission system
   - Context diagram
   - Review of the operating contexts
2. **WP3.1 : Operational workflow**
   - Actors in an operational context
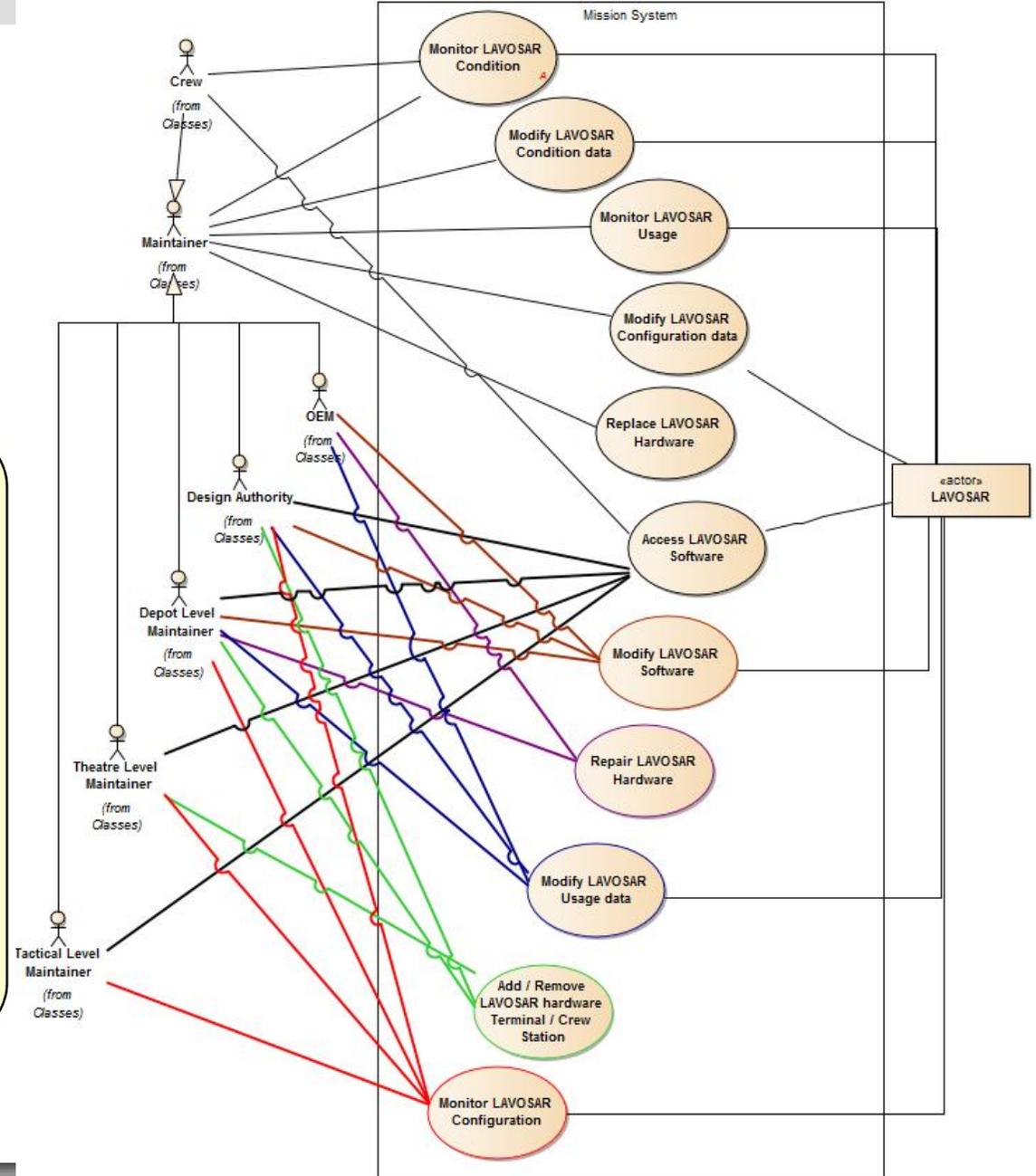   - New LAVOSAR Mission System use cases in an Operational Context
