Team 6

Business Challenge II - Coding Challenge

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Overview

The Challenge

Research and analyze climate change data to enhance Eoliann's capabilities in effectively serving clients and expanding its portfolio beyond its current scope.

Eoliann’s Expansion into France and Spain presents an opportunity to expand beyond Italy for Eoliann to capitalize on EU regulatory compliance push regarding floods and fires.

Hazard Trends: Wildfires, floods and disasters are leading to severe damage, and destruction in otherwise unsuspecting areas Leaving entities without insurance with a huge bill, potentially opening up an opportunity for Eoliann’s solution.

Financial Impact: Wildfires have the highest financial losses (e.g., €5.6 billion), with substantial losses infrastructure

Our Solution

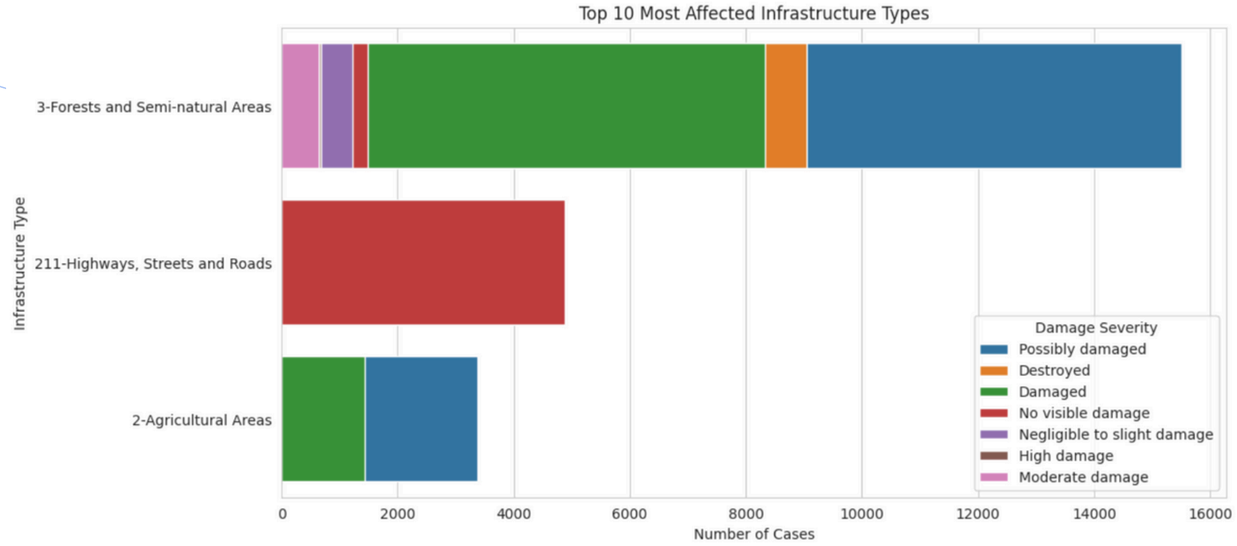
Damage Assessment
Identify which asset types (e.g., roads, forests, agricultural areas) are most and least affected by hazards such as floods, storms, and wildfires in France and Spain.

