FINNISH RESCUE SERVICES 2019

- Veneskari - Jäntti - Hassinen -

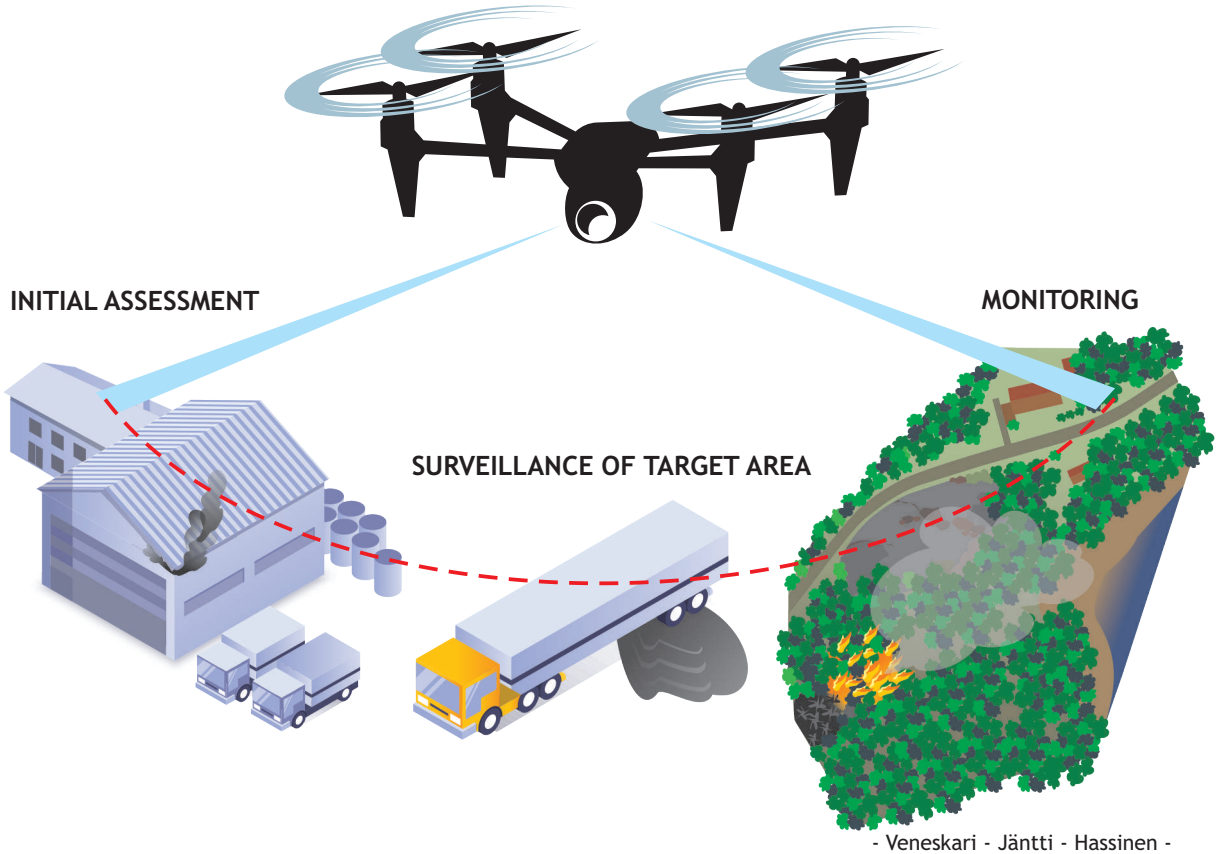
Standard Operating Procedures (SOPs) for using remotely piloted aircraft systems (RPAS)

With the help of the standard operating procedures, the incident command of the rescue services involving RPA systems is standardized and optimized.

Standard Operating procedures refer to "deployment models" used for operating unmanned aircrafts. With the help of the SOP, the incident commander is able to achieve the desired operations by giving one command to the RPAS unit.