   - Activity diagram
3. **WP3.2 : Logistics and maintenance procedures**
   - Definition of "logistics"
   - Analysis of the mission systems in a logistic context
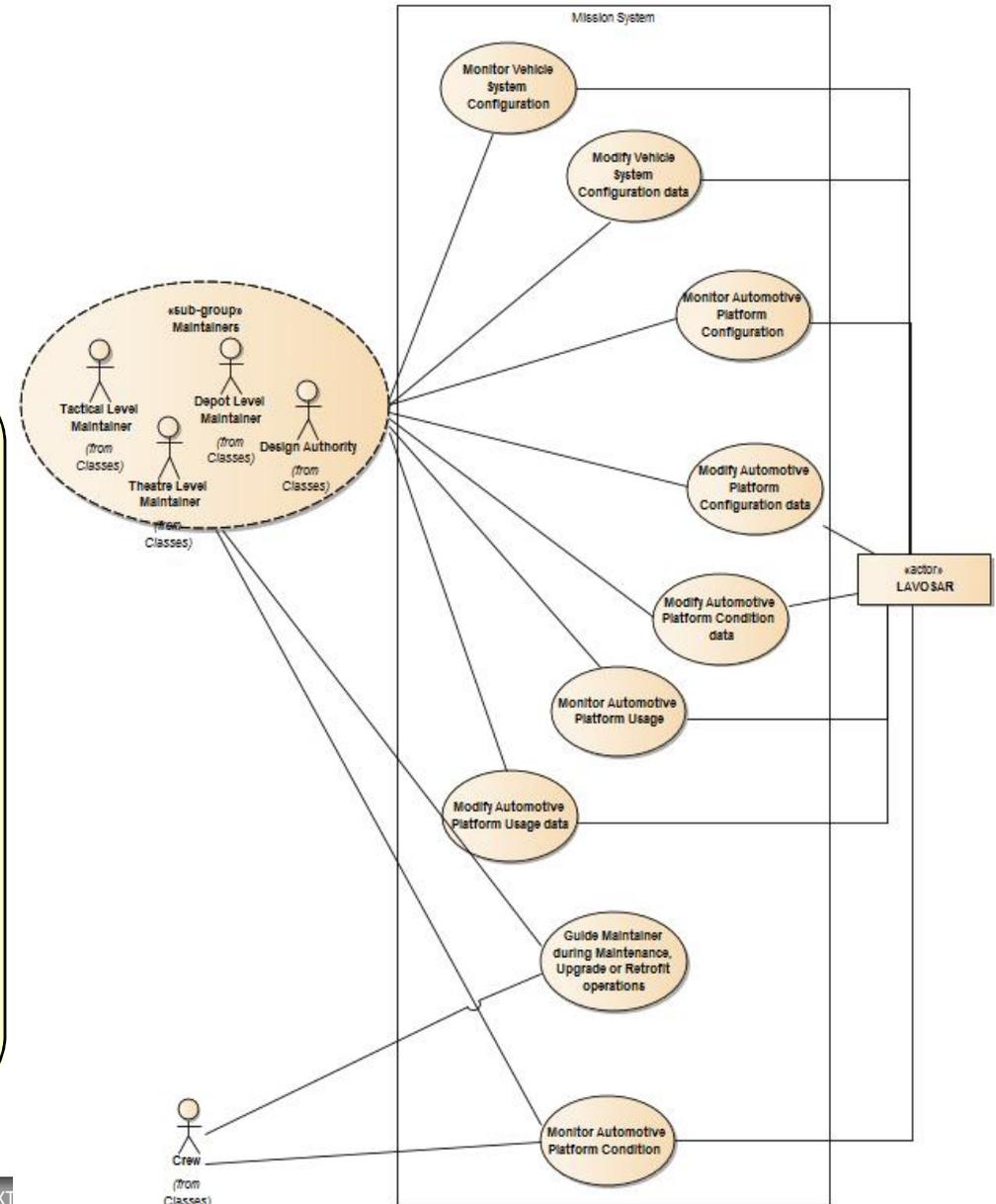   - Actors in an logistic and maintenance context