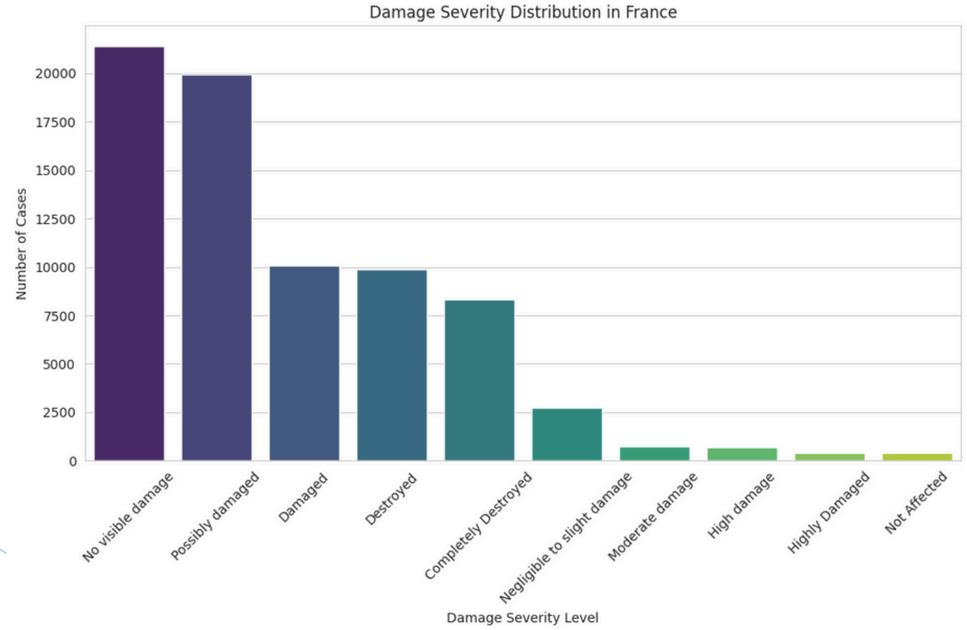
Tailored Risk Metrics:
Probabilistic Assessment: Adjust thresholds for event intensity and asset vulnerability.

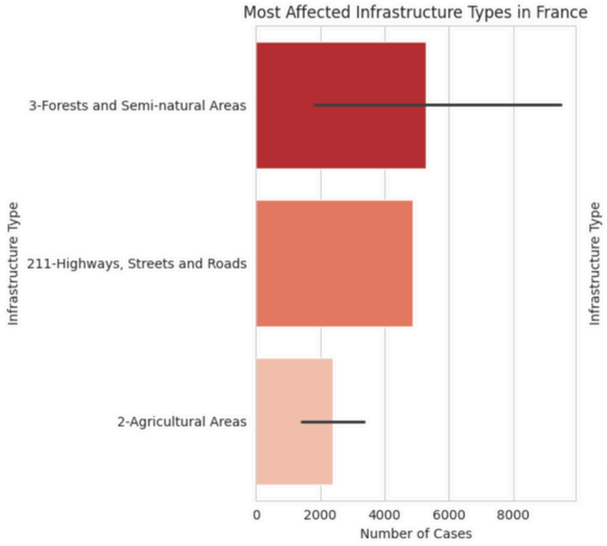
Financial Impact Estimation:
Quantify potential financial losses, highlighting high-risk areas and infrastructure sectors vulnerable to severe damage and approach clients with preventive solutions.

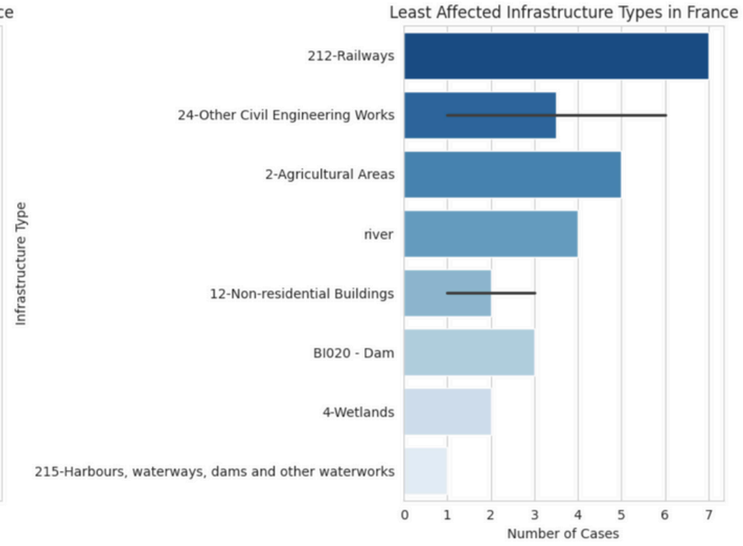
Infrastructure Damage Impact: Business Risks, Opportunities, and Strategic Actions

Damage severity distribution shows that while many structures have no visible damage, a significant portion is either damaged or destroyed, requiring targeted recovery efforts.
Infrastructure impact analysis highlights that roads, forests, and agricultural areas are the most affected, disrupting logistics, supply chains, and environmental stability.
The least affected infrastructures, such as dams and civil engineering works, indicate stronger resilience, presenting opportunities for risk mitigation strategies in future planning.
Overall, businesses must focus on rebuilding critical infrastructure, optimizing supply chain routes, leveraging insurance adjustments, and aligning with regulatory changes to ensure long-term sustainability.







