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Case Review: The Action Plan for the Chicago Center Fire Accident: The Role of Leadership in Emergency Response

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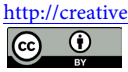

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Abstract

Collaboration is essential for dealing with natural and technological hazards and disasters and the consequences of terrorism. Generally, it is accepted that all administrative agencies require a combination of transactional and transformational leaders, especially within emergency management agencies. However, conflicts arose from creating the Department of Homeland Security (DHS) to impose a command and control system on a collaborative organizational culture within a collaborative sociopolitical and legal context. The significant factors are the ability and willingness to appropriately distinguish the needs and priorities of disaster management apart from civil defense needs and preferences; the selection of well-qualified disaster management leaders with a background in natural and accidental disasters; and the quality of implementation of programs including administrative execution, number and level of presidential disaster declarations, and timely presidential involvement in catastrophes. To what extent is crisis management related to emergency management, change management, and transformational leadership? How are these distinctions illustrated at a competency level? While change management is essential, it must be targeted and time-sensitive. Competencies were identified as influential leaders' important characteristics or behaviors during crises. New leadership strategies that derive their power from adequate strategies practical to the transformational power of a compelling vision rather than from hierarchy, rank, or standard operating procedures are recommended.

Keywords

Department of Homeland Security, Collaboration, Leadership Competencies, Action Plan

1. Introduction

Emergency management is becoming more significant in the contemporary world due to the increasing number of human-made and natural disasters and the expanding threat of terrorism. Furthermore, a single emergency might impact interrelated systems and structures due to technological advancement and globalization. Therefore, organizations need to introduce innovative methods and develop contemporary action plans to improve the quality of the emergency response and ensure the safety of people. The current paper attempts to review a real-life emergency scenario, identify the primary details of the crisis by analyzing the after-action reports, and develop an action plan that addresses emergency management and leadership.

2. Scenario Summary

Before proposing an action plan, it is essential to summarize the emergency. This paper discusses the Chicago Center Fire that occurred early on 26 September 2014 (Department of Transportation Office of Inspector General, 2015). The employee of the Harris Corporation, Brian Howard, deliberately destroyed the FAA (Federal Aviation Administration) Telecommunications Infrastructure (FTI) system and disabled the communication between the center and the aircraft. As a result, approximately forty airplanes could not receive any information concerning landing, and hundreds of lives were in danger. Fortunately, the traffic was considerably low, allowing the airplanes to land safely without additional guidance from the center. Nevertheless, FAA managers had to implement an 'ATC Zero strategy shutting down the facility's power systems and evacuating the personnel.

Due to the 'ATC Zero' implementation and the damage to the communication systems, the FAA estimates that the expenses on the recovery operations amounted to more than five million dollars, excluding the cost of the replaced communication system equipment (DOT OIG, 2015). Furthermore, FAA and the contracting organizations have completed several repair services, including manufacturing new telecommunication equipment, replacing ten miles of cable, rerouting communication lines to the nearby facilities, and installing a wireless network within the organization (Tomkins et al., 2020; DOT OIG, 2015). However, the consequences of the emergency lasting up to two weeks have raised some concerns about the organization's contingency plan.

2.1. Failure of the Existing Contingency Plan

A contingency plan is a regulated list of strictly followed directions in an emergency or a disaster. FAA's Air Traffic Organization (ATO) is the structure that should provide safe air navigation and develop contingency plans (Meng et al., 2020; DOT OIG, 2015). However, after the Chicago Center Fire emergency, FAA discarded the contingency plan of the named organization due to the identified flaws in the design (DOT OIG, 2015). According to DOT OIG, the primary de-

fects of the plan include the need for more attention directed to the redundancy and resiliency of the model (2015). Furthermore, the communication between the facilities concerning air traffic is limited by the equipment and the incompetent location of the communication systems (Kuusisto & Kuusisto, 2019; DOT OIG, 2015).

Some existing technologies must meet the industry's requirements, namely, radar surveillance devices and fire suppression systems (Meng et al., 2020; Kuusisto & Kuusisto, 2019; DOT OIG, 2015). In addition, the emergency has also raised concerns regarding automation frameworks and flight scheduling (DOT OIG, 2015). Overall, the contingency plan has proved ineffective in crises; therefore, improving the design to meet the industry's requirements is essential (see **Appendix A**).

