

Risk Management Exercise

Risk Analysis for an Electric Bike (ISO 14971 Approach)

Objective

Apply **ISO 14971:2019** principles to identify, assess, and mitigate risks associated with an **electric bike (e-bike)** used for urban commuting. Your job is to analyze potential hazards, evaluate risks, and propose risk control measures.

Scenario

Your company is developing a new e-bike model designed for urban transport. The bike features:

- A battery-powered motor to assist pedaling.
- An electronic braking system (EBS) for enhanced safety.
- A mobile app for performance tracking and navigation.

Hazard domains

- Electrical system failures (e.g., battery overheating, short circuits).
- Mechanical failures (e.g., brake malfunction, structural failure of the frame).
- Software issues (e.g., app connectivity loss affecting bike control settings).
- User-related errors (e.g., incorrect usage of throttle or braking system).
- Environmental factors (e.g., water ingress, reduced visibility in foggy conditions).

Risk Estimation

- Severity (S): Impact on the user (1 = minor inconvenience, 5 = life-threatening).
- Probability (P): Likelihood of occurrence (1 = rare, 5 = frequent).