## Workgroup Summary

# Data and Technology

## Overarching Goal:

Embrace a culture of data and technology throughout the fire and emergency services to enhance the effectiveness, efficiency, and equity of fire department service delivery through modern systems, methods, and practices.

## Issue:

In 1985, the U.S. Fire Administration released the National Fire Incident Reporting System (NFIRS). Almost 40 years later, this legacy system no longer meets the needs of all-hazards fire departments. Departments are increasingly experiencing demands for service in an environment of shifting population trends, climate change impacts, recruitment and retention challenges, and declining availability of resources. These challenges are compounded by the limitations in the legacy NFIRS and, as a result, the fire and emergency services lack a standardized, authoritative, and reliable source of actionable data and information on all-hazards incidents. As a result, government and industry leaders do not have the information they need to fully address the nation's fire problem and risks involving other hazards. The legacy NFIRS system is not cloud based or interoperable, and does not have the capability for direct data capture, geolocation, analytics, dashboard reporting, or data exchange via application programming interfaces (APIs).

In May 2023, USFA commenced the development of the National Emergency Response Information System (NERIS) to replace the legacy NFIRS. NERIS is a modern, secure, and cloud-based system that will continue to be modernized over time. The goal of NERIS is to empower the local fire and emergency services community by equipping them with near real-time information and analytic tools that support data informed decision-making for enhanced preparedness and response to incidents involving all hazards. NERIS will be the leading source for comprehensive information and advanced analysis on fire-related issues in the United States. By collecting, integrating, and analyzing all-hazards incident data, the NERIS platform will offer up-to-date information on fire and emergency situations across the United States. It will also provide timely insights into significant or noteworthy events. It will provide the fire service community with reliable predictive analytics to support enhanced preparedness and response to all-hazard incidents, wildland urban interface (WUI) events, community risk reduction efforts, climate change threats, and emerging threats and hazards.

Using NERIS, all fire departments nationwide – regardless of type and size – can contribute and have access to accurate and reliable aggregated data. This data will be seamlessly integrated with other relevant information, empowering fire departments to make informed decisions for their daily operations as well as for long-term planning and prevention efforts. With the launch and availability of NERIS, we will catalyze a major shift in how fire service leaders and firefighters apply data analysis to inform mission critical decision making. Facilitating a shift in data collection and use among the fire service will vary depending on the data-centric culture that exists within each department. Consequently, it is important to enable technology capabilities, enhance staffing, and make data training available within departments. USFA is committed to supporting departments in implementing this culture shift, across all types of fire departments and communities ranging from small, volunteer departments in rural communities to large, departments in urban areas.

By elevating the maturity of fire department data and technology skills, we will learn not only how many incidents there were but also what they were and why, when, and where they happened supported by quantitative insights. The maturity progression in fire departments data and technology skills can be summarized through the following levels and capabilities:

1. Descriptive analysis of what happened,

2. Diagnostic analysis of why it happened,
3. Predictive analysis of what is likely to happen in the future and evolving threats,
4. Prescriptive analysis of what do we need to do. As the fire service looks further into the future, the ability to leverage artificial technology and other advanced technologies will only be possible with complete, accurate, reliable, and interoperable data.

## Accomplishments:

Since the launch of NERIS development in May 2023, there have been several major data and technology accomplishments by USFA and the national fire service organizations, including the following:

- February 2024 – Engaged with stakeholders nationwide to gather requirements and inform the development of the NERIS data schemas.
- March 2024 – Launched the Prototype NERIS and onboarding 6 fire departments for testing. Media Release: Six fire departments onboarded onto the new National Emergency Response Information System (fema.gov)
- May 2024 – Released the Core NERIS Data Schemas in beta version. NERIS Core Data Schemas Released In Beta (fsri.org)
- June 2024 – Rolled-Out a National Fire Data Week focused on NERIS that provided broad distribution of core thought leadership on the transition to NERIS. Welcome to National Fire Data Week 2024 | UL's FSRI – Fire Safety Research Institute
- July 2024 – Released and launched the Wildland Urban Interface (WUI) Fire Awareness Tools. New tools launch to raise awareness on wildland urban interface fire (fema.gov)
- August 2024 – Launched the Beta NERIS and onboarding 50 fire departments for beta testing. After Successful Prototype, NERIS Expands to 50 New Fire Departments in Beta Testing (fsri.org)
- August 2024 – Released the Secondary NERIS Data Schemas for public feedback. NERIS Releases Secondary Data Schemas for 30-Day National Engagement Period | UL's FSRI – Fire Safety Research Institute
- August 2024 – Released initial version of the NERIS API Infrastructure and Sandbox for CAD and RMS to begin developing and testing APIs for integration with NERIS. NERIS Releases Key API Instructure to Enable Connected Services (fsri.org)

Focusing on the initial scope for the Data and Technology National Strategy Workgroup, we:

- Identified sixteen awareness, ten marketing, and ten education and training activities for NERIS and incorporated them into an 18-month NERIS Roll-out Communication, Education, and Training Plan.
- Outlined a high-level Fire Data-Technology Maturity Framework addressing People and Culture, Process and Governance, IT Systems, Data, and Analytics.
- Developed a process for systemically collecting success stories from local fire departments on their use of data and technology.

The Data and Technology National Strategy Workgroup included membership from national fire and emergency service organizations. Over the past year, they have also had significant accomplishments in this area.

- The International Association of Fire Chiefs held their Technology Summit International Conference in December 2023 and convened Fire Data Analysis Working Group sessions in December 2023 and August 2024.
- The National Fire Protection Association published a brand standard for Fire and Emergency Service Analyst Professional Qualification in June 2024.
- The Center for Public Safety Excellence launched their new Fire and Emergency Service Analyst (FESA) professional credential in September 2024.

## Recommendations:

- Continue to support, champion, and promulgate NERIS throughout the launch and National roll-out among all local fire departments.
- Identify and use established key performance indicators (KPIs) for each lane within the Fire Data-Technology Maturity Framework and for each level within that lane.
- Develop a self-assessment tool based on the enhanced Fire Data-Technology Maturity Framework, building on successful models, that allows departments to understand where they are and the next steps to advance their use of data-enabled technology.
- Establish a nationwide cadre of leading and innovative Fire Data Experts (that hold recognized professional credentials) to provide technical assistance to local fire departments. The cadre will guide and build the capacity of local fire service leaders and firefighters in all types of departments (career, volunteer, and combination) in standardized and effective data collection, exchange, quality, analysis, and the safe use of AI models in enhancing analysis products.
- Develop a user-friendly library of fire department data and technology success stories that include actionable tips for replication using a web-based collection process developed by the Data and Technology National Strategy Workgroup.
- Develop a technology roadmap for the fire service focusing on other types of technology, such areas as wearables, virtual reality, robotics, unmanned aerial systems, and artificial intelligence. Identify the use cases for these types of technologies and develop a research and implementation roadmap based on the use cases.