2.2. Recommendations for the Development Plan of Action

The DOT OIG has provided several recommendations concerning the improvement of the design of the action plan, whereby the primary suggestion is to redesign the existing contingency plan according to the following limitations (DOI OIG, 2015):

- To identify the potential flaws of the contingency training and to implement more realistic emergency scenarios during simulations.
- To evaluate the cost, utility, and effectiveness of the existing equipment and to properly assess the location of the communication systems to minimize potential risks concerning the spread of fire.
- To install a safe and reliable wireless network that would provide access to local networks and establish secure communication with surrounding facilities.
- To assess the state of fire suppression systems and other critical equipment and implement changes if necessary.

Furthermore, it is essential to properly document the adjustments mentioned earlier in the implementation plan for transparency and future changes.

3. Action Plan

After acknowledging the flaws of the existing contingency plan, it is essential to improve it to meet the industry's current requirements and develop necessary safety measures. In addition, it is crucial to elaborate on the emergency management methodologies with a focus on the role of leadership within the context (see Appendix B). Hence, the administration might profoundly impact the response to critical situations (Tomkins et al., 2020; Kapucu & Van Wart, 2008). From these considerations, it is essential to continually develop emergency management methodologies and leadership frameworks that play a crucial role in mitigating the risks during crises. Ironically, failures in these aspects might lead to severe consequences, including unrepairable technology damage and human losses (Shawe & McAndrew, 2023).

Furthermore, flaws in the contingency plan and personal mistakes by the

leader might be a heavy burden and deteriorate the leader's moral integrity, further delaying the response in emergencies (Liu, 2010). These factors imply the necessity of a proper contingency plan with thorough attention to the leadership frameworks.

4. Role of Leadership

As mentioned in the DOT OIG (2015) report, the primary flaw of the existing emergency response is the need for more resilience. This term generally refers to the organization's capability to recover from crises and indicates the readiness of the team to assess damages and mitigate additional risks (Alshayhan & Yusuf, 2021). Since reconstruction after emergencies is a team effort, the responsibility for the success of the process falls upon leaders and supervisors. Therefore, it is essential to discuss the role of leadership in an ideal setting and analyze the flaws of the methodology in the Chicago Center Fire accident.

Leadership Competencies

Emergencies and consequent responses belong to quickly evolving and hazardous situations; therefore, the leader requires considerable flexibility and adaptability. According to Pranesh et al. (2017), the leader's credibility is frequently measured by their ability to analyze the situation and act critically; otherwise, the whole operation and the team's safety are impending threats. Other researchers, including Huntsman et al. (2021), present additional evidence to emphasize the role of flexibility in emergency response and provide several recommendations on how it can enhance adaptive performance. Consequently, Kapucu and Van Wart (2008) have also identified 12 competencies for effective leadership in emergencies and assigned flexibility the second most significant role after decisiveness. However, decisiveness is a component of adaptability since it includes practical and quick decision-making. Therefore, a wide array of research claims that flexibility and adaptability are the two most significant factors of effective emergency leadership.

As mentioned briefly, many leadership competencies exist, and some experts identify more than twelve necessary characteristics. Due to the limitations of the work, it is impossible to discuss each of them thoroughly; nevertheless, there is one skill equivalent to adaptability in its significance to emergency response—communication. In the broad sense, this term covers organizing, coordinating, maintaining a healthy atmosphere within the team, informing, and other potential activities that depend merely on the communication competencies of the leader. In addition, some experts regard reflecting and engaging as primary to developing communication skills (Mayfield & Mayfield, 2016). Consequently, Alshayhan and Yusuf (2021) claim that the competencies above might improve the relationships between organizations and greatly enhance collaboration outcomes. Overall, flexibility, adaptability, and communication are necessary qualities of the leader and might advance the effectiveness of the emergency response.

Lastly, it is essential to discuss how the qualities mentioned above might have changed the implementation of the contingency plan. DOT OIG emphasized that the current design needed to be revised for effective restoring operations. Therefore, the management had to adapt to the situation without a proper plan and demonstrate considerable flexibility. Furthermore, various organizations and contract workers participated in the recovery operations (DOT OIG, 2015). Therefore, the leaders needed to organize and coordinate the responsible teams to minimize the consequences of the ineffective contingency plan. It is complicated to say whether the leaders of the restoring operations were competent in the aspects mentioned above; nevertheless, the emergency response outcomes could have been improved if the supervisory management had been better qualified.