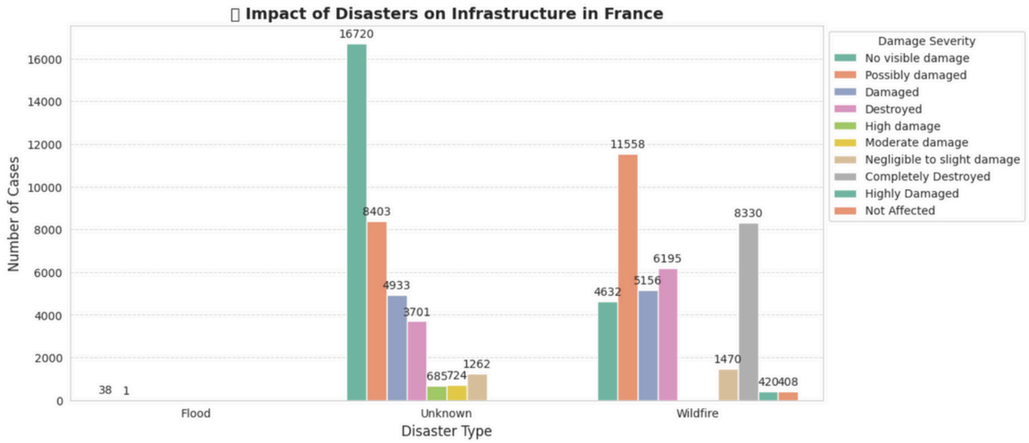


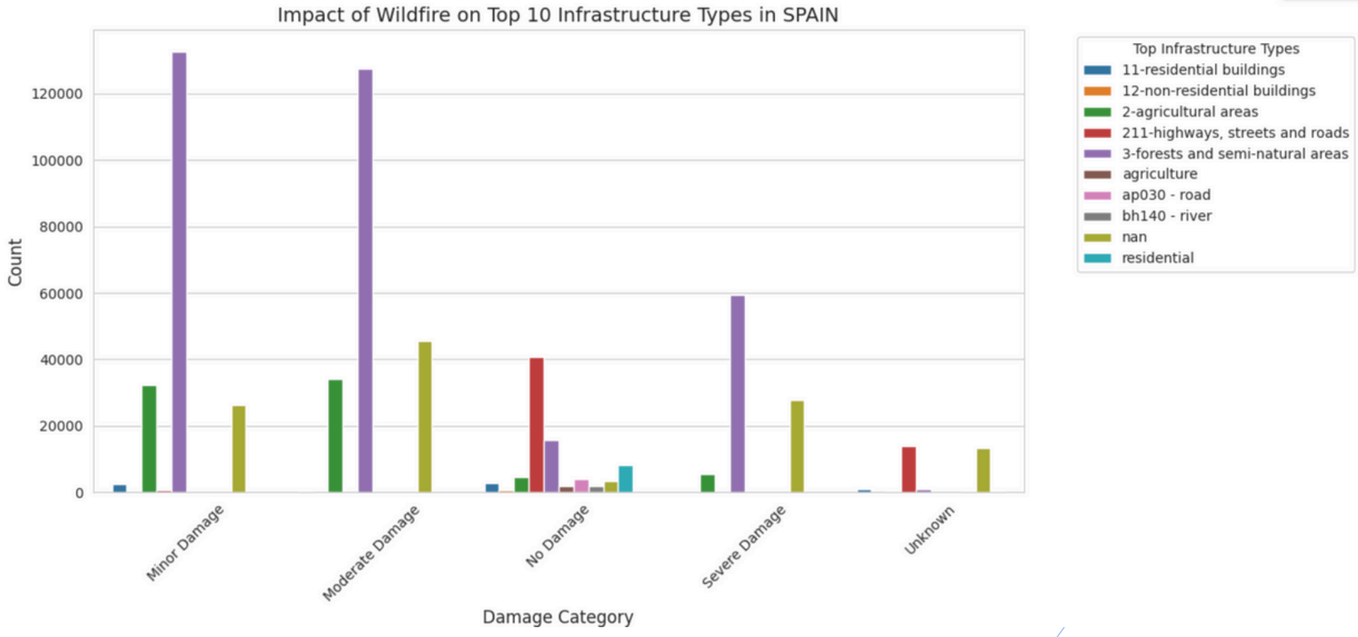
Disaster Impact on Infrastructure: Trends, Risks, and Business Strategy

