National Continuous Improvement Guidance

June 2022 (Pre-Decisional Draft)

This document is intended for use during a public comment period. This draft is for developmental purposes only and may require additional editing for grammar, unified voice, and the correction of content format and flow. This document will undergo additional updates based on feedback received from stakeholders and partners. This document should not be considered a final draft.
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Chapter 1: Introduction

1. Purpose

The Federal Emergency Management Agency’s (FEMA) National Continuous Improvement Guidance provides a framework to conduct consistent and rigorous continuous improvement activities before, during, and after real-world incidents. This guidance is intended for the whole community, including state, local, tribal, and territorial (SLTT) partners; nongovernmental organizations (NGO); the private sector; and other emergency management organizations. This guidance is designed to help emergency managers and whole community partners continually evaluate their emergency management capabilities and establish a process for improving them as threats and risks change.

Emergency managers and other whole community partners can use this document to effectively strengthen their continuous improvement capabilities regardless of their organization’s level of experience or resources. This guidance is scalable and adaptable to meet organizational needs and capabilities based on available resources and priorities. The guidance provides information to serve as a foundation for developing and implementing continuous improvement programs for organizations with limited resources or continuous improvement experience. Additionally, it provides information for organizations with more mature continuous improvement programs to codify, refine, and enhance their existing processes and programs. This guidance is scalable and adaptable to meet organizational needs and capabilities based on available resources and priorities.

FEMA is committed to providing collaborative and consistent services that empower whole community partners to develop their understanding of continuous improvement, establish and manage a continuous improvement program, integrate process improvement principles, and improve future incident operations. The National Continuous Improvement Guidance was developed using industry-wide experiences, processes, and best practices. To support these goals, this guidance:

- Provides a continuous improvement framework with relevant examples and best practices;
- Identifies activities and products that organizations can implement using their lessons learned and historical incident data;

FEMA’s Continuous Improvement Technical Assistance Program

This guidance is part of FEMA’s Continuous Improvement Technical Assistance Program (CITAP), which offers a comprehensive technical assistance package to the whole community through tools, templates, training, and customized engagements in continuous improvement. CITAP has a dedicated page on FEMA’s Preparedness Toolkit. This document references the many resources available at: https://preptoolkit.fema.gov/web/cip-citap.
Establishes the role of process improvement in both steady state and incident operations; and

Describes considerations to establish and manage an effective continuous improvement program.

To further explain the intent of this guidance, Table 1 provides additional information regarding what the guidance is and is not.

Table 1: The Intent of National Continuous Improvement Guidance

<table>
<thead>
<tr>
<th>What this guidance is:</th>
<th>What this guidance is not:</th>
</tr>
</thead>
<tbody>
<tr>
<td>For whole community partners interested in continuous improvement</td>
<td>Only for organizations with existing continuous improvement capabilities</td>
</tr>
<tr>
<td>Based on government and industry best practices for continuous improvement</td>
<td>Based only on federal best practices</td>
</tr>
<tr>
<td>Scalable, flexible guidance to support organizations of every size</td>
<td>Rigid, one-size-fits-all guidance document</td>
</tr>
<tr>
<td>Accompanied by a suite of resources</td>
<td>Stand-alone guidance, without accompanying resources</td>
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2. Background

Continuous improvement requires an ongoing culture of learning in which organizational capabilities, processes, and functions are periodically examined to ensure they are sufficient, accurate, and effective to handle the threats, hazards, and risks a jurisdiction or organization may face. Organizations often face repetitive operational hurdles, which can limit the effectiveness of capabilities across the mission areas: prevention, protection, mitigation, response, and recovery. Continuous improvement establishes processes to help organizations identify and act upon gaps and strengths. Continuous improvement methods can also be used to inform program operations and resource funding decisions.

Mission Areas

Prevention: Prevent, avoid or stop an imminent, threatened or actual act of terrorism.

Protection: Protect our citizens, residents, visitors, and assets against the greatest threats and hazards in a manner that allows our interested, aspirations and way of life to thrive.

Mitigation: Reduce the loss of life and property by lessening the impact of future disasters.

Response: Respond quickly to save lives, protect property and the environment, and meet basic human needs in the aftermath of a catastrophic incident.
There is a growing demand for continuous improvement skillsets in emergency management as natural disasters occur with greater frequency and intensity, demographic patterns expand vulnerabilities, and adversaries, such as terrorists, constantly adapt. This evolving landscape requires communities to identify challenges, set priorities, and close gaps. The goal of continuous improvement should be to collect and evaluate data to provide the whole community with the analyses necessary to make critical decisions about their program's operations, objectives, policies, and regulations. These analyses will identify opportunities for jurisdictions and organizations to enhance their preparedness and operational readiness initiatives.

