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Offshore Wind Industry Interorganizational Collaboration Strategies in Emergency Management

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This is to certify that the doctoral study by

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Walden University
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Abstract

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MS, University of Maryland Global Campus, 2014

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Doctoral Study Submitted in Partial Fulfillment

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Abstract

Some health and safety (HSE) managers within the offshore wind industry lack effective interorganizational collaboration strategies in emergency management (EM) for successful disaster mitigation, preparedness, response, and recovery. The failure and the reluctance of neighboring offshore wind industry organizations to share knowledge or resources during a disaster could hinder successful disaster response operations resulting in preventable loss of life, extensive property damage, or damaged company reputations. Grounded in the interorganizational collaboration theory, the purpose of this qualitative multiple case study was to explore strategies HSE managers in the offshore wind industry use for successful disaster mitigation, preparedness, response, and recovery. The participants included eight HSE managers actively contributing to the G+ Global Offshore Wind Health and Safety Organization. Data were collected from semistructured interviews and publicly accessible documents. Five themes emerged from methodological triangulation and thematic analysis pattern matching: shared plans, stakeholder engagement and commitment, government agency involvement and regulations, lessons learned, and standardization. Some key recommendations from the findings include developing joint disaster response plans, participating in government agencies and emergency services exercises, training, forums, and ensuring HSE managers or other EM specialists contribute to professional organizations. The implication for positive social change includes promoting positive employee health and safety practices, sustained employment, enhanced job satisfaction, and lower unemployment rates.

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Dedication

I dedicate this doctoral study to my beloved children, Sebastian and Nina for their uncompromising support, inspiration, and patience. Words cannot fully express my gratitude for being my inspiration and drive for completing this journey. To my mother, Betsy, thank you for continuously keeping me focused and for your unyielding support. Finally, to my brother, Ron, thank you for all your encouragement.

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Section 1: Foundation of the Study

A disaster may overwhelm an organization's capacity to effectively save lives, reduce environmental damage, or coordinate resources to further reduce harm (Curnin & O'Hara, 2019). The reluctance of offshore wind industry organizations to share knowledge and resources during emergency management phases of mitigation, preparedness, response, and recovery could hinder effective response and recovery operations following a disaster (Pedersen & Ahsan, 2020). Consequently, it is advantageous for offshore wind industry operators to collaborate on emergency management phases and activities as they are clustered in groups in the offshore environment. The purpose of this qualitative study was to explore effective interorganizational collaboration strategies in emergency management that health and safety executive (HSE) managers in the offshore wind industry can use for successful disaster mitigation, preparedness, response, and recovery.

Background of the Problem

Offshore wind industry organizations face numerous hazards in the offshore environment which, if inadequately planned and prepared for, could result in serious injury, death, property damage, or environmental damage. Potential hazards within the offshore wind industry could involve tower collapses, turbine fires, natural disasters such as lightning strikes or high winds, blade failures, vessel collisions, helicopter accidents, or submarine cable accidents (Mou et al., 2021). Compounding the hazards is the distance from shore for hospital or other disaster support agencies. Wind industry HSE managers face considerable challenges developing emergency response and emergency

management plans due to the high-risk environment and the magnitude of potential disasters. Consequently, competing offshore wind industry businesses located in close proximity to each other might discover mutually beneficial outcomes by agreeing to cooperate and share resources during disaster response and recovery operations.

As the offshore wind industry is within its adolescent stages, there exists a limited number of scholarly, peer-reviewed works detailing industry-related disasters; however, evidence from a similar industry, the offshore oil and gas industry, suggests that cooperation amongst agencies is essential for effective emergency management activities. The offshore oil and gas industry has suffered numerous disasters over the last 4 decades, such as the 1988 *Piper Alpha* disaster, 1980 *Alexander L Kielland* disaster, 1982 *Ocean Ranger* disaster, and 2010 *Deepwater Horizon* disaster. A poor safety culture, inadequate evacuation and rescue planning, and insufficient transparency and cooperation among organizations are common lessons learned among each disaster (Bunn, 2018; Furey & Rixon, 2019; Kessler et al., 2019 Macleod & Richardson, 2018).

Organizations and personnel engaged in interorganizational collaborations might succumb to the many hinderances or barriers affecting the establishment of effective partnerships. Barriers to interorganizational collaborations could include poor power dynamics among individuals or teams, self-preservation tactics, low trust, and lack of commitment (Brattström & Faems, 2020; Dewulf & Elbers, 2018). Additionally, social dynamics and low emotional intelligence might further hinder interorganizational collaborations (Leonidou et al., 2019). Consequently, by understanding and tackling the many difficulties to effective interorganizational collaborations, competing offshore wind

industry corporations located in close proximity to each other may develop effective interorganizational collaboration strategies in emergency management.

Problem and Purpose

The specific business problem is that some HSE managers within the offshore wind industry lack effective interorganizational collaboration strategies in emergency management for successful disaster mitigation, preparedness, response, and recovery. The purpose of this qualitative multiple case study was to explore effective interorganizational collaboration strategies in emergency management that HSE managers in the offshore wind industry can use for successful disaster mitigation, preparedness, response, and recovery. The target population for this study included U.K. offshore wind industry HSE managers actively contributing to the G+ Global Offshore Wind Health and Safety Organization and successfully developed emergency management collaboration strategies for improving response effectiveness.

Population and Sampling

A population is the target of participants within the bounds and scope of the study, and generalizations from the chosen participants embody the wider community (Casteel & Bridier, 2021). The population for this study was the U.K. wind industry HSE managers within companies contributing to the G+ Global Offshore Wind Health and Safety Organization. Participants for this study must have had experience successfully implementing interorganizational collaboration strategies across each emergency management phase of mitigation, preparedness, response, and recovery.

Concluding the participant selection process, academics must decide the most appropriate sampling technique to answer the research question. The most common sampling technique for multiple-case studies is purposive sampling, as it increases the trustworthiness of findings (Campbell et al., 2020; Casteel & Bridier, 2021). Additional benefits of purposive sampling include the confinement of the data collection process within the context of the study and bounding the quantity of material collected for analysis (Ames et al., 2019). Similarly, researchers use purposive sampling to ensure that the sample size for a single- or multiple-case study remains minimal to collect in-depth, rich data from selected participants (Vasileiou et al., 2018). The purposive sampling technique was appropriate to answer this study's research question, increase the credibility of findings, and gather rich data for analysis.

The number of samples for qualitative studies varies as the researcher strives for data saturation. Data saturation is achieved when no new information is presented from participants or no new themes emerge from data analysis that pertain to the research question (Moser & Korstjens, 2018). Researchers can face challenges justifying sample size for qualitative studies, and some scholars have attempted to quantify the specific sample quantity through statistical assumptions and theme emergences (Sim et al., 2018); however, the consensus amongst academics is that the total sample size for qualitative studies differs per study is reached upon data or theme saturation (Saunders et al., 2018). Furthermore, researchers demonstrated that data saturation for in-depth interviews was typically reached between nine and 17 (Hennink & Kaiser, 2021). A full description of the data analysis process and saturation is provided to increase rigor of this multiple-case

study. Data saturation for this study was achieved at interview seven and confirmed at interview eight.

Nature of the Study

The research methodologies of qualitative, quantitative, and mixed methods are three paradigms made accessible to researchers, according to Saunders et al. (2016). The qualitative method was used for this study. Papakitsou (2020) explained that qualitative researchers evaluate real-life events and subjective personal accounts. Scholars use the quantitative research method to analyze data and find statistical relationships among variables (Hammarberg et al., 2016). Accordingly, the intention is not to examine variables' characteristics or relationships; therefore, the quantitative approach is not suitable for this study. Mixed method researchers use qualitative and quantitative research in a singular study (Kansteiner & König, 2020). Because the purpose of this study did not require addressing relationships among variables, the mixed method was not appropriate. The goal of this study was to identify effective emergency management collaboration strategies that the offshore wind industry can use for successful disaster mitigation, preparedness, response, and recovery. Therefore, the qualitative method was the most appropriate.

Qualitative research strategies include ethnographic, phenomenological, grounded theory, narrative inquiry, or case study (Sanders et al., 2016). Ethnography involves the study of culture (Abdulrehman et al., 2017), and since the focus of this study was not to explore cultural attributes, ethnography was not appropriate for this study. The use of the phenomenological design would require participant interviews to gain an understanding

of their lived experience's personal meanings or perspective to a specific phenomenon (Alase, 2017). This study's focus was not on the personal meaning of people's lived experiences; therefore, this study did not use the phenomenological design to address the research question. In a grounded theory study, the researcher explores social interactions among individuals or groups to develop theories for explaining phenomena (Mohajan, 2018). Grounded theory design was therefore not aligned with this study purpose, as the goal was not to develop theory based for examining a phenomenon. Narrative inquiry involves collecting detailed accounts or personal experiences of events (Mohajan, 2018); this approach was not useful for the study. Last, researchers use qualitative case studies to explore, in detail, events or actions, and the dynamics behind those events (Yin, 2018). The use of two independent cases was suitable for this study as multiple organizational input and data are required. Researchers also use a multiple-case study for improving studies validity beyond a single-case study (Yin, 2018). A multiple-case study was the most suitable design to explore interorganizational collaboration strategies in emergency management that the offshore wind industry can use for successful disaster mitigation, preparedness, response, recovery.

Research Question

The research question that explored in this study was: What effective interorganizational collaboration strategies in emergency management do managers in the offshore wind industry use for successful disaster mitigation, preparedness, response, recovery?

Interview Questions

1. What effective strategies have you developed and implemented to strengthen interorganizational collaboration in emergency management?
2. How have you measured the effectiveness of your strategies to increase interorganizational collaboration in emergency management?
3. What strategies or approaches are most effective to enhance interorganizational collaboration in disaster mitigation?
4. What strategies or approaches are most effective to enhance interorganizational collaboration in disaster preparedness?
5. What strategies or approaches are most effective to enhance interorganizational collaboration in disaster response?
6. What strategies or approaches are most effective to enhance interorganizational collaboration in disaster recovery?
7. What other information do you wish to share in relation to interorganizational collaboration in emergency management and disaster mitigation, preparedness, response, and recovery?

Conceptual Framework

This research used interorganizational collaboration theory as the conceptual framework for this study. Interorganizational collaboration theory has its foundation in game theory, in which Axelrod (1980) demonstrated the prisoner's dilemma and the

advantages of collaboration to secure long-term gain. In the game, two competing players either cooperated or defected; players that teamed with competitors for long-term gain overwhelmingly outlasted those that defected to preserve their self-interests (Axelrod, 1980). On a larger scale, interorganizational collaboration theory emphasizes that business owners can achieve mutually beneficial outcomes by cooperating and creating partnerships. The challenge is for Health and Safety Executive (HSE) managers to overcome interorganizational collaboration barriers, such as power dynamics and self-perseverance tactics, to form trusting, equally valuable alliances (Dewulf & Elbers, 2018).

Gray (1989) introduced multiparty collaboration theory and advanced into numerous underlying concepts examining trust, group dynamics, power struggles, and collaborative paradoxes (as cited in Purdy et al, 2018; Vangen, 2017), which also are within the domain of interorganizational collaboration theory. Each concept includes valuable insights into interorganizational collaboration successes or failures. Therefore, as a lens for this study, this study utilized interorganizational collaboration theory to understand effective interorganizational collaboration strategies the participants used for successful emergency management strategies and processes for preparing and addressing disaster mitigation, preparedness, response, and recovery.

Operational Definitions

Emergency management: Emergency management includes the life-cycle of mitigation, preparedness, response, and recovery (Sawalha, 2020).

Disaster mitigation: Disaster mitigation includes activities to eliminate or reduce the impact of a disaster (Samuel & Siebeneck, 2019).

Disaster preparedness: Disaster preparedness include activities to prepare responders, organizations, or governments to respond to disasters; typically includes response plan development, exercises, or training (Skryabina et al, 2020).

Disaster recovery: Disaster recovery includes the coordinated actions taken to restore operations, infrastructure, or the environment (Oloruntoba et al, 2018).

Disaster response: Disaster response includes immediate actions to save lives or preserve property (King et al., 2019).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are unverified facts assumed true, and that compel researchers to consider the foundation of study and the research process (Coates, 2021). An assumption is that all participants had appropriate knowledge of emergency management phases and experience with interorganizational collaboration. It was also assumed that participants would honestly and thoroughly answer all questions to the best of their ability. A final assumption was that the chosen sample participant's answers and data analysis were a valid representation of interorganizational collaboration strategies in emergency management, and replication of this study may yield similar results.

Limitations

Limitations are constraints and influences outside the researcher's control that might affect the validity of a study (Greener, 2018).). A limitation of this study is that

participants may not have disclosed assumed proprietary information related to emergency management, therefore limiting the data collection process. Furthermore, participants might have encountered conscious or unconscious biases related to achievements or failures of interorganizational collaboration strategies in emergency management.

Delimitations

Delimitations include description of the rationale for the defined scope and bounds of the study (Theofanidis & Fountouki, 2018). Delimitations for this study included participant experience, geographical location, and specific focus industry. Offshore HSE managers perform a wide array of tasks that might not involve emergency management activities; therefore, it was essential that participating offshore HSE managers had experience in all emergency management phases and interorganizational collaboration. Additionally, the offshore wind industry operates globally. To narrow the bounds, the geographic location for this study includes offshore wind industry businesses located in the United Kingdom. The focus industry was exclusively the offshore wind industry and those organizations contributing to the G+ Global Offshore Wind Health and Safety Organization.

Significance of the Study

A single disaster may overwhelm an organization's capability to respond rapidly and effectively to save lives, reduce environmental damage, or coordinate resources to further reduce disaster impacts (Curnin & O'Hara, 2019). The findings from this study could be used by senior and midlevel HSE managers in the offshore wind industry to

improve interorganizational collaboration and partnerships in emergency management and its phases of mitigation, preparedness, response, and recovery.

Similar industries operating in the offshore environment, such as the longstanding oil and gas industry, have identified interorganizational collaboration inadequacies that contributed to reduced or failed disaster response and recovery operations (Milch & Laumann, 2019). Therefore, the analysis of interorganizational collaboration barriers and identifying potential consequences of ineffective interorganizational collaboration in emergency management may be useful to offshore wind industry managers to better prepare for and respond to disasters.

A Review of the Professional and Academic Literature

The purpose of this qualitative multiple case study was to explore the strategies some offshore wind industry HSE managers use for effective interorganizational collaboration in emergency management. This literature review includes a thorough overview and synthesis of scholarly works associated with interorganizational collaboration theory, emergency management, and the offshore wind industry. This review also includes a comprehensive synthesis of peer-reviewed scholarly journal articles, government websites, academic books, and other scholarly articles related to interorganizational collaboration theory.

The research databases used for this literature review included ABI/INFORM Collection, Academic Search Complete, Business Source Complete, EBSCOhost, Emerald Insight, Google Scholar, Political Science Complete, ProQuest, Sage Premier, and Science Direct. Primary keywords for peer-reviewed scholarly journal articles and

other academic works included: *interorganizational collaboration theory, emergency management, disaster preparedness, disaster mitigation, disaster response, disaster recovery,* and *offshore wind.* This literature review consists of 155 references, 84% of which are peer-reviewed and published from 2018 to 2022. The next section includes analysis and synthesis of interorganizational collaboration theory and essential components of interorganizational collaboration theory.

Interorganizational Collaboration Theory

The conceptual framework for this study was the interorganizational collaboration theory. Gray (1989) established the underlying principles and concepts of multiparty partnerships which evolved into key topics influencing interorganizational collaboration theory (Purdy et al., 2018). In interorganizational collaborative endeavors, stakeholders face copious negative behaviors and pressures such as power struggles, political disputes, and mistrust (Schruijer, 2020). Furthermore, participant reaction to changing environments and internal obstacles can influence project intent and the willingness to engage in partnerships (Gray & Purdy, 2018). Studies demonstrate, however, that competing companies can achieve substantial mutually beneficial objectives by recognizing and tackling those negative behaviors while working diligently to develop relationships (Nolte, 2018; Seaton et al., 2018). Interorganizational collaboration theory is the basis for developing strategies in emergency management that HSE managers in the offshore wind industry can use for successful disaster mitigation, preparedness, response, and recovery.

Adding to Gray's (1989) multiparty partnership foundation, Huxham (1996) presented the collaboration model for a competitive advantage (as cited in Schruijer, 2020). Succeeding studies expanded upon Huxham's initial collaborative competitive advantage model and presented several additional topics such as developing trust, power sharing, learning, and commitment which improves successful collaborations (Huxham & Vangen, 2005; Vangen & Huxham, 2006). Scholars also demonstrated that by using those concepts developed by Huxham and Vange, competing businesses initiating interorganizational collaborative ventures could create value for customers while creating mutually competitive advantages (Potjanajaruwit, 2018). Furthermore, Areias and Eiriz (2020) demonstrated the added value collaborating to achieve a competitive advantage has for reducing costs while combining duplicated processes. If HSE managers do not achieve a competitive advantage, nor exhibit those behaviors offered by Huxham and Vangen, interorganizational collaboration endeavors in emergency management may not reach profitable project fruition.

Interorganizational collaboration theory is a philosophy that promotes innovation and information sharing. Associated with Huxham and Vangen's (2005) concept of achieving a competitive advantage is that rival businesses can align stakeholder interests by establishing joint business models resulting in increased innovation (DaSilva, 2021). Competing organizations adhering to the same business model for innovation rely heavily on information sharing and openness for strategic decision-making (Dobusch et al., 2019). Other scholars observed that conducting multiple interorganizational collaborative innovative projects increased information sharing led to decreased innovative project

abandonment (Greco et al., 2020). Wind industry HSE managers must rely heavily on interorganizational theory philosophies to promote information sharing and project innovation in emergency management ideas and understand the key components which are discussed in the following sections.

Essential Components of Interorganizational Collaboration Theory

Human behavior and social dynamics heavily motivate interorganizational collaboration theory. During interorganizational collaborations, representatives inevitably encounter and respond to various emotions from topics including trust, commitment, and group conflict (Zheng et al., 2021). Collaborations occur at differing levels of each business (individual, group, and organizational), and each may once more be swayed by responses to individual and social behaviors, compounding the complicity of the theory (Curseu & Schruijer, 2018; Schilke & Cook, 2013). Furthermore, scholars demonstrated that employees reacting to social dynamics such as power struggles and internal political strife could jeopardize interorganizational collaborative efforts (Brattström & Faems, 2020). Consequently, the comprehension of interorganizational collaboration theory may enhance wind industry interorganizational collaboration strategies in emergency management.

The management, or mismanagement, of organizational and individual reactions to emotions such as anxiety and disappointment can heavily impact interorganizational collaboration efforts (Wójcik et al., 2020). Donati et al. (2020) demonstrated that leadership styles and team member engagement can positively impact individual trust and commitment to projects. Moreover, inadequate interorganizational collaboration project

development and initiation can lead to negative social emotions such as confusion and frustration, resulting in participants' reluctance to contribute to projects (Woo & Paskewitz, 2021). Consequently, an individual's level of emotional intelligence can either create a positive opportunistic environment resulting in successful interorganizational collaborations, or a hostile working environment shrouded in conflict (Leonidou et al., 2019). Positive and negative human reactions to social events are inevitable; however, the facilitation and sound management of events leading to negative emotions may aid in positive experiences and ultimately successful interorganizational collaborations. Three critical components of interorganizational collaboration theory are discussed in detail which might lead to increased wind industry interorganizational partnerships in emergency management.

Multilevel Process. Interorganizational collaboration is a multilevel process (organizational, group, and individual), and fragmentation or tension within or between levels may spill over to others and adversely affect the entire collaborative effort. Conflict spill effects at the organizational level may adversely impact team member success as tension at the team level, stemming from resource power struggles, for example, might spill over to the senior management level resulting in the lack of project buy-in and final approval (van Bunderen et al., 2018). At the organizational level, internal political strife or conflict between management and executives creates tension and adversely impacts interorganizational collaboration commitments (Brattström & Faems, 2020). For example, managers diverting from executives' desires to collaborate by withholding sensitive information in the hopes of gaining a competitive advantage

over others can lead to collaboration failures (Brattström & Faems, 2020; Chiambaretto et al., 2019). Furthermore, organizations perceiving others in a negative context may experience stigma anxiety, leading to interference or complete divergence from interorganizational partnerships because of fear of also obtaining a harmful reputation (Bruyaka et al., 2018). The negative actions at one organizational level might result in increased anxiety and divergence at others and could lead to failed offshore wind industry interorganizational collaboration strategies in emergency management.

