SAFETY INFORMATION 02/2023

9 January 2023

AIR TRAFFIC CONTROLLER - MANAGING UNCONTROLLED AIRSPACE TRAFFIC WITH HIGH SITUATIONAL AWARENESS

Purpose

This Safety Information (SI) serves to create high situational awareness among Air Traffic Controller when managing traffic in uncontrolled airspace. This SI is also published to ensure Air Traffic Controllers are always on high alert and proactive when handling traffic in uncontrolled airspace. Additionally, this SI serves to ensure Air Traffic Controllers are well verse with local procedures and to put safety ahead of them in managing traffic in uncontrolled airspace.

Background

There were number of cases which involves flights entering or operating in uncontrolled airspace. There were also other cases whereby flights operating in uncontrolled airspace lost communication, target lost on the radar screen and also unknown target appearing in the uncontrolled airspace.

Discussion

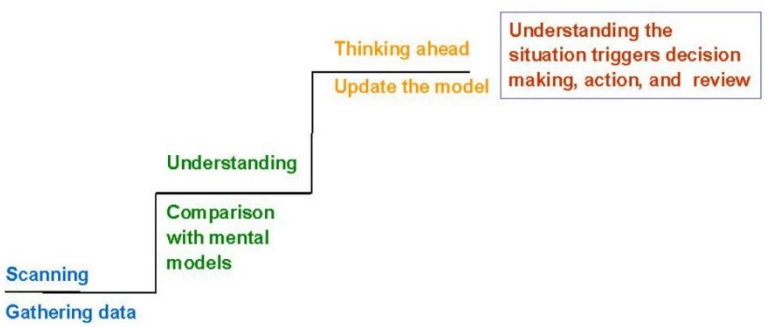
Managing uncontrolled airspace traffic by Air Traffic Controllers with high situational awareness

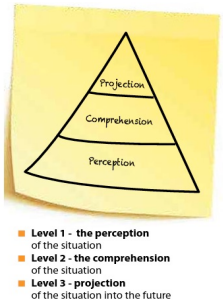
Situational Awareness (SA) is making sure one knows what is going on during the full scope of his/her task - flying, controlling, or maintaining an aircraft. For an Air Traffic Controllers, SA means knowing about current aircraft positions, flight plans and predicting future states to detect possible conflicts. Besides that, one must know about the necessary actions to be taken to ensure safety is maintained at all times.

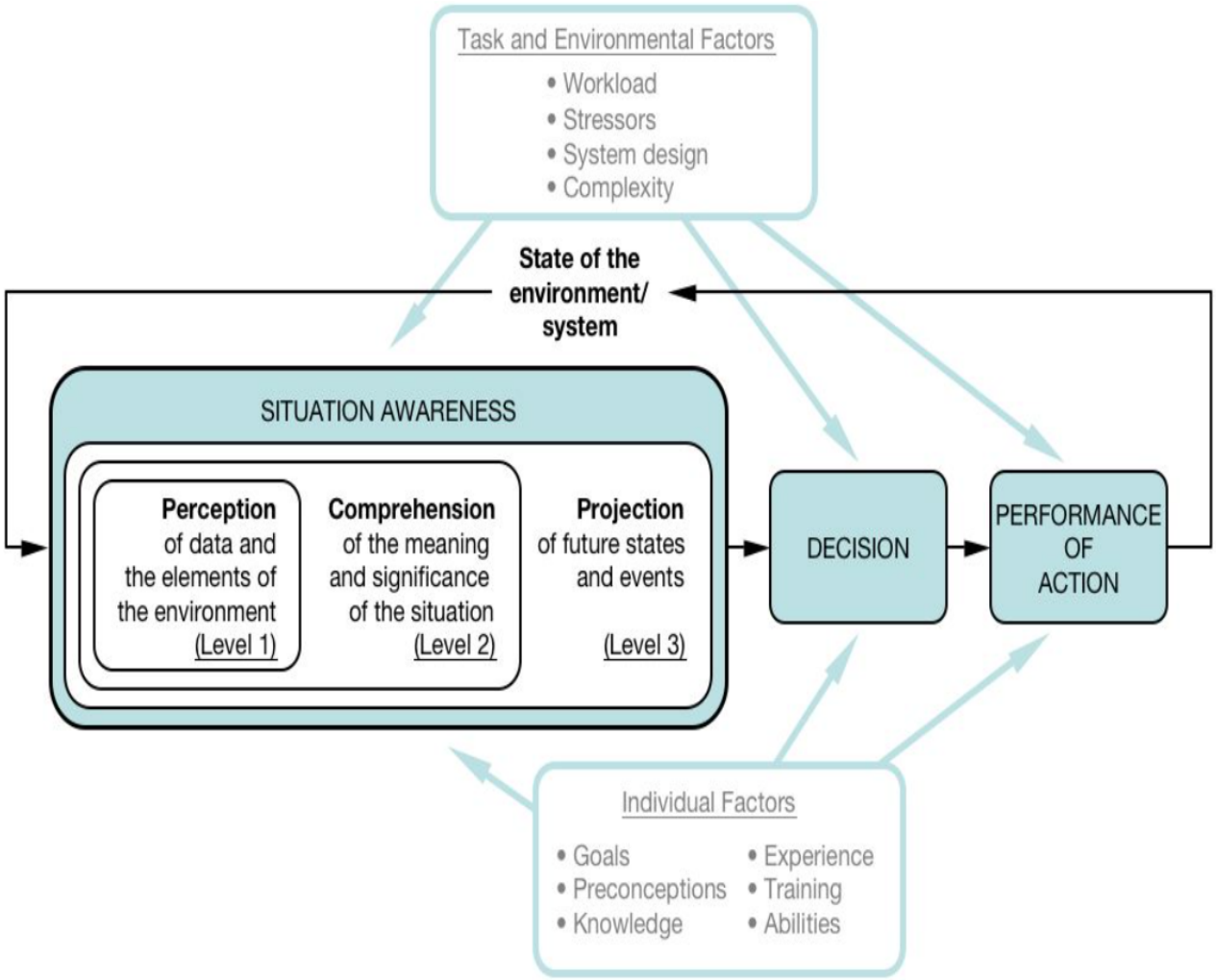
Gaining and Maintaining Situational Awareness