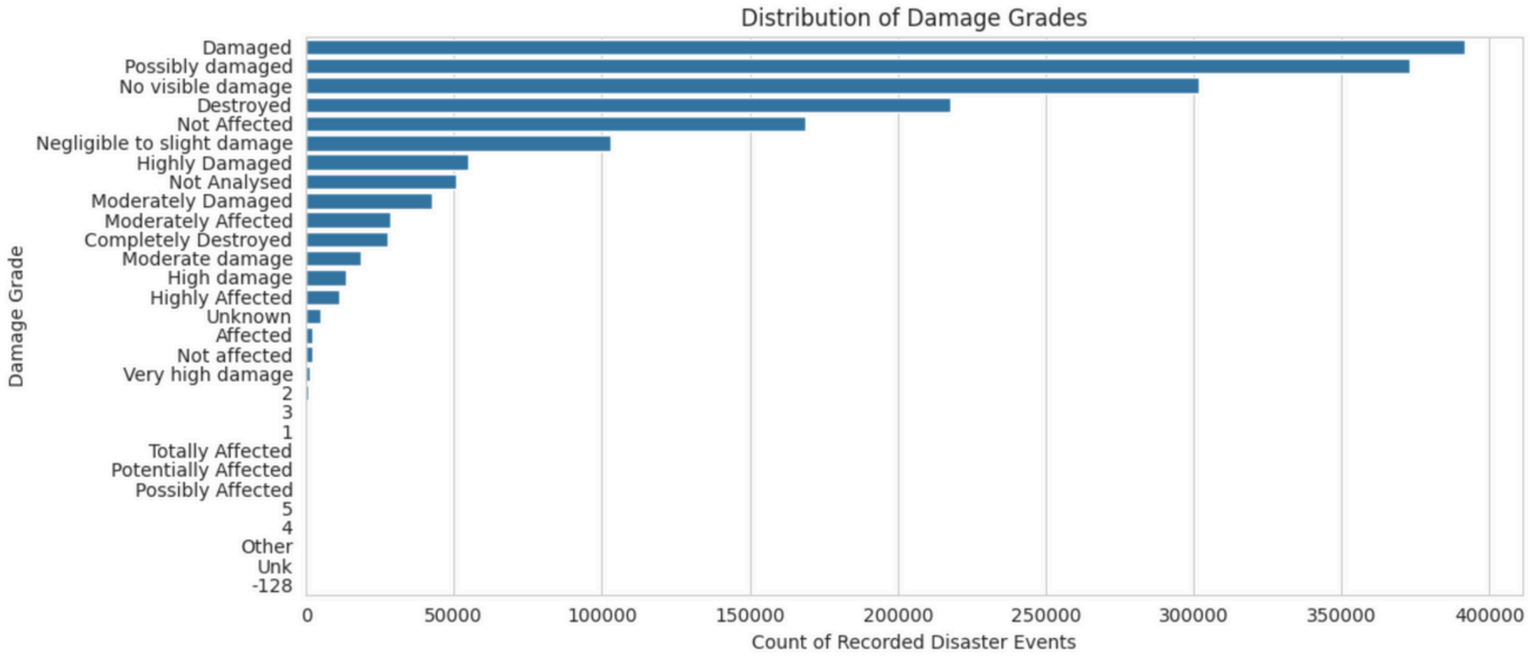
EEA says pre-1980s grids in Italy see more flood damage EEA, 2024. Old age racks up losses.

EMDAT shows energy and transport losses hit €300 billion since 1980 EMDAT. Big value drives big costs.

