



Early Warning System (EWS) for Situation Awareness at Disaster

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What is Situation Awareness?

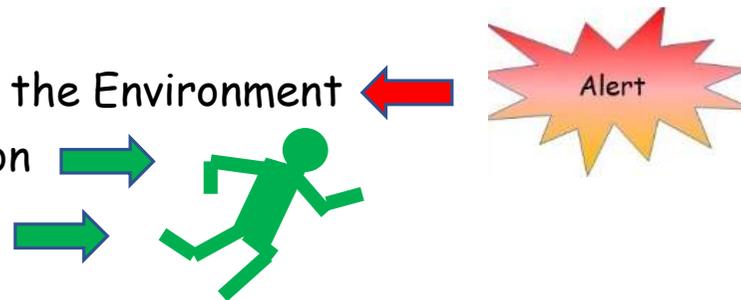
- The term came originally from the aviation domain for aerial warfare. → researched in ergonomics
- Definition of Situation Awareness for an individual[1]:
"The perception of the elements in the environment within a volume of time and space, the comprehension of their meaning and the projection of their status in the near future"

- Three hierarchical phases[2]:

Level 1: Perception of the Elements in the Environment

Level 2: Comprehension of the Situation

Level 3: Projection of Future Status



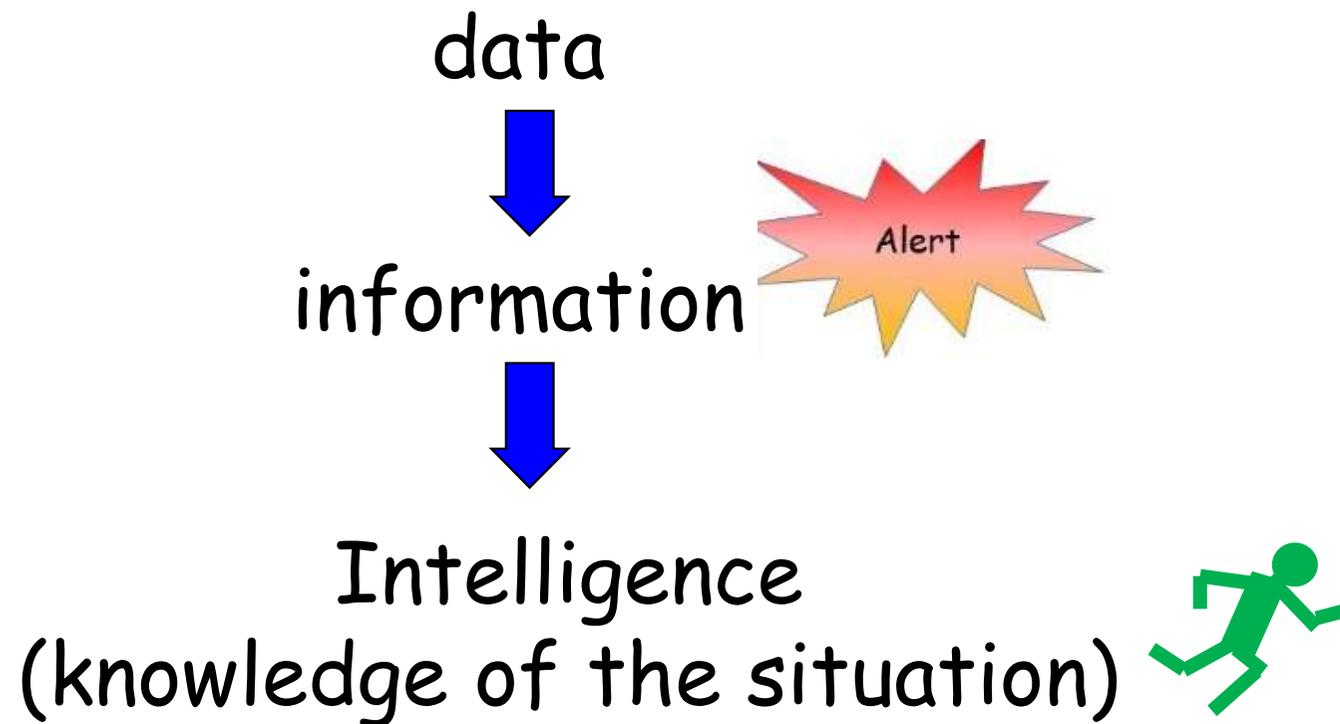
[1] Endsley, M. R.: Design and Evaluation for Situation Awareness Enhancement. In Proc. the Human Factors and Ergonomics Society 32nd Annual Meeting, pp.97-101 (1988).