Successful interorganizational collaborations might rest on the intricacies of group dynamics and individual human behavior during team gatherings. During interorganizational collaborations, company representatives meet for a common purpose, social relationships develop, learning takes place, conflict ensues, and the desire for progress may lead to highly effective relationships and goal achievement; however, a strong willingness or urge to collaborate and create positive relationships can lead an individual to avoid group conflict, which results in unbalanced collaboration and meaningless agreements (Schruijer, 2020). Additionally, demands from executives or management passionately striving for a competitive advantage can negatively affect a team's conflict resolution process (van Bunderen et al., 2018). The challenge, then, is to establish specific joint goals and clear boundaries, or rules, to ensure professionalism and task progression (Schruijer, 2020). Moreover, the employment of collaborative mediators who actively promote a tensive environment versus blocking conflict can lead a team to increased interaction, understanding, and performance (Woo, 2019).

At the lowest level of the multilevel process of interorganizational collaboration theory is that of the individual, where human behavior and psychology affects partnerships. Because of prior experience with collaborations or the stakeholders involved, the individual might have predetermined expectations of the collaborative endeavor, including antiquated conflict with group members (Curseu & Schruijer, 2018). Individual-level dynamics leading to tension can impact decision-making or group participation resulting in increased resentment and conflict amongst the team (Lee et al., 2018). Conflict at the individual level may then spill into the team and organizational level, reducing team performance and task completion (Lee et al., 2018; van Bunderen et al., 2018). For example, individual conflict stemming from group withdrawal, avoidance, and other exchanges adversely impacted the team and decreased overall task commitment (Lee et al., 2018; Wombacher & Felfe, 2017). Increased conflict among the team could impede successful collaboration efforts, resulting in project divergence or flawed offshore wind interorganizational collaboration strategies in emergency management.

Individuals engaged in interorganizational collaborations face multiple commitments, pressures, tensions, and desires for project success. The individual may seek a positive relationship and interaction with group members but may also be cognizant of their self-interests, desired outcomes, and parent organizational pressures; thus, a paradox ensues, known as the collaborative paradox (Waardenburg et al., 2020). If the pendulum shifts widely in favor of creating positive relationships, distrust may result and healthy conflict avoided; however, if the pendulum shifts the opposite direction toward self-perseverance, the individual may withdraw from the group or needlessly

create unhealthy conflict (Vangen, 2017). The challenge is that the individual must acknowledge and appropriately balance the collaborate paradox (Vange, 2017). HSE managers engaging in interorganizational collaborations in emergency management might encounter a collaborative paradox resulting in distrust among collaborators or ambiguous commitments.

Trust. Trust is a crucial factor affecting interorganizational collaboration endeavors at the organizational, group or team, and individual levels. At the organizational tier, positive interorganizational collaboration experiences between executives are shown to enhance mutual trust, thus resulting in the whole organization being viewed as trustworthy (Schneiker, 2020; Tu & Xu, 2020). Negative experiences from inadequate communication, disputes, or limited information sharing between the competing companies could lead to secrecy, mistrust, and ultimately project divergence (Henttonen et al., 2020; Lee et al., 2021). Executives deeply committed to the project and willing to further engage in the partnerships can repair interorganizational collaboration trust divergence (Brattström et al., 2019). Moreover, parties in interorganizational collaborations are exposed to risk, though trusting others can significantly relieve tension and anxiety that might cause partnership breakdowns (Latusek & Vlaar, 2018). Wind industry HSE managers must then work diligently to rectify mistrust between executives at the organizational level as breakdowns in emergency management interorganizational collaborations could result in inadequate disaster response and recovery operations.

At the group or team level of interorganizational collaboration, trust is characterized as a collective versus an interpersonal element. Teams engaged in

interorganizational collaborations are faced with numerous barriers such as differences in cultures, beliefs, or values, which can lead to team member withdrawal or distrust amongst the group (Karam et al., 2018). Team composition and leadership, though, can be useful in developing trust and project effectiveness (Huang et al., 2020). Interorganizational collaborative teams with shared leadership and similar power relationships are shown to create high levels of team trust and heightened team innovation (Huang et al., 2020). Morrissette and Kisamore (2020) supported the findings of Huang et al. (2020), who also observed that high levels of team trust improved team performance substantially. Developing team trust, however, can take time and experience; therefore, the use of a professional coach or facilitator can enhance team trust leading to increased project execution (Ahiaga-Dagbui et al., 2020). High trust at the team level, then, might be a critical component for establishing offshore wind interorganizational collaboration strategies in emergency management; equally, low trust might jeopardize HSE's efforts to establish effective offshore wind interorganizational collaboration strategies in emergency management.

Negative past experiences with the competing business or representatives from that company may result in damaged individual trust, adversely impacting interorganizational collaborations (Lascaux, 2020; Schneiker, 2020). Schruijer and Curșeu (2021) further demonstrated that high levels of individual distrust toward other organizational representatives at project initiation led to significantly lower collaboration effectiveness over time. Individuals in trustful relationships can, however, improve collaborations as informal discussions and information sharing furthers project

development and increases trust between the parties (Mafra et al., 2019). Finally, company representatives given similar authority to engage in projects and make joint decisions resulted in trusting connections formed through a balance in relationship power (Ran & Qi, 2019). Personnel pursuing interorganizational collaboration strategies in emergency management might experience relationship power struggles, which is another critical component of interorganizational collaboration theory.

Power. Power is a significant aspect of interorganizational collaboration theory that has broader implications spanning concepts such as social power, sources of power, and bargaining power. Noteworthy scholar Dahl (1957) described power in terms of relationships and political constructs in which an individual has can persuade another to do something they ordinarily would not do. Bachrach and Baratz (1962) added to Dahl's description of power and further explained that power correlated to social and political sciences, specifically defined as pluralist and elitist, respectfully; however, they determined that both views of power were unfitting and provided another approach called *two faces of power* (Bachrach & Baratz, 1962). Of importance was the explanation that influence can sway power and decision-making (Bachrach & Baratz, 1962). French and Raven (1959) pioneered two classifications of social power, positional and personal, and the five bases of social power consisting of legitimate, reward, expert, referent, and coercive. Raven (1965) then introduced informational power as a final basis of social power.

Another prominent addition to the topic of power was that of Fisher and Ury (1981), who provided innovative approaches to negotiations and power which might

enhance the probability of successful win-win negotiations and reduce conflict among collaborators. Their approach to negotiations led to the revolutionary methodology called, best alternative to a negotiation agreement, or BATNA, which, if developed correctly, offers representatives favorable alternatives should negotiations fail (Fisher & Ury, 1981). As shown, the topic of power is highly diverse and spans many decades; therefore, a comprehensive review of the numerous power theories and contributions from scholars was not in scope for this literature review; however, explained next are essential aspects of power related to interorganizational collaboration theory.

Power in interorganizational collaborations might arise from the perception others have over the individual or company. The power sources of resources, authority, and discursive legitimacy can result in increased power and influence in cross-partnerships (Dewulf & Elbers, 2018). In collaborations, an individual's discursive legitimacy is higher when they represent or present a topic deemed an expert on, thereby increasing their influence power (Dewulf & Elbers, 2018). Additionally, individuals or organizations perceived as opportunists, those demonstrating self-serving behavior, by others in the interorganizational collaboration might disengage from the partnership entirely (Chaudhry, 2020). Furthermore, agents applying coercive power can hurt arrangements as recipients of the coercive power might perceive their actions as forms of punishment, and in reaction may become opportunistic, thus resulting in a relationship collapse (Huo et al., 2019). Finally, Zhang et al. (2020) demonstrated that non-coercive power behaviors within business-supplier relationships led to higher normative commitment, dependency, and willingness to maintain relationships. As demonstrated,

power and the opinions others hold can significantly influence the success of interorganizational collaborations. Consequently, interorganizational collaborative endeavors in emergency management might prove futile if offshore wind industry HSE managers demonstrate coercive power during negotiations.

Power obstacles can influence the ability of outside individuals or organizations to enter existing interorganizational collaborations and might also cause turmoil between participants. Woo and Leonardi (2018) demonstrated that company agents wishing to enter into existing collaborations had higher success rates if they demonstrated power by displaying a sound knowledge of the topic and understood the priorities of the group; however, they met lower success rates if excessively outspoken, opinionated, or could not validate their knowledge to others. Additionally, power struggles between collaborators can arise as unplanned events or conflicts of interests occur that require deviating from a controlled process or plans (Morgan et al., 2018). The inability or resistance to change and self-interested actions or behaviors of individuals resulting from the unplanned events can create friction amongst stakeholders (Morgan et al., 2018). However, Hoelscher (2019) demonstrated that acknowledging group tensions could alleviate conflict. Additionally, reward power can act as a catalyst to change behaviors and combat conflicts (Harness et al., 2018). Wind organization HSE executives engaging in interorganizational collaboration strategies in emergency management might not comprehend power dynamics and group conflict, thus resulting in negative power behaviors and failed partnerships.

Interorganizational collaborations undoubtedly involve negotiations between individuals or organizations, and power can significantly impact results. Scholars demonstrated that negotiation success rates are contingent on an individual's negotiation power sources of alternatives, information, status, and social capital (Galinsky et al., 2017). A representative's strong BATNA, capability to leverage information, high trustworthiness, and strong social relationships affords them higher chances for negotiation success and can aid in combating other representatives' negotiation power (Galinsky et al., 2017). When seeking favorable outcomes in negotiations, those individuals or organizations with a perceived higher power can increase bargaining power; however, this position can have dire consequences on the collaborative process (Lu et al., 2020). Lu et al. (2020) explained that those with high bargaining power could dominate the negotiation process; and those in lesser power positions might engage in negative behaviors such as avoiding or obliging as they believed others might ignore their interests or withhold information or resources. Representatives engaging and developing interorganizational collaboration strategies in emergency management might stumble if representatives do not comprehend the sources of power and unanticipated reactions to those in power.

Supporting and Contrasting Theories

Scholars utilize interorganizational collaboration theory to explore strategies contending business owners or managers might employ to share resources and transfer knowledge to reduce operating costs, and to identify and mitigate barriers they might face upon implementing those strategies (Deken et al., 2018). Two key theories correlate to

interorganizational collaboration theory; however, they might not fit as a lens to wholly examine strategies in emergency management that HSE managers in the offshore wind industry may use for successful disaster mitigation, preparedness, response, and recovery. Examined next are the two significant theories of game theory and coopetition, which support and contrast interorganizational collaboration theory.

Game Theory

Game theory is a highly diverse and complex theory that validates and opposes interorganizational collaboration theory. Early scholars Von Neumann and Morgenstern (1944) explained game theory in terms of economics, statistical probability, and outcomes based on acceptable risk. Schelling (1960) transformed game theory by addressing human behavior and social concepts which influenced strategic decisions resulting in positive or negative consequences, versus solely relying on mathematical models for solutions. Axelrod (1980) notably demonstrated various strategies for the Prisoner's Dilemma, in which two components either cooperated to receive less punishment overall or defected for one to receive less punishment, but in turn jeopardized the other component. Ultimately, if both competitors worked together in a tick-for-tac strategy, they could maximize cooperation efforts and receive less punishment overall (Axrlrod, 1980). Later, Schelling (2010) further influenced game theory and explained that it had both hard and soft significances. The soft side of game theory is immersed in individuals, organizations, or other entities decisions from presented information and the results of those choices; however, the hard aspect of game theory focuses on mathematical models and probability, which, when given a scenario aid in forecasting

various outcomes (Schelling, 2010). As interorganizational collaboration theory relies heavily on social constructs, the soft side of game theory supports interorganizational collaboration theory, and the hard that contradicts.

Both interorganizational collaboration theorists and some game theory scholars focus on social constructs and individual and group dynamics; however, game theorists view collaborations as participants in a contest seeking to outplay their adversary versus seeking mutually beneficial solutions. For example, scholars D'Arcangelo et al. (2021) examined collaborative negotiations, individual choice, and social dynamics using game theory. They determined the quantified percentage in which an individual, or participant, would reject negotiations or accept disadvantageous solutions to negotiations (D'Arcangelo et al., 2021). In another study, Awosola and Aghemelo (2020) explained bargaining tactics individuals might use to gain the upper hand during negotiations. The study of Awosola and Aghemelo (2020) relates closely to interorganizational collaboration theory versus that of D'Arcangelo et al. (2021); however, Awosola and Aghemelo (2020) still defined situations in which individuals might dominate negotiations rather than finding beneficial win-win solutions for all parties. Game theory, then, can starkly contrast interorganizational collaboration theory when game theorists heavily focus on the participant aspect of a game rather than the social or behavior dynamics of individuals seeking mutually profitable or favorable solutions.

Game theory is complex and varied, and several elements conflict with interorganizational collaboration theory; yet, one subcomponent of game theory, behavioral game theory, seemingly aligns with interorganizational collaboration theory.

Golman (2020) explained that behavioral game theory entails an individual's behavior and competence to make rational decisions when presented to particular social constructs. Scholars emphasize behavioral game theory to explain cooperation dynamics, as in the study by Chen and Houser (2019), but still use mathematical models to explain possible cooperation outcomes. In this example, Chen and Houser used behavior game theory to demonstrate cooperation, promise chains, and promise effects, such as lack of trust or partner defection, dependent on choices the individual made once faced with constraints or impasses. Interestingly, in another study correlated to behavioral game theory, researchers Caballero et al. (2021) used behavior characteristics as variables to determine optimal decisions one makes when faced with irrational adversaries. Although behavioral game theorists emphasize behavior qualities, the tendency to focus on participants in a game and statistical model still overshadows the research of behavioral game theory and differs considerably from interorganizational collaboration theory.

Coopetition

Coopetition and interorganizational collaboration theory are linked theories that are derived from game theory. Brandenburger and Nalebuff (1996) expanded on game theory and coined coopetition, an innovative process in which two rival businesses enter partnerships to increase net returns. Brandenburger and Nalebuff also introduced the value net model, which contained key stakeholders in coopetition; a business, suppliers, customers, competitors, and complementors. Parallel to interorganizational collaboration theorists, coopetition scholars focus heavily on social, behavioral, and relationship dynamics such as trust, information sharing, reputation management, and tension

amongst businesses and individuals, which affect strategic decision making (Gernsheimer et al., 2021). The shift of emphasis on net returns and to examining additional positive aspects that coopetition might generate, such as environmental sustainability or natural disaster management activities, is the focus of other scholars (Manzhynski & Figge, 2020; Wang et al., 2020). Examined next are some critical components of coopetition related to interorganizational collaboration theory.

Academics examining coopetition dynamics might focus on similar concepts as interorganizational game theorists. For example, information sharing can generate highly trusting relationships and, therefore, is an essential but complex component of interorganizational collaboration theory and coopetition. Some scholars analyzed coopetition relationship tensions that resulted from resource and information sharing within coopetition relationships and provided tension management practices to mitigate conflict of interests (Crick, 2019; Crick & Crick, 2021; Crick et al., 2020; Tidström et al., 2018).

In another instance, scholars examined the beneficial outcomes that information sharing generated within coopetition relationships and the necessity or management to remain flexible during such relationships to further partnerships (Seepana et al., 2020). As a final example, Gast et al. (2019) explored formal and informal knowledge management techniques, such as adhering to contracts or establishing a culture of commitment to the cooperative relationship, respectfully. Interestingly, many author supplied key terms for coopetition studies included both coopetition and interorganizational. As demonstrated, the cooperation examples could effortlessly

transfer to interorganizational collaboration theory studies to demonstrate trust and information sharing dynamics within competing companies.

Much of the literature concerning coopetition supports interorganizational collaboration theory, yet some components differ in focus. A significant facet of coopetition that varies from interorganizational collaboration theory is a critical element of the value net model called the complementor. The complementor concept is straightforward; two competing businesses might attract more customers or entice lower supplier or resource costs as a partnership rather than operating alone (Brandenburger & Nalebuff, 1996; Chou & Zolkiewski, 2018). For example, researchers Harkin and Goedegebuure (2020) demonstrated the benefits of the value net and the complementor mindset as an alternative to university mergers, which could increase costs over time versus operational sustainment as a partnership. Wind industry HSE executives seeking interorganizational collaboration strategies in emergency management might, then, approach partnerships as complementors versus competitors, working together to streamline processes, eliminate duplication, and reduce resource and service costs.

Emergency Management

Offshore wind industry HSE managers or other emergency managers pursuing interorganizational collaboration strategies in emergency management should comprehend the phases of emergency management, details of each phase, and varying approaches that might help develop partnerships for successful emergency management procedures. The four phases of emergency management include a life cycle of mitigation, preparedness, response, and recovery (Sawalha, 2020), and includes activities to

eliminate or reduce the impact of a disaster (Samuel & Siebeneck, 2019), the creation of emergency response and emergency management plans, training, exercises (Samuel & Siebeneck, 2019), immediate response to save life or preserve property (King et al., 2019), and the restoration of impacted disaster areas (Oloruntoba et al., 2018), respectfully.

Each emergency management phase has its challenges and opportunities for successful interorganizational collaborations; however, wind industry HSE managers might not employ appropriate strategies to secure effective relationships. For example, scholars Jung et al. (2019) demonstrated that interorganizational support agreements are an integral component of effective response and recovery strategies. Consequently, barriers to interorganizational collaboration, such as lack of trust, might result in missed opportunities for training or exercises and ultimately lead to a degradation in joint disaster response and recovery operations. Therefore, failure to adequately approach each phase in terms of partnerships versus a singular entity might result in a broken emergency management program. Examined next are the four phases of emergency management and potential strategies for offshore wind HSE managers to develop interorganizational collaboration strategies in emergency management.

Mitigation

HSE or emergency managers within the offshore wind industry establishing interorganizational collaboration strategies in emergency management should comprehend hazard mitigation intricacies to lessen or eliminate the impact of a disaster. Hazard mitigation planners might fulfill single or multiple roles within the hazard

mitigation process to ensure project funding and execution; those roles include: (a) administrator; (b) collaborator; (c) coordinator; (d) fund seeker; (e) advocator; and (f) public educator (Samuel & Siebeneck, 2019). The responsibilities aid in mitigation plan drafting and implementation, stakeholder engagement, lobbying for mitigation project funding and support and educating stakeholders about the benefits of mitigation endeavors, respectfully (Samuel & Siebeneck, 2019). Offshore wind HSE executives pursuing interorganizational collaboration strategies in emergency management might fulfill a variety of mitigation funding and execution roles; however, could encounter barriers while lobbying for mitigation project funding resulting in increased disaster exposure.

HSE executives in the offshore wind industry might experience challenges upon developing and fulfilling interorganizational collaboration strategies in the mitigation phase if roles are disregarded or half-heartedly fulfilled. HSE executives in the offshore wind industry pursuing interorganizational collaboration strategies in emergency management might not comprehend the roles involved in hazard mitigation and successful approaches to entice funding for mitigation projects. Ultimately, the failure to accurately demonstrate the benefits of mitigation projects to business leaders might leave a company susceptible to severe disaster impacts, resulting in increased costs for disaster recovery.

Disaster mitigation will entail planners advocating for funding for projects which would reduce or eliminate the impact of a disaster; however, obtaining agreement for which projects to fund, if any, is a significant test for disaster mitigation planners.

Nevertheless, researchers demonstrated that disaster mitigation planners could successfully acquire funds for hazard mitigation projects if they appropriately display those projects' advantages and cost effectiveness (Noori et al., 2018; Peng et al., 2019). For example, a hazard mitigation project might entail erecting levies to reduce flood damage; however, the advocator must demonstrate that the long-term benefits of constructing the levies are more cost-effective than the damage the flood might cause.

The objective, then, is for disaster mitigation planners to properly convince leaders of the need for and cost-benefit of hazard mitigation endeavors. Projects involving multiple stakeholders with conflicting priorities compounds the objective and is further complicated when projects require agreement from competitive businesses, which is the case for disaster mitigation planners in the offshore wind industry pursuing interorganizational collaboration strategies in emergency management. Next examined are potential strategies to ensure fund allocation among interorganizational collaboration in disaster mitigation.

Upon the demonstration of advantages and agreement of hazard mitigation projects, HSE executives developing interorganizational collaboration strategies must prioritize projects based on potential disaster severity, risk, and stakeholder requirements; yet, this might prove a daunting task for planners as scholars Taeby and Zhang (2019) explained that hazard mitigation project and planning priorities amongst affected stakeholders can differ because of the perceived project importance and benefits to own agencies. Consequently, to acquire commitment amongst all agencies, leaders and emergency management facilitators must prioritize hazard mitigation strategies and

ensure balanced resource allocation across stakeholders (Albris et al., 2020). Subsequently, disaster planners in the offshore wind industry pursuing interorganizational collaboration strategies in emergency management might disagree on mitigation project priorities because of the high costs typically involved, and the good intentions of the interorganizational collaboration might suffer and lastly disband. Therefore, the disaster preparedness phase of emergency management might better serve as a steppingstone for wind industry HSE managers to develop relationships, trust, and ultimately effective interorganizational collaboration strategies in all emergency management stages.

