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Flight Deck Human-Machine Interface

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Flight Deck Human-Machine Interface

With technological advancement, cockpit automation also advances daily. New systems are being incorporated in aircraft being built to assist crews with their workload. Flight Deck Human-Machine Interface is the most popular system currently and it involves not only the flight crew but also many other parties including weather advisers, maintenance, ground traffic control and ground operations (Li & Chen, 2020). Notably, despite the numerous pros that come with this interface, there are several cons associated with it also.

The main advantage of the interface is to reduce the workload for every individual working in the aviation field. Another common advantage is that the interface, through one of its system known as the Traffic Collision Avoidance System, creates safety and reduce the count of air collisions of airliners by the margin (Li & Chen, 2020). Additionally, the interface can relieve pilots of non-rewarding and repetitive operations. On the other hand, some of the disadvantages include the reluctance of pilots who are affected to limit the extent to which they utilize full automation capacity to solve any issue that comes up, be it abnormal or routine. Secondly, it is difficult to revert to manual operation completely incase the automation capability is no longer unavailable or considered to be incapable of delivering the required results (Lim et al., 2020). Last but not least, flying skills acquired by pilots may decline due to reduce practice and aircraft feel.

Fail-safe is a practice or design feature engineered in a way that there will be little or no harm to people, the environment, or different equipment in case there is a specified type of failure. In the aviation field, fail-safe is the most significant part when it comes to developing new aircraft. This is because the passengers' safety is first in case of any incident that may lead

to unwanted results. Therefore, it is crucial that designers and developers keenly take into consideration failure safety; this should be paramount (Lim et al., 2020).

References

- Li, F., & Chen, K. (2020). *High-Level Review Principles for Human-Machine Interface Design of Civil Aircraft Flight Deck*. In International Conference on Applied Human Factors and Ergonomics (pp. 624-631). Springer, Cham.
- Lim, Y., Gardi, A., & Sabatini, R. (2020). *UAS Human Factors and Human-Machine Interface Design*. Imaging and Sensing for Unmanned Aircraft Systems: Deployment and Applications, 120, 23.

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