3. **Scope, Applicability, and Intended Audience**

This guidance provides tools, tips, resources, and strategies, for the whole community to use when conducting continuous improvement activities such as after-action analyses. It is flexible and adaptable for use by partners across the whole community and all mission areas. Partners are encouraged to apply and adapt the guidance to meet their specific learning needs.

**Who can conduct continuous improvement?**

Emergency managers at all levels of government, the private sector, and nongovernmental organizations can conduct self-led continuous improvement activities to evaluate emergency management plans and practices.

If an organization has limited resources for continuous improvement activities, they may explore opportunities to engage with subject-matter experts (SME), including those from partners agencies or communities.

4. **How to Use This Guidance**

This guidance is designed as a resource for all organizations, despite their varying levels of expertise, experience, and resources. This document provides guidance for continuous improvement; it does not present any requirements or limits which would prevent whole community partners from developing or enhancing a continuous improvement program. All information in this guidance is flexible, and organizations do not need to follow the guidance in its entirety. Organizations may instead focus on the portions of the guidance that are most applicable to their needs. Although organizations are welcome and encouraged to read and use the entire guidance, the intended audience of each chapter is defined below:
Chapter 2: Continuous Improvement Process provides a framework and various methods that all organizations can use to begin conducting continuous improvement or enhance their existing activities.

Chapter 3: Incident Operations provides information to organizations with the capacity or interest to provide continuous improvement support before and during incident operations, in addition to after incidents.

Chapter 4: Process Improvement provides information for organizations with the resources and expertise to engage in longer-term activities that address specific process-based areas for improvement.

Chapter 5: Building a Continuous Improvement Program provides information for organizations looking to build a continuous improvement program or institutionalize continuous improvement activities within an existing program.

The resources accompanying the guidance are intended to help organizations understand how to conduct the continuous improvement activities described in the guidance. Green boxes, as shown in Figure 1, are placed throughout the guidance with tips for resource constrained organizations.

Figure 1: Tips for Resource Constrained Organizations Example Callout Box

NCIG-related resources noted throughout the guidance are accessible on the NCIG Resource Page on FEMA’s Preparedness Toolkit (FEMA’s PrepToolkit) which serves as the central repository for all resources mentioned in this document. The NCIG Resource Page can be accessed at: https://preptoolkit.fema.gov/web/cip-citap/ncig-resources, and is updated regularly to provide the most up-to-date continuous improvement guidance and tools available. This guidance identifies many resources that can be found in FEMA’s PrepToolkit, to aid in the adaptation and implementation of the guidance. You can find these resources identified with a gray box, like the one seen in Figure 2.

Figure 2: Reference for Resources Example Box

Organizations are welcome to submit example tools, templates, or success stories from their experience implementing continuous improvement activities to be considered for inclusion on
FEMA’s PrepToolkit website. Organizations can send their submissions to FEMA-CITAP@fema.dhs.gov. FEMA will work with organizations to select tools, templates, or success stories to share on the resource page. Additional resources, not from FEMA’s PrepToolkit, are also referenced throughout this guidance and hyperlinked.

5. Alignment with Federal Programs, Policies, and Guidance

This guidance aligns with existing federal programs, policies, and guidance. Significant programs, policies, and guidance that this guidance relates to are briefly detailed in Table 2. Refer to Appendix E: Alignment with Federal Programs, Policies, and Guidance for additional details.

Table 2: Alignment with Federal Programs, Policies, and Guidance

<table>
<thead>
<tr>
<th>Federal Program, Policies, and Guidance</th>
<th>Description and Connection to the National Continuous Improvement Guidance</th>
</tr>
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<tbody>
<tr>
<td><strong>National Preparedness System</strong></td>
<td>The National Continuous Improvement Guidance contributes to the National Preparedness Goal and supports efforts across the whole community to improve the nation’s capacity to build, sustain, and deliver core capabilities. Preparedness is a continuous process of planning, organizing, equipping, training, exercising, evaluating, and taking corrective action.</td>
</tr>
<tr>
<td><strong>National Incident Management System (NIMS)</strong></td>
<td>When conducting continuous improvement within the emergency management space, it is important to use common terminology and plan language established in NIMS. Using the same terminology and structure when updating plans and processes allows for interagency coordination and a common language when talking about continuous improvement.</td>
</tr>
<tr>
<td><strong>Comprehensive Preparedness Guide (CPG 101): Developing and Maintaining Emergency Operations Plans</strong></td>
<td>CPG 101 provides guidance from FEMA on the fundamentals of planning and developing emergency operations plans. Continuous improvement activities and products can inform these efforts and help planners address and overcome identified gaps, resulting in more efficient and effective plans.</td>
</tr>
<tr>
<td><strong>Comprehensive Preparedness Guide (CPG 201): Threat and Hazard Identification and Risk Assessment (THIRA) and Stakeholder Preparedness Review (SPR) Guide (3rd Edition)</strong></td>
<td>The outputs of the THIRA/SPR provide communities with a foundation to prioritize decisions, close gaps in capability, and support continuous improvement.</td>
</tr>
</tbody>
</table>
Federal Program, Policies, and Guidance | Description and Connection to the National Continuous Improvement Guidance
--- | ---
Foundations for Evidence-Based Policymaking Act of 2018 (Evidence Act) | The continuous improvement processes described in the National Continuous Improvement Guidance are grounded in these Evidence Act requirements. Although the Evidence Act only applies to Federal agencies, the principles of evidence-building, high-quality evaluation, and evidence-based policy inform these best practices and can be applied by partners as well.