There are three different types of SOPs for RPAS units

INITIAL ASSESSMENT
SURVEILLANCE OF TARGET AREA
MONITORING



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RESCUE SERVICES 2019

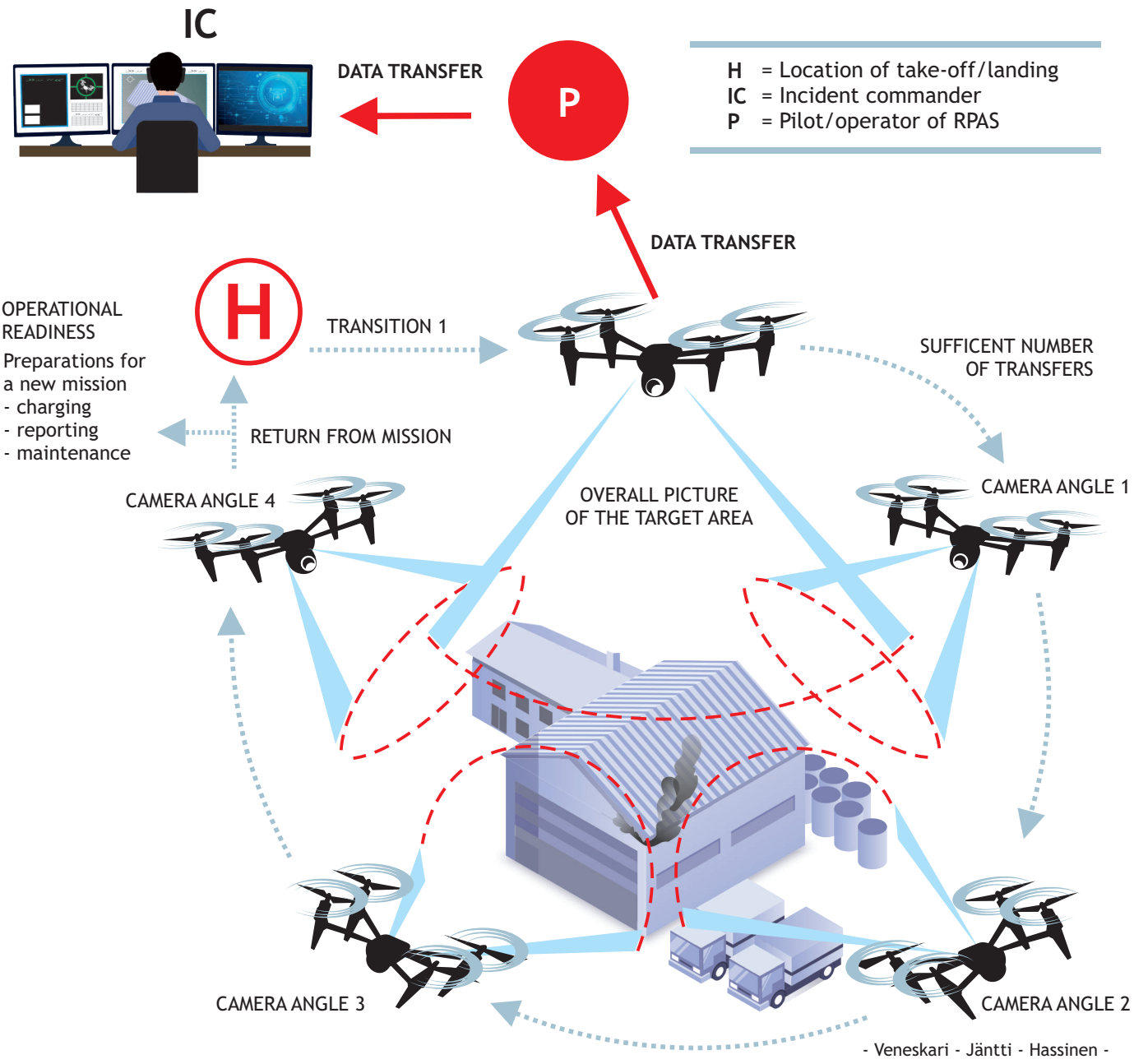
Standard operating procedures (SOPs) for the use of unmanned aerial vehicles

INITIAL ASSESSMENT

The aim of initial assessment is to quickly collect information and forward it to the user.
The aim is to collect information of the accident area to be used to createthe situational picture.

STAGES OF INITIAL ASSESSMENT

1. **Overview from high above, transfer 1**
   The RPA system is positioned above the target area with the aim to get one image of the accident (overall picture of the situation).
2. **The boundaries of the accident area**
   A sufficient number of images are taken to find out the boundaries of the accident area. For example, in case of a structural fire, the preferred camera angle is sideways from above, and in a forest fire, directly from above.
3. **Data transfer**
   From the target area/areas observed, data is forwarded to the operators (Incident Commander, Situational Centre, and Command Centre etc.). The data transferred may include, e.g. radio communication, data from different sensors, a single picture or a video.
4. **Preparations for next mission**
   After landing the RPA system is maintained and preparations are made for a new flight.
5. **Continuance of operations**
   Factors, such as charging the batteries, having memory cards available and assessing risks related to flight activities, are taken care of.



