# Project Risks Summary

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| # | Risk | Prob | Impact | Problem | Possible Solutions | Why It Matters |
| 1 | Poor or Incomplete Data | High | High | 6.6% missing data and 5% duplicates. Inconsistent aircraft names (e.g., “Douglas DC-3” vs. “DC-3”) and unstructured crash summaries reduce analysis reliability. | Cleaned using Python (Pandas, Regex); could improve with NLP and fuzzy matching. Suggesting automated checks to catch errors early. | Bad data leads to wrong conclusions—similar to PMI warnings. Like construction errors from missing specs. Accurate data is essential. |
| 2 | Overusing Keywords Related to Older Aircraft | Medium | High | Older aircraft like Douglas and Curtiss dominate crash data due to historical use, making them seem more dangerous than modern aircraft. | Adjusting crash rates based on flight hours or active fleet size. Comparing aircraft across relevant time periods. | Using outdated data without context leads to misleading insights. Like judging modern software from 1990s bug reports—context matters. |
| 3 | Weak AI Models | High | High | Current model has only 39% accuracy and struggles with rare models like Ilyushin. Our code relies on TF-IDF keyword matching and other NLP methods | Upgrading to BERT or LLMs. Balancing training data. Using SHAP for model explainability. | Weak models = weak insights. Shallow AI misses deeper meanings. Better models improve reliability and decision-making. |
| 4 | Unreliable Forecasting | Medium | Medium | ARIMA models overfit to historical crashes and ignore emerging risks like drones, cyberattacks, and climate change. | Combining ARIMA with scenario planning to consider future risk scenarios such as increasing drone traffic. | Poor forecasting = planning risk. Like bad project plans, it causes delays and cost overruns. Scenario planning helps anticipate changes. |
| 5 | Language and Cultural Bias | Medium | Medium | Crash reports are mostly in English, causing underrepresentation of non-English incidents. Cultural differences affect reporting accuracy. | Incorporating multilingual reports. Using better translation tools. Analyzing for cultural bias. | Language gaps = misinterpretation. PMI links this to safety issues in global projects. Multilingual data = more inclusive analysis. |