### 5.1. Connections with Homeland Security Exercise and Evaluation Program

The National Continuous Improvement Guidance builds on FEMA guidance about improvement planning and evaluation established through the Homeland Security Exercise and Evaluation Program (HSEEP). HSEEP provides a set of guiding principles for exercise and evaluation programs, as well as a common approach to exercise program management, design and development, conduct, evaluation, and improvement planning. The identification of strengths, areas for improvement, and corrective actions that result from exercises help organizations build capabilities as part of a larger continuous improvement program. Improvement planning activities can help shape an organization’s exercise program priorities and support continuous improvement in the building and sustaining of core capabilities.

An essential difference between this guidance and HSEEP guidance is that this guidance engages findings from real-world incidents with a focus on expanding and improving preparedness as a continuous and programmatic process. Additionally, the National Continuous Improvement Guidance does not provide guidance related to the development and conduct of exercises, which is addressed by HSEEP. Since many organizations assess both exercises and real-world incidents, this guidance and HSEEP may be used together to develop robust continuous improvement programs. Throughout this document, there will be references to HSEEP, connecting the National Continuous Improvement Guidance with HSEEP practices and terminology.

The National Continuous Improvement Guidance provides processes to meet the challenges of conducting analyses for real-world incidents, which differ from exercises. Often, real-world incidents extend for multiple days, weeks, and months, without a defined start and stop. The complex operational dynamics often lead to challenges during data collection and analyses. Additionally, real-world incidents often occur without notice, which can create additional resource challenges and limit the ability to prepare for data collection.

For additional information on HSEEP, refer to FEMA’s webpage at: [https://www.fema.gov/emergency-managers/national-preparedness/exercises/hseep](https://www.fema.gov/emergency-managers/national-preparedness/exercises/hseep).
Chapter 2: Continuous Improvement Process

Chapter 2 describes a continuous improvement process framework and associated activities. The continuous improvement process specifically refers to four phases which are described in this chapter. This chapter can be used by whole community partners who are interested in improving incident outcomes, validating capabilities, prioritizing resource needs, and/or shaping training practices based on documented capability gaps or policy changes.

1. Overview of Continuous Improvement

A continuous improvement process reviews and assesses incident outcomes through consistent, organization-wide assessment and recommended actions tracking. Figure 3 depicts the four main pillars of the continuous improvement process as FEMA applies it: Discovery, Validation, Resolution, and Evaluation. FEMA uses these pillars to depict the continuous improvement process and reaffirm that the process is not linear. Steps within the process can be iterative. For example, if an organization is conducting data analysis in the Validation Phase and identifies a need to conduct additional interviews with SMEs, they can go back to the Discovery Phase to conduct additional interviews. Additionally, phases within the process can be conducted individually, even if the other phases are not necessary. For example, if an external audit of the organization identifies specific gaps in the organization’s hiring practices, then the organization can skip the Discovery and Validation Phases and immediately begin with the Resolution phase to identify recommended actions and entities responsible for implementing these recommended actions. Organizations can use these four phases to collect, analyze, and evaluate operational and programmatic data to determine key opportunities for improvement, collaboration, and incorporation of potential best practices.
Organizations benefit from a standardized continuous improvement process as they will likely encounter repeated or similar operational hurdles that limit their operational effectiveness if they go unaddressed. A continuous improvement process establishes protocols to help ensure organizations can identify and act on strengths, areas for improvement, and potential best practices.

The continuous improvement process can be used when assessing incident and steady state operations and generally culminates in deliverables, such as an After-Action Report (AAR), which provides a reflective analysis of an incident. Less complex incidents may not require a complete AAR but may use alternative post-incident assessments such as a Quick Look Report (QLR) or After-Action Review Briefing. More information on those assessments can be found in Chapter 2, Section 3: After-Action Review Products.