SA is having an accurate understanding of what is happening around you and what is likely to happen in the near future. It includes three processes:

1. The perception of what is happening (Level 1) - **PERCEPTION**
2. The understanding of what has been perceived (Level 2) - **COMPREHENSION**
3. The use of what is understood to think ahead (Level 3) - **PROJECTION**







Endsley's Model SA

FACTORS	PREVENTIONS
THE PERCEPTION (LEVEL 1) - PERCEPTION	
❖ Data or target not seen whereby the information is difficult to monitor due to certain scanning deficient such as ✓ Passive or complacent behaviour ✓ High traffic workload ✓ Distraction or interruption based on the environment or system ❖ Visual illusions whereby information is misperceived.	❖ Practice good discipline in scanning the entire traffic ✓ Constantly scan for new data, target or information by using alternative sources which are available ✓ Have a wide area of attention ✓ Reduce workload by sharing the task among others ✓ Practice good coordination and communication ✓ Regularly update your mental model by always being able to think out of the box and making sure to cater for changes in any circumstances
THE UNDERSTANDING (LEVEL 2) - COMPREHENSION	
❖ Using incomplete mental model due to -Deficient observation (Level 1 problem) -Poor knowledge or experience	❖ Understanding is improved based on experience and knowledge because there are many more memory situations whereby the patterns and associations used in comparison ✓ Regularly update with latest procedures and materials ✓ Understanding the reason for the situation and making sure to obtain proper training and procedures to handle situations.

THINKING AHEAD (LEVEL 3) - PROJECTION	
❖ Using wrong or inappropriate mental model and failing to recognize that the need to change to a better mental model	❖ Do not rush on assessments; make sure to constantly question your mental model by: ✓ Check the reliability of each information received or observed. ✓ Check for other contradictory elements which may contribute to loss in situational awareness. ✓ Project the future state or in other words project the future traffic and compare with the current goal. ✓ Set markers for information obtained or observed.

Key points of maintaining high situational awareness

1. SA is obtained by always scanning the entire environment and compare with other relevant information which is available;
2. Plan traffic well. Maintain communication through good coverage of radio and to be well verse with local procedures during coordination of what needs to be done and whom to inform; and
3. Inattention, distraction and high workload threaten SA.

Three proven ways to prevent the loss of Situational Awareness are to

1. Implement proven best practices and making sure to be well verse with the local procedures and implement what was taught during training;
2. Adhere to ICAO recommendations and CAD requirements as published and make sure to maintain high level of safety in dealing with traffic; and
3. Follow to the adhered laid down procedures to ensure safe and orderly flow of air traffic services.

Recommended Action

There are many methods of how high SA can be maintained when managing traffic in an uncontrolled airspace:

1. Make sure to proactively monitor flight in an uncontrolled airspace;
2. Provide alternate frequency to be contacted in case of loss of communication;
3. Make sure to advice pilot when he/she is entering or is in an uncontrolled airspace;
4. Make sure to advice pilot in the event the flight enters into an uncontrolled airspace during bad weather;
5. Optimum communication should be kept with aircraft in an uncontrolled airspace to make sure safety of the aircraft and crew; and

6. Advice other units nearby of the information regarding traffic in an uncontrolled airspace.

Air Traffic Controllers are strongly advised to make sure high situational awareness is maintained at all times when they are managing traffic in an uncontrolled airspace.

For further information, kindly refer to the following documents:

1. https://www.skybrary.aero/articles/situational-awareness
2. CAD11
3. MATS VOLUME 1 & 2
4. https://www.eurocontrol.int/sites/default/files/publication/Hindsight/hindsight-23.pdf
5. ^ Endsley, M. R. (1998). A comparative analysis of SAGAT and SART for evaluations of situation awareness. In Proceedings of the Human Factors and Ergonomics Society 42nd Annual Meeting (pp. 82-86). Santa Monica, CA: The Human Factors and Ergonomics Society.
6. ^Dominguez, C., Vidulich, M., Vogel, E. & McMillan, G. (1994). Situation awareness: Papers and annotated bibliography. Armstrong Laboratory, Human System Centre, ref. AL/CF-TR-1994-0085.

CAPTAIN NORAZMAN MAHMUD
Chief Executive Officer
for Civil Aviation Authority of Malaysia
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