Preparedness

Emergency managers or responsible persons perform various tasks in the emergency management preparedness phase. Endeavors typically include training, the development of emergency management and disaster response plans, coordinating and overseeing various exercises, and the development and sharing of disaster lessons learned. Offshore wind industry HSE managers seeking interorganizational collaboration strategies in emergency management might initiate disaster preparedness activities to facilitate cooperation. Evidence suggests disaster preparedness events, such as training and exercises, can lead to increased trust and knowledge sharing amongst participants and result in a more robust disaster response capability (Skryabina et al., 2020). Additionally, Andersson and Lindström (2017) indicated that disaster preparedness activities could facilitate learning across organizations as participants discover other's roles, discuss challenges, and learn new approaches to disaster response and recovery operations. Discussed next are disaster preparedness activities that wind industry HSE

managers might utilize to aid in the development and application of interorganizational collaboration strategies in emergency management.

Exercises. The disaster preparedness exercise is a key function of the emergency management preparedness phase that can involve multiple stakeholders and participating organizations. Exercises are either a tabletop (TTX), functional (FE), or full-scale exercise (FSE). Depending on the exercise objectives and its complexity, an exercise could take several days, months, and in some cases, years to sufficiently plan and coordinate with participating agencies. Evidence suggested that emergency managers and other disaster responders felt that exercises greatly contributed to heightened interorganizational disaster response capabilities (Skryabina et al., 2020).

Other benefits of exercises might include an increased awareness of partners' response capabilities, the ability to hone common terminology amongst responding agencies, the development of communication channels, and increased organizational learning through experience sharing (Carlström et al., 2020; Halonen & Altarriba, 2019). To facilitate learning during an exercise, exercise planners or evaluators should establish clear rules of engagement for participants, encourage participation across all levels, understand the differences between healthy and unhealth conflict, and intervene where necessary (Schruijer, 2020; Skryabina et al., 2017. Then, failure to exercise with partners might result in poor coordination amongst responding organizations, leading to an inadequate disaster response capability (Oh, 2017). Wind industry HSE managers or other responsible persons might not comprehend the importance and benefits of

exercises, resulting in unnecessary injuries, death, property damage, or a damaged reputation. Discussed next are exercise types that vary in complexity and difficulty.

The first exercise type, TTX, is a low-pressure, scenario-based discussion intended to test response plans, define roles and responsivities, and identify gaps in emergency response and recovery planning (Federal Emergency Management Agency (FEMA), n.d.; Skryabina et al., 2020). Advantages of a TTX include enhanced coordination within agencies (Halonen & Altarriba, 2019), increased understanding of roles and responsibilities of responding stakeholders, and finally, increased knowledge of disaster response activities (Husna et al., 2020). Wind industry HSE managers developing interorganizational collaboration relationships might commence a TTX as an initial step in the collaboration process as participation might facilitate trust-building and increased cooperation amongst agencies.

The second exercise category, FE, is more complex in scale than a TTX and allows operational forces, such as command and control elements, to participate in a scenario-driven exercise that mimics real-life incidents; however, typically does not involve ground forces involvement (FEMA, 2020). Although there is a high degree of simulation, FE's require a significant amount of cooperation and teamwork amongst participants to meet objectives (Obaid et al., 2017). Consequently, a well-designed FE with clear objectives can lead to positive teamwork and group collaboration; however, poorly defined exercise objectives and improper facilitation might lead to a reluctance to participate in the exercise, frustration, or participant inattentiveness during group discussions (Grunnan & Fridheim, 2017). Additionally, high emphases on collaboration

versus core response and recovery tasks might decrease veteran participants' motivation (Sorensen et al., 2019). The task, then, is to develop exercise objectives that ensure teamwork and challenge experienced participants. Because of FE's complexities, wind industry HSE managers instigating interorganizational collaboration efforts may require supplementary training on exercise development and execution to ensure full involvement and learning amongst all members, otherwise the partnerships might collapse over time.

The final exercise category, FSE, consists of extensive multi-agency collaboration and is a complex, scenario-driven exercise that may involve the operational, tactical, and strategic response tiers and involves the actual movement of resources (FEMA, 2020). Because of the involvement of multiple organizations across numerous response tiers, the Master Schedule Events List (MSEL) development and gaining entire stakeholder buy-in is a tremendous collaborative ordeal that can take months to years to plan fully. Achieving buy-in from stakeholders is highly important as missing organizations may not learn others' response and recovery strategies, miss developing relationships, or see flaws in their response plans (Karlsson et al., 2020). Last, FSE's offer participants a chance to identify shortfalls in joint response operations that may lead to future training, additional exercises, and further alliances (Wexler & Flamm, 2017). As with a FE, wind industry HSE's might not comprehend the advantages of conducting a FSE, nor have the appropriate experience to facilitate such a large-scale exercise, resulting in missed learning opportunities and relationship building among wind industry interorganizational collaborators.

Reflection Seminars. A potential opportunity to build trust and interorganizational collaboration is to conduct reflection seminars following exercises. Reflection seminar are an avenue for participants to share experiences, gain clarity or a deeper understanding of topics, or facilitate learning (Knutsson et al., 2018). A participant's reluctance or hesitation to ask questions during the preparedness exercise could diminish the participant's understanding of other's response procedures or tactics; therefore, the reflection seminar affords participants the opportunity to ask questions (Andersson & Lindström, 2017). Additionally, post-exercise discussions are crucial as further collaboration amongst participants ensues, facilitating building trust, establishing relationships, and developing cohesive response strategies (Skryabina et al., 2017).

The established Master Scenario Events List (MSEL) may not allow time for in-depth questions or discussions during the exercise; therefore, the after exercise discussion or a reflection seminar allocates time for those events (Andersson & Lindström, 2017). Additionally, the involvement of senior leadership as exercise evaluators may deter or limit questions or comments from participants during the exercise (Berlin & Carlström, 2015). Wind industry HSE managers establishing interorganizational collaboration strategies in emergency management might use the reflection seminar as an instrument that allows more time than an after-action review for questions or observations, facilitates open communication without fear of reprisal or judgement, and facilitates trust in the partnership.

Lessons Learned. Following an exercise or actual disaster, emergency managers, HSE managers, or other responsible persons should conduct an after-action review of

response and recovery operations and develop and share lessons learned. Lessons learned aid in tracking actions, help reinforce future response capabilities, and facilitate organizational knowledge sharing and learning (Parker, 2020). Academics have shown that organizations benchmarking against other high-performing organizations might improve their performance, resulting in more robust emergency management processes (Agwu & Hadleigh-Dunn, 2019). As demonstrated, there are the immense benefits of creating lessons learned following an exercise or disaster, reviewing others' lessons learned, and establishing best practices grounded on recommendations from lessons learned; however, wind industry HSE managers establishing interorganizational collaboration strategies in emergency management might not recognize those benefits, or struggle creating collective lessons learned. Examined next are challenges wind industry HSE managers might face with lessons learned.

Developing meaningful lessons learned or initiating best practices from others' lessons learned requires highly skilled individuals and support from senior organizational leaders. Scholars demonstrated that a failure in policy, such as inadequate decision making during a response, can facilitate learning but might take an experienced individual to understand shortcomings and initiate the learning process for the organization (O'Donovan, 2017). Furthermore, the inability to locate other disaster lessons learned or lack of avenues to share lessons learned across organizations or industries might leave a gap in response and recovery planning; consequently, resulting in repeat mistakes during disaster response and recovery operations (Pescaroli, 2018; Stemn et al., 2018). Moreover, scholars revealed that an absence of senior management

support contributes to an organization's failure to learn from incidents (Duryan et al., 2020). Wind industry senior managers or HSE managers might not comprehend the necessity of knowledgeable individuals to develop and initiate lessons learned, comprehend the importance of senior leadership support to facilitate learning, nor understand that lessons learned from related industries, such as the offshore oil and gas industry, might entail invaluable information which might be adopted to develop improved disaster response and recovery operations.

Another challenge HSE managers might face during disaster lessons learned and instilling organization learning is sufficiently reducing the forgetting process. Individuals, businesses, or communities might forget the seriousness or consequences of disasters and negligently expose themselves to further risk and potential harm (Walshe et al., 2020). A disasters impact and an individual's perception of risk fades over time; therefore, the development and sharing of lessons learned must take place soon after the disaster, typically starting in the disaster recovery phase, to ensure learning takes root (Monteil et al., 2020; Rice & Jahn, 2020). However, although an individual might forget or ignore the events of a disaster over time, disaster exercises and training can reinforce learning and instill the importance of adequate disaster mitigation and preparedness activities (Landry, 2018). Therefore, wind industry HSE managers should seek opportunities to emphasize learning and recognize that a failure to create and share lessons learned immediately following a disaster might result in eventual organizational memory loss, resulting in a disruption to interorganizational collaboration disaster preparedness activities and ultimately a failed joint disaster response.

Response

Wind industry HSE managers developing interorganizational collaboration strategies in emergency management may face numerous topics and challenges related to disaster response. For instance, as disaster response forces utilize disaster or emergency response plans to guide their actions and response tactics, inadequate or ambiguous plans might result in misleading or impulsive response practices (Guo et al., 2020; Hugelius et al., 2020). Other issues include the availability of trained individuals to assist in disaster response, preidentified response priorities, and ensuring adequate information sharing amongst responding agencies (Hermansson, 2019). A full review of all matters related to disaster response are out of scope for this literate review; however, examined next are two key components of disaster response that wind industry HSE managers might consider when developing interorganizational collaboration strategies in emergency management.

Response Structures. Wind industry HSE managers or other disaster planners developing interorganizational collaboration strategies in emergency management should acknowledge that multiple response levels or hierarchies exist, and personnel or teams within each perform specific tasks during disaster response and recovery operations. Initial disaster response entails first and emergency responders, usually consisting of fire and rescue services, police, coast guard, and others, responding and performing a variety of tasks such as saving lives, conducting rescue operations, containing hazardous material releases, evacuating individuals from harm, or protecting property from damage. As an incident's complexity and scope increases, the response framework expands to include

other command levels which focus on strategic decisions based on a broader view of the incident's impact and also performs a wide variety of tasks such as facilitating resources to support first and emergency responders, managing media relations, ensuring legal support, amongst many others.

Importantly, for effective disaster response and recovery, all levels must remain flexible to warrant adaptability to changing or escalating situations (Nowell et al., 2018). Other scholars also identified adaptability as a highly crucial skill for disaster response leaders and responders (King et al., 2019). HSE managers developing interorganizational collaboration strategies in emergency management is that a wind farm, factory, or warehouse emergency response plan should adapt to country-specific disaster response guidance; however, due to the wind industry's makeup, a company's reach might span multiple counties, and developing interorganizational collaborative strategic response policies might prove a challenging endeavor.

Another important factor for wind industry HSE managers to recognize is that a response framework might contain differing terminology and structures within different counties. Within the United States (USA), for example, governmental and some private organizations adhere to the guidance of the National Incident Management System (NIMS), which entails the Incident Command System (ICS), Emergency Operations Center (EOC), and the Multiagency Coordination Group (MAC Group) (Emergency Management Institute, 2018). However, the United Kingdom (U.K.) governmental and some private agencies employ three incident command levels called Bronze, Silver, and Gold (H.M. Government, 2021). Though the frameworks differ in terminology and

structure, both entail fundamental principles of an organized incident command system that ensures appropriate response and support adherent to a disaster's complexity. Of importance is that a standardized response framework can afford responders with increased collaboration and resource procurement (Hanifen, 2017). Additionally, an organized framework permits seamless and effective integration of multiple agencies at each level of response (Nowell et al., 2018; Powell, 2020). Describing the full capabilities and roles of each framework is out of scope for this literature review. Still, wind industry HSE managers should comprehend that as a global industry, differences exist amongst country response frameworks, and they should modify emergency response and emergency management planning appropriately.

Interoperability. Wind industry HSE managers or other emergency planners developing interorganizational collaboration strategies in emergency management should consider interoperability to ensure standardization across all phases of emergency management. Governmental agencies such as the USA Federal Emergency Management Agency (FEMA) and the U.K. Joint Emergency Services Interoperability Programme (JESIP) similarly define interoperability as the capability for common practices and standardized technologies, equipment, training, and personnel qualifications (Emergency Management Institute, 2018; H.M. Government, 2021). Common processes and terminology are crucial as conflicting practices, such as contradictory terminology or the use of uncommon acronyms amongst response agencies, can impede effective disaster response operations (Power, 2018). Scholars Abdeen et al. (2021) also concluded from interviews with emergency response and emergency management personnel that

communication difficulties were a principal concern amongst emergency responders. Wind industry HSE managers should prioritize interoperability as a key necessity within interorganizational collaboration strategies in emergency management. Examined next are challenges HSE managers might face upon developing interorganizational strategies in emergency management.

Ensuring interoperability among all phases of emergency management is crucial to safeguarding life, property, and the environment; however, wind industry HSE managers might face challenges initiating interoperability policies. For example, interoperability complications might arise when a company's footprint spans multiple countries or cultures (McAleavy, 2021; McAleavy & Rhisiart, 2019). If establishing standardization amongst partnered organizations proves difficult to instill across all individuals, wind industry HSE managers might consider the appointment and implementation of a liaison officer as a tool to secure interoperability (Power, 2018). Another approach to safeguarding interoperability is for partnered agencies to initiate an interoperability steering committee which is shown to improve awareness of the necessity for standardized training and policies; however, for successful interoperability, committee leaders must sufficiently outline training and policy objectives for commitment and understanding amongst all agencies (Severson, 2019). The ultimate goal is for standardization across all response tiers to align capabilities with partner businesses and local government disaster response structures; therefore, wind industry HSE managers or other emergency management officials should ensure interoperability to the

greatest extent possible when developing interorganizational collaboration strategies in emergency management.

Recovery

Wind industry HSE managers developing interorganizational collaboration strategies in emergency management might consider a wide array of issues related to critical concepts of interorganizational collaboration theory and emergency management. Disaster recovery includes activities to restore operations, infrastructure, or the environment; though, scholars have shown that actions must follow a well-planned and thoroughly coordinated process (Oloruntoba et al., 2018). Other academics demonstrated that a lack of preplanning before the disaster led to poor coordination amongst agencies, increased recovery times, and a lack of medical support during the disaster recovery phase (Rouhanizadeh et al., 2020). Moreover, the inability for partnered agencies to agree on common disaster recovery goals might result in frustration between agencies or an increased desire to fulfill the goals or priorities of their agency versus the collective recovery goals of all stakeholders (Raju et al., 2018). Finally, scholars indicated that unfamiliarity and unrealistic expectations of other agencies' capabilities resulted in decreased trust amongst agencies and personnel, ultimately leading to disruptions in the disaster recovery process (Curnin & O'Hara, 2019). Wind industry HSE managers or others developing interorganizational collaboration strategies for disaster recovery should, then, seek opportunities during the disaster preparedness phase for sufficient planning, training, and exercise opportunities which might increase coordination across agencies and awareness of other's capabilities. Discussed next is another aspect of

disaster recovery that wind industry HSE managers should examine while engaging in interorganizational collaboration strategies in emergency management.

An important consideration for HSE managers or others developing interorganizational collaboration strategies in emergency management is the mental health wellbeing of individuals directly impacted by the disaster, first and emergency response personnel conducting response and recovery operations, family members, and the local community. Mental health trauma or illnesses following a disaster might include post-traumatic stress disorder (PTSD), depression, or anxiety. Mental health trauma or illnesses can affect not only those at or near the disaster location but also family members or communities located away from the immediate disaster location (Lee et al., 2020). An interorganizational collaboration strategy, then, might incorporate a disaster mental health or psychiatric response team that comprises highly trained and experienced mental health professionals that deliver psychiatric first aid services to impacted personnel. The use of disaster mental health professionals has shown to reduce prolonged mental health problems and can act as a liaison for individuals seeking additional mental health support or resources (Kim & Han, 2021). Furthermore, scholars demonstrated that experience responding to emergencies or disasters, adequate training, and exercise involvement could result in decreased PTSD cases following a disaster (Motreff et al., 2020); therefore, wind industry HSE managers seeking buy-in from leadership for interorganizational collaboration initiatives such as joint training and exercises, might include the benefit of reduced mental health illnesses following a disaster.

Offshore Wind Industry

A comprehensive synopsis of the offshore wind industry was not provided in this literature review, but rather a summary of the G+ Global Offshore Wind Health and Safety Organization, operations, hazards, and potential avenues for the development of interorganizational collaboration strategies in emergency management. The G+ is a professional organization dedicated to offshore wind industry accident data collection and analysis, the recognition and mitigation of hazards, the development and publishment of incident lessons learned, and the creation and distribution of good practice guideless for safe operations (G+ Global Offshore Wind Health and Safety Organization, 2021a). As of 2021, members of G+ included nine significant renewable energy businesses such as Ørsted, Vattenfall, EDF Renewables, and Siemens Gamesa Renewable Energy, and countries of operation for members including Denmark, France, Germany, Sweden, Taiwan, The Netherlands, United Kingdom (U.K.) and the United States (USA) (G+ Global Offshore Wind Health and Safety Organization, 2021a).

Of importance to interorganizational collaboration is that many operational and project offshore wind farms are positioned in groups, or clusters, arranged in close proximity to each other. For example, located in the North Sea is a cluster of six project offshore wind farms titled ‘Dogger Bank’; which partnered companies included SSE Renewables, Eni, and Equinor (Dodger Bank Wind Farm, 2021). In another example, a cluster of five offshore wind farms, titled ‘Ocean Wind’, is positioned off the coast of New Jersey, USA, and owned by corporations Ørsted and EDF Renewables (Ørsted, 2021). The opportunity, then, exists for offshore wind industry HSE managers or others

to engage in interorganizational collaboration strategies in emergency management for successful disaster mitigation, preparedness, response, and recovery. Examined next are operations performed at construction and operational offshore wind farms.

Vessels and other support required for the construction and maintenance of an offshore wind farm vary by necessity and location. Vessels required for the construction and maintenance of a wind farm can include jack-up vessels, crew transfer vessels (CTV), or a service operation vessels (SOV). Jack-up vessels are used to lift tower sections, nacelles, generators, or other large components during the construction and maintenance phases. A CTV is used for technician or crew transportation to offshore shore wind farms located near the coastline; while an SOV is employed for those offshore wind farms located hundreds of miles offshore. Because of the vast distance from the shore of some offshore wind farms, a SOV must remain offshore for extended periods, accommodate large numbers of personnel, and have separate living quarters, gyms, and canteens. Of importance is that renewable energy companies typically do not own vessels but rather contract a vessel supplier, and according to Stålhane et al. (2019) accounted for the highest cost for the maintenance of an offshore wind farm.

Helicopters are another significant support component of an offshore wind farm's operations as they provide the necessary transport of personnel, tools, and turbine components between onshore ports to offshore locations and search and recovery (SAR) operations (Bye et al., 2018). Interestingly, scholars Ahsan and Pedersen (2018) noted the numerous stakeholders involved in the operation and maintenance of an offshore wind farm and found that poor information sharing and a lack of standardization resulted in

additional maintenance costs for operators. Additionally, the unwillingness of offshore wind farm operators to share knowledge and resources during emergency management phases is a significant problem that could hinder effective response and recovery operations following a disaster (Pedersen & Ahsan, 2020). Wind industry HSE managers should consider the lack of information sharing among stakeholders when developing interorganizational collaboration strategies in emergency management. Next covered are risks or hazards that offshore wind industry employees might encounter.

Employees engaged in the construction and operation of an offshore wind farm might encounter numerous hazards that must be appropriately mitigated to the greatest extent possible. Mou et al. (2021) attempted to quantify risks within the offshore environment and determined that the primary risks to offshore wind farms included: (a) infrastructure risks, to include tower collapses and corrosion; (b) equipment and personnel risks, to include fires, lightning strikes, blade failures, and personal injuries; and (c) navigation risks, which includes vessel collisions and submarine cable accidents. Because of the many hazards and risks associated with the offshore environment, researchers Ahsan et al. (2019) argued the necessity for standardized health and safety procedures across all stakeholders, such as wind farm operators, contractors, vessel owners, and turbine manufacturers, to mitigate workplace accidents. Concerning personal injuries, data collected from members of the G+ revealed that total recordable injuries for years 2019 and 2020 decreased from 123 to 95, respectfully; however, total hours worked for years 2019 and 2020 increased by 2.9 million hours (G+ Global Offshore Wind Health and Safety Organization, 2021b). The downward trend of recordable injuries

might suggest that standardization and information sharing amongst members of the G+ community have indeed led to best practices and resulted in fewer accidents. Then, the significance is that non G+ members miss learning opportunities which might reduce accidents. Moreover, as the offshore wind industry is within its infancy and adolescent stages, there exists a limited number of scholarly, peer-reviewed works detailing all hazards encountered by offshore wind industry (Karanikas et al., 2021). Consequently, to develop interorganizational collaboration strategies in emergency management, offshore wind industry HSE managers should review disaster lessons learned from sister industries, such as the offshore oil and gas industry, as both operate in similar environments and face comparable challenges.