When conducting continuous improvement activities, organizations should ensure they involve all affected and relevant external and internal stakeholders to ensure that findings are reflective and inclusive of various perspectives. Including various perspectives is especially important since the experiences of personnel and other stakeholders can vary based on position, seniority, and other identifying factors. Additionally, an incident can have a variety of effects on different communities,
and the perspective from each is essential to understanding the context and causes and for pursuing effective solutions.

2. Continuous Improvement Phases

2.1. Discovery

The first phase in the continuous improvement process is Discovery, as depicted in Figure 4. The purpose of the Discovery Phase is to collect information from an incident that will be later used to identify strengths, areas for improvement, potential best practices, and mission critical issues. These strengths, areas for improvement, potential best practices, and mission critical issues are then used to identify trends across incidents and exercises. The Discovery Phase consists of two elements. The first element is planning for data collection to ensure that information is collected, managed, and shared in a systematic and deliberate manner. The second element is collecting data using a variety of methods.

2.1.1. PLANNING FOR DATA COLLECTION

Planning and organizing data collection are crucial first steps to ensuring effective use of the information collected. Data collection might occur during an incident, but more likely will happen after an incident or as operations slow down. When developing a strategy for the data collection process, consider the following:

- Data provides empirical evidence for continuous improvement activities and resourcing decisions;
- Data enables the comparison of what happened during an incident to what should have happened; and
- Data allows for consideration of underlying issues by providing a fact-based record of what actions were taken, what key decisions were made, and the outcomes of those actions and decisions.

Prior to beginning data collection, it is important to establish priorities based on leadership, incident needs, existing plans, and previous real-world incident or exercise AARs. This allows staff to use limited resources to focus on collecting pertinent data on topics informed by organizational priorities.

One method for planning and organizing the data collection process is developing a Collection Analysis Plan, which can help organizations engage leadership and other components to identify
incident priorities. This ensures that data is collected, shared, and managed in a systematic and deliberate manner. A Collection Analysis Plan also facilitates identification of trends across incidents.

A Collection Analysis Plan establishes objectives to prioritize during data collection and identifies methods for collection. It establishes the purpose, scope, priorities, and milestones for an incident after-action review. The Collection Analysis Plan is used to guide the creation of interview questions and other data collection methodologies. Additionally, it defines what products will be created, the audience of those products, collection dates, and expected due dates. Leadership engagement is critical to developing the Collection Analysis Plan to understand their priorities and expectations.

Elements of the Collection Analysis Plan include:

- Brief descriptions of the incident (e.g., type of incident, duration, and location);
- Statement of the purpose and scope of the effort;
- Statement of leadership and other priorities that will frame data collection and research questions;
- Roles and responsibilities of personnel supporting data collection;
- Tentative schedule for data collection, analysis, and writing of observations;
- Methodology for data collection (e.g., interviews, surveys, quantitative data sets, hotwash); and
- Expected deliverables.

2.1.2. DATA COLLECTION

Data collection is the process of systematically gathering and measuring information on pre-identified priorities to answer relevant questions and evaluate outcomes. It is important to use a variety of sources to ensure as many perspectives as possible are gathered on a specific topic, understanding that resources will not allow for an exhaustive collection. There are two types of data sources: qualitative or quantitative. Table 3 and Table 4 provides brief descriptions of the qualitative and quantitative data collection methods that will be detailed further in the following sections.

Table 3: Qualitative Data Collection Methods

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
<th>When to Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviews</td>
<td>Collect individuals’ perspective on why things happened.</td>
<td>To understand events and explore perspective about particular topics. Usually conducted after, but sometimes during, the response phase.</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
<td>When to Use</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Direct Observations</td>
<td>Observe field staff in their work environment without interfering.</td>
<td>To gather information during response operations, when analyzing a specific process, or during a meeting related to an observation topic. Conducted during the response phase.</td>
</tr>
<tr>
<td>Hotwashes</td>
<td>Facilitated discussion after an incident or event to gather initial thoughts on what worked well, what needs improvement, and potential recommendations.</td>
<td>Usually conducted when the response phase has ended but before teams are demobilizing.</td>
</tr>
<tr>
<td>Focus Groups</td>
<td>Facilitated, in-depth discussion with SMEs on a particular topic or issue.</td>
<td>Usually conducted at the request of leadership or a program area and often results in a product such as a process map or issue paper. Usually conducted after the response phase.</td>
</tr>
<tr>
<td>Surveys</td>
<td>Collect data from a pre-defined group of respondents to gain information and insights on topics of interest to inform decisions. Depending on the type of question asked in the survey, the data collected can be either quantitative or qualitative.</td>
<td>Usually conducted after the response phase to collect information and insights. Commonly used prior to interviews to help scope what to ask or after interviews to validate or expand on information.</td>
</tr>
<tr>
<td>Document Review</td>
<td>Collect incident-specific information from operational documents (i.e., situation report and IAP) or activated plans, policies, or procedures. Or collect information on previously developed lessons learned, academic research, and government reports to learn more about a topic-issue and its history.</td>
<td>Conducted prior to, or during, the response phase to enhance understanding when conducting preliminary research and to gather the historical background information on a topic/issue. Conducted after the response phase to gain incident-specific information to inform after-action products and confirm or enhance information gathered using other data collection methods.</td>
</tr>
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</table>