New laws or rising insurance bills force owners to act. If they're facing fines or premium hikes, they'll pay for help staying ahead.







High Incidence of "Damaged" and "Possibly Damaged": A large portion of events fall under these two categories, suggesting that many assets suffer at least some level of impact from disasters.

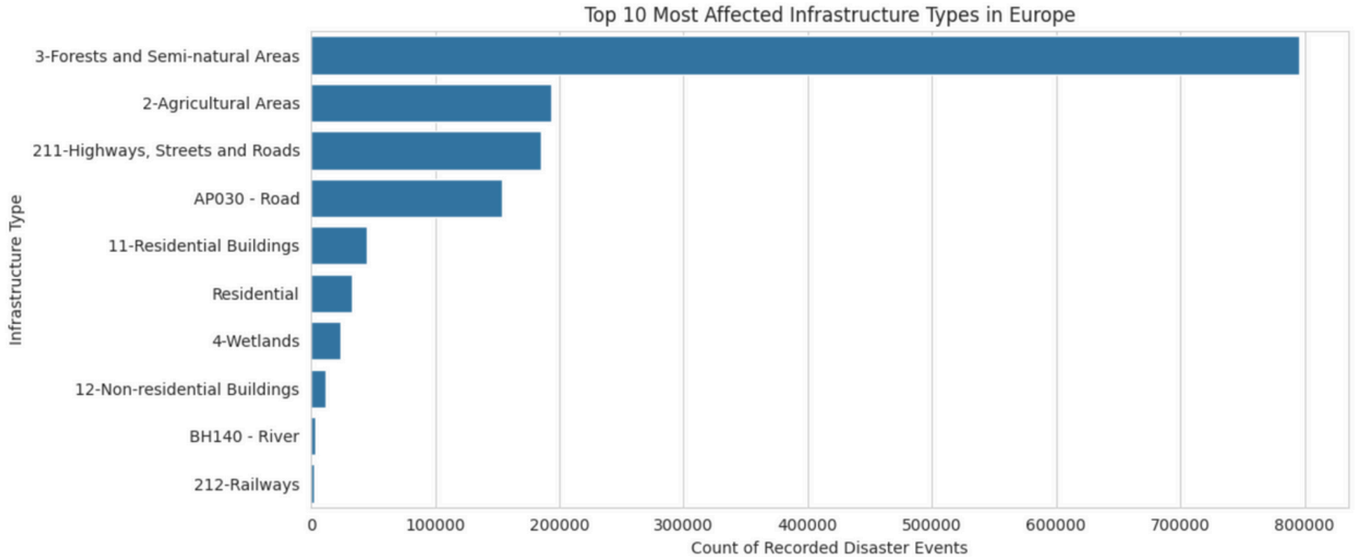
The presence of a significant "Possibly Damaged" category points to a degree of uncertainty in the data, highlighting the need for more precise damage assessments.

Forests and Semi-natural Areas as Most Affected: These areas top the chart, indicating their high exposure and susceptibility to events such as wildfires, storms, or other climate hazards.

Damage in these areas can have cascading effects on biodiversity, carbon sequestration, and local economies.

Agricultural Areas Second in Impact: Agriculture is vital for food security and rural economies. High event counts suggest that these regions face repeated or intense climate events, emphasizing the need for robust agricultural resilience strategies.

Significance of Transportation Infrastructure (Highways, Streets, Roads): The third-most affected category highlights the vulnerability of critical transportation networks. Disruption in this sector can lead to significant economic losses .