The offshore oil and gas industry experienced numerous disasters over the last four decades. Learning from their disaster response and recovery mishaps might help emphasize the requirement for offshore wind industry HSE managers to develop interorganizational collaboration strategies in emergency management. For example, lessons learned from the 1988 *Piper Alpha* disaster included inadequate shift handover processes, a poor workplace safety culture, and failed evacuation planning (Macleod & Richardson, 2018). In another example, lessons learned from the 1980 *Alexander L Kielland* disaster included flawed evacuation and rescue planning and extensive lifeboat and helicopter rescue operations (Bunn, 2018). Additionally, lessons learned from the 1982 *Ocean Ranger* disaster identified a lack of transparency among partnered agencies and poor leadership and decision-making during response and recovery operations (Furey & Rixon, 2019). Furthermore, stakeholders involved in the 2010 Deepwater Horizon

disaster resorted to a culture of blame which degraded trust amongst the partnership (Kessler et al., 2019), which is significant to interorganizational collaboration as evidence suggests that mutual trust and cooperation can lead to enhanced emergency management practices (Mileski et al., 2018). Many of the hazards and risks experienced by the offshore oil and gas industry are similar to the offshore wind industry, and HSE managers engaging in interorganizational collaboration strategies in emergency management should review their lessons learned to ensure adequate disaster mitigation and preparedness activities are conducted to reduce a disaster's impact.

Transition

Section 1 included the background of the problem, problem statement, purpose statement, nature of the study, research question, interview questions, conceptual framework, operational definitions, and a review of assumptions, limitations, and delimitations within this study. Next was the significance of the study, which included contributions to business practice and implications for social change. Also presented in Section 1 was a synthesis of peer-reviewed scholarly journal articles, government websites, academic books, and other scholarly articles related to interorganizational collaboration theory. Then given were a review of the emergency management phases of mitigation, preparedness, response, and recovery, and actions conducted within each phase, such as activities to eliminate risks, training, and sharing disaster lessons learned. Followed next was a summary of the offshore wind industry, contributors to the + Global Offshore Wind Health and Safety Organization, operations conducted, and finally, hazards faced within the offshore environment.

Section 2 contains a reiteration of the purpose statement, the role of the researcher, and participants selected for this study. Section 2 also includes the research method, research design, target sample population, sampling methodology, ethical requirements and concerns, data collection instruments and techniques, data organization technique, data analysis, and finally, reliability and validity considerations.

Section 3 includes the research findings, to include themes resulting from data collection and analysis. Then presented is the application to professional practice, implications for social change, recommendations for action, recommendations for further research, reflections, and finally, a conclusion.

Section 2: The Project

Section 2 includes the purpose statement, which entails this study's method, design, and purpose. Explained next is the role of the researcher and an explanation of approaches to mitigating bias. Next is a description of participants, eligibility criteria, and strategies for gaining access to the chosen participants, followed by an explanation and rationalization of the research method and research design. Section 2 also contains a description and reasoning for the selected population and sampling method for this study. Explained are ethical considerations and the participant consent procedure, data collection instruments and techniques, followed by the data organization technique and data analysis process for the research design. Lastly examined are this study's reliability and validity requirements.

Purpose Statement

The purpose of this qualitative multiple case study was to explore effective interorganizational collaboration strategies in emergency management that HSE managers in the offshore wind industry can use for successful disaster mitigation, preparedness, response, and recovery. The target population for this study included U.K. offshore wind industry HSE managers actively contributing to the G+ Global Offshore Wind Health and Safety Organization, who have successfully developed emergency management collaboration strategies for improving response effectiveness. The implications for positive social change include the potential for improving safe working conditions for thousands of offshore wind industry employees through emergency planning and effective disaster response, adequate emergency care, and improved support

for family members of injured workers. In addition, trust in wind industry owner's capability to care for their employees may increase job satisfaction, improve job retention, and reduce local unemployment rates.

Role of the Researcher

The researcher is the primary data collection instrument in qualitative research (Alam, 2021). My role as the researcher included justifying the theoretical framework, defining the data collection and analysis process, selecting, and validating the sample, and safeguarding study validity through data triangulation (see Laumann, 2020). Reflexivity, such as inferring ideas because of a person's appearance or affiliations with corporations, can threaten the interview data collection process. The researcher, then, must acknowledge the consequences that reflexivity has on the interviewee's responses, such as short, non-substantial answers and the researcher's interpretation and analysis of those responses (Karagiozis, 2018; Mitchell et al., 2018; Yin, 2018). This study included semistructured interviews with U.K. offshore wind industry HSE managers actively contributing to the G+ Global Offshore Wind Health and Safety Organization, and who successfully developed emergency management collaboration strategies for improving response effectiveness.

Interviewers can create and use a standard interview method (SIM) which facilitates the interviewer to ask open-ended questions, fully disclose the interview process to interviewees and provides a script for the interviewer to follow (Powell & Brubacher, 2020). For this study, a detailed interview protocol specifying the entire interview process was created and followed that included greeting interviewees,

presenting consent forms, recording protocols, follow-up questions, and concluding the interview. For the researcher to obtain informed consent from participants, the objective of the study and how the data is used must be transparent and fully disclosed, and they must ensure participants understand their rights to decline answering questions and freely provide information without coercion (Xu et al., 2020).

Additionally, this study addressed the three principles of the *Belmont Report*, which includes: (a) respect for people, to embrace autonomy and special consideration for vulnerable populations; (b) beneficence, to include mitigating the risk of harm to individuals or societies; and (c) justice, which includes participant consent, the ability to stop participation, and the right for participants to request study results (Adashi et al., 2018; U.S. Department of Health & Human Services, 1979). Participants for this study were given all necessary consent material and informed that any information is freely given and anonymous.

The researcher can increase the rigor of a qualitative study by identifying and reducing potential biases (Mackieson et al., 2019). For example, improperly worded or unintentional leading interview questions or comments can result in biased results from participants (Cairns-Lee et al., 2021). To reduce bias in this study, interview questions were open-ended; comments during the interview process remained neutral and non-leading, and no new material was introduced during the recap. The use of methodological triangulation can also increase the accuracy, or validity, of a study and generates a more comprehensive insight into a phenomenon (Moon, 2019; Yin, 2018). To explore strategies HSE managers employ for successful interorganizational collaboration

strategies in emergency management, triangulation for this study was achieved by collecting data through semistructured interviews of HSE managers from multiple wind industry businesses, and the examination of archival data from real-world and exercise lessons learned documents.

Participants

The participants for this study included U.K. offshore wind industry HSE managers with prior experience developing or implementing interorganizational collaboration strategies in emergency management and that belong to corporations contributing to the G+ Global Offshore Wind Health and Safety Organization. The selection of skilled and knowledgeable participants increases the credibility and confidence of research findings (Epp & Otnes, 2021); therefore, the selected HSE managers knew the emergency management phases of mitigation, preparedness, response, and recovery, and had experience developing interorganizational collaboration policies. Additionally, sampling is not random for qualitative research, and the sample size depends on reaching data saturation (Knechel, 2019). Consequently, the sample size might vary considerably as new information or themes emerge that require further investigation. Eight participants were interviewed for this multiple case study.

The strategy for gaining access to participants for this study was to use gatekeepers from the professional organization G+ Global Offshore Wind Health and Safety Organization, as their goals include the establishment of offshore wind industry good practice guidelines and learning from incidents or disasters (G+ Global Offshore Wind Health and Safety Organization, 2021a). Researchers can use the aid of a

gatekeeper to help facilitate and streamline access to desired sample participants; though, the gatekeeper is more likely to assist if the benefits of the study are known (Marland & Esselment, 2019). The nine major offshore wind industry contributors to the G+ Global Offshore Wind Health and Safety Organization include companies such as Ørsted, Vattenfall, EDF Renewables, and Siemens Gamesa Renewable Energy. HSE managers from each associate comprise the Focal Group who carry out various tasks of the organization (G+ Global Offshore Wind Health and Safety Organization, 2021a). The criteria for selecting HSE managers from members of the G+ Global Offshore Wind Health and Safety Organization aligns with the research question of effective interorganizational collaboration strategies in emergency management that managers in the offshore wind industry use for successful disaster mitigation, preparedness, response, and recovery.

As the U.K. offshore wind industry spans large distances, interviews with participants were conducted using the video conferencing software Zoom and Microsoft Teams. The advantages of using video conferencing are the ability to view facial expressions, increased rapport, and reduced travel; however, disadvantages can include disruptions due to limited or faulty internet connections, noisy environments, or substandard recording capabilities (Kobakhidze et al., 2021). Sufficient time, typically 45 minutes to 65 minutes, was made available for the interview to ensure that each environment was free of background noise or other distractions, and appropriate recording devices were available within the video conferencing packages.

Additionally, to establish a working relationship with participants, a thorough description of the research question, scope, and consent principles was provided before the semistructured interview. Early notification of the interview process and scope of the meeting are crucial to establishing a comfortable relationship, rapport and ensuring thoughtful, detailed responses (McGrath et al., 2019). Other strategies to establishing a working relationship include formal, respectful communications, timely responses to emails or phone calls, and reiterating the anonymity of interview responses (McGrath et al., 2019).

Research Method and Design

Research Method

The primary research methodologies scholars use as strategies to answer research questions include quantitative, qualitative, or mixed methods (Dewasiri et al., 2018). Academics use qualitative methods to explore in-depth personal experiences or interpretations of events to determine meaning or subjective truths (Bleiker et al., 2019). A quantitative methodology entails statistical analysis for relationships between independent and dependent variables (Bloomfield & Fisher, 2019). The mixed method research approach entails both quantitative and qualitative methodologies and is used by researchers to examine highly complex occurrences (Stoecker & Avila, 2021).

Researchers use the quantitative methodology to discover or verify relationships using numerical data through statistical analysis (Mohajan, 2020). Quantitative research is typically deductive, uses existing theory to develop a hypothesis, is objective, and is narrow in focus (Faems, 2020). Additionally, quantitative studies typically do not include

data derived from personal experiences and are more rigid in design and method than qualitative studies (Creswell & Creswell, 2018; Gilad, 2021). The quantitative methodology, then, did not fit this study as the goal was to gather data from offshore wind industry HSE managers that stemed from their personal experiences overseeing emergency management interorganizational collaboration strategies.

The qualitative methodology is predominately inductive and used by researchers to generate theory by interpreting meaning from participant experiences and perspectives (Azungah, 2018). Researchers must determine if the chosen methodology fits the research question and that data can result in findings that connect to the research question (Howard-Grenville et al., 2021). Researchers use research questions for qualitative studies to seek rich data and answers to subjective interpretations of events, while research for quantitative studies tests relationships or hypotheses using objective, statistical analysis (Johnson et al., 2020). Therefore, the qualitative methodology was most appropriate for this study to explore effective emergency management collaboration strategies that the offshore wind industry can use for successful disaster mitigation, preparedness, response, and recovery.

Research Design

Common qualitative research designs or approaches are ethnography, narrative study, phenomenology, and case study (Tomaszewski et al., 2020). Ethnography research involves the direct observation of people and social interactions to determine cultural values or norms and can take years to complete because of the nature of the research (Monrouxe & Ajjawi, 2020). Academics use narrative research to establish people’s lived

experiences or understanding of events through the collection of in-depth stories (Andrews, 2021). Scholars use phenomenology research to analyze lived experiences of a specific phenomenon to determine a person's meaning or understanding of the event (Urcia, 2021). Lastly, researchers use a case study to describe or explain contemporary real-life events through the collection and analysis of multiple forms of data (Verleye, 2019; Yin, 2018). The case study, consequently, was the most appropriate research design to answer this study's research question.

Scholars use the case study to examine a specific phenomenon within a bounded construct and context, meaning that the time period and social group are within the scope of the research question, and the event occurs in a real-life setting, respectfully (Alpi & Evans, 2019; Mishra & Dey, 2021; Yin, 2018). Additionally, a case study involves the collection of multiple sources of data or evidence to fully comprehend real-life phenomenon, and scholars use triangulation as a method with multiple forms of evidence to support findings, thus increasing a study's credibility and rigor (Smith, 2018; Sridharan, 2021; Yin, 2018). As the research question focused on a real-life event and social group and involves multiple data sources, the case study was the most appropriate for this study.

After selecting the qualitative research methodology and case study design, scholars must then determine if a single- or multiple-case study is most appropriate to answer the research question. Researchers use a single-case study to focus on a specific phenomenon, and a multiple-case study to concentrate on a specific phenomenon across multiple contexts to determine relationships, or theme replication, across several case

studies (Diop & Liu, 2020; Yin, 2018). Scholars justify the use of a multiple-case study as data analysis from multiple single-case studies results in a deeper grasp of the event, more credible evidence, and heightened theory development (Eisenhardt, 1989; Tkachenko & Ardichvili, 2020; Yin, 2018). Therefore, the multiple-case study was the most appropriate design to explore effective emergency management collaboration strategies from offshore wind industry companies contributing to that the G+ Global Offshore Wind Health and Safety Organization.

Ethical Research

The use of human subjects in a study requires an evaluation of potential harm to participants, mitigation strategies for such harm, and authorization of an academic Institutional Review Board (IRB; Roulston & Preissle, 2018). The IRB is an independent body charged with the safeguarding and oversight of ethical standards and practices (Hicks et al., 2021). Additionally, the IRB can influence and improve academic knowledge of appropriate ethical practices for human subject research (Ritchie, 2021). This study was subject to review by the Walden University IRB as it involves the use of human participants. The Walden IRB approval number for this study is 03-22-22-0518320.

The *U.S. Federal Policy for the Protection of Human Subjects,* or *Common Rule*, provides overall guidance for IRB's and mandates informed consent for human subject research (U.S. Department of Health and Human Services, 2021). For informed consent, the Common Rule necessitates disclosing pertinent information to human subjects, such as the purpose of the study, potential risks, benefits, confidentiality, voluntary status, and

finally, and their right to withdraw from the study at any point (White, 2020). Furthermore, to meet the conditions of the Common Rule, human subjects must not be coerced to partake in the study and should have sufficient time to decide their participation commitment (Gartel et al., 2020). Concluding the disclosure, participants' acceptance and signatory of the informed consent form signifies comprehension of their rights as research subjects. As such, all participants for this study are to be presented their rights as human subjects and requested to sign a written informed consent form.

Researchers must consider the benefits of the study versus potential harm to human subjects, evaluate all possible risks, and mitigate harm to the best of their ability. The ethical principle of the Belmont Report, beneficence, requires that human subjects are treated fairly and are free from harm or exposure to unnecessary risk (Adashi et al., 2018; Brothers et al., 2019; U.S. Department of Health & Human Services, 1979). Moreover, researchers must comprehend that human subjects are not a means to an end, nor a number in a study, but a human person that requires safety and is treated justly (Kerr et al., 2019). Potential risks to participants for this study include psychological harm from heightened stress levels due to first-hand experience responding to or managing wind industry accidents or emergencies, such as injuries or fatalities. As experienced wind industry HSE managers in a highly hazardous industry, it is expected that participants have contributed to multiple real-world and exercise emergencies and capable of discussing such incidents. However, closely monitoring interview question responses for heightened stress levels can reduce psychological harm to participants. A

pause in the interview process was not required and no interviews were canceled due to heightened stress levels.

Academics must ensure human subject anonymity through the data collection and analysis process and safeguard gathered data. Technologies such as videoconferencing for online interviews pose a challenge for subject confidentiality as participants might not be alone in their environment, and communications might be overheard by others (Lobe et al., 2020; Marhefka et al., 2020; Pocock et al., 2021). To minimize this risk, all participants are to be asked if they are alone, and if not, requested to move to a private area, or lastly, to continue the interview over telephone. Human subjects can become distressed or even harmed if identified during the finding disclosure processes (Czechowski et al., 2019); therefore, the use of codes P1, P2, P3, and so forth versus names are to be used during the analysis and findings disclosure process. Additionally, during the disclosure, care is to be taken to limit material that could be targeted toward specific participants. Additionally, the master list of participants is stored separate from coded data. All data is stored on a password-protected private computer and external drive, not on cloud-based platforms. Finally, all data is to be stored for 5 years and destroyed thereafter.

Data Collection Instruments

The researcher is the primary data collection instrument for qualitative research (Alam, 2021; Clark & Vealé, 2018). I was the primary data collection instrument for this multiple-case study. Qualitative data collection methods might include field notes depicting observations or the interviewee experiences during the data collection process,

open-ended surveys, direct observations, journals, transcript analysis, or interviews (Kawulich & D'Alba, 2019); though, academics must select the appropriate data collection approaches for the chosen research methodology and study design, and to answer the research question (Braun & Clarke, 2021). To achieve data triangulation for this multiple-case study, data collected included semistructured interviews from HSE managers within multiple wind industry agencies and documentation from exercises or real-world emergencies.

Interviews are a valuable data source for collecting in-depth, rich information concerning the phenomenon of interest (Heath et al., 2018). Researchers typically use semistructed interviews for questioning an individual which has extensive knowledge or experience with the phenomenon under investigation. Semistructured interviews are flexible to allow the researcher to adapt to the participant's response to gather additional data, and questions are open-ended which facilitates substantial and meaningful responses (de la Croix et al., 2018; Nowell & Albrecht, 2019). Academics develop an interview protocol that facilitates research design and interview questions development, reiterates ethical considerations, and standardizes the interview process reliability (Yeong et al., 2018). The interview protocol for this study is available in Appendix A.

Member checking affords the research participant the opportunity to thoroughly review and verify transcripts and conclusions from the semistructured interview (FitzPatrick, 2019). Member checking can decrease researcher bias and increase a study's accuracy as participants can confirm the researcher's interpretation of interview answers during analysis (Iivari, 2018). Additionally, participant validation has shown to increase

participant empowerment resulting in substantive supplementary data and aiding in strengthening trust between the researcher and subject (Slettebø, 2021). Member checking was used for this study, and participants interviewed were presented a full transcript and a high-level interpretation of findings for validation.

Data Collection Technique

Several data sources are available for academics, but the selection criteria vary depending on the research methodology and study design utilized to answer the research question (Hamilton & Finley, 2019). Collection and examining multiple data sources such as documents, observations, focus groups, or interviews can increase a study's validity and confirm findings during analysis (Sridharan, 2021). Of the available data sources, academics demonstrated that interviews was the most prevalent form of data collection technique and used to gather rich, in-depth information regarding the phenomenon of concern (Thelwall & Nevill, 2021). As such, the interview was the principal data collection technique for this multiple-case study exploring interorganizational collaboration strategies in emergency management that managers in the offshore wind industry use for successful disaster mitigation, preparedness, response, and recovery.

The interview is a popular approach to gather participants' first-hand, lived experiences concerning the phenomenon of inquiry (Fernandez, 2018; Sionek et al., 2020). Unstructured interviews are typically exploratory and casual in approach, which affords free-flowing dialogue between the researcher and participant (Fergusson et al., 2019). The informal approach generates trust and substantial dialogue between the

researcher and subject but might lead to increased researcher bias (Swain & Spire, 2020). Structured interviews are advantageous to researchers when questions are to be replicated precisely across each participant to reduce subjectivity and increase the instrument's construct validity; however, the concrete approach to asking questions might result in limited supplementary data from follow-up or probing questions (Conrad & Schober, 2021; Heimann et al., 2020). The semistructured interview is an adaptable method to interviewing participants, and the use of supplementary or probing questions can result in increased rapport between the interviewee and subject, resulting in more substantial data (Collins & Carthy, 2019; de la Croix et al., 2018). For the semistructured interview, the researcher develops questions in advance and uses probing questions which are shown to enhance the subject's recollection of the phenomenon of interest (Brosy et al., 2020). The semistructured interview was preferred to answer this study's research question and seeking substantial, rich data.