**Table 4: Quantitative Data Collection Methods**

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
<th>When to Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Management Systems and Source Databases</td>
<td>Use existing datasets already being collected, either for the same purpose or a different purpose, and assess it for applicability to the current research.</td>
<td>Usually evaluated after the response phase to validate or clarify feedback received during hotwashes, focus groups, surveys, and interviews.</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
<td>When to Use</td>
</tr>
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</tr>
<tr>
<td>Survey</td>
<td>Collect data from a pre-defined group of respondents to gain information and insights on topics of interest to inform decisions. Depending on the type of question asked in the survey, the data collected can be either quantitative or qualitative.</td>
<td>Usually conducted after the response phase to collect information and insights. Commonly used prior to interviews to help scope what to ask or after interviews to validate or expand on information.</td>
</tr>
</tbody>
</table>

### 2.1.3. QUALITATIVE DATA COLLECTION

Qualitative data approximates or characterizes but does not measure attributes, characteristics, or properties. Examples of qualitative data include data collected from interviews, direct observation of personnel, hotwashes, focus groups, surveys, and reviews of documents.

Although the order of qualitative data collection can vary based on the incident and/or organization, a common order of qualitative data collection activities is 1) direct observations, 2) hotwash, 3) survey, 4) interviews, and 5) focus groups. Documentation review often occurs concurrently with all of these activities. Figure 5 depicts an example qualitative data collection timeline using all of the methods; however, it is important to remember all of these activities are flexible and can occur at any point in data collection process based on the needs of the organization.

#### Tip for Resource Constrained Organizations

If an organization has limited resources and does not have the bandwidth to conduct all forms of data collection, they can conduct a hotwash and use a survey. The hotwash can be a good way to collect feedback and perspectives for personnel already at an incident. A survey can then be used to ask questions to many personnel at once, including those who were not at the hotwash.

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**Figure 5: Order of Qualitative Data Collection Methods**

1) Direct Observation  
2) Hotwash  
3) Survey  
4) Interviews  
5) Focus Groups

**Ongoing Documentation Review**

**Direct Observations**

Direct observation is the activity of observing and documenting the actions of individuals and other contextual information (e.g., number of personnel present, operational focus and setting). Direct observations should not be a single source, as it is one person’s perspective, and it is important to
examine the broader context and factors. During an incident, direct observations of staff and stakeholders operating in their work environment can be used to gather information about processes, outcomes, and activities without interfering or participating in the operational activities.

Observers can collect direct observations by attending meetings and speaking with responders. Specifically, personnel can identify and attend meetings related to disaster priorities, including those listed in a Collection Analysis Plan. This may include daily operational meetings, staff meetings, leadership meetings, and/or informal check-ins. Additionally, observers can identify and join any email distribution lists that align with their collection priorities to collect data and maintain situational awareness.

Observers should take extensive notes. In some cases, it may be possible to record meetings or presentations, but it is important to receive the consent of all personnel present before doing so. Observers can document activities, including presentations, interactions among staff and stakeholders, interaction with technologies, and any operational issues. When listening to meetings or discussion, observers should listen for information regarding pain points or disagreements that could lead to follow-up questions for future interviews or focus groups to go deeper on what happened and why it happened. Typically, observers will not document operational factors that they cannot see or hear, such as motivating factors or the meaning of certain behaviors. As a qualitative method, observers may sketch out a map of the area under observation if it helps to build an understanding of how activities were influenced by the space.

Lastly, observers should always maintain safety practices, avoid disrupting work operations, and avoid influencing the work efforts of those being observed unless directed to provide potential process improvements, advisory products, or other continuous improvement products. Some observers will also likely need access to enter specific work areas and the proper credentialing, which should be planned in advance whenever possible. Direct observations should be conducted in line with established security requirements (e.g., not taking notes in a secure room).

Direct observations offer real-time data collection and may require additional resources and staff to observe multiple activities simultaneously. In some cases, organizations may not have the resources to assign staff to directly observe incident operations. When there is limited bandwidth to conduct direct observations, it is especially important to use the collection priorities determined when planning for the collection to scope observations. This will allow observers to selectively observe meetings and interactions that directly related to collection priorities.