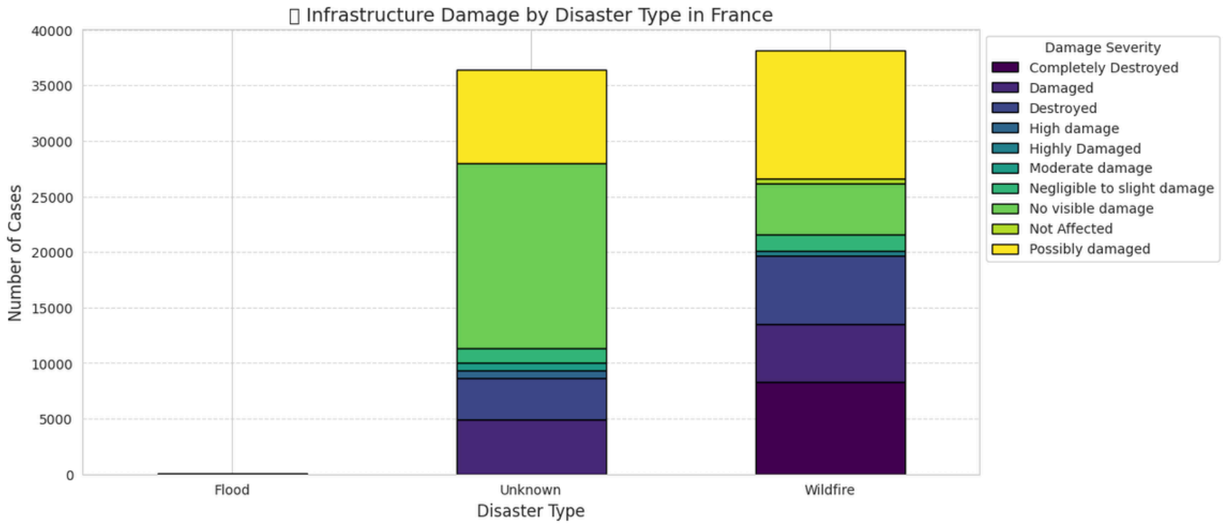
Disaster Impact on Infrastructure: Damage Severity & Business Implications

If they've been hit hard by floods or wildfires, they'll pay to dodge that pain again. Losses make it real.

EMDAT logs €738 billion in damages since 1980 EMDAT. Our wildfire dataset shows specific asset hits [Eoliann Wildfire Dataset].

Owners in danger zones—like southern Europe with wildfires or the north with floods—feel the heat and will pay for help that fits their risks.

Owners of big-ticket assets—like power grids or data hubs—can't risk losing them. Higher value means they'll spend more to keep them safe.



Wildfires and unknown disasters have caused the most infrastructure damage, with a sharp rise in unknown cases in 2022, while floods had minimal impact, highlighting the need for better disaster preparedness.

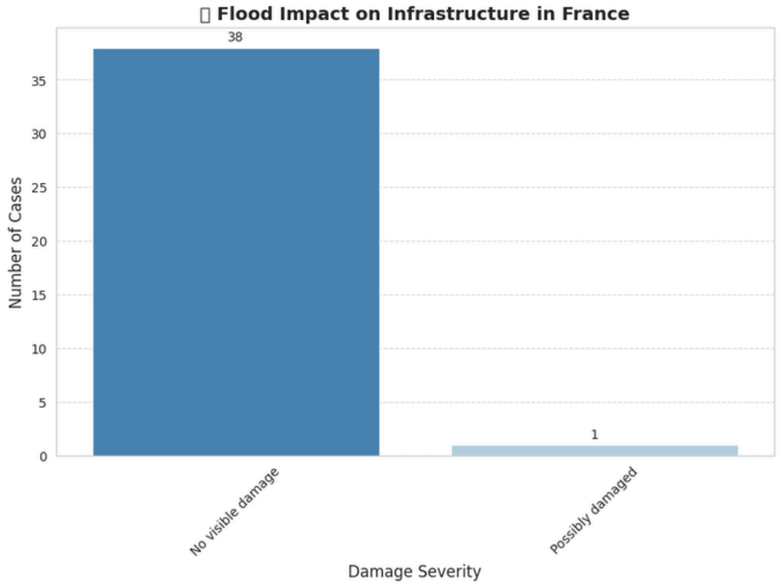
Businesses must focus on wildfire prevention, infrastructure resilience, and improved disaster classification to mitigate risks and optimize recovery efforts.