Scholars Gruber et al. (2021) explained that interview protocol flexibility is needed when participants are hard to reach. Since the ongoing COVID-19 pandemic, academics have studied the effects of online data collection and found both advantages and limitations to online data collection methods. Study participants might find face-to-face interviews intrusive and therefore offer limited or shortened responses to interview questions; however, online interviews can facilitate information gathering as the subject's own setting can ease participants (Dodds & Hess, 2020). Disadvantages can include diminished confidentiality as the participant might be in a social setting during the interview (Lobe et al., 2020), the possibility for simple responses to interview questions

with limited probing opportunities (Davies et al., 2020), and the chance for the interviewee to miss participant nonverbal ques (Pocock, et al., 2021). However, building rapport with the interview subject can lead to extensive responses concerning the phenomenon of interest (Collins & Carthy, 2019). Interviews are to be conducted through online videoconferencing platforms because of the geographic location of each U.K. offshore wind farm, potential COVID-19 pandemic travel restrictions, and possible virus transmission to participants. The use of an interview protocol will prompt the researcher to ensure that each interview begins with a reminder about confidentiality and a question concerning the participants' surroundings to safeguard privacy (see Appendix A).

The target population for this multiple-case study included U.K. offshore wind industry HSE managers with prior experience developing or implementing interorganizational collaboration strategies in emergency management and that belong to corporations contributing to the G+ Global Offshore Wind Health and Safety Organization. Academics have shown that initial access to research subjects can be a challenging and disappointing endeavor; however, the use of gatekeepers to potential subjects can help facilitate participant contact (Spacey, 2021). The gatekeeper for access to participants for this study was the G+ Global Offshore Wind Health and Safety Organization and they were the first contact for subject access. Upon receiving contacts, formal correspondence was sent to potential participants explaining the purpose of the study, steps involved, and a consent form.

Data Organization Technique

Interviews were conducted via videoconferencing platforms due to the geographic location of each U.K. offshore wind farm and COVID-19 pandemic travel restrictions. Scholars demonstrated that Zoom is a highly beneficial videoconference platform because of ease of use, low cost, security recording capability, and data management options (Archibald et al., 2019). To safeguard data collection, interviews were recorded through two platforms, Zoom or Microsoft Teams and iPhone, and files were downloaded, labeled according to the participant, and saved on a password-protected computer and external hard drive. Next, each interview was fully transcribed with transcription software and verified for accuracy upon completion.

Yin (2018) stipulated that the creation and use of a case study database can increase the reliability of the study. Academics utilize various techniques to gather and organize data, but the chosen method can directly impact a study's consistency (Quintão et al., 2020). Interview data for this study was imported to NVivo 13 for data management and organization, transcription, coding, and analysis. Researchers determined that manual coding can be more accurate than electronic software as differing platforms might yield conflicting results (Anastasiei & Georgescu, 2020); therefore, all interviews were initially manually coded and then processed in NVivo 13 for comparison.

The ethical principle of beneficence mandates that human subjects are protected from harm and not exposed to unnecessary risk (Adashi et al., 2018; Brothers et al., 2019; U.S. Department of Health & Human Services, 1979); consequently, research subjects

might succumb to embarrassment or harassment if their personal identify is released (Czechowski et al., 2019). It, therefore, is imperative that academics protect the data and identification of research subjects. As such, all participants and interview transcripts for this study were saved and labeled as P1, P2, P3, and so forth, and a master list of participants was kept separate from the data files. Data files kept separate from the master list of participants included transcribed interview correspondence, researcher notes, and any exported NVivo 13 analysis data. Data is only to be shared with Walden University faculty upon request, and all gathered data is to be kept for 5 years and destroyed thereafter.

Data Analysis

Triangulation facilitates the confirmation of findings and increases a study's validity and reliability (Heesen et al., 2019). Academics recognize four types of triangulation for case study research: (a) data triangulation, analyzing multiple data sources; (b) investigator triangulation, multiple researchers comparing evidence; (c) theory triangulation, the use of multiple perspectives or lenses to examine the phenomenon; and (d) methodological triangulation, exploring data from multiple sources (Denzin, 1978; Fusch et al., 2018; Yin, 2018). Sources of evidence for methodological triangulation can include observations, documents, artifacts, or interviews (Alpi & Evans, 2019). To enhance the reliability and validity of this multiple-case study, the study included the use of methodological triangulation by analyzing semistructured interview data from HSE managers, and document review data stemming from disaster lessons learned or after action reports to determine effective interorganizational collaboration

strategies in emergency management that managers in the offshore wind industry use for successful disaster mitigation, preparedness, response, and recovery.

Thematic analysis is a process that aids in organizing and identifying relationships, patterns, or themes within collected data (Cassell & Bishop, 2019). The researcher organizes data, typically interview data for qualitative studies, by codes through a three-step coding process called open, axial, and selective coding (Williams & Moser, 2019). Initially, open coding involves the separation of data into general themes or broad categories, then further clustered through axial coding, and ultimately, codes or themes are refined and selected to represent main concepts to aid in theory development (Williams & Moser, 2019). The primary method used for data analysis was pattern matching through thematic analysis. Transcripts from the interview process and any supplemental documentation, such as disaster response and recovery lessons learned or best practices were used for this study's thematic analysis.

Computer software packages such as CAQDAS or NVivo 13 allow researchers to quickly and efficiently identify patterns, lower-, and higher-order codes from large data sets and can increase trust in findings (Anastasiei & Georgescu, 2020; Dalkin et al., 2020; O'Kane et al., 2020). However, Yin (2018) cautioned that the researcher must actively analyze computer software output to confirm accuracy and ensure a meaningful end product. Computer software is a valuable tool to assist in data organization and theme generation; however, to increase this study's validity and rigor, thematic analysis was manually performed and then confirmed with NVivo.

Reliability and Validity

Reliability and validity characterize the quality and trustworthiness of a qualitative study though the standards of replicability, dependability, credibility, and transferability (Collingridge & Gantt, 2019; Korstjens & Moser, 2018; Yin, 2018). Academists achieve reliability and validity by clearly and transparently explaining the research design, data collection process, and data analysis and verification methods (Aguinis & Solarino, 2019; Makri & Neely, 2021). Furthermore, other approaches to ensure reliability and validity in qualitative research can include member checking, triangulation, and data saturation (Rose & Johnson, 2020; Sebele-Mpofu & Serpa, 2020; Singh et al., 2021; Slettebø, 2020). This study addressed the components of reliability and validity in detail to enhance the quality and trustworthiness of findings.

Reliability

Reliability in qualitative research indicates the replicability of study components, such as the design, data collection, and data analysis, producing comparable results (Collingridge & Gantt, 2019; Yin, 2018). To achieve high reliability and replicability, scholars must ensure transparency across all study aspects, clearly identifying the population, data collection techniques, and the data analysis process (Aguinis & Solarino, 2019). Furthermore, reliability increases a study's rigor and trustworthiness (Maher et al., 2018). The data collection and analysis process for this study included member checking and data saturation to gain a full grasp of the phenomenon of interest.

Academics can increase the study's trustworthiness by allowing study participants the opportunity to review, clarify, and verify findings (Slettebø, 2020). The validation

process, referred to as member checking, ensures that data collected from participants with expert knowledge of the phenomenon of interest is accurately interpreted and represented in the final analysis (Korstjens & Moser, 2018). Scholars caution that member checking can result in disagreements in interpretation between the researcher and interviewee, and that member checking is not the singular tool to increase the reliability and trustworthiness of a study (Madill & Sullivan, 2018; Motulsky, 2021). Nevertheless, to further increase the reliability and trustworthiness of this study, member checking was used. Transcripts and analyzed data were sent to participants for review and feedback, and any disagreements in interpretations were explored and clarified if necessary.

Dependability, or the consistency and transparency of the research process, also improves the reliability of a study (Makri & Neely, 2021). The sample size for varying qualitative studies might vary significantly, but scholars' consensus is that data collection and analysis occur until achieving data saturation (Sebele-Mpofu & Serpa, 2020). Moreover, academics explained that a study's rigor is increased when researchers clearly describe and justify the data collection and analysis process that led to data saturation (LaDonna et al., 2021). This study was bound within the confines of the phenomenon of interest, and new evidence discovery could have resulted in supplemental data collection; however, the data collection process remained consistent and repeated until data saturation as achieved.

Validity

Validity in qualitative research indicates the accuracy of the processes used to establish findings (Quintão et al., 2020). A facet of validity, credibility, highlights methods to reduce research bias (Crick, 2020). Scholars explained that credibility is increased when the researcher is transparent concerning the member checking process and includes the total participation response count (Motulsky, 2021). Member checking also allows participants to fully review, clarify, and verify findings, which aids in reducing research bias (Rose & Johnson, 2020; Singh et al., 2021). Member checking was performed and any nonresponses for member checking would have been excluded from the data analysis process. All interviewees confirmed the initial high-level analysis.

Collecting and analyzing data from multiple sources increases the validity of a study (Heesen et al., 2019). Scholars explained that methodological triangulation, or the use of multiple sources of evidence, resulted in a more in-depth explanation of the phenomenon of interest and increased the credibility of findings (Alsharari & Al-Shboul, 2019). Moreover, researchers establish truth in qualitative studies through the collection and analysis of multiple data sources (Moon, 2019). This multiple case study incorporated data from semistructured interviews and business documents to increase validity and establish truth in findings.

Transferability of findings validates qualitative research and increases validity (Tuval-Mashiach, 2021). Transferability dictates that other researchers can determine if a study's findings can apply to differing contexts or settings (Maxwell, 2021). To achieve transferability, however, the researcher must accurately describe components of the

research process (Alsharari & Al-Shboul, 2019). This study provided detailed information concerning the data collection process, including the data saturation process and interview protocol, and the employed data analysis technique. By providing this evidence, other scholars can determine the transferability of this study's research findings.

Transition and Summary

The purpose of this qualitative multiple-case study was to explore effective interorganizational collaboration strategies in emergency management that HSE managers in the offshore wind industry can use for successful disaster mitigation, preparedness, response, and recovery. Section 2 included the research method and design justification, target sample population, and sampling methodology. This study will incorporate a multiple-case study design and will collect and analyze data from multiple sources, including semistructed interviews and business documents. Section 2 also included an explanation for achieving reliability and validity in the research findings.

Section 3 includes the presentation of findings, to include main themes, a correlation to existing literature, applications to professional practice, implications for social change, recommendations for action, and recommendations for further research. To conclude, Section 3 contains my reflections concerning the doctoral study process, potential personal biases, and effects on research participants.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this qualitative multiple-case study was to explore effective interorganizational collaboration strategies in emergency management that HSE managers in the offshore wind industry can use for successful disaster mitigation, preparedness, response, and recovery. Data was collected through the use of semistructed interviews and publicly available business documents. Participants included U.K. offshore wind industry HSE managers with prior experience developing or implementing interorganizational collaboration strategies in emergency management and that contributed to the G+ Global Offshore Wind Health and Safety Organization. Major categories, or themes, that emerged from the data analysis associated to interorganizational collaboration strategies in emergency management included: (a) detailed planning and shared plans; (b) stakeholder engagement and commitment; (c) government agency involvement and regulations; (d) lessons learned; and (e) standardization. Explored in Section 3 are the findings and a correlation to existing literature and the conceptual framework.

Presentation of the Findings

The overarching research question was: What effective interorganizational collaboration strategies in emergency management do managers in the offshore wind industry use for successful disaster mitigation, preparedness, response, and recovery? This multiple-case study encompassed data from semistructured interviews and publicly accessible company documents. Participants included U.K. offshore wind industry HSE

managers with prior experience developing or implementing interorganizational collaboration strategies in emergency management and that contributed to the G+ Global Offshore Wind Health and Safety Organization. All distinguishing information has been removed from the data to ensure confidentially and protect participant identifies. Participants are represented as alphanumeric codes pertaining to the case they belong to. The letter C represents cases, and the letter P represents participants. Therefore, Participant 1 of Case 1 is represented as C1P1, and so forth.

|The semistructured interview was preferred to answer this study's research question as it enabled the interviewee to use probing questions to seek substantial, rich data. Video conferences software such as Zoom and Microsoft Teams was used to conduct the interviews. Each interview lasted between 30 minutes and 45 minutes, recorded for accuracy, and fully transcribed with transcription software and validated for correctness upon completion. Member checking was used and a high-level overview of the initial data analysis was provided to all participants for review and approval which helped ensure reliability and reduce bias. All participants agreed and confirmed the initial high-level data analysis. This study's sample size was determined by achieving data saturation, which occurred at Interview 7 and confirmed at Interview 8.

Appendix B contains mind-maps of emerging major themes and associated codes for each case. There were 95 codes across seven categories, or topics, which contributed to the major themes. Topics presented by participants during semistructured interviews included: (a) emergency response and disaster recovery plans; (b) exercises; (c) government agencies and regulations; (d) professional organizations and forums; (e) real-

world incidents; and (f) training. The codes prominent to interorganizational collaboration strategies in emergency management arose during each topic analysis. Major categories, or themes, of interorganizational collaboration strategies in emergency management included: (a) detailed planning and shared plans; (b) stakeholder engagement and commitment; (c) government agency involvement and regulations; (d) lessons learned; and (e) standardization. Table 1 shows the major themes occurrence per case and the total frequency of occurrence. Table 2 depicts the major themes occurrence per interview participant. Figure 1 is a mind-map illustrating the major themes and highest documented codes across the three cases.

Table 1

Major Themes Frequency Per Case and Total Frequency of Occurrence

Major themes	Case 1	Case 2	Case 3	Frequency of occurrence
Detailed / practical planning & shared plans / resources	16	32	55	103
Government agency involvement / regulations	9	11	32	52
Lessons learned	7	9	24	40
Stakeholder engagement / commitment	26	29	48	103
Standardization	17	7	11	35

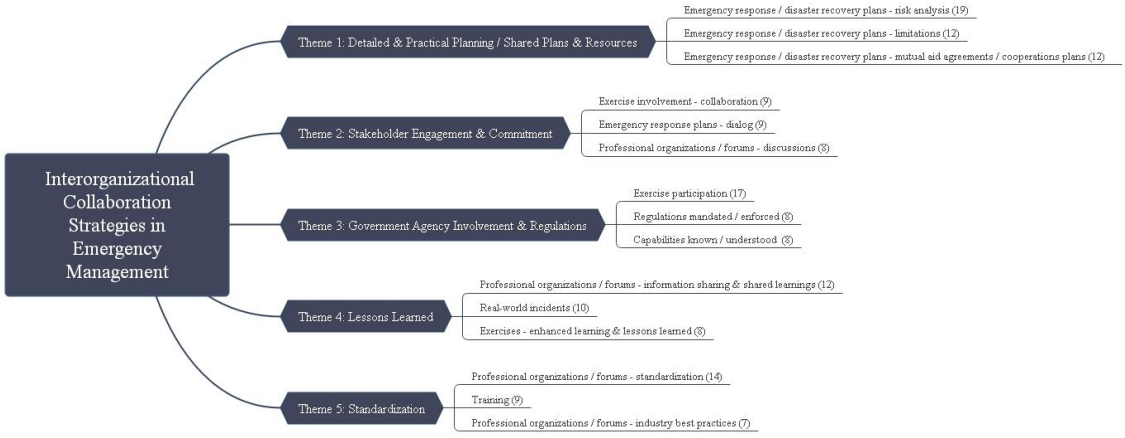
Table 2

Major Themes Frequency Per Participant

Major themes	C1P1	C1P2	C2P1	C2P2	C3P1	C3P2	C3P3	C3P4
Detailed / practical planning & shared plans / resources	8	8	15	17	23	8	11	13
Government agency involvement / regulations	2	7	9	2	11	10	8	3
Lessons learned	6	1	0	9	12	7	3	2
Stakeholder engagement / commitment	16	10	10	19	29	7	8	4
Standardization	0	17	5	2	6	2	1	2

Figure 1

Interorganizational Collaboration Strategies in Emergency Management



Note. Mind-map depicts major themes emerging from the data sources across the three cases. The highest stated codes and code totals are attached to each theme.

Theme 1: Detailed Planning and Shared Resources

Disaster planners must identify and mitigate potential risks and hazards; however, they must also comprehend the requirement for a flexible response plan to rapidly adapt to changing environments or threats **(**Brown et al., 2021). The theme detailed and practical planning and shared resources was tied for the highest frequency from the data collection and analysis, as indicated in Table 1. The highest occurrence of codes for Theme 1 pertained to the topic of emergency response plans (ERP) and disaster recovery plans (DRP), and included: (a) risk analysis, (b) limitations, and (c) mutual aid agreement or cooperation plans. Although participants C3P3 and C3P4 had significantly higher frequency rates for ERP and DRP risk analysis, all participants identified the requirement for effective emergency response or disaster recovery planning to ensure risks are identified and mitigated, appropriate response and recovery strategies for identified risks, and accurate commination channels to neighbors or emergency services for support. C3P3 discussed risk identification and associated costs related to risk mitigation; “You have to look at the frequency of the incidents, the severity of the incidents that we have and what the risk profile is versus the cost, and then you have to understand whether that's reasonably practical.” Also associated with risk identification, C3P4 discussed disaster mitigation and emergency planning from asset design to operational phase, and the necessity to update the ERP following major design changes. C3P4 stated:

> …quantitative risk assessments for large key risks and then implementation through design states to eliminate those risks through a hierarchy of controls. To have a design risk process implies that they would flow through to actual

> construction and installation and then obviously operations and maintenance of that particular asset. And are all points identifying how that changes the ERP and the response plan throughout, so it should be linked to the emergency response plan. If there are significant changes in the asset then the emergency response should be reviewed.

C2P2 noted the need for interorganizational collaboration to understand each other's risks, wind farm layout, and involved stakeholders. C2P2 explained, "There's the Emergency Response Cooperation plans…having regular reviews with all those stakeholders, and in that area to make sure that we're aware of each other's risks, the sites, the layout, and the kind of logistic set ups."

Related to ERP and DRP planning, participants noted the necessity to recognize limitations to effectively implement mitigation strategies for disaster response and recovery. C3P1 and C3P2 had considerably higher frequency rates for ERP and DRP limitations. C3P1 and C3P2 highlighted potential limitations with Maritime and Coastguard Agency (MCA) support as conflicting priorities could disrupt or lengthen MCA response times to offshore wind farms. C3P1 stated:

> And we know that the MCA cannot guarantee the lifeboat service because other things may have a higher priority. So, it's trying to get that mitigation in place. And part of that is to have the ability to conduct search in the area if somebody falls in the water or if an incident happens within that area to fix that casualty and then to launch something to recover that would protect them until they can be transferred over and see if they were concentrating in this particular area.

Similarly, C3P2 explained:

> So, their conclusion was that we need to ensure that we can save lives and bring the casualty to a set place of safety, being on the vessel or on a substation and then they [MCA] will assist. And they [MCA] can't guarantee the flying time will be around one hour out there, single only counting the flying time and the mobilization. So if they have a parallel mission, they will be delayed.

C3P3 again noted mitigation costs and practicalities. While discussing limitations and the need for interorganizational collaborations, C3P3 stated:

> So that's always a balance in it. You're paying for a vessel with towed capabilities or a vessel with a rescue team on board with a lot of medical capabilities. But what commercial value do they bring to pay? I mean, if you're having this incident once in every 10 years, to have that vessel on standby permanently, it's not cost effective or adding value, it's not reasonably practical.

Case 2 and Case 3 had significantly higher frequency rates for mutual aid agreements or cooperation plans. C3P1 discussed the implementation of the Integrated Offshore Emergency Response (IOER) document and cooperation between organizations. C3P1 stated, “But the core principle behind it, no one organization can actually respond to the emergency offshore, be it in the marine environment or in the renewable energy environment, without actually working together.” While discussing disaster recovery and business continuity planning, C2P2 stated:

> …it's understanding what assets we have available across all our fields, and again, having mutual agreements…do we have a facility there that if our facility goes

> down, for instance, can we then come into yours, then maintain operations and be able to provide support if there is an emergency situation and we have to be relocated?

C2P1 also discussed mutual aid agreements and shared resources:

> …they [HSE] are saying they want to see more of adjacent wind farms working together so that they can share resources, if need be. So, in some wind farms, they may be working at theirs on one day and something happens, perhaps there's only one CTV in the field, they can call on a neighbor. So, we're starting to see the developments of reciprocal agreements, which I think is good.

C3P4 discussed the necessity for neighboring wind farms to create combined emergency response cooperation plans (ERCoP) and ERPs between stakeholders such as the MCA, wind farm operators, and service teams. C3P4 stated, “But it also has the emergency response cooperation plan with it as well; rather than two separate plans, one being emergency response cooperation or ERCoP, and emergency response plan, you have the two combined in one.”

