Tips & Considerations for 2024 Blue Skies Finalist Deliverables
From the 2024 Blue Skies Judging Panel

By understanding the challenges in developing new technologies for Emergency Management, the four phases of Emergency Management, and importance of First Responders, teams can develop technologies that effectively address the needs of emergency management and improve the overall response to disasters and emergencies. ***Finalist teams should consider and integrate this feedback into final papers, infographics, and presentations.***

Be sure to have excellent knowledge of these phases and challenges, and clearly articulate that knowledge across your technical paper, infographic, and presentation. This guidance is meant to improve teams' analysis of proposed concepts, particularly as it relates to assessing feasibility and viability of use case, implementation, and deployment. Teams should ensure their technical paper clearly addresses the four components outlined on Page 5 of the Competition Guidelines while enhancing the concept through planned research, consideration and/or response to feedback provided by judges, and consideration of this guidance. It is up to each team to determine how to address feedback for their individual proposal. Be sure to pay close attention to spelling and grammar in your final deliverables.

The Four Phases of Emergency Management:

1. **Mitigation:** This phase involves taking steps to reduce the likelihood and impact of disasters. This can include measures such as building codes, land-use planning, and public education campaigns.
2. **Preparedness:** This phase involves planning and preparing for disasters. This can include developing emergency plans, conducting training and exercises, and stockpiling supplies.
3. **Response:** This phase involves responding to a disaster. This can include measures such as evacuating affected areas, providing emergency shelter, and conducting search and rescue operations.
4. **Recovery:** This phase involves restoring affected areas to their pre-disaster condition. This can include measures such as rebuilding damaged infrastructure, providing financial assistance, and addressing long-term health and environmental impacts.

Challenges in Developing New Technologies for Emergency Management:

1. **Limited funding and resources:** Developing new technologies can be expensive, and funding for emergency management may be limited.
2. **Difficulty in predicting and modeling the potential impact of disasters:** Disasters can be unpredictable, and it can be difficult to accurately model their potential impact.
3. **Resistance to change and adoption of new technologies:** People may be resistant to change and may be hesitant to adopt new technologies.
4. **Lack of coordination and collaboration among stakeholders:** Effective emergency management requires coordination and collaboration among a wide range of stakeholders, including government agencies, non-profit organizations, and the private sector.

5. **Regulatory and policy barriers:** There may be regulatory and policy barriers that make it difficult to develop and implement new technologies.

Why First Responders Matter in Emergency Management Technology Innovation

Involving first responders in the development and implementation of technological innovations for emergency management is important, as it can improve the usability, usefulness, adoption, diffusion, impact, and value of the solutions. However, it also entails some challenges, such as identifying and engaging the relevant stakeholders, managing the expectations and conflicts, and integrating the feedback and insights.

One of the key strategies to mitigate the impact of disasters is to leverage technological innovations that can enhance prevention, detection, response, and recovery efforts. Examples of such innovations include remote sensing, drones, artificial intelligence, machine learning, big data, and cloud computing. These technologies can provide valuable information, insights, and tools for first responders, such as firefighters, emergency medical services, law enforcement, and disaster relief agencies, who are on the front lines of fighting and managing wildfires.

However, developing and implementing technological innovations for emergency management is not a straightforward process. **It requires a deep understanding of the needs, challenges, and preferences of the end-users, who are often the first responders themselves. Therefore, it is important to include first responders when designing and deploying new solutions for emergency management.**

Benefits of Involving First Responders in Innovation

Involving first responders in the development and implementation of technological innovations for emergency management can bring several benefits, such as:

- Improving the usability and usefulness of the solutions. By engaging first responders in the ideation, prototyping, testing, and feedback stages, the innovators can ensure that the solutions meet the actual needs and expectations of the end-users, and that they are easy to use, reliable, and compatible with the existing workflows and systems.
- Increasing the adoption and diffusion of the solutions. By involving first responders in the co-creation and co-ownership of the solutions, the innovators can foster a sense of trust, confidence, and satisfaction among the end-users, and increase their willingness and readiness to adopt and use the solutions in their daily operations.
- Enhancing the impact and value of the solutions. By incorporating first responders' knowledge, experience, and feedback into the innovation process, the innovators can improve the quality and performance of the solutions, and ensure that they deliver the desired outcomes and benefits for the end-users, such as reducing the risk, cost, and duration of wildfire incidents, improving the safety and health of the first responders and the affected communities, and restoring the natural environment.

Challenges of Involving First Responders in Innovation

Despite the benefits, involving first responders in the innovation process also poses some challenges, such as:

- Identifying and engaging the relevant stakeholders. First responders are a diverse and heterogeneous group of individuals, with different roles, responsibilities, perspectives, and preferences. It can be difficult to identify and engage the right stakeholders who can represent the needs and interests of the end-users, and who are willing and able to participate in the innovation process.
- Managing the expectations and conflicts. First responders may have different or conflicting expectations and opinions about the innovation process and the solutions. It

can be challenging to manage and balance these expectations and conflicts, and to ensure that the solutions are acceptable and beneficial for all the stakeholders involved.
- Integrating feedback and insights. First responders may provide feedback and insights that are complex, ambiguous, or contradictory. It can be hard to integrate and synthesize these feedback and insights, and to translate them into actionable and feasible solutions.

Recommendations for Involving First Responders in Innovation

To overcome the challenges and maximize the benefits of involving first responders in the innovation process, we suggest the following recommendations:

- Conduct a stakeholder analysis. Before starting the innovation process, it is important to conduct a stakeholder analysis to identify and understand the needs, interests, and motivations of the different groups of first responders who will be affected by or involved in the innovation. This can help to select and prioritize the most relevant and influential stakeholders to engage in the innovation process.
- Establish a clear and transparent communication. Throughout the innovation process, it is essential to establish a clear and transparent communication with the first responders, and to inform them about the goals, expectations, roles, and responsibilities of the innovation process. This can help to build trust, rapport, and collaboration among the stakeholders, and to avoid or resolve any misunderstandings or conflicts that may arise.
- Use participatory and user-centered methods. During the innovation process, it is advisable to use participatory and user-centered methods, such as interviews, surveys, focus groups, workshops, observations, and simulations, to elicit, validate, and incorporate the feedback and insights of the first responders. These methods can help to ensure that the solutions are co-designed and co-developed with the end-users, and that they are aligned with their needs and preferences.

Example Resource:

Wildfire ConOps 1.0 is a wildfire-specific resource that might give insight into analysis of disaster management tools against disaster phases, challenges to developing new tech in disaster management, and how proposed concepts interact with first responders (as indicated above). For all disasters, there is a need for communication, networks of people and vehicles, Machine Learning, AI, and sensors. Wildfire ConOps 1.0 outlines current advancements in wildfires, which may assist those working within wildfire in developing ideas to improve today's systems and progress them toward 2035. For those working with other disasters, consider analogues gained from working with experts in your respective disaster.