WP3.2 : Mission System in a logistics context

Mission System use cases in a logistics context

> **LAVOSAR assistance to Vehicle & Platform system maintenance**

- Monitor Vehicle System Configuration data
- Monitor Vehicle System Configuration data
- Modify Vehicle System Configuration data
- Monitor Automotive Platform Configuration data
- Modify Automotive Platform Configuration data
- Monitor Automotive Platform Condition data
- Modify Automotive Platform Condition data
- Monitor Automotive Platform Usage data
- Modify Automotive Platform Usage data
- Guide Maintainer during Maintenance, Upgrade or Retrofit operations
- Monitor LAVOSAR Configuration data

Presentation Title

WP3 : Workflow and Procedure Update

1. **Generic results**
   - Mission system composition
   - Actors of mission system
   - Context diagram
   - Review of the operating contexts
2. **WP3.1 : Operational workflow**
   - Actors in an operational context
   - New LAVOSAR Mission System use cases in an Operational Context
   - Activity diagram
3. **WP3.2 : Logistics and maintenance procedures**
   - Definition of "logistics"
   - Analysis of the mission systems in a logistic context
   - Actors in an logistic and maintenance context
   - Main LAVOSAR Mission System use cases
   - Activity diagrams
4. **Open discussion**

WP3.2 : Mission System in a logistics context

Activity diagrams :

- Monitor LAVOSAR Condition

- Access LAVOSAR Software

- Replace LAVOSAR Hardware

- Guide Maintainer during Maintenance, Upgrade or Retrofit operations

Presentation Title

WP3 : Workflow and Procedure Update

1. Generic results
   - Mission system composition
   - Actors of mission system
   - Context diagram
   - Review of the operating contexts
2. WP3.1 : Operational workflow
   - Actors in an operational context
   - New LAVOSAR Mission System use cases in an Operational Context
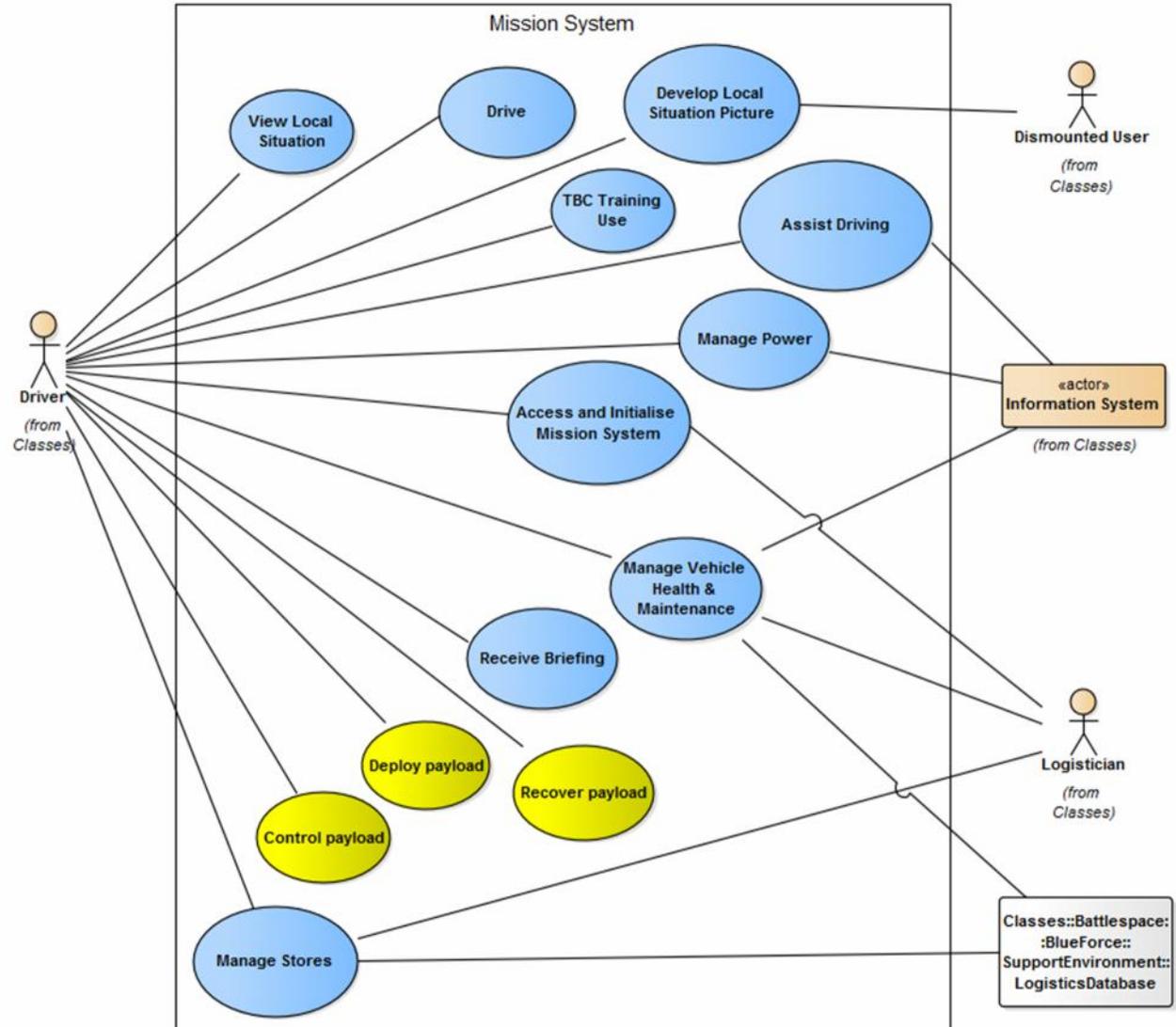   - Activity diagram
3. WP3.2 : Logistics and maintenance procedures
   - Definition of "logistics"
   - Analysis of the mission systems in a logistic context
   - Actors in an logistic and maintenance context
   - Main LAVOSAR Mission System use cases
   - Activity diagrams
4. Open discussion