5. Emergency Management Methodologies

Emergency management is a complex process involving the collaborative efforts of several stakeholders, including the party's leaders responsible for emergency response. Crisis control is defined by many potential risks and a highly stressful environment. Several leadership models fit the emergency response context and allocate control over the situation to the leader. The research has proved that power asymmetry might be valuable in emergency management methodologies (Tomkins et al., 2020). Nevertheless, in Critical Leadership Studies, asymmetry refers to control over the team's actions and the responsibility concerning the outcomes of the operation (Tomkins et al., 2020). Therefore, in authoritative leadership models, leaders might get particularly stressed if the procedure does not succeed (Tomkins et al., 2020). Overall, while authoritarian leadership models with power asymmetry align with emergency management methodologies, it is essential to maintain a healthy atmosphere within the team and assess potential risks.

Emergency management methodologies differ vastly depending on the type of crisis: natural or technological disaster, terrorism, and crimes. Aviation infrastructure is highly vulnerable to technical malfunctions and cyberattacks (Nobles, 2019). In the case of the Chicago Center Fire, the consequences were impactful due to the assumed security of the communication systems; nevertheless, it was breached by a single employee who had access to the service room (DOT OIG, 2015). Bartulović and Steiner (2020) propose the utilization of predictive analytics to ensure the safety of management systems in organizations concerning aviation. Meng et al. (2020) state that the foundation of the contingency plan in emergency management should be the risk management system followed by prevention and control of the potential hazards. As a result, the facility's safety may improve by digitalizing the existing frameworks and digital security systems (Kuusisto & Kuusisto, 2019). Overall, emergency management might greatly benefit from the recommendations mentioned above.

6. Implications of the Action Plan

After discussing effective leadership models and emergency management me-

thodologies, it is possible to propose the primary guidelines to adjust the current contingency plan. For example, the DOT OIG (2015) has emphasized the lack of resilience in the design. Improving the contingency plan in this aspect is essential to shift the focus from specific directions to the leadership frameworks. For example, Alshayhan and Yusuf (2021) propose that the leader's qualities and collaborative effort increase the project's resilience. Therefore, the emergency response should revolve around the leader's figure, implying the implementation of the authoritative leadership models. At the same time, it does not mean that the contingency plan should not emphasize specific details concerning the emergency response. The design should explain effective leadership models and the implementation of primary emergency management principles.

Concerning the specific details, the DOT OIG has designated several flaws of the current situation in the Chicago Center, primarily involving equipment and its location. While it is not a part of the contingency plan itself, proper preparation is necessary for the functioning process of the organization; therefore, it is essential to address these problems. First, the communication systems must be recovered and assigned to the new location to mitigate the risks of fire spreading and technology malfunctioning. Secondly, the organization's digital transformation could improve equipment safety and cybersecurity due to significant data methods and predictive analytics. Overall, it is possible to develop a coherent contingency plan and minimize the risks of emergencies by utilizing effective leadership models, primary principles of emergency management, and digitalization of the current equipment.