Correlating Theme 1 to Existing Literature

Scholars noted that high-impact low-probability (HILP) events can result in unexpected outcomes or failures in the emergency response or recovery process (Wu et al., 2022). The theme, detailed and practical planning and shared resources, relates to HILP event risk analysis and mitigation strategies. Naturally, disaster risk analysis involves identifying single hazards and mitigation strategies for the individual hazard and risk exposure; however, scholars explained that complex incidents can occur and

therefore require advance hazard and risk analysis processes or software to conduct multifaceted risk analysis (Sun et al., 2020). Furthermore, scholars Kafoutis and Dokas (2021) noted that traditional planning can lead to gaps in ERP development and introduced ERP alternative review strategies that can detect those shortfalls. Likewise, other researchers noted the necessity for multiple approaches to risk and hazard assessments to enhance the decision-making process for mitigation and planning efforts (Ha-Mim et al., 2022). Randil et al. (2022) explained that disaster planners should comprehend the impact that compounding cascading emergencies might afflict on systems or personnel. These findings support the statements of several participants interviewed for this study as they noted the need for practical, in-depth risk analysis of possible complex or multiple simultaneous emergencies, and review of EPRs to ensure evolving risk mitigation.

Correlating Theme 1 to Conceptual Framework

Successful collaborations are defined by each party's perceived trustworthiness in honesty and competency (Yousefian et al., 2021). Statements from participants for this study indicated that mutual aid agreements or cooperation plans and shared resource are an essential component to successful interorganizational collaboration in disaster response and recovery; however, the effectiveness depended on extensive discussions between partners. Scholars demonstrated that poor communication channels and barriers to resource sharing impeded effective response operations and subsequently recommended formal agreements, such as memorandums of understandings (MOU), to enhance multiple response agency effectiveness (Foo et al., 2021).

Discussions among responding agencies, such as their expectations, response capabilities, or limitations, can result in ordered priorities for the group and increased collaboration (Rice, 2021). Yet, Rice (2021) cautioned that a lack of trust in an organization's response capability, and therefore considered to be unreliable by others, could create dysfunctional partnerships as an agency might view themselves superior over others. Additionally, Berchtold et al. (2020) found that collaborations between organizations can increase upon implementing shared physical assets, but maintaining clear lines of responsibility, and by creating a shared asset registry of available resources for response and recovery operations. Scholars Waring et al. (2021) found that team building strategies such as communication, negotiation, and conflict managements were integral components of collaborate competences for emergency managers. Likewise, Prakash et al. (2021) explained that the development of cooperation plans can enhanced trust among collaborators. Consequently, HSE managers engaged in interorganizational collaborations in the disaster planning or resource allocation process must comprehend the dynamics of trust, communication, and conflict management.

Theme 2: Stakeholder Engagement and Commitment

Activities such as learning conversations or simulation activities can promote and result in a significant increase in knowledge sharing, collaboration, and communication amongst members (Simons et al., 2022). As noted in Table 1, the theme stakeholder engagement and commitment is tied for the highest frequency from the data collection and analysis. The highest occurrence of topics and codes pertaining to Theme 2 included: (a) exercise involvement - collaboration, (b) emergency response plan - dialogue, and (c)

professional organization and forums - discussions, as illustrated in Figure 1. All participants highlighted the need for stakeholder engagement and commitment for successful interorganizational collaborations in emergency management; however, participant C3P1 had a significantly higher code frequency total than other contributors, followed by C1P1 and C2P2. This theme highlights the important impact that relations and effective dialog with stakeholders has on the success of interorganizational collaboration strategies in emergency management.

In relation to Theme 2, exercise involvement - collaboration, C1P1 stated, "There's an exercise coming up in the U.K. and that's been a collaboration from various companies, so, I would say that's a really, really good example of how working together to enhance our learnings and preparedness." C1P2 also mentioned a forthcoming national U.K. exercise and noted, "…things like this Operation Sancho, positive things like that, it's collaboration…interorganizational collaboration is quite often based on goodwill and based on people being professional outside of organizational boundaries." C3P1 also mentioned the upcoming national U.K. exercise and the benefits of exercises and collaborations. C3P1 stated:

> Talking, meeting, exercising, sharing, desktops, live exercises, big disaster exercises and the benefit comes that the Organization of the exercise is not necessarily in running the exercise. So, for exercise Sancho… that is trying to get as many Organizations that are willing to put something in to get something out. Organizations that collaborate in these exercises, be the tabletop exercises or, for

> that matter, in the preparation, it just helps you. And when the day comes, how you train, the better it is for real.

In another example of exercise involvement and collaboration, C3P3 explained, “You can't do an effective rescue if you're not familiar with the asset as well…so we were trying to drive doing exercises and familiarization tours of each other's assets.” In relation to Theme 2, emergency response plan - dialogue, C2P2 discussed disaster support collaboration and planning; “…we have that engagement and dialogue and understanding how we can support one another, and that is really important…and in terms of the disaster preparedness…it's that open dialogue and an understanding that you're looking out for one another.” C2P1 explained the benefits of collaborating with stakeholders for disaster planning. C2P1 stated:

> So, what we traditionally do is we explain how long it takes to get people out of turbines. We explain how emergencies are managed, what level of first aid equipment is available, the firefighting equipment, and the escape and evacuation equipment is available. And then it then goes in two directions. Firstly, we’ll feed that information into the client's emergency escape plan, which I think is good.
>
> And obviously, then it forms the basis of exercises, desktop exercises and drills…

In another example, C1P1 also described the benefits of engaging stakeholders and collaboration for disaster planning. C1P1 stated,

> … having good dialogue, making sure the emergency response plans include details of our neighbors in an emergency, we know who it is we're going to be talking to; but more than that, making sure we liaise with them beforehand, and

> we have a common understanding about each other's roles during an emergency and what we will and will not be able to provide to the other.

The final component of Theme 2 pertains to professional organizations and forums - discussions. All participants described many beneficial aspects of joining and participating in professional organizations and forums such as the G+ Global Offshore Wind Health and Safety Organization. C3P3 explained that the G+ is a forum for open questions and discussions pertaining to offshore wind health and safety. For example, C3P3 stated, “And so one of the points I made in the G+ was, what do we have resource wise to have infield for immediate response to a vessel adrift in the wind farm or anything coming the wind farm?” C3P4 also discussed adrift vessel threats and discussions within the G+. C3P4 stated:

> Within the G+, saying, well, how do we design the mount? How do we conduct navigational risk assessments, but to what extent should we be prepared for that sort of disaster? …whereas in fact, turbines aren't the problem, it is the actual vessels, whether that's the watch keeping, or the maintenance of the vessels, whether it's mechanical integrity and so on of the vessels.

Other participants noted that professional organizations and forums were the catalyst for discussions and enhancing trust across stakeholders. C2P2 stated:

> I think it's getting together as a forum. I'm part of a forum where we get together with the HMC and MCA and as part of regular meetings, we discuss things like upcoming training exercises or offshore emergency exercises that are going to be taking place. And I think we feed back any learnings we have from our own

> internal exercises and drills, or any learnings post, you know, incident analysis, things like that. And we feed that back to the team to then share. And I think the thing for me is it comes back to basic values. It's that trust and openness and regardless of where we are, you know, whether we're competitors or whether we are with their customers, it's a case of we will want to support people in being safe and giving them an effective emergency coverage offshore. So, it's that openness to talk and to share those learnings and be 100 percent transparent, with no kind of reservations about having to be careful. There's that trust element, that's what I found that's been the most effective.

Participant C1P1 noted another U.K. based forum and its many benefits. C1P1 stated:

> … forums, emergency response forums, where you have various industry players collaborating, sharing learnings, sharing information about exercises, action incidents and how they were responded to…we discuss things like regulatory authority requirements, and the regulators and the MCA sit on that forum, too. So, it's an open forum, it's a closed room for the groups, but it's open, open conversation and discussion is encouraged, and I think that's a really big step forward. Lessons are shared along with their learnings. And then there are working groups that come out of that again, those working groups can be a mix of various companies. And we will go away and look at a task that benefits all of us.

Of the many topics presented by participants, professional organizations and forums were heavily favored and discussed, and in their views, proved instrumental in promoting interorganizational collaboration strategies in emergency management.

Correlating Theme 2 to Existing Literature

Scholars demonstrated that forums promoted stakeholder engagement and collaboration, relationship building, and learning (Boyle et al., 2021). Forums can also accelerate the ability of stakeholders to discuss or resolve multiple topics or issues simultaneously through the use of working groups or break-out sessions. Maly et al. (2020) remarked that stakeholders from multiple disciples effectively used forums and break-out sessions to advance discussions and information sharing among participants resulting in enhanced tsunami disaster risk reduction strategies. Other academics found that neutrality of the forum chair increased collaboration and trust amongst members, and forum success was dependent on active participation from all available stakeholders and gaps in involvement resulted in frustration amongst members and diminished planning capabilities (Boyle et al., 2021; Persson & Granberg, 2021). In relation to exercises and collaboration, Roud (2021) explained that emergency response exercises helped facilitate communication and common terminology, enhance relations, and align practices amongst responding agencies. In another study, Lahiri et al. (2021), explained that barriers exist that block collaboration among response agencies. For example, a barrier could include conflicting or uncommon terminology used by each organization; however, the authors noted that tasks such as a jargon board or team glossary, which allows others to elaborate on unfamiliar phrases, can help reduce those communication difficulties (Lahiri et al., 2021). Roud et al. (2021) found that emergency response agencies in Canada and Norway believed that collaboration increased more during full-scale exercises (FSE) rather than tabletop exercises (TTE), and that concluding the exercises participants felt a higher

degree of trust toward other organizations. As to ERP dialog among stakeholders, Fontainha et al. (2022) found that coordination, resource distribution and planning, and disaster response plan (DRP) involvement were among the highest requests for establishing stakeholder relationships.

Correlating Theme 2 to Conceptual Framework

Keywords associated with successful interorganizational collaboration and Theme 2, stakeholder engagement and commitment, expressed by this study's participants included collaboration, goodwill, honesty, engagement, positivity, trust, values, professionalism, commitment, and motivation. Many of the terms align with the findings of Zhang et al. (2022) in that trust and cooperation are relational motivators to interorganizational collaboration engagement. Those engaging in interorganizational collaboration should comprehend social dynamics. For example, scholars explained that conversation focus and flow contributed more to networking and communication success than conversation content, and participants should grasp the importance of strong listening skills and discussion confidence (Truong et al., 2020). Scholars explained the importance of social interactions as it enhanced trust among competing organizations pursuing interorganizational collaborations, and that distrust grew when email was the sole source of communication (Lee et al., 2021). Likewise, Lee et al. (2021) found that closed communication, such as a reluctance to share information, forceful emails, unwillingness to cooperate, and low trust, caused poor interorganizational collaboration relationships. However, open communication, such as a commitment to sharing information, multiple communication platform use, discussions, resulted in higher trust

and successful interorganizational collaborations (Lee et al., 2021). The findings demonstrate the enormous importance that discussions and collaborations have in developing relationships and trust leading to successful interorganizational collaborations.

Theme 3: Government Agency Involvement and Regulations

Academics suggested that exposure to traumatic events triggers stakeholder alliances in disaster planning and response **(**Mithani et al., 2021). Therefore, both HSE managers and government agencies with extensive knowledge of emergency and disaster response comprehend the need for government agency involvement in offshore wind farm interorganizational collaborations in emergency management. The highest frequency of codes pertaining to Theme 3, government agency involvement and regulations, included: (a) exercise participation, (b) regulations mandated and enforced, and (c) capabilities known and understood. As shown in Table 1 and Table 2, all participants noted the need for government agency involvement and regulations for successful interorganizational collaborations; however, Case 3 had a considerably higher frequency rate than Case 1 or Case 2. Participant C3P1 had the highest frequency rate for Theme 3, followed closely by C3P2, C2P1, C3P3, and C1P2, respectively. The code exercise participation was significantly higher in frequency than other codes with 17 total remarks by participants.

Participant C3P1 explained the benefits of a national exercise in which all stakeholders, including government agencies, were involved and the creation and

validation of the *Integrated Offshore Emergency Response - Renewables* (IOER-R) document. C3P1 stated:

> …it became jointly signed by the MCA (Maritime and Coastguard Agency), HSE (Health and Safety Executive) and Renewables UK, and that became the backbone of the Bible as we progressed. We trialed this primarily on London Array, and we did a big exercise at London Array…the exercise took about 18 months from start to finish…it was a joint big exercise using the military, MCA, lifeboats, search and rescue facilities from Belgian, U.K., France, lifeboats from France and the U.K. It was the biggest exercise conducted in the U.K. outside of the Olympics for about 10 years. So, it was a major exercise to pull everybody together and it proved the concept of what was in the IOER documents, and the IOER document basically set the standard for what was the tactical response moving on to the operational, tactical, and strategic response, and how things are actually sorted.

Similarly, participant C3P2 noted government agency exercise involvement and feedback concluding exercises; "We have invited the Health and Safety Executive and Coast Guard to witness our exercises…they give feedback and they are part of the closing meeting…if they have some concrete, important improvements or nonconformity they will send a report on it." C3P4 explained the eagerness of government agencies to get involved with exercises and the benefits of exercising. C3P4 stated:

> One is to conduct drills and exercises that replicate a real-life emergency. This can be done in desktop exercises, or this can be done for real within our own

> resources, or they can be done with the inclusion of the emergency services as well. And quite often, the inclusion of the emergency services will include all assets because they're quite keen to get involved as well as it's good practice for them. So those are those are the sort of three tiers of drills, desktop and resources and external resources, essentially. And then obviously, the actual effectiveness is then the review, the review of those drills.

Participant C2P1 explained the various stakeholder involved in emergency response, risk analysis, and government agency exercise involvement; "I think what pulls them all together is the industry bodies, which they all have to comply, they will tend to comply with, and of course the law makers, the MCA, the police, armed forces if need be, and the HSE, because clearly they organize and arrange exercises that they need to carry out and they wish to go and witness." C2P1 again mentioned government agency exercise involvement and feedback. C2P1 stated:

> …the HSE and the MCA like to go and witness these drills and clearly from a professional incident management perspective, they mark on what they see as well, so they will give you a score or there'll be a debrief. They seldom criticize, to be honest, the ones that I've been involved with, but they will point out where perhaps it could have gone better, or where confusion was and if there were any bottlenecks or areas of concern for them. So that's always pretty good.

Participants also noted the increase of offshore assets and the possibility of limited or reduced MCA rescue capabilities. Participant C1P2 noted:

> And what you see is the Coast Guard applying for funding, and it's almost like the Coast Guard is given a contract by the government to look after a region of the sea and applies for more resources to do that; and the wind farm developers push back and say, you know, we're going to have more assets out there, the emergency services need more resources because then if they don't have it and then then we have to provide it.

Additionally, C2P1 explained the understanding the wind farm response limitations and MCA capabilities is important for emergency or disaster response. C2P1 stated:

> I've done a great deal of work with the Coast Guard to understand their capability, and clearly, we have to write reports to them to tell them the type of operations that we undertake and the types of incidents that we can manage ourselves, or we think we can manage so that ultimately, as you know, it's down to the Coast Guard who have priority here. If they wish to overtake, in the event that happens, if they wish to take over the running of it, they can do it. But the strong relationship with the Coast Guard especially is good.

In a final example, C3P4 discussed stakeholder engagement, government agency limitations, and emergency response planning. C3P4 stated:

> I would say the most effective is actually engaging with stakeholders, understanding who your stakeholders are, and have a stakeholder engagement day…I'm talking about the emergency services, to have an emergency services day, to have a full understanding of responsibilities, areas of operation,

> limitations, and to have this very early on in the project so you can design your emergency response plan around it…

The necessity for government agency involvement in exercises and disaster planning is a significant consideration for participants, and in their assessments, is a prerequisite for successful interorganizational collaboration strategies in emergency management.

Correlating Theme 3 to Existing Literature

The response to a complex emergency or disaster can trigger multiple organizations and stakeholders to align communication strategies, improving collaborative relationships and resource allocation (Liu et al., 2022). Academics demonstrated that government agencies can positively support disaster response and recovery due to their vast number of resources and network contacts, and their ability to act as gatekeepers to other organizations (Lam & Chow, 2022). In another study, MacIntyre et al. (2022) conducted and analyzed a large-scale table-top exercise involving multiple federal and local response agencies. They found that the complex nature of the scenario resulted in participating agencies having competing priorities, in which the authors contributed to a lack of collaboration beforehand (MacIntyre et al, 2022). Although the scenario of the table-top exercise was extensive and crossed multiple jurisdictions, which is unlikely for the wind industry, the findings of MacIntyre et al. (2022) demonstrated the importance of stakeholder involvement, to include government agencies, in exercises and other disaster preparedness activities.

Participants for this study discussed government regulations, specifically the U.K. HSE, and enforcement actions which acted as a catalyst for interorganizational

collaboration. Scholars examined the effects that U.K. HSE regulations had on the oil and gas industry following the several major disasters and emergencies. Acheampong et al. (2021) concluded that government regulations and a strong commitment from the oil and gas industry resulted in significantly less accidents over the last three decades. Several participants stated that professional organizations and forums were an effective avenue to join forces with government regulations for lobbying purposes. The ability to join forces with government regulations and emergency services is significant as wind farm operators or service provides experience first-hand the risks or vulnerabilities within their wind farms, and often require government support to mitigate limitations or threats.

Correlating Theme 3 to Conceptual Framework

Organizations which similar policy doctrines are more likely to engage in successful interorganizational collaborations (Ocelík et al., 2022). Wind organization HSE or other emergency management specialists are highly skilled and educated individuals, therefore, hold a high level of "hard skills"; however, scholars Gladstone and Brown (2022) explained that often the "soft skills,", such as an ability overcome group conflict or sound communications skills, which effect strategies in emergency management. The findings of Gladstone and Brown (2022) are significant as wind industry HSE managers might experience disagreements or conflict with other stakeholders, including government agencies and regulators. Another factor which could disrupt partnerships in interorganizational collaborations are power dynamics between stakeholders. Noyes (2022) used the medical care industry to illustrate collaboration power dynamics and communication barriers. Noyes explained that conflict and

communication barriers arose when those with power, physicians, dominated conversations with nurses due to their hierarchy and expertise.

Noyes (2022) noted that when the emphasis shifted from power and expertise, which swayed heavily in the favor of the doctors, to conversations related to all members contributing to team goals and having something valuable to add to the group, the tension and feeling of the hierarchy structure lessoned and created an informal atmosphere which facilitated open communication. This example illustrates the power dynamics that can ensue between those with power and those without. In the U.K., government regulators such as the HSE mandate safety protocols for many topics such as personal protective equipment (PPE) and workplace safety, and the HSE can enforce those standards through use of fines or prosecution. However, despite the overwhelming power dynamic between the HSE and wind farm owners or operators, all participants for this study specified the benefits of government agency and emergency services support, involvement, and contribution to effective emergency and disaster response planning, exercises, and interorganizational collaboration in emergency management.

Theme 4: Lessons Learned

The documentation and sharing of lessons learned can result in benchmarking and the implementation of industry best practices (Bone & Tochkin, 2021). As noted in Table 1, the theme *lessons learned* had the fourth highest frequency from the data collection and analysis. The highest frequency of topics and codes pertaining to Theme 4 included: (a) professional organizations and forums - information sharing and lessons learned, (b) real-world incidents, and (c) exercises - enhanced learning and lessons learned. As shown

in Table 1 and Table 2, with the exception of participant C2P1, all other participants noted the benefits of lessons learned, and Case 3 had a significantly higher frequency count than Case 1 or Case 2. Participant C3P1 had the highest frequency rate for Theme 4, followed by C3P2, C2P2, C3P2, and C1P1, respectively. Participant C2P2 discussed information sharing within professional originations and forums and explained that participants should openly discuss topics related to health and safety. C2P2 stated:

> Everybody realizes it and understands it's important… so it was the same thing as the G+, essentially. And even though there were some quite high up oil majors and companies there, everyone went into that room and the first rule was that this is all of us getting together, and regardless of what we say here, the focus is safety and emergency management, and I'm sharing this information and nothing's going to be recorded or transcribed. It's all done in honesty to make sure that we can learn together, and we can better the industry as a whole. I'm getting that same feeling in renewables…there's still a little bit of reluctance to maybe share things, but then it depends on the type of industry and what's going on and how sensitive maybe some of those areas are as well, so that you can understand it in some ways. But again, if it's safety and security, I think there's got to be that kind of, we have to pull together because we're all in it. We all want the same output, which is to look after our people.