WP3 : Open discussion

> Is it expected that (Logistics) HMI (Human Machine Interfaces) should be in multiple-languages or only in English ?

> What are the different types of contracts that manufacturers conclude with armies for the management of obsolescence and the Maintaining in operational condition,

> In the case of dysfunction of the military network, is it possible to use the civilian wireless network? Does the manufacturers implement the capacity of their vehicles to exchange secure data via the civil network

> With the aim of facilitating logistics procedures, would it possible to use a common infrastructure (tools, and exchange software)

Thank you
for your attention

Presentation Title   **WP3 : Workflow and Procedure Update**
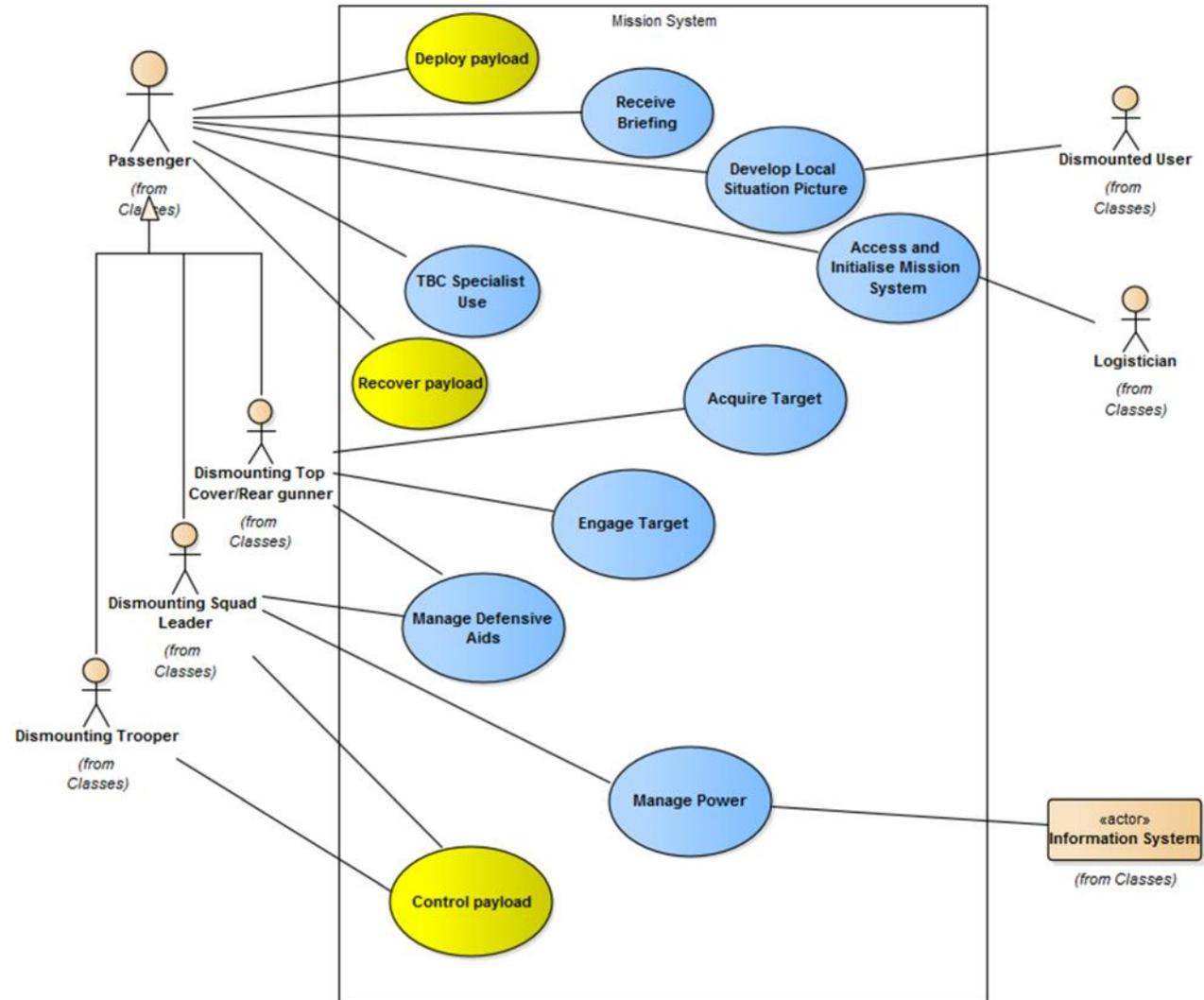
1. **Generic results**
   - Mission system composition
   - Actors of mission system
   - Context diagram
   - Review of the operating contexts
2. **WP3.1 : Operational workflow**
   - Actors in an operational context
   - New LAVOSAR Mission System use cases in an Operational Context
   - Activity diagram
3. **WP3.2 : Logistics and maintenance procedures**
   - Definition of "logistics"
   - Analysis of the mission systems in a logistic context
   - Actors in an logistic and maintenance context
   - Main LAVOSAR Mission System use cases
   - Activity diagrams
4. **Open discussion**