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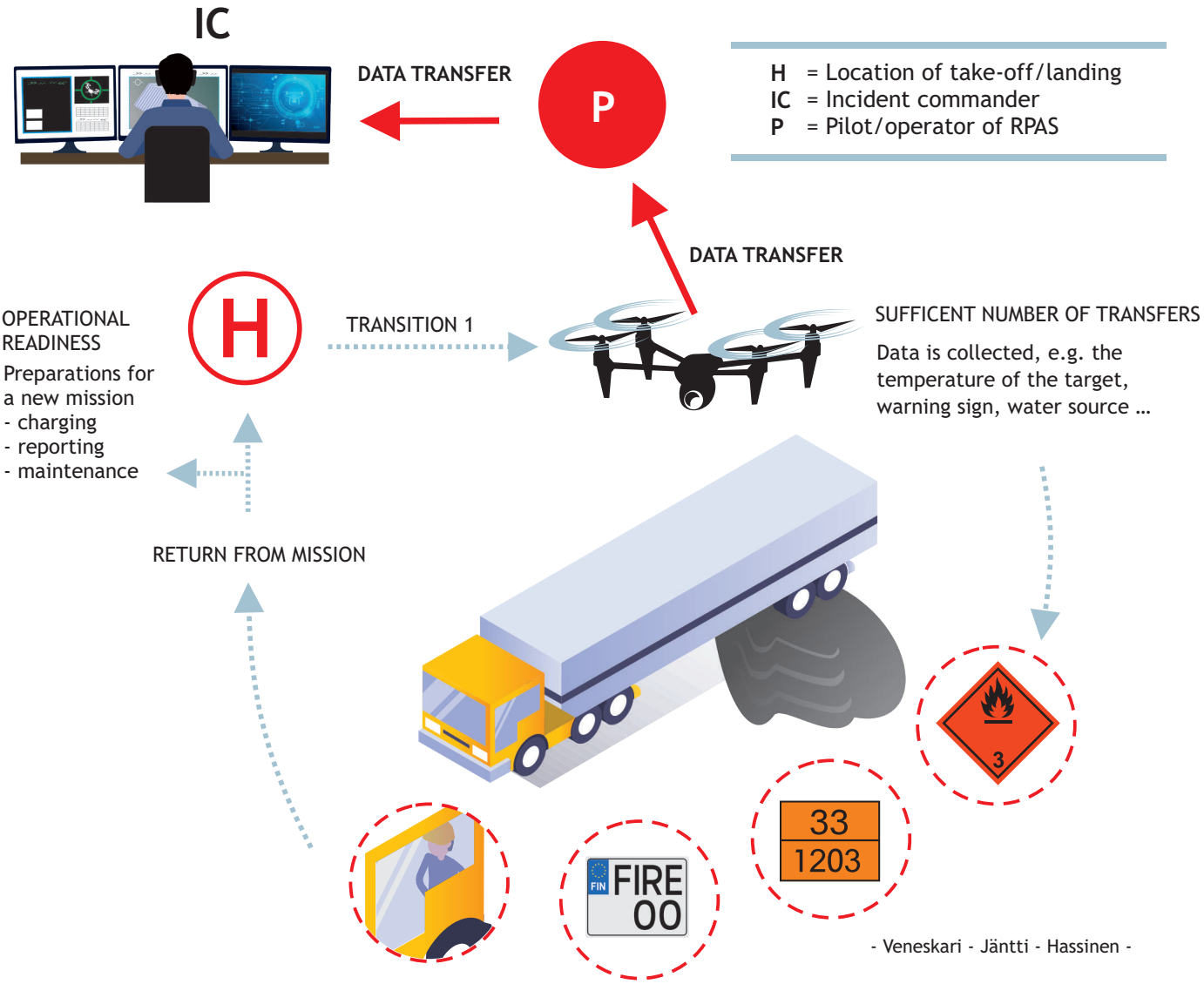
Standard operating procedures (SOPs) for the use of unmanned aerial vehicles

TARGET ASSESSMENT

The aim of target assessment is to collect information of the situation to help e.g. to rearrange the resources allocated for the rescue operation and a more efficient use of the units.
The aim is to collect explicit information of the accident area to be used to support decision-making.

STAGES OF TARGET ASSESSMENT

1. **Surveillance of one or more target areas, transfer 1.**
   A more specific assessment defined by the incident commander is made, e.g. the UN number, the cargo of the accident vehicle, number of persons etc. The RPA system is used on the target area, and with the help of the sensors chosen, relevant data is collected.
2. **Data transfer**
   From the target area/areas, observed data, mainly images, is forwarded to the operators (Incident Commander, Situational Centre, and Command Centre etc.). The data transferred may also include, e.g. radio communication, data from different type of sensors, a single picture or a video.
3. **Preparations for next mission**
   After landing the RPA system is maintained and preparations are made for a new flight.
4. **Continuance of operations**
   Factors, such as charging the batteries, having memory cards available and assessing risks related to flight activities, are taken care of.



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Standard operating procedures (SOPs) for the use of unmanned aerial vehicles

MONITORING

The aim of monitoring is to observe the development of the accident, i. e., the direction and speed of the fire spreading. Simultaneously it is possible to monitor the work safety, the effective use of resources and the continuity of the rescue operation.