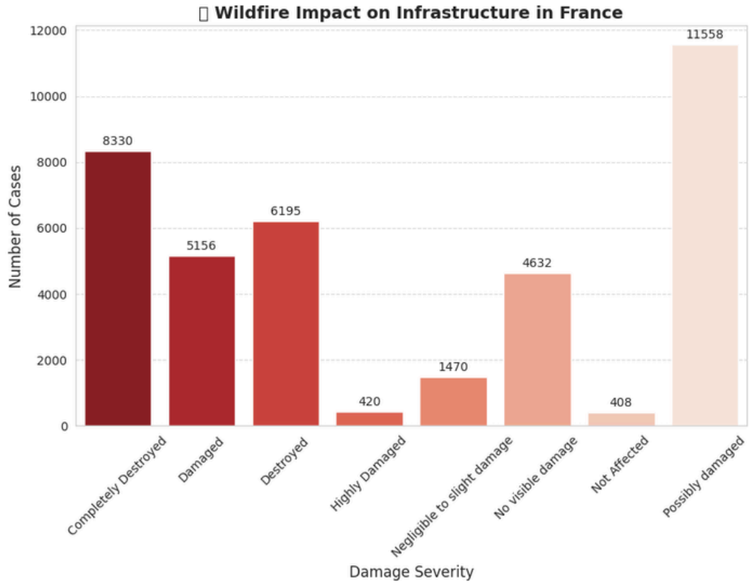
Disaster Impact on Infrastructure: Severity & Business Implications

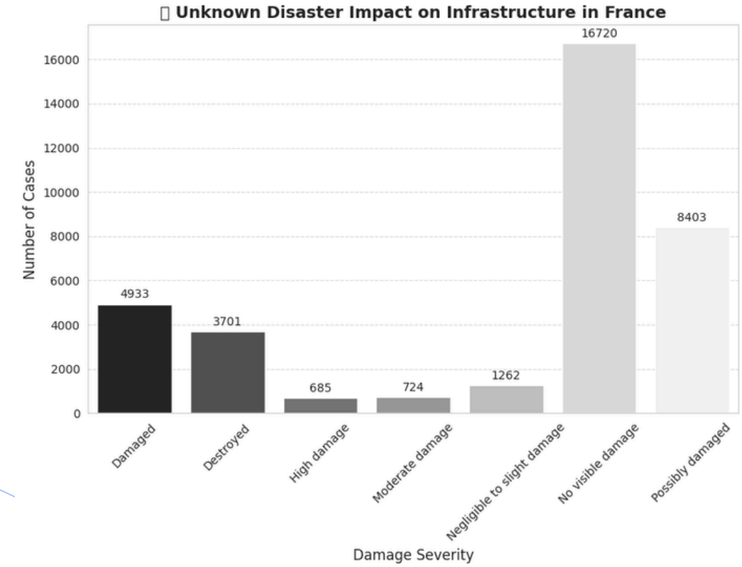
Flood Impact: The data shows minimal impact from floods, with almost all cases reporting "No visible damage," suggesting either effective flood prevention or underreporting.

Wildfire Impact: Wildfires have caused extensive destruction, with a high number of "Completely Destroyed" and "Damaged" cases, highlighting the need for stronger wildfire mitigation strategies.

Unknown Disaster Impact: A significant portion of cases fall under "No visible damage" and "Possibly damaged," but notable "Damaged" and "Destroyed" cases indicate a need for better disaster classification and response planning.