WP3.1 : Operational workflow

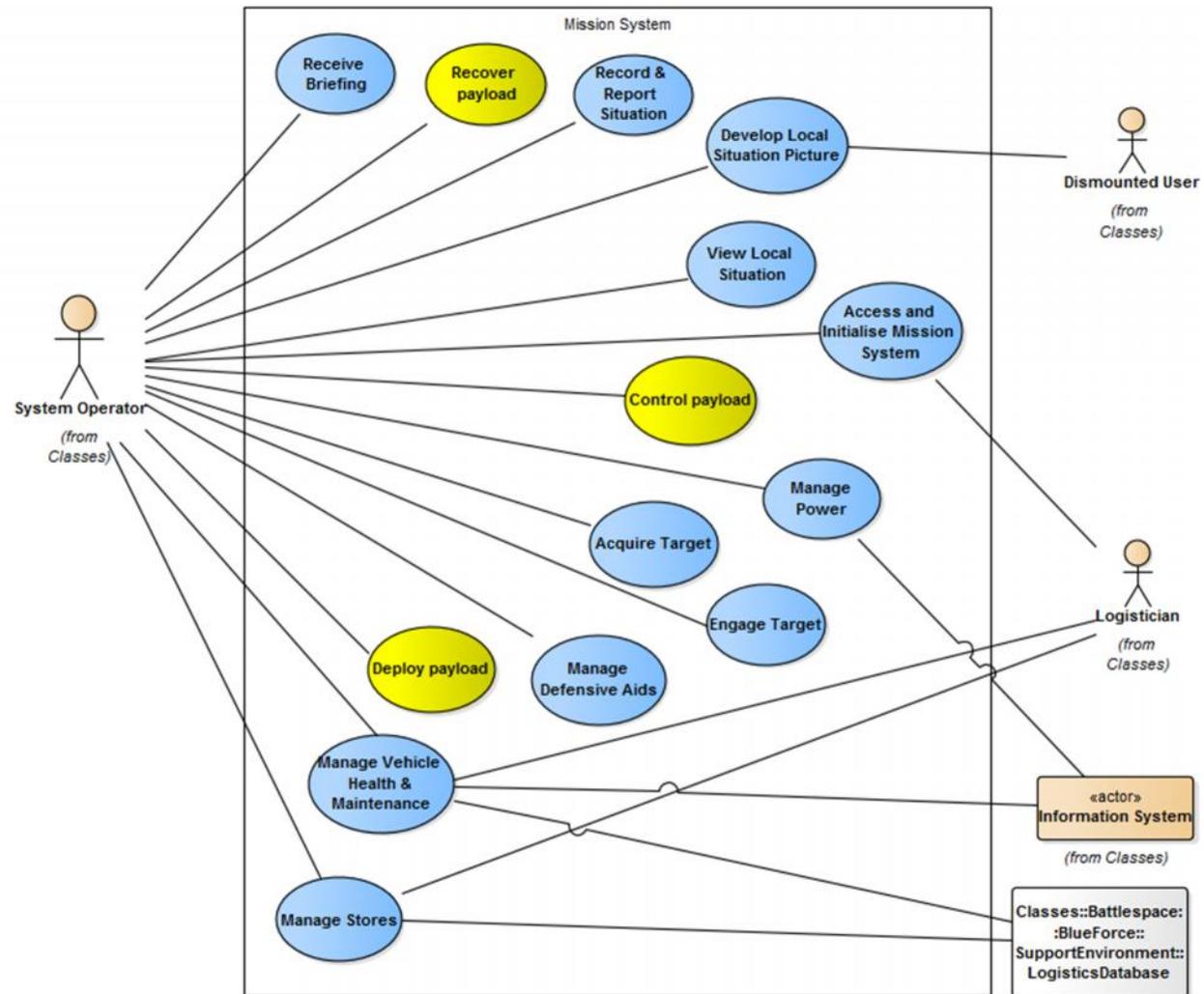 – **Use case diagram associated to the Driver view**

1. **Generic results**
   - Mission system composition
   - Actors of mission system
   - Context diagram
   - Review of the operating contexts
2. **WP3.1 : Operational workflow**
   - Actors in an operational context
   - New LAVOSAR Mission System use cases in an Operational Context
   - Activity diagram
3. **WP3.2 : Logistics and maintenance procedures**
   - Definition of "logistics"
   - Analysis of the mission systems in a logistic context
   - Actors in an logistic and maintenance context
   - Main LAVOSAR Mission System use cases
   - Activity diagrams
4. **Open discussion**