**Hotwashes**

A hotwash is an interactive and collaborative facilitated discussion between multiple parties involved in an incident or event that captures feedback following an incident. A hotwash typically occurs immediately after an incident and is an opportunity to generate ideas to solve a problem or prioritize which challenges can be resolved. A hotwash requires an experienced facilitator who can keep the discussion focused and constructive. Often, this requires two facilitators and a note-taker. A good facilitator is flexible, knowledgeable about the topic or incident, organized, responsible, in control,
and able to pay attention and has no stake in the outcome and can establish an inclusive environment.

The timing, length, and audience of the hotwash varies depending on the size, scope, or duration of an incident and participants. Hotwash participants may be relevant personnel who can provide situational awareness, including decision makers and other individuals with operational insight. The group should be large enough to get diverse input but small enough so everyone can contribute. During a prolonged real-world incident, it may be helpful to hold multiple hotwashes at multiple intervals. Hotwashes are different from group interviews. Hotwashes have facilitated dialogue amongst participants after a specific incident. Additionally, hotwashes can typically include many more participants than a group interview and can be relatively brief (e.g., 1 to 1.5 hours). It is important to note that a risk of hotwashes is group think. If not well-facilitated, hotwashes can be an unproductive sharing of personal opinions, rather than a purposeful collection of information to inform future preparedness and operations.

Surveys

Surveys are questionnaires designed to collect specific, consistent data from a large group of people. Surveys can contain questions that result in quantitative or qualitative responses depending on the format of specific questions. Surveys can be used as a tool to gather information on the collection priorities. Additionally, surveys can be used for gathering first-hand information from people, prioritizing topics for further data collection, gaining insights on topics of interest to inform decisions, conduct assessments, collect feedback, and determine the scope and extent of individual results.

Surveys can be designed to gather information on the collection priority areas. When designing a survey, use the following steps to guide development: 1) decide what information to collect, 2) determine survey participants, 3) choose survey software, 4) write and order questions, 5) conduct a pilot survey, and 6) finalize survey for circulation.

When developing a survey, consider question type, wording, order of questions, number of questions, and demographic questions. Questions can either be free response (i.e., open-ended) questions or closed response questions. Free response questions are open-ended questions that are exploratory in nature and require critical thinking from respondents. They provide respondents with greater flexibility and allow them to submit any answer without restrictions. Closed response questions, such a multiple choice, Likert scale, drop-down, provides a selection of answers respondents can choose from. It is also worth noting that open-ended questions take the longest time to analyze and evaluate due to the potential length and diversity of responses.

### Examples of Free Response versus Closed Response Questions

**Free Response Question:**

What resources were most frequently used during this incident?
**Closed Response Question:**

What program office supported this incident?

1. Grants
2. Mitigation
3. Housing
4. Public Health

When developing survey questions, consider the following best practices:

- Use simple and direct vocabulary;
- Avoid leading questions that may suggest specific answers;
- Avoid asking questions that ask about two or more issues;
- Avoid questions that use a negative (e.g., which of the following is not true?);
- Include the most important and engaging questions at the beginning of the survey to increase the likelihood of response; and
- Limit the number of questions to keep respondents engaged and reduce response times.

Depending on the purpose of the survey, it may be important to ask respondents to provide demographic information including position, organization, and years of experience. Additionally, when surveying a large, diverse group, organizations can issue different surveys for different responding groups to avoid asking all participants questions that might not apply.

Surveys are most commonly delivered using online survey platforms, but they can also be delivered in other formats, when necessary. Online survey platforms often provide data analysis tools that can be used to identify trends. In some cases, multi-platform surveying might be a more effective approach depending on the intended audience or desired set of participants. For example, if the survey is issued to a list of state government employees, who all have reliable internet access, an online survey may be the best tool. However, when surveying members of the public, especially if trying to reach populations that may have limited access to the internet, then paper, telephone, or even in-person surveys could be considered.

**Interviews**

An interview is a meeting with an individual or group, after an incident or during a prolonged incident, to collect perspectives on what happened and why. Interviewing stakeholders who support emergency management is one of the ways that data may be collected for an after-action review. Interviewing is a fluid practice, where flexibility and adaptability are important to an interviewer's success.
To conduct a successful interview, an interviewer must thoroughly prepare to collect the necessary data in an efficient manner.

Figure 6 shows an example of the interview process.

The first step of the interview process is to identify interviewees. Personnel may identify key stakeholders who possess a strong understanding of the incident activities and develop interview questions to capture key improvement information. Some ways to identify interviewees is by looking at the Incident Action Plan or organization assignment lists to identify personnel whose responsibilities may be related to the collection priorities. Additionally, staff can identify potential interviewees by asking the personnel they know or interview for recommendations on who to interview next. It is important to interview a diverse set of personnel, including those who will be directly affected by any changes, and those who can provide varying perspectives on a situation.