7. Conclusion

The current paper has introduced an action plan to respond to the Chicago Center Fire accident based on the primary principles of emergency management and effective leadership frameworks. The findings demonstrate that the organization needs a contingency plan revolving around the authoritative leadership models focusing on the leader's personal qualities to improve the resilience of emergency response. Additionally, several adjustments concerning the current equipment and communication systems are made to further advance the organization's safety and cybersecurity. As a result, it is possible to develop a coherent contingency plan to mitigate potential risks and emergencies.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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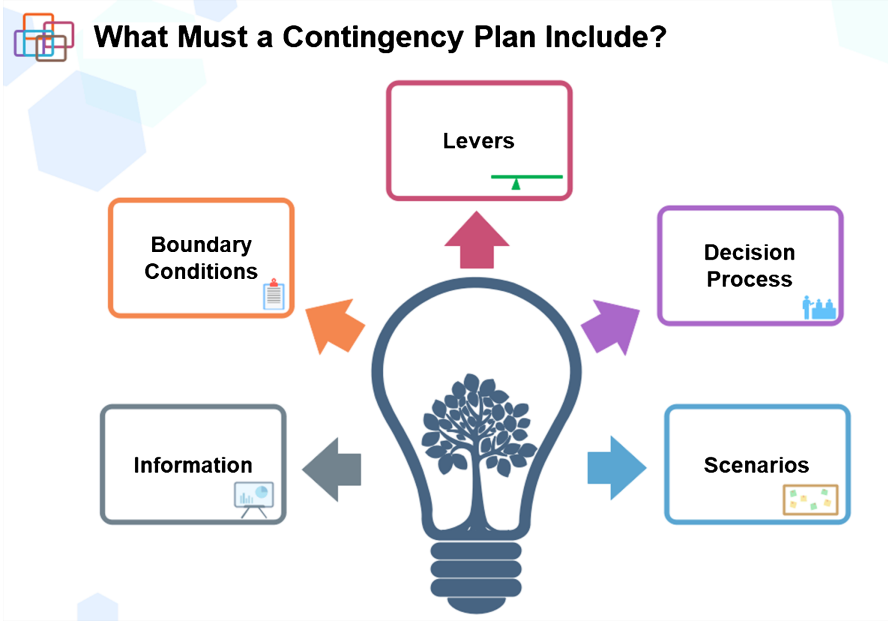
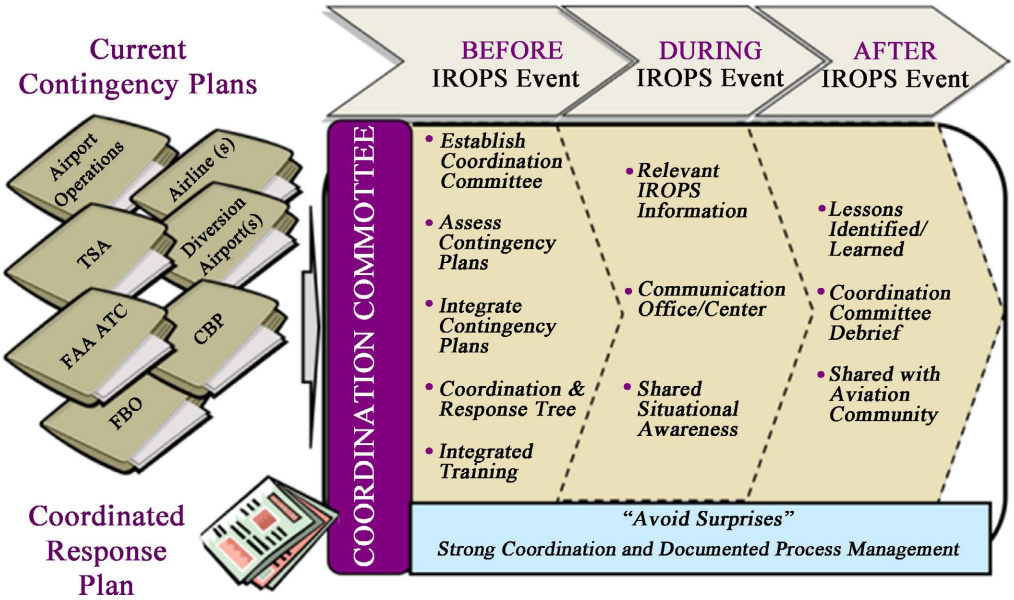
Appendix A: Contingency Plan



Note. Adapted from *Contingency plan: What it is and how to make it* (2023). Edrawsoft. https://www.edrawsoft.com/contingency-plan.html

Appendix B: Airline Action Plan



Note. Adapted from Massidda, A., Mattingly, S. P., & Satyamurti, S. D. (2011, January). Addressing IROPS Diversion-Related Extended Delay Events Through a Coordinated Regional Airports/Airlines Diversion Network. ResearchGate | Find and share research. https://www.researchgate.net/publication/281214486_Addressing_IROPS_Diversion-Related_Extended_Delay_Events_Through_a_Coordinated_Regional_AirportsAirlines_Diversion_Network/figures?lo=1&utm_source=google&utm_medium=organic