CASE STUDY 4 – ELECTRICITY DISRUPTION

Organization context: The organization in focus is an electricity distribution network operator.

Describe the event: Parts of the country experienced severe weather conditions due to a storm. This event was characterized by extremely high winds, that significantly impacted the electricity distribution network, resulting in over 100,000 customers losing power.

Explain the consequence: The intensity of the storm and the resulting damage was widespread, leading to a large-scale power outage. Most customers were restored within an hour, but approximately 4,000 were left without power for over a week. Some customers, like hospitals and airports, had standby arrangements that minimized the impact whereas, for others, like a train operator, the interruption of supply led to extended disruption of services. The significant shortcomings in the response and support provided by the network company resulted in reputational damage and financial penalties from the regulator, who judged them to have breached their license obligations to develop and maintain a safe and efficient distribution system.

What were the root causes: The primary cause of the network faults was attributed to strong winds and falling trees and branches onto power lines. The main factors contributing to the severity of the event's impact included:

- **Inadequate maintenance and replacement of aged assets** – The underinvestment in maintenance (including vegetation clearance) contributed to a higher level of risk than would otherwise be the case, despite the severe weather conditions.
- **Inadequate Emergency Plans** – While the company had initiated its emergency plans several days before the storm, these were insufficient to address the scale of the damage caused by the storm. The utility was slow to adapt its resources and strategies in response to the unfolding situation.
- **Communication Failures** – Customers experienced significant difficulties contacting the utility via phone, accessing accurate information, and reporting power outages and network damage. The situation was exacerbated by the unavailability of the utility's website due to overwhelming traffic and the decision to switch off the call-back function, which affected customer service quality.

What can be learned from this case study (good and bad): The event provided several critical lessons for improving future storm responses:

- **Enhancing infrastructure resilience:** There was a clear need for a review of the current network asset management plans to increase resilience against severe weather events. This included strengthening the network's ability to withstand high winds and tree impacts by redesigning and reviewing the specification for towers/poles.
- **Improving emergency and preparedness plans:** The utility ensuring its emergency and winter preparedness plans are robust and flexible enough to deal with large-scale disruptions. This included being able to deploy resources and strategies in response to real-time developments rapidly.
- **S**treamlining Communication Channels: The event underscored the importance of reliable and effective communication channels between utilities and customers. The utility needed to ensure that its communication systems, including phone lines and websites, can handle high volumes of traffic during emergencies.
- **Customer experience:** It is crucial to focus on customers' needs and experiences during such events. This involves ensuring the timely restoration of services and also providing accurate information and support to those affected, especially the most vulnerable groups.