Next, the interviewer will schedule interviews and draft interview questions. These steps can occur concurrently or in any order. Interviewers may need to be flexible when scheduling interviews as interviewees could have limited time during and after incident operations. When reaching out to potential interviewees, interviewers can introduce themselves and who they represent, request availability, outline key points of discussion (and questions, if available), and include any material the interviewee may need to review in advance of the interview.

Using the collection priorities, the interviewer can also draft interview questions for each interviewee. Although the interviewers can be prepared with questions, they should remain flexible to adjust the approach based on the interviewee’s responses and ask follow-up questions, when necessary. Interviewers may ask each interviewee standard questions but could refine questions to the specific needs of the interview.

Interviewers can ask strong interview questions that promote discussion and require critical thinking to answer. Weak questions often result in yes or no responses with no context and limit the data collected. A strong interview question is open-ended, will invite interviewees to give additional details, and will typically lead to an opportunity for follow-up questions, even if those questions are
not on the list of pre-identified questions. Follow-up questions can offer additional insight on different topics of interest that arise during the discussion.

Next, the interviewer assigns a note-taker to record the conversation by taking detailed notes, including questions asked and responses. In some cases, interviewers may record interview sessions to serve as a point of reference or to clarify information that may not be clear in the notes captured during an interview. Whenever an interview is recorded, it is important to ensure the interviewee is made aware and agrees to be recorded for the interview. Expectations regarding confidentiality and anonymity should be clearly established and agreed upon.

Finally, the interviewer conducts the interview. During the interview, the interviewer may first introduce the interview team and explain how the information collected will be used. Specifically, the interviewer can clarify that any information shared during the interview will not be attributional to the interviewee. The interviewer will then begin to ask the pre-determined questions. The interviewer can ask follow-up questions to understand the complete operational picture. At the end of the interview, the interviewer can ask the interviewee if they recommend any additional personnel to speak with. Additionally, the interviewer may ask for any documents or data that they suggest the interviewer can review.

During the interview, the note-taker monitors interview progress to ensure on-time completion. The note-taker should be objective, listen carefully, and capture important information. The note-taker can capture key information, including: 1) interviewer/interviewee names, date, time, and contact information; 2) questions asked, and subsequent answers recorded from the first-person perspective of the interviewee; and 3) discussion of strengths, areas for improvement, potential best practices, and mission critical issues—these four types of observations are expanded on below in Section 2.2.2. Observations.

Soon after the interview, the note-taker can clean the notes, by defining all acronyms, filling in missing information, and formatting appropriately to ensure that anyone who was not present for the interview can understand the notes. For additional detail on Data Cleaning and Coding, see Section 2.1.5. Data Cleaning and Coding.

It is important for interviewers to understand they should never rely solely on one interviewee’s account of events. Interviewers should have multiple sources and, ideally, additional quantitative data to support claims when possible. Occasionally, there may be the case where an experienced

For a list of standard interview questions, refer to FEMA’s PrepToolkit: https://preptoolkit.fema.gov/web/cip-citap/ncig-resources.
senior leader or SME has a unique perspective on a topic that cannot be corroborated by others who had vastly different roles in the incident.

Focus Groups

A focus group is a facilitated, interactive discussion with a small group of SMEs to discuss a topic or issue in depth. Though focus groups involve asking questions to all members of a group, the approach allows a facilitator to center on the interactions and discussions of the group, rather than simply directing questions to individual participants. Typically, a focus group will be used instead of a group interview or hotwash, when there is a specific topic that requires discussion with SMEs. In contrast, a hotwash can be used to debrief an incident and a group interview can be used to gather information on a broad set of topics or incident. Focus groups are commonly used to follow up on themes discussed during an individual or group interview or hotwash. For example, focus groups can be used to find an answers to questions regarding a specific issue identified during an interview or hotwash or to identify a specific technique to improve an existing process.

Since focus groups are primarily used to get multiple perspectives on one topic, it is important to invite various personnel who directly engaged with, participated in, or were affected by the topic. To ensure that all participants are comfortable providing feedback, a single focus group should not have multiple levels of leadership. When it is important to engage various levels of staff within an organization, multiple focus groups could be considered.

A focus group may last multiple hours or occur as a series of sessions over several days or weeks. A focus group can have a facilitator and note-taker. The facilitator guides the conversation, engages with all the participants, and ensures that the objectives of the focus group are achieved. Additionally, the facilitator keeps the focus group on track and redirects participants back to the main topics, if necessary. The facilitator should also ensure that all conversations remain non-attributional and do not focus on blaming parties for poor outcomes.

Finally, facilitators of focus groups, hotwashes, and interviews can ask participants for copies of guidance, plans, policies, and/or other products that were mentioned during conversation or may help provide additional details. Facilitators may also ask participants to provide them with the names and contact information of additional personnel who could be interviewed.