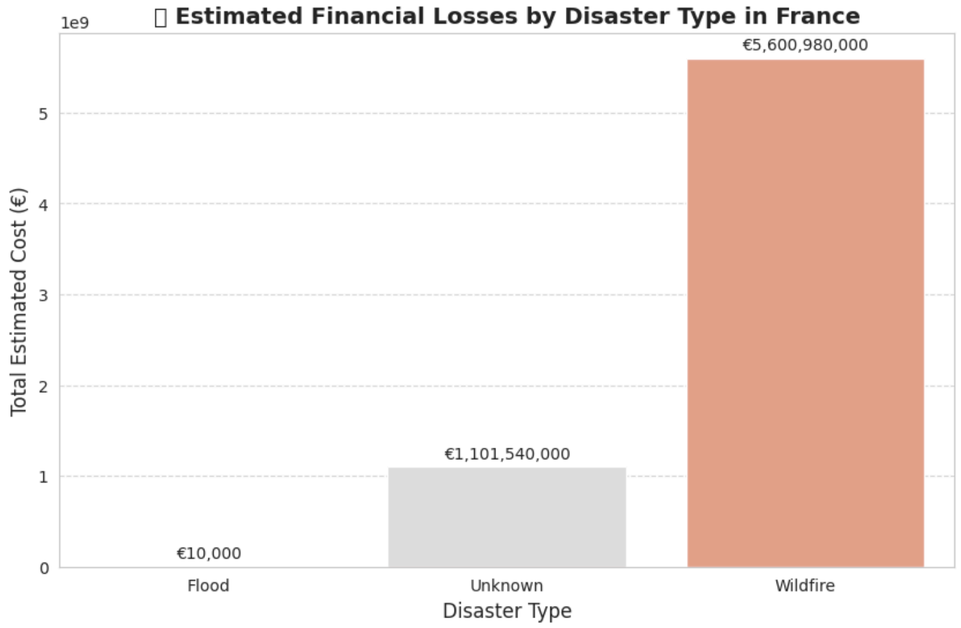




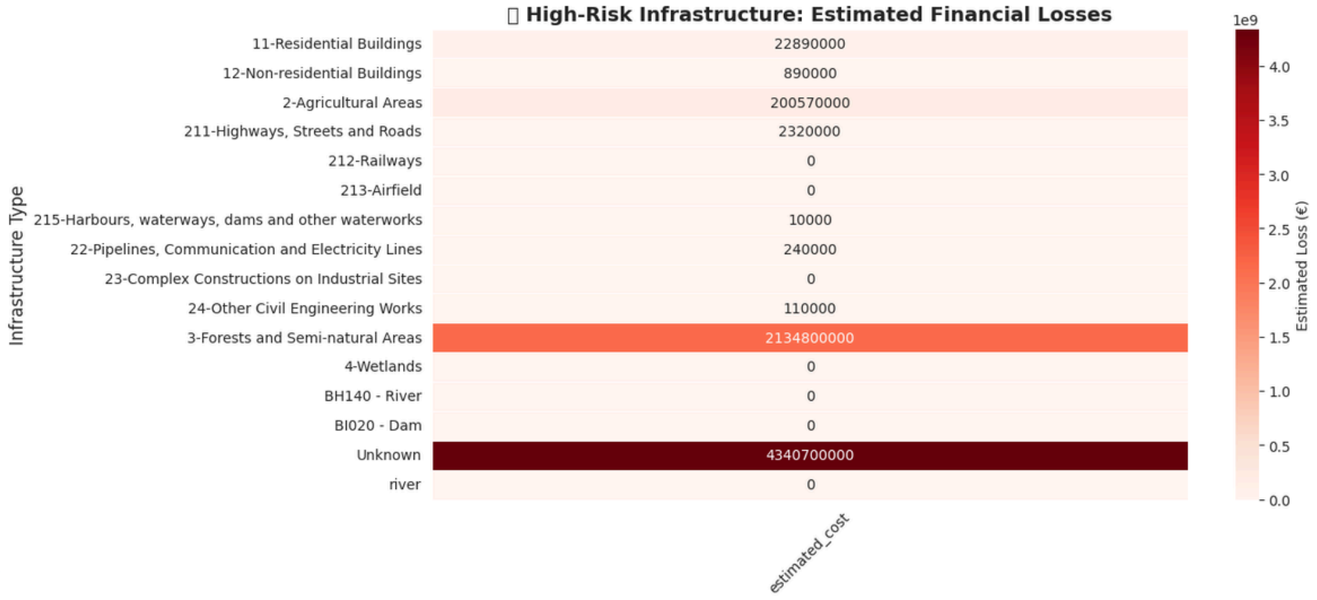


Estimated Financial Impact of Disasters on Infrastructure

Estimated Financial Losses by Disaster Type: Wildfires have caused the highest financial losses (€5.6 billion), while floods have had almost no financial impact, highlighting the need for wildfire-focused risk management.



High-Risk Infrastructure: Estimated Financial Losses: The highest losses are linked to "Unknown" infrastructure (€4.3 billion) and forests (€2.1 billion), emphasizing the need for better disaster classification and targeted investment in resilience.



Thank You

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