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# Designing a hazard taxonomy: A key step in studying the risk perception of aviation maintenance mechanics

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## Why building a hazard taxonomy?

- Identifying hazard is a crucial step before talking about risk perception. [1]
- There is no clear hazard taxonomy provided by regulatory agency in aeronautics [2].
- Only one hazards taxonomy applied to aircraft maintenance has been found [3].
- Measuring risk perception of mechanics regarding specific hazards in a specific category.

## What hazard is ?

- Hazard is anything that can affect the mental or physical integrity of the employee [4].
- In aeronautics, a hazard is anything that can cause an incident or accident during flight operations [5].
- In aircraft maintenance, there is Hazards can fluctuate depending on the location of the maintenance, the maintenance organism or the individual.

## Objective

Creating a hazard taxonomy that is representative of the reality of maintenance activity.

## Method & results

### To define hazard

- We focus on hazard that are the same independently of the location or organisational context of the maintenance activity.
- The definition is: "Anything that can injure the mechanic and/or damage the aircraft and is a result of the design of the aircraft or enabling products."

### To select the hazards corresponding to the definition

We select\* the hazards identified based on three criteria:

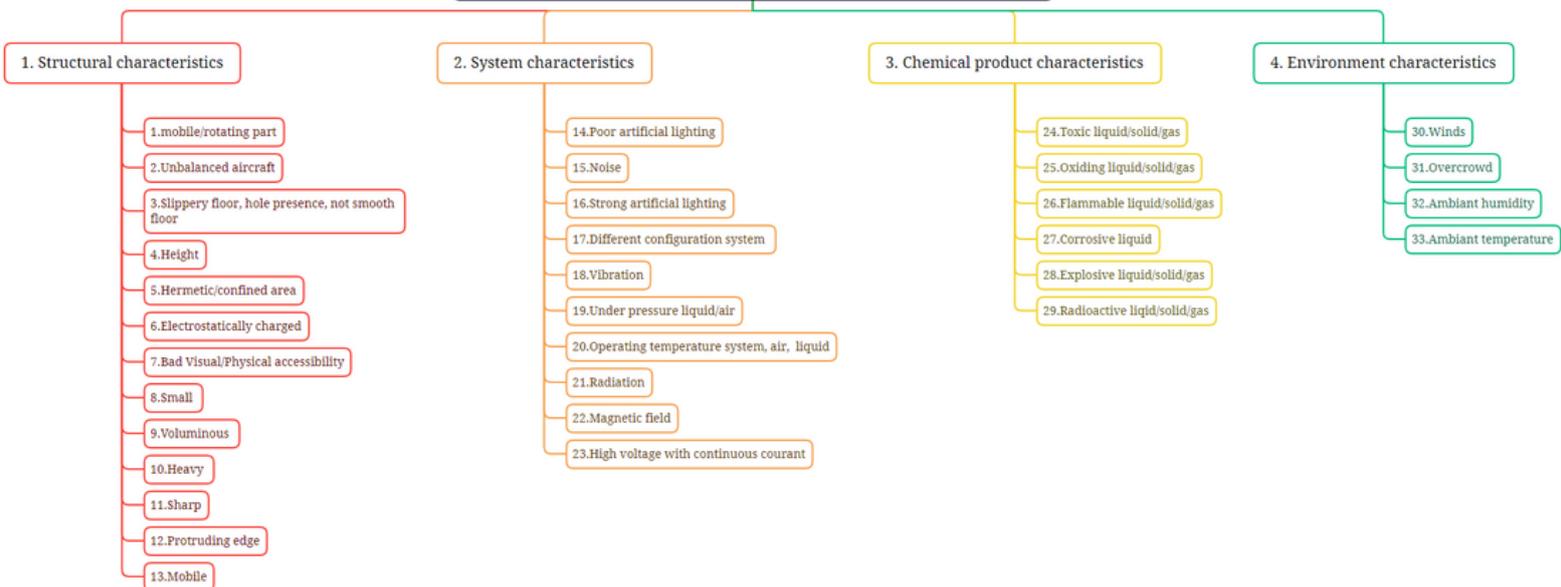
1. Impact on Health & Safety. (yes/no)
2. Impact on Airworthiness Safety. (yes/no)
3. Is coming from a design office decision. (yes/no)

\*Based on a literature review [6-7] and expertise of authors.

### To create the hazard taxonomy

- 33 hazards gathered in 4 dimensions.

## Hazards in aircraft maintenance



## Conclusion

- Creating a hazard taxonomy is a complex task due to the diversity of hazards linked to aircraft maintenance activity.
  - It is necessary to consider hazards that are consistent and stable regarding the location and the organisational context.
- Considering the engineers decision highlights the impact of the design on the aircraft maintenance activity in terms of hazards.

## Limits

- The taxonomy does not consider the representation of mechanics and engineers but only the one of the authors.
  - We have to confirm it is representative of the way mechanics and engineers are categorizing hazards.

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