STAGES OF MONITORING

1. **Constant observation of the boundaries of the accident area, transfer 1-4**
   The intention is to make observations continuously around the boundaries of the accident area with the RPAS.
2. **Repeated motoring of the accident area**
   The flights are repeated or the RPA stays in the air to monitor the development of the accident area, e.g. the spreading of fire in the terrain.
3. **Data transfer**
   From the target area/areas, observed data, mainly images, is forwarded to the operators (Incident Commander, Situational Centre, and Command Centre etc.). The data transferred may also include, e.g. radio communication, data from different type of sensors, a single picture or a video.
4. **Preparations for next mission**
   After landing the RPA system is maintained and preparations are made for a new flight.
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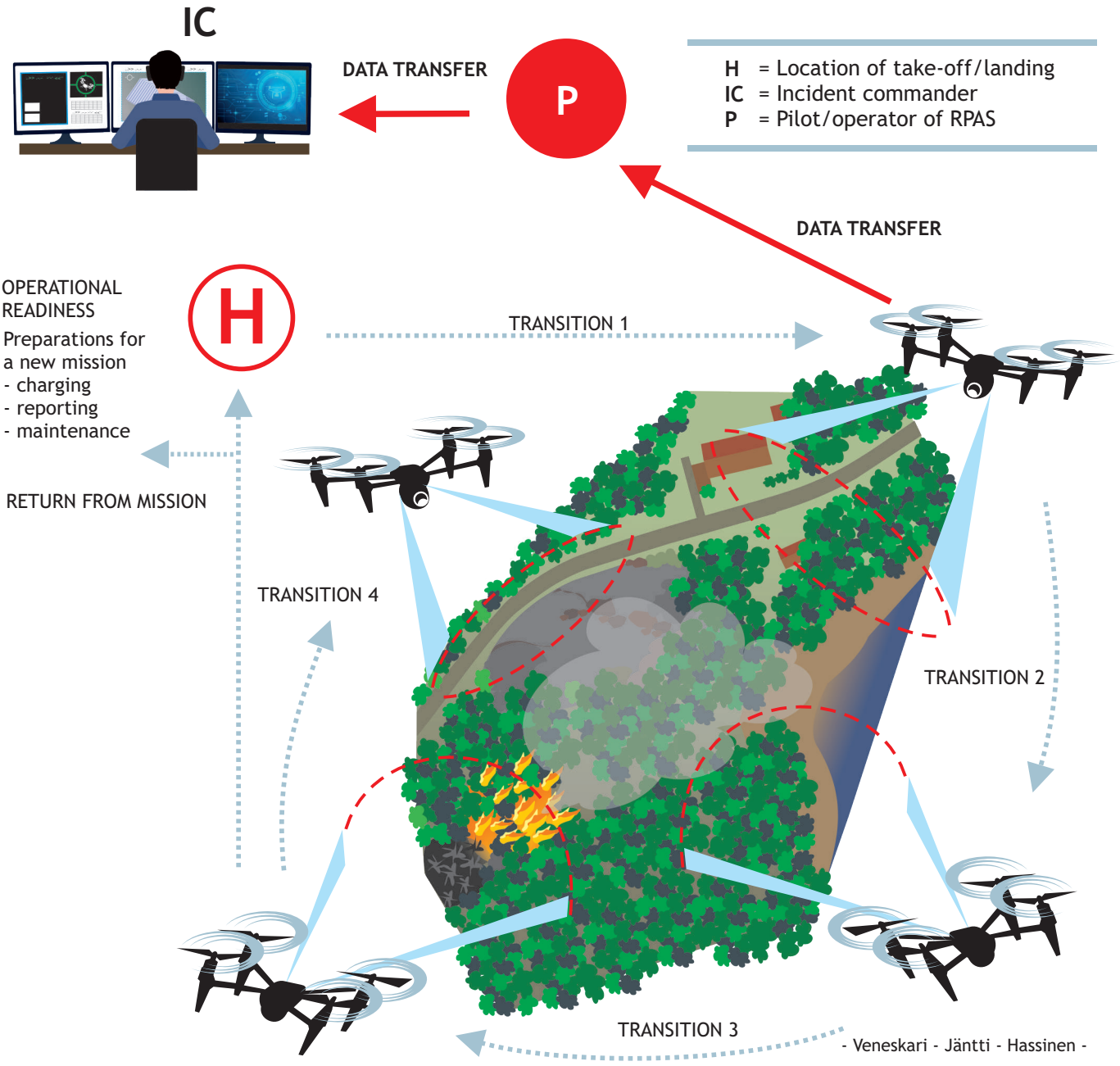

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