WP3.1 : Operational workflow

Use case diagram associated to the Passenger view

1. **Generic results**
   - Mission system composition
   - Actors of mission system
   - Context diagram
   - Review of the operating contexts
2. **WP3.1 : Operational workflow**
   - Actors in an operational context
   - New LAVOSAR Mission System use cases in an Operational Context
   - Activity diagram
3. **WP3.2 : Logistics and maintenance procedures**
   - Definition of "logistics"
   - Analysis of the mission systems in a logistic context
   - Actors in an logistic and maintenance context
   - Main LAVOSAR Mission System use cases
   - Activity diagrams
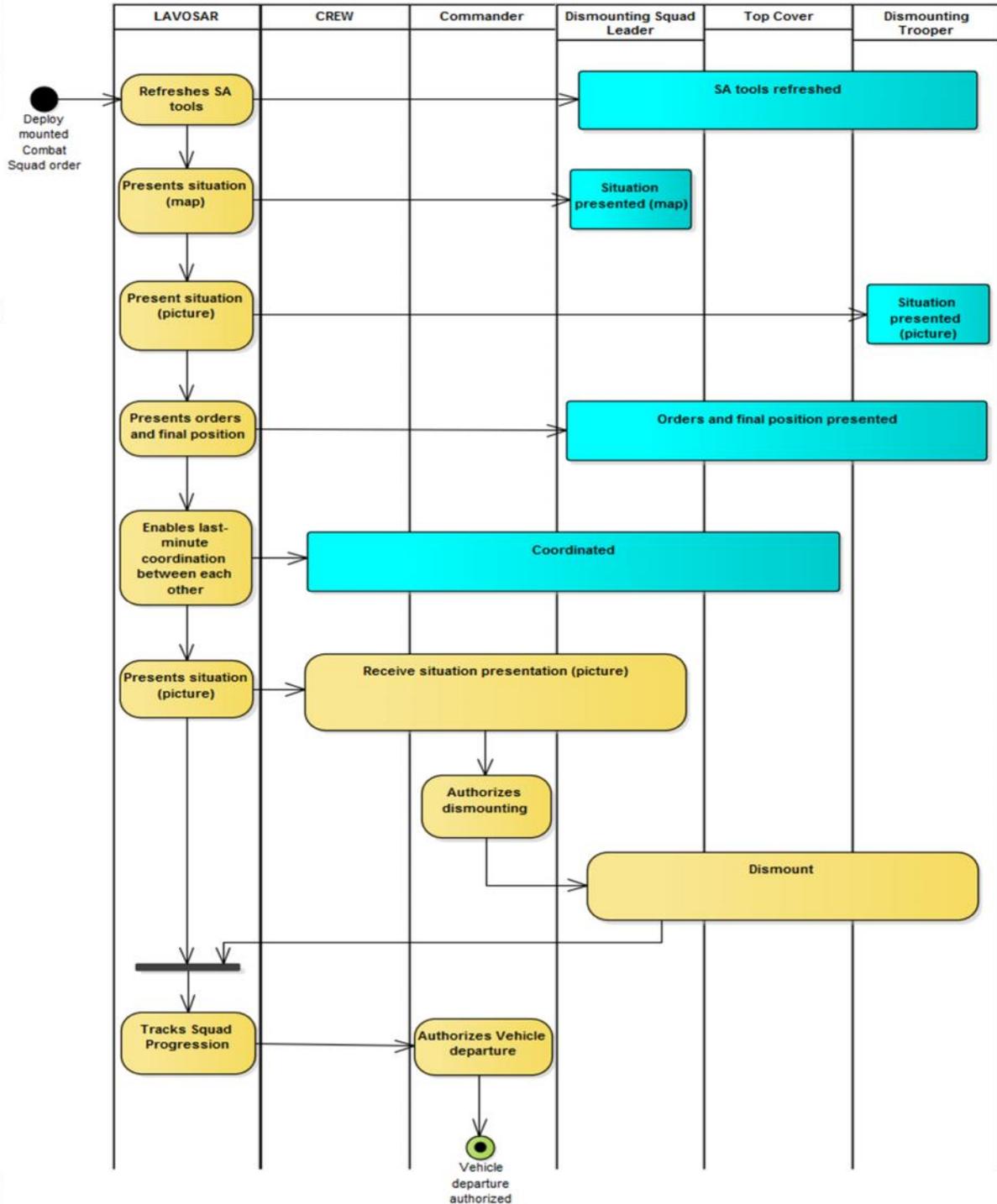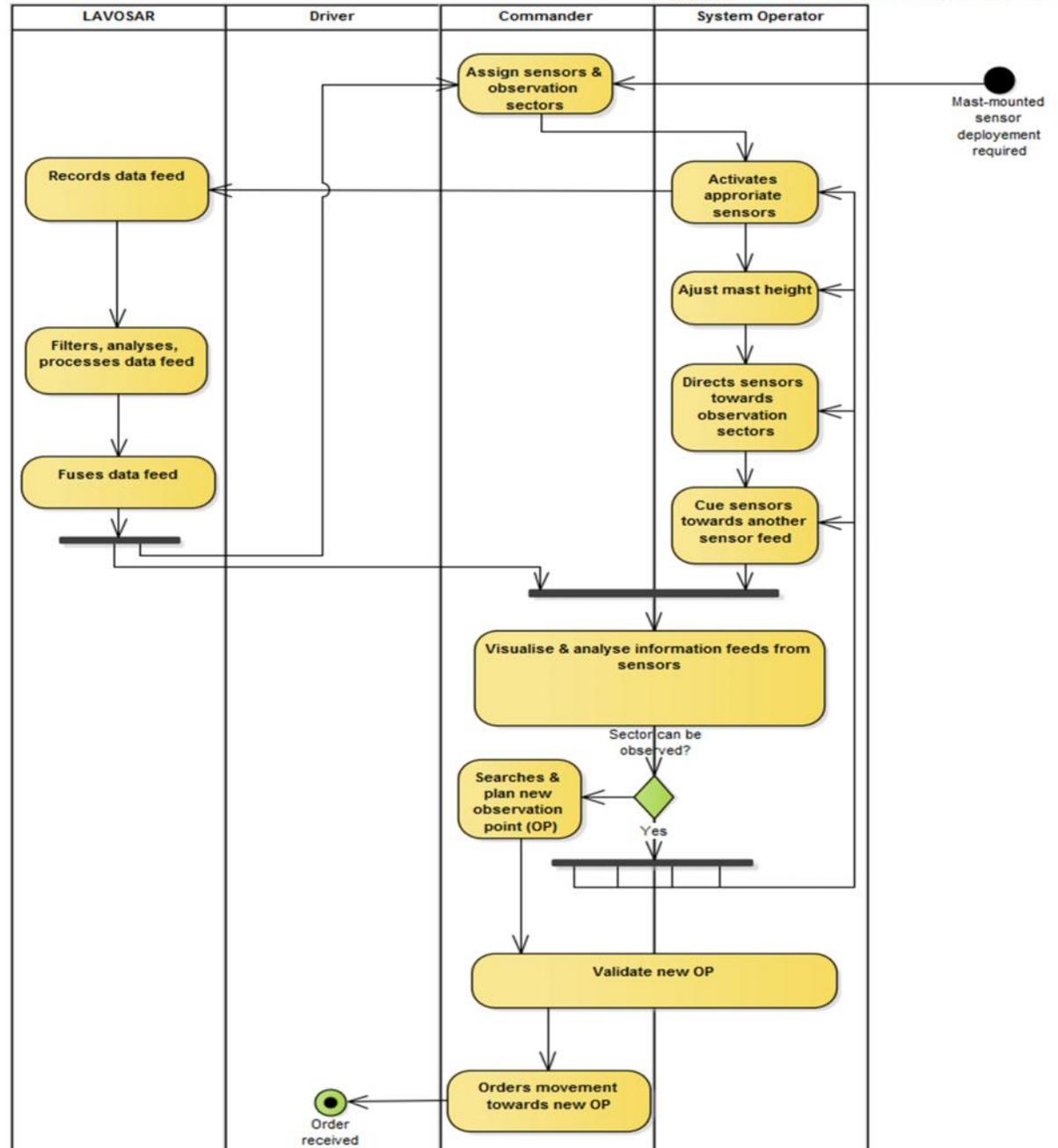4. **Open discussion**

WP3.1 : Operational workflow

Use case diagram associated to the Operator view

WP3.1 : Operational workflow

Activity diagram associ
to "Deploy PAYLOAD: c
squad"

WP3 : Workflow and Procedure Update

WP3.1 : Operational workflow

Activity diagram associated to "Control PAYLOAD: mast-mounted ISTAR sensor"

WP3 : Workflow and Procedure Update

1. **Generic results**
  - Mission system composition
  - Actors of mission system
  - Context diagram
  - Review of the operating contexts
2. **WP3.1 : Operational workflow**
  - Actors in an operational context
  - New LAVOSAR Mission System use cases in an Operational Context
  - Activity diagram

WP3.1 : Operational workflow

Activity diagram associated to "Recover PAYLOAD: armed CASEVAC"