C1P1 explained that contributing to professional organizations and forms enhanced learning among participants; "…one of the things the first thing that comes to mind is forums, emergency response forums, where you have various industry players

collaborating, sharing learnings, sharing information about exercises, actual incidents and how they were responded to." Participant C3P1 explained that real-world incidents provide an opportunity to validate emergency plans and benchmark industry best practices. C3P1 described an example of a real-world offshore emergency response:

> … the classic example would be the Equinor example, where the *Galwad-Y-Mor* fishing vessel collected a mine…with the end product being that some people were very seriously injured…They [Equinor SOV] launched their fast rescue boats that recovered the seven individuals, brought them back to the SOV, the paramedic on board the SOV started treating the primary casualties, but it also had the technicians aboard the SOV could use their GWO first aid skills to treat the others. A search and rescue helicopter was called from the mainland and took two of the serious casualties ashore…it showed the principles of the integrated offshore emergency response, that everybody works together in this emergency situation…

In another example, participant C2P2 discussed the effectiveness of post-incident analysis and emergency response equipment validation. C2P2 stated:

> …when we've used the Eureka kit, for instance, which we have done now on a number of incidents, we've then done a post-incident analysis and also fed that back to the company that provides us with the training and the clinical governance, and to do an evaluation of that and test the effectiveness of the response to then obviously continue learning and continually improve.

Participant C3P2 also mentioned emergency plan validation and sharing lessons learned from real-world responses; "…take part in the meetings and we extract learnings when we have incidents." Participant C1P1 discussed dialogue, exercises, and information sharing among neighboring wind farms; "So a good dialogue, good dialogue with our neighbours, lots of sharing of lessons learned and exercising together where possible." In a final example, participant C3P4 discussed the benefits of exercising and utilizing lessons learned for continuous improvement. C3P4 stated:

> …the actual effectiveness is then the review, the review of those drills; it's pointless conducting a drill in which you don't unless you have lessons learned feedback, so it's a case of lessons learned, feedback, actions for improvement, and also, we're dealing with third parties and so that their involvement in their interoperability and understanding what their requirements are.

The provided examples demonstrate the vast importance that this study's participants placed on information sharing and lessons learned for enhanced emergency and disaster response capabilities and successful interorganizational collaboration strategies in emergency management.

Correlating Theme 4 to Existing Literature

The documentation and sharing of lessons learned can act as facilitator for other organizations or individuals to learn from prior deficiencies or successes (Sakato, 2021). Scholars Rabonza et al. (2022) explained the benefits of highlighting and implementing disaster mitigation and preparedness activities before a disaster occurs, and concluding an actual disaster, any successes in pre-disaster actives to reduce its effects should be praised

and shared. Other scholars justified the obligation to quickly and thoroughly document lessons learned following a disaster so that its effects are not forgotten or ignored, upon sharing others might benefit from the lessons learned, and finally, for the implementation of disaster mitigation or preparedness actions to lessen a future disasters impact (Filho et al., 2021). Academics explained that lessons learned must be shared with others and thoroughly documented and managed by a representing body to ensure knowledge transfer to others for implementation (Ishiwatari et al., 2021).

In another study, Elkhidir et al. (2022) explained that disaster resilience knowledge-sharing occurs over multiple formats or platforms, such as face-to-face conversations or training; however, practitioners in their study overwhelmingly expressed their preference of a web-based portal to record and share data and knowledge. Similarly, Abdeen et al. (2021) found that a common platform to share information was a necessity for successful multi-agency collaborations. Brown et al. (2022) examined learning following an exercise and found that a structured debriefing aided the lessons learned process and leaning among participants. Scholars Mohideen et al. (2021) explained that disaster recovery operations are more concerned with the process versus technology; therefore, lessons learned should focus on simplifying deficient core processes. The authors also demonstrated that by simplifying lessons learned for learning and implementation ease resulted in fewer future errors by employees, less time to do activities, and increased cost savings (Mohideen et al., 2021). Most participants for this study noted benefits that sharing lessons learned at professional organizations and forums, such as the G+, concluding exercises or real-world events, and felt strongly that

sharing lessons learned contributed to successful interorganizational collaboration strategies in emergency management.

Correlating Theme 4 to Conceptual Framework

Evidence suggests that emergency management professionals are likely to seek knowledge from experienced practitioners and may disregard information from less experienced individuals (Williams, 2021). As explained by this study's participants, disaster or emergency response lessons learned are important to share and communication to the wider industry; however, barriers might exist limiting knowledge transfer. For example, Kitagawa (2021) explained that knowledge transfer tends to focus on *what* to learn, rather than *how* people learn. For example, simply sharing information may not be enough, and at times personnel learn more by doing activities or through in-depth discussions (Kitagawa, 2021). Scholars also explained that power and influence can impact collaborations. For example, Sayogo et al. (2021) explained that problems or conflict during collaborative endeavors can arise among members, and it could take the legitimate power of executive management to drive task achievement. Also, Rice (2021) cautioned that during collaborations a type of ranking system among members might arise that impedes successful partnerships or project execution.

In another study, Hayes et al. (2021) explained that cooperation among and team member effectiveness increases when members demonstrate a willingness to participate, communications were quickly transmitted and understood, and conflict was quickly resolved. Similarly, Lee et al., (2021) found that successful interorganizational collaboration relations were bult around open communication, to include a willingness to

share information, which resulted in higher trust between collaborators. Wind industry HSE managers or other emergency managers participating in professional organizations and forums should continue to share exercise or real-world lessons learned as contributors for this study overwhelmingly clarified that lessons learned were a promoter for successful interorganizational collaborations.

Theme 5: Standardization

Those that share best practices are in a healthier position for knowledge cocreation and to continuously improvement fundamental processes (Hysa & Themeli, 2022). As noted in Table 1, the theme standardization had the fifth highest frequency from the data collection and analysis. The highest frequency of topics and codes pertaining to Theme 5 included: (a) professional organizations and forums - standardization (b) training, and (c) professional organizations and forums - industry best practices. As shown in Table 1 and Table 2, apart from participant C1P1, all other participants noted the benefits of standardization. Case 1 had the highest frequency count, followed by Case 3 and then Case 2. Participant C1P2 had the overwhelming majority of frequency occurrence for Theme 5, followed by C3P1, and C2P1. Training standardization for a universal approach to disaster or emergency response was a strongly discussed topic for C1P2. C1P2 stated:

> …the strength is that somebody who is trained in an emergency, a way of operating in an emergency, in a standard way to a given training syllabus, will behave the same way, regardless of which wind turbine or which wind farm or which country they operate in if they follow the GWO (Global Wind

> Organization) guidance. So that also helps in predictability. So personally, I'm fighting to keep GWO of being the standard for at least turbine technicians. And then we fight for people to follow the other recognized systems for the other type of assets.

C1P2 also described the benefits of others such as offshore marine coordinators or installation managers involved in disaster or emergency response attend courses such as the Offshore SAR Management for Renewables (OSARM-R) for networking, knowledge sharing, and response tactic standardization. C1P2 stated:

> We also sent some of our colleagues on the OSARM course…it's run in conjunction with the U.K. Coast Guard for people who are leading emergency response organizations…the course I was on at least had several developers on the course…And then you also realize, you know, that they're either doing the same things as you are, or that you maybe should be doing some of the good things that they're doing that you're not doing yet, and vice versa. So, it's also another tool to standardize or another tool to share good practices and go back and adopt it. But it's also then driven by the customer, you know, when we communicate that we've got an emergency that the person to the body delivering the training is the Coast Guard itself, so their expectations can be given directly to the developer.

In another example of training standardization, participant C2P2 discussed the transferability of skills due to standardization principles of the G+. C2P2 stated:

> Now, from a collaboration point of view, and we've actually now aligned with a number of other customers who are also members of the G+. And basically that

> means that our teams are now trained to the same standard. They can use that same kit and we're actually doing training together on our sites. Again, that one team approach, which is having a very, very positive impact because people know exactly what it can go to and it's we're all looking out for one another when it comes to safety. So that's one of the, I'd say, one of the really good strategies that we've implemented.

Participant C3P2 mentioned training standardization discussions and professional organizations and forums. C3P2 stated, "…our strategy, in a way, is to be a part of the international organizations as the G+ and GWO, and when it comes to emergency response, of course, GWO is more or less on the proactive side of the bow tie, sort of setting up training standards and requirements to avoid incidents. G+, of course, also working on the preventive measures, and design standards and guidelines for emergency response." Participant C3P4 discussed the importance and benefits of the Integrated Offshore Emergency Response - Renewables (IOER-R) document and the G+:

> …we've been provided with some very good guidance from the G+, one particular good practice guideline is for the Integrated Offshore Emergency Response or the G+ IOER. That's a great document and G+ members obviously stick to that or use that guidance as best practice and really try and hone in on all their various statutory obligations. So yeah, that's a great Bible to go to.

Participant C3P1 discussed professional organizations and forums and the initial development of the IOER-R guidelines using best practices from sister industries. C3P1 explained:

> We looked at the models that existed within the oil and gas industry and we looked at the models that existed in transportation, primarily ferry routes. And there are some best practices that the ferries use…So do the oil and gas industry. We realized that the oil and gas industry have a high concentration of a number of people in a very small area, but relatively speaking, they have a small number of well-known sites that can cause problems. But they have that disaster level of hundreds of people in harm's way. The wind industry aspect is more geographical, small number of teams, and they're likely to have more of the problems historically through the way that they go to and from the wind industry. So in other words, the CTV transport, helicopter transportation, smaller teams. And the model, therefore, that the oil and gas industry use did not fit really, but the principles behind it did. So there's a decision made to create an integrated offshore emergency response, bracket renewables, taking the lessons identified from the oil and gas industry, but also taking some of the principles identified from the marine industry, and in particular, looking at the ferry side.

Participant C3P3 also boasted the benefits of the G+ and spearheading industry best practices; "…these forums like the G+ are fantastic at trying to spread out best practices and getting things across the industry." The examples provided by participants for this study immensely demonstrate the benefits of training standardization and that professional organizations and forums have on sharing best practices and standardizing policies or procedures, which also contributed to successful interorganizational collaboration strategies in emergency management.

Correlating Theme 5 to Existing Literature

Participants for this study noted specific training providers and recommended courses to standardize response tactics and to collaborate with other agencies or stakeholders involved in wind industry emergency management. Academics Li et al. (2022) found that just-in-time training or basic response fundamentals training was not sufficient for successful response capabilities. Li et al. (2022) explained that training attendance could suffer if organizational leadership did not buy-in to training benefits; therefore, it is imperative to fully disclose training benefits to leadership, or for those professionals to pursue other training opportunities, such as participation in exercises or *train-the-trainer* programs. However, Goniewicz et al. (2021) found that professionals might not benefit from advanced training programs if they lack basic fundamental knowledge of response principles and terminology. In this instance, Goniewicz et al. (2021) suggested that prior to any advance training, candidates should undergo a skill gap analysis to identify any gaps in their knowledge which might limit their ability to learn or contribute to classroom discussions. Steen-Tveit and Munkvold (2021) explained that high-performing teams have a common training background and a thorough understanding of other agencies or individual's roles and responsibilities. They also explained that collaborating organizations should incorporate a *common operating picture* (COP), which explicitly details and standardizes processes across agencies (Steen-Tveit & Munkvold, 2021). In another study, Kato et al., (2022) discussed the benefits of standard operating procedures (SOP) and municipalities reluctance to adopt detailed SOPs. The authors found that municipalities that did not experience past hazards

or disasters were less likely to adopt or plan for them within their SOPs; however, Kato et al. (2020) explained that this rationale could result in those cities becoming vulnerable to a disasters impact. The study of Kato et al. (2022) underlines the importance of not only sharing information so that others can learn and adopt appropriate strategies, but also trusting the experience and recommendations of others for effective and thorough planning. As participants for this study highlighted, participating in professional organizations and forums such as the G+ contributed to learning and standardized response processes, as well as successful interorganizational collaboration strategies in emergency management.

Correlating Theme 5 to Conceptual Framework

Disaster or emergency response collaborations are inherently successful when parties trust each other. Shmueli et al. (2021) explained that mutual trust grows over time through various facets, such as parties being predictable, caring attitudes toward other's desires, knowledge of tasks, and commitment. Additionally, Kliskey et al. (2021) found that the highest reported quality of successful collaborations involved trusting and respectful relationships. Kliskey et al. also noted that successful collaborations entail stakeholders feeling empowered to make decisions and having a sense of co-ownership of developments. DaSilva (2021) described interorganizational collaborations in terms of activation, combining, and calibrating. Initially, unfamiliar environments or relations could create conflict among collaborators, followed then by an attempt to combine ideas or processes, and finally, the combined process are calibrated to ensure efficiency and team goal achievement (DaSilva, 2021). Finally, those involved in collaborating for

standardized practices or change in the industry should comprehend the “policy window”, as explained by Margerum et al. (2022).

The policy window is an opportunity for change in an industry or process due to a recent event which gained attention from leadership. The impact and focus of the recent event may have generated the necessary buy-in from organizational leadership to implement recommended policies. Margerum et al. (2022) also explained that collaborative planning can be a slow process; therefore, to stay motivated collaborators should celebrate and emphasize the “small wins”. Some participants for this study emphasized the requirement to publicly showcase successful exercises or real-world responses to inspire motivation among the teams and to highlight to the public the importance of successful response operations within the offshore wind industry. Wind industry HSE managers engaged in collaborations for standardized policies and training standards should comprehend the requirements for organizational leadership buy-in, and opportunities within the policy window to influence decision making. Finally, members of the professional organizations and forums working diligently to implement and standardize wind industry process should understand interorganizational collaboration dynamics and the effect attributes such as trust and respect have on project success.

Applications to Professional Practice

Complimentary response tactics and resources can positively affect joint disaster or emergency response capabilities (McWilliams et al., 2021). The purpose of this qualitative multiple case study was to explore effective interorganizational collaboration strategies in emergency management that HSE managers in the offshore wind industry

use for successful disaster mitigation, preparedness, response, and recovery. The findings of this study would provide wind industry HSE managers or other emergency managers useful knowledge for effective interorganizational collaborative relationships and the development of valuable disaster or emergency response policies in the offshore wind industry.

Theme 1 and Theme 2 findings illustrate the significance of stakeholder involvement and cooperation for detailed disaster or emergency response planning, as well as stakeholder engagement through effective dialogue or communication during exercises and professional organizations and forums. The significance is that all stakeholders understand each other's risks and threats, as well as their limitations for effective mitigation purposes, and appropriately highlight support channels and resources which can be requested during a disaster. Stakeholder engagement is vital to interorganizational collaboration and this study's findings suggest that commitment from stakeholders is required for effective combined exercises and disaster or emergency response plan development.

Themes 3 through 5 findings demonstrate the advantages that government agencies such as the MCA or HSE add and contribute to successful wind industry interorganizational collaboration strategies in emergency management. Their commitment to exercise participation and professional organizations and forums such as the G+, and policy implementation, such as their involvement to the IOER-R development, was a prominent discussion topic for many participants. Finally, the ability to share post-disaster or exercise lessons learned, industry best practices, or other

information through professional organizations and forums highly contributed to and enhanced disaster response practices and policies and led to successful wind industry interorganizational collaboration strategies in emergency management.

Implications for Social Change

Company managers within the offshore wind industry might use this research to develop or improve their interorganizational collaboration strategies and processes in emergency management. Interorganizational collaboration barriers exist at both the individual and senior management level (Brattström & Faems, 2020), and the identified strategies might facilitate emergency management collaboration and cooperation among competing offshore wind organizations for improving business practices. Therefore, HSE managers may use findings from this study to create meaningful and lasting partnerships, which might lead to improved disaster response and recovery, enhanced lifesaving capabilities, reduced costs, and safeguarding companies' reputations.

This study's findings may contribute to positive social change by improving offshore wind industry interorganizational collaboration in emergency management, which might lead to enhanced lifesaving capabilities, reduced injuries, or decreased environmental damage. An offshore disaster's magnitude and complexity may overburden a single organization (Jung et al., 2019; Pedersen & Ahsan, 2020); therefore, establishing partnerships could enhance safe working conditions for thousands of offshore employees and support for family members of injured workers. Disaster impacts may stretch far beyond the offshore site's confines, affecting local communities through loss of jobs or surrounding environmental damage or degradation. Additionally, offshore

wind business owners might increase communities' trust by delivering effective disaster management strategies and promoting positive employee health and safety practices, which might lead to sustained employment, enhanced job satisfaction, and lower unemployment rates.

Recommendations for Action

As the offshore wind industry is still in the adolescent phases and projects are soon to be constructed in far-offshore environments, offshore wind HSE managers or other emergency management professionals should understand the need for interorganizational collaborations for successful disaster response strategies. Recommendations for this study should be of interest to offshore HSE managers, organizational leaders, or other emergency management personnel involved in disaster planning and funding. Based on the findings of this study, the following recommendations for offshore wind HSE managers may aid in the development and implementation of successful interorganizational collaboration strategies in emergency management.

First, HSE managers within close proximity to other wind farms should develop memorandums of understandings (MOU), mutual aid agreements (MAA) or other joint disaster response and recovery plans highlighting support responsibilities, capabilities, and limitations. Secondly, ensure plans are thoroughly tested during joint tabletop or functional exercises and that detailed lessons learned are created and distributed for others to review and implement. Also, ensure that government agencies such as the MCA

and HSE are invited to participate in or witness exercises and are afforded the opportunity to provide feedback or guidance concluding the exercise.

Third, ensure HSE or other emergency management specialists participate in professional organizations and forums such as the G+ Offshore Wind Health and Safety Organization. Organizations such as the G+ have been instrumental in the development of interorganizational collaborate relationships, encouraging open, honest dialogue and trust among members, and promoting knowledge sharing. Additionally, the ability to disclose lessons learned from exercise or real-world incidents at professional organizations aids in the development of standardized disaster mitigation, preparedness, response, and recovery practices. Fourth, HSE managers should look to standardize processes and training wherever possible as conflicting emergency response plans or differences in knowledge among agencies could hinder effective disaster response capabilities.

Walden University will publish this study to the publicly available database, ProQuest Dissertations and Theses Global. All participants for this study will receive an executive summary of the findings, recommendations for action, and instructions to locate the complete study. Additionally, offshore wind industry senior leaders, HSE managers, and G+ Global Offshore Wind Health and Safety Organization members will receive an executive summary of findings, and if requested, a presentation of findings provided at future conferences, forums, or workshops.

Recommendations for Further Research

This purpose of this study was to explore effective interorganizational collaboration strategies offshore HSE managers use for successful emergency management practices. The data and findings are invaluable for successful interorganizational collaborations in emergency management; however, there are limitations to this study. Participants for this study included U.K. offshore wind industry HSE managers with prior experience developing or implementing interorganizational collaboration strategies in emergency management and that belong to corporations contributing to the G+ Global Offshore Wind Health and Safety Organization. The narrow geographical scope limited potential candidates for this study; however, another study could expand upon or include other geographical regions that contribute to the global offshore wind industry. Additionally, a wider scope could expand upon the multiple case study and increase participants per case to gather substantially more in-depth, rich data for analysis.

This study establishes a foundation for further scholars to examine offshore interorganizational collaboration strategies in emergency management. The global offshore wind footprint is rapidly expanding, are being constructed further offshore, and more wind farms are being constructed in clusters located in close proximity. As time and developments progress, the experience and knowledge of HSE or other emergency managers will increase which might enhance offshore wind interorganizational collaboration strategies.

Reflections

Concluding this study, I have a much greater admiration for offshore HSE responsibilities, and their willingness and eagerness to share their experiences to develop industry best practices. My professional background is emergency management and despite a strong understanding of emergency management principles, incorporating those ideologies into the offshore wind industry was challenging due to limited experience with the offshore environment and HSE practices and dynamics.

The Doctor of Business Administration (DBA) degree journey was not a straightforward endeavor, and at times required guidance from Walden faculty as developing, justifying, and conducting a qualitative multiple-case study for the first time was extremely challenging, but rewarding. As the sole data collector and analysis instrument, I thoroughly reflected on potential personal biases and how they could impede findings, and then had to develop and use strategies such as member checking to mitigate those biases. Transcribing, analyzing, and developing themes from collected data was much more time-consuming than initially expected. Although time-consuming, it was necessary to fully verify each automated transcribed transcript for accuracy, and to conduct manual thematic analysis for theme development. This comprehensive process lessened potential errors in findings and resulted in a more accurate and thorough end product.

Conclusion

The purpose of this qualitative multiple case study was to explore effective interorganizational collaboration strategies in emergency management that HSE

managers in the offshore wind industry can use for successful disaster mitigation, preparedness, response, and recovery. Participants for this study were chosen using purposeful sampling and the target population included U.K. offshore wind industry HSE managers actively contributing to the G+ Global Offshore Wind Health and Safety Organization, and that have successfully developed emergency management collaboration strategies for improving response effectiveness.