[2] Endsley, M.R.: Toward a Theory of Situation Awareness in Dynamic Systems. Human Factors Journal 37(1), 32-64 (1995).

Situation Awareness for disaster management



Information Processing at Disaster



Situation Awareness for different users

Individual:



intra-Team/
intra-Organisation



inter-team/
inter-organisation

13 October 2022



Team SA

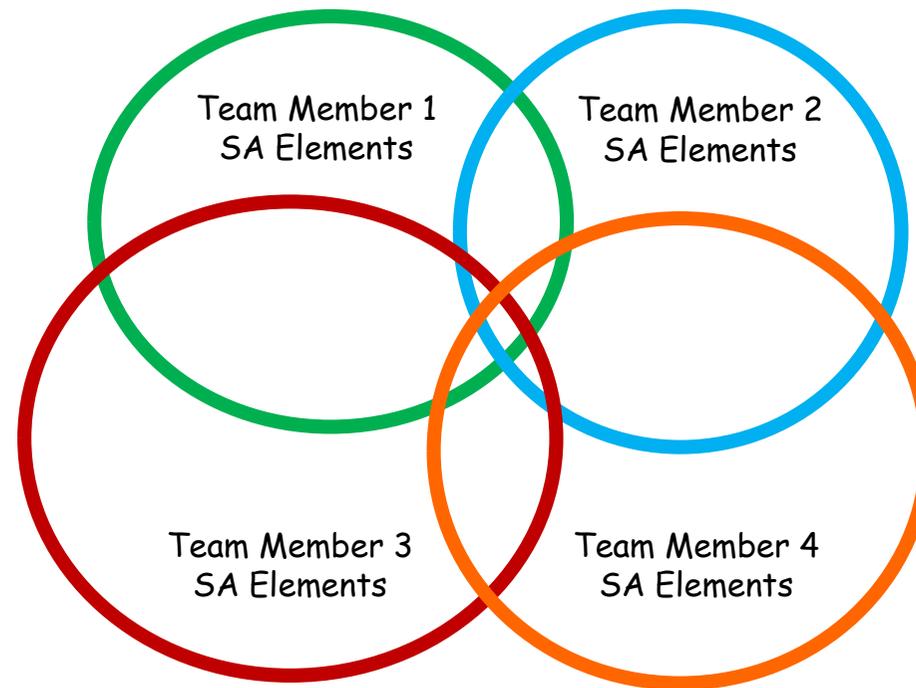


Figure 2 Team Situation Awareness in [1]

Sharing Situation Awareness for decision makers required for firefighters and first responders[3]

- The production of knowledge require **trained, experienced receivers**.
- The terms "**common operating picture**" and "**shared situational awareness**" imply [3]:
 1. technology can provide decision makers in a geographically distributed environment with the same information
 2. common methods are available to integrate, structure, and understand the information
 3. **critical decision nodes share institutional, cultural, and experiential bases for imputing meaning to this knowledge**

[3] Harrald, J., Jefferson, T.: Shared Situational Awareness in Emergency Management Mitigation and Response.
In Proc. HICSS-40, pp. 23-23, IEEE, Waikoloa, HI, USA (2007).

WSIS2022 Workshop on 1st April 2022

<https://www.itu.int/net4/wsis/forum/2022/Agenda/Session/157>

VIRTUAL WORKSHOP wsis.org/forum #WSIS

WSIS FORUM 2022
Starting on 15 March
Final week 30 May - 3 June

IT in Disaster Risk Reduction (ITDRR)
Organized by:
International Federation for Information Processing (IFIP)

FRIDAY, 1 APRIL 2022 | 12:00-13:00 CEST (UTC+02:00)

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Report:

- Use of map for Common Operation Picture(COP) for SA:
 - To be adopted for different needs.
 - Lack of right tool for inter-organizational collaboration
- Use of VR +AI for crisis training and decision making



Thank you



WG5.15 Annual Conference: ITDRR2022, Kristiansand, Norway
12-14 October 2022
(in hybrid format)
<https://www.itdrr.org/conference/itdrr2022/>