Triangulation was achieved by gathering data through publicly available business documents and semistructured interviews. Concluding the data analysis, the five themes related to successful offshore wind interorganizational collaboration strategies in emergency management included: (a) detailed planning and shared plans, (b) stakeholder engagement and commitment, (c) government agency involvement and regulations, (d) lessons learned, and (e) standardization. During the semistructured interviews, participants discussed many topics such as exercises and lessons learned, but also relayed important interorganizational collaboration social dynamic qualities such as trust and commitment, which Gray (1989) initially argued contributed to successful interorganizational collaborations.

In conclusion, as the offshore wind industry develops further offshore and government agency or emergency services response times increases, so does the need for interorganizational collaborations across wind farms for effective disaster response and recovery operations. Recommendations for action include the development of MMAs or other joint disaster or emergency response plans, noting responsibilities, capabilities, and limitations. Tabletop or full-scale exercises should include government agencies such as

the MCA or other emergency services for review of response strategies, and to establish effective working relationships with stakeholders. Offshore wind HSE or other emergency management specialists should contribute to professional organizations and forums such as the G+ to fully engage with all stakeholders, share knowledge, and support the standardization of disaster response strategies. Finally, more focus should be placed on identifying knowledge gaps in fundamental emergency management processes, standardizing training, and response procedures across the industry.

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Appendix A: Semistructured Interview Protocol

Date:

Interviewee:

Introduction

- Opening comments, welcoming message.
- Confidentiality reminder concerning surroundings and coding process for findings.
- Remind participant of their right to withdraw from the study at any time.
- Provide and discuss contents of the consent form.
- Inform that all transcripts are to be kept secure for 5 years and destroyed thereafter.

Interview Etiquette

- Remind participant that they may decline to answer any question.
- Remind / inform participant that a recording device is to be used.
- Inform that upon completion a full transcript is to be provided for review for accuracy.
- Each interview will last approximately 30 minutes; however, length can vary depending on follow-up or probing questions.

Purpose Statement

- The purpose of this qualitative multiple case study is to explore effective interorganizational collaboration strategies in emergency management that health and safety executive managers in the offshore wind industry can use for successful disaster mitigation, preparedness, response, and recovery.

Interview Questions

1. What strategies have you developed and implemented to strengthen interorganizational collaboration in emergency management?

2. How have you measured the effectiveness of your strategies to increase interorganizational collaboration in emergency management?

3. What strategies or approaches are most effective to enhance interorganizational collaboration in disaster mitigation?

4. What strategies or approaches are most effective to enhance interorganizational collaboration in disaster preparedness?

5. What strategies or approaches are most effective to enhance interorganizational collaboration in disaster response?

6. What strategies or approaches are most effective to enhance interorganizational collaboration in disaster recovery?

7. What other information do you wish to share in relation to interorganizational collaboration in emergency management and disaster mitigation, preparedness, response, and recovery?

Closing the Interview

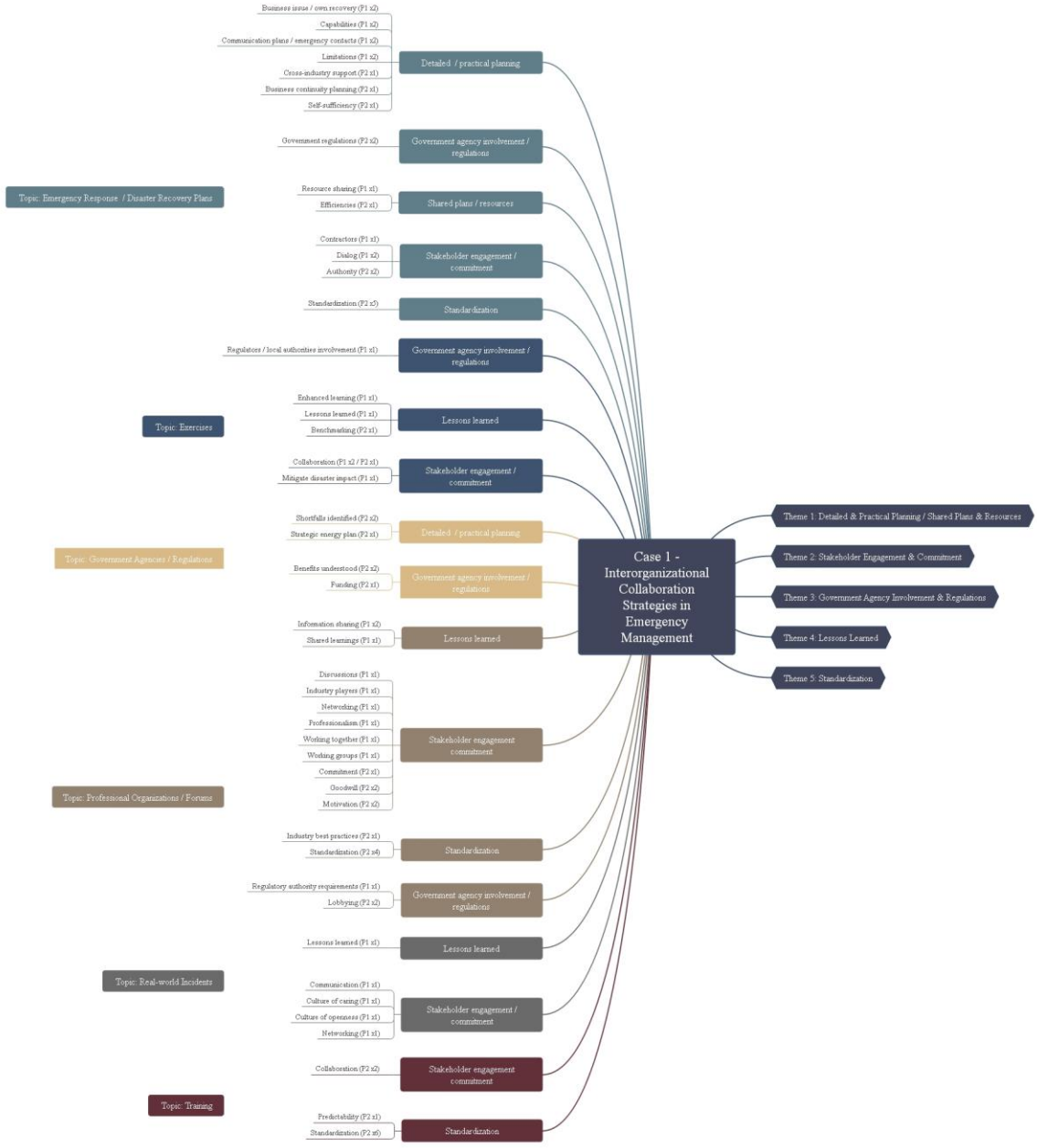
- Remind participants about member checking and follow-up procedures.
- Confirm contact details.
- Thank participant.
- Turn off recording device.

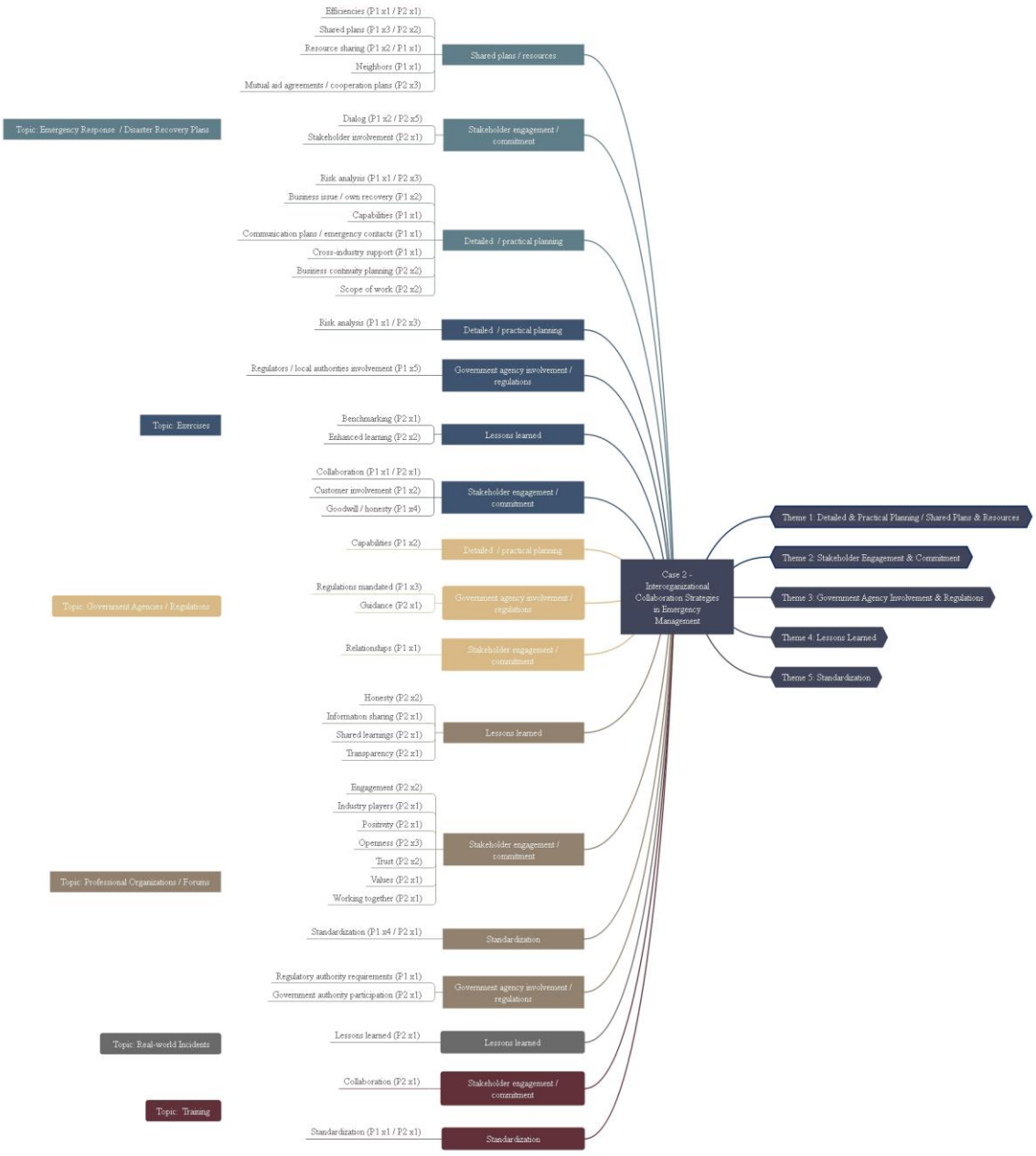
Following the Interview

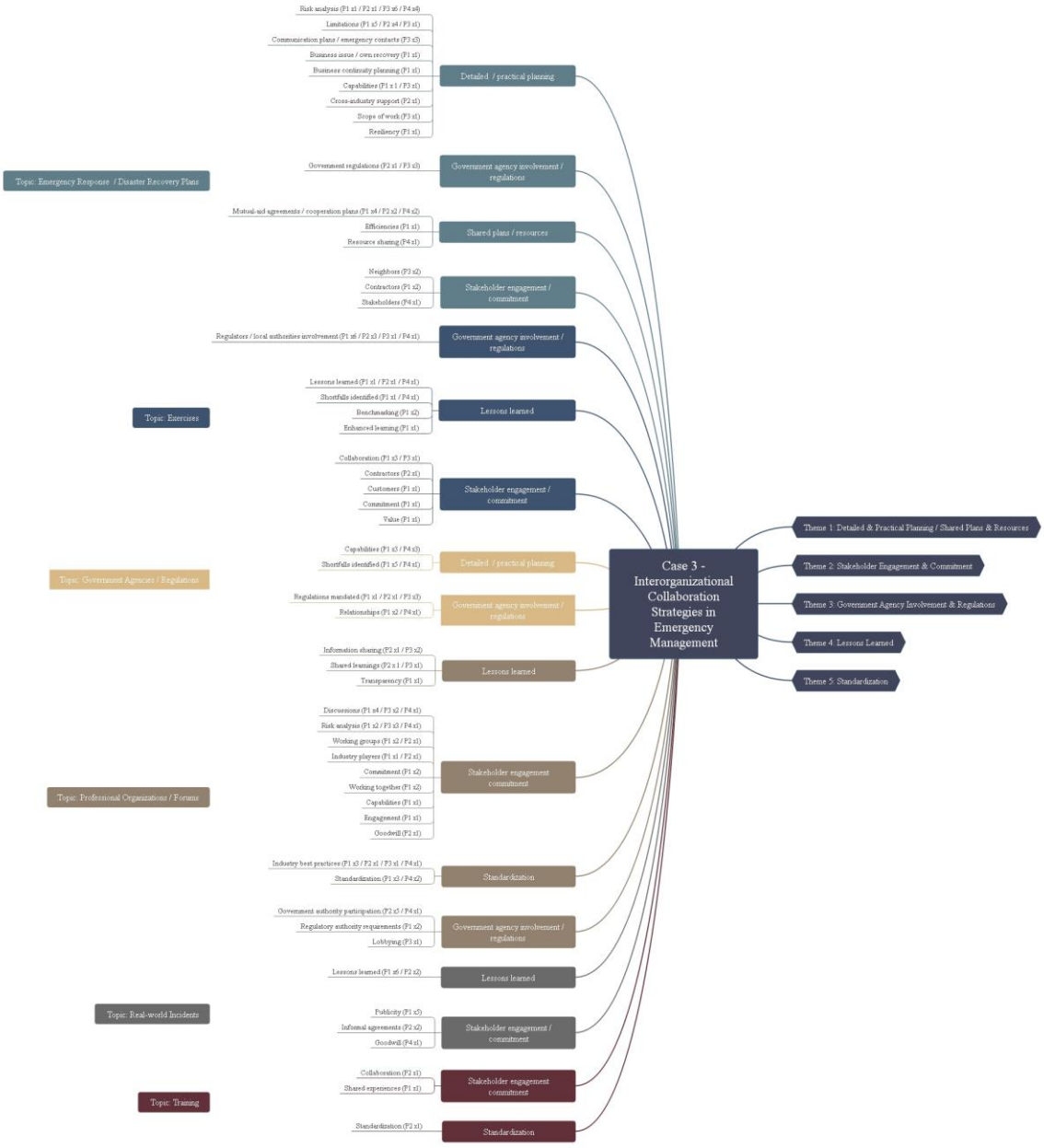
- Send thank-you message via email.
- Send participant interview transcripts for accuracy verification.
- Provide participant copy of completed study.

Appendix B: Mind Maps of Cases

Note. Each mind map depicts major themes emerging from the data sources across the individual case. The codes are ranked by occurrence and indicate the participant and code count for each topic.




Case 2 - Interorganizational Collaboration Strategies in Emergency Management
Theme 1: Detailed & Practical Planning / Shared Plans & Resources
Theme 2: Stakeholder Engagement & Commitment
Theme 3: Government Agency Involvement & Regulations
Theme 4: Lessons Learned
Theme 5: Standardization
Shared plans / resources
Efficiencies (P1 x1 / P2 x1)
Shared plans (P1 x3 / P2 x2)
Resource sharing (P1 x2 / P1 x1)
Neighbors (P1 x1)
Mutual aid agreements / cooperation plans (P2 x3)
Topic: Emergency Response / Disaster Recovery Plans
Stakeholder engagement / commitment
Dialog (P1 x2 / P2 x5)
Stakeholder involvement (P2 x1)
Detailed / practical planning
Risk analysis (P1 x1 / P2 x3)
Business issue / own recovery (P1 x2)
Capabilities (P1 x1)
Communication plans / emergency contacts (P1 x1)
Cross-industry support (P1 x1)
Business continuity planning (P2 x2)
Scope of work (P2 x2)
Detailed / practical planning
Risk analysis (P1 x1 / P2 x3)
Government agency involvement / regulations
Regulators / local authorities involvement (P1 x5)
Topic: Exercises
Lessons learned
Benchmarking (P2 x1)
Enhanced learning (P2 x2)
Stakeholder engagement / commitment
Collaboration (P1 x1 / P2 x1)
Customer involvement (P1 x2)
Goodwill / honesty (P1 x4)
Detailed / practical planning
Capabilities (P1 x2)
Topic: Government Agencies / Regulations
Government agency involvement / regulations
Regulations mandated (P1 x3)
Guidance (P2 x1)
Stakeholder engagement / commitment
Relationships (P1 x1)
Lessons learned
Honesty (P2 x2)
Information sharing (P2 x1)
Shared learnings (P2 x1)
Transparency (P2 x1)
Stakeholder engagement / commitment
Engagement (P2 x2)
Industry players (P2 x1)
Positivity (P2 x1)
Openness (P2 x3)
Trust (P2 x2)
Values (P2 x1)
Working together (P2 x1)
Topic: Professional Organizations / Forums
Standardization
Standardization (P1 x4 / P2 x1)
Government agency involvement / regulations
Regulatory authority requirements (P1 x1)
Government authority participation (P2 x1)
Topic: Real-world Incidents
Lessons learned
Lessons learned (P2 x1)
Stakeholder engagement / commitment
Collaboration (P2 x1)
Topic: Training
Standardization
Standardization (P1 x1 / P2 x1)


Case 3 - Interorganizational Collaboration Strategies in Emergency Management
Theme 1: Detailed & Practical Planning / Shared Plans & Resources
Theme 2: Stakeholder Engagement & Commitment
Theme 3: Government Agency Involvement & Regulations
Theme 4: Lessons Learned
Theme 5: Standardization
Detailed / practical planning
Risk analysis (P1 x1 / P2 x1 / P3 x6 / P4 x4)
Limitations (P1 x5 / P2 x4 / P3 x1)
Communication plans / emergency contacts (P3 x2)
Business issue / own recovery (P1 x1)
Business continuity planning (P1 x1)
Capabilities (P1 x 1 / P3 x1)
Cross-industry support (P2 x1)
Scope of work (P3 x1)
Resiliency (P1 x1)
Government agency involvement / regulations
Topic: Emergency Response / Disaster Recovery Plans
Government regulations (P2 x1 / P3 x3)
Shared plans / resources
Mutual-aid agreements / cooperation plans (P1 x4 / P2 x2 / P4 x2)
Efficiencies (P1 x1)
Resource sharing (P4 x1)
Stakeholder engagement / commitment
Neighbors (P3 x2)
Contractors (P1 x2)
Stakeholders (P4 x1)
Government agency involvement / regulations
Regulators / local authorities involvement (P1 x6 / P2 x3 / P3 x1 / P4 x1)
Lessons learned
Topic: Exercises
Lessons learned (P1 x1 / P2 x1 / P4 x1)
Shortfalls identified (P1 x1 / P4 x1)
Benchmarking (P1 x2)
Enhanced learning (P1 x1)
Stakeholder engagement / commitment
Collaboration (P1 x3 / P3 x1)
Contractors (P2 x1)
Customers (P1 x1)
Commitment (P1 x1)
Value (P1 x1)
Detailed / practical planning
Topic: Government Agencies / Regulations
Capabilities (P1 x3 / P4 x3)
Shortfalls identified (P1 x5 / P4 x1)
Government agency involvement / regulations
Regulations mandated (P1 x1 / P2 x1 / P3 x3)
Relationships (P1 x2 / P4 x1)
Lessons learned
Information sharing (P2 x1 / P3 x2)
Shared learnings (P2 x 1 / P3 x1)
Transparency (P1 x1)
Stakeholder engagement commitment
Topic: Professional Organizations / Forums
Discussions (P1 x4 / P3 x2 / P4 x1)
Risk analysis (P1 x2 / P3 x3 / P4 x1)
Working groups (P1 x2 / P2 x1)
Industry players (P1 x1 / P2 x1)
Commitment (P1 x2)
Working together (P1 x2)
Capabilities (P1 x1)
Engagement (P1 x1)
Goodwill (P2 x1)
Standardization
Industry best practices (P1 x3 / P2 x1 / P3 x1 / P4 x1)
Standardization (P1 x3 / P4 x2)
Government agency involvement / regulations
Government authority participation (P2 x3 / P4 x1)
Regulatory authority requirements (P1 x2)
Lobbying (P3 x1)
Lessons learned
Lessons learned (P1 x6 / P2 x2)
Stakeholder engagement / commitment
Topic: Real-world Incidents
Publicity (P1 x3)
Informal agreements (P2 x2)
Goodwill (P4 x1)
Stakeholder engagement commitment
Topic: Training
Collaboration (P2 x1)
Shared experiences (P1 x1)
Standardization
Standardization (P2 x1)