Document Review

A comprehensive review of existing documents and research, including existing plans, policies, procedures, can provide additional background about a specific topic. Document review is about establishing what should have happened. When reviewing documents, search for answers to questions like: “What was planned for?” “What was trained on?” “How was the organization intended
to be set up?” Then compare those answers with what actually happened. This can help determine whether there was an issue with a lack of established planning documents, or whether the plan was not executed correctly.

Document analysis and research can also help enhance understanding when conducting preliminary research and to gather the historical background information on a topic or issue. Documents can help validate information received through interviews. Reviewing records of past activities (e.g., emails, transcriptions, entries in databases) provides insight into perceptions and thought processes that were occurring and information that was available during response efforts. Additionally, operational documents may provide key information to develop an incident timeline regarding key developments and operational activities. Development of an incident timeline may help inform other data collection activities and establish a baseline understanding of an incident when included in after-action review products (e.g., AARs). Some datasets, such as THIRA/SPR, may provide qualitative data that can be reviewed as part of a document review.

When conducting interviews, hotwashes, and focus groups, staff can ask participants for any plans, procedures, policies, and/or guidance that may be helpful to review. Staff can also look at shared files or folders that may be on an organization's internal webpage.

2.1.4. QUANTITATIVE DATA COLLECTION

Quantitative data is information in the form of numbers. It reflects quantifiable characteristics of an entity such as such counts, measures, likelihoods. Such data is discrete or continuous and can be used in mathematical or statistical analysis. Existing quantitative data can be used to gather background information, determine whether implementation of the program reflects program plans, develop other data collection tools like interviews or surveys, and/or answer basic evaluation questions about past incidents. Using quantitative data sources, in addition to qualitative, can help build a more accurate observation and validate information provided by interview, hotwash, and focus group participants. Quantitative data sources are less likely to be biased by one individual or a group of individuals. Limitations of quantitative data include improper representation of the desired population, limited resources and skillsets to analyze and understand the data, and inability to answer a complex question. By using a diverse set of data sources, the findings will be more nuanced and accurate.

In many cases, a single source can provide both quantitative and qualitative data. Sources of quantitative data include the THIRA/SPR, U.S. Census, community-level geospatial layers and products, databases (incident management software), local tax records, property records, and damage assessment data.

Another example of a quantitative database that could be useful is FEMA’s Resilience Analysis and Planning Tool (RAPT). RAPT is a free GIS web map that allows partners to examine the interplay of census data, infrastructure locations, and hazards, including real-time weather forecasts, historic disasters and estimated annualized frequency of hazard risk.
When using quantitative data, it is important to include a date and/or timestamp of when the data was retrieved and cite the source in a consistent way. This allows those who review the analysis to understand the recency of the data and request follow-up information.

More information on the RAPT can be found at https://www.fema.gov/emergency-managers/practitioners/resilience-analysis-and-planning-tool.

Information Management Systems and Source Databases

Information management systems and source databases are potential sources of existing data to collect and organize comprehensive information on costs, staff, resources, and other incident-related data. Other datasets may contain data on training course deliveries, incident effects, and mutual aid. Organizations may have access to databases or trackers that document resource requests, requests for information, or other logistics-related information. Analyzing these systems and databases may require familiarity using them or require guidance and interpretation from SMEs. SMEs can help explain specific datapoints, collection methods, and other variables that may not be readily apparent to those unfamiliar with the system or database.

Creating a Database

When existing databases do not provide the information needed, organized in a helpful way, organizations can develop a database that fits their needs. Organizations can develop a database to combine existing information from multiple sources. When combining datasets into a single database, it is important to ensure that variables have been coded in the same way in each dataset (e.g., 1 = Very Unlikely; 2 = Not Likely) and are in the same unit of measurement.

Additionally, organizations can create a database to organize information collected throughout the discovery process. For example, if an organization asks the same survey questions in multiple incidents, they can combine all responses in one database to conduct cross-incident analyses. Organizations can build a database using a simple spreadsheet, or more complex software, if available.

2.1.5. DATA CLEANING AND CODING

Once qualitative data is collected, it can be cleaned. Data cleaning is the process of preparing data for categorization and analysis. When data is initially collected, it is often incomplete and requires additional context for comprehension. Properly cleaned data could include source information, adopt uniform terminology for key concepts, and be able to stand alone as a resource for data analysts.

Quantitative data will also need to be cleaned to ensure that all data points are formatted similarly and can be used to conduct quantitative data analysis. Quantitative data is typically based in some unit of measure, which needs to be uniform across the data for analyses to be meaningful. Some of the most common errors found when cleaning quantitative data are inconsistent data entry, misspellings, out of range values, data integration errors if using multiple sources, and redundancies in data entries.
Data coding is the process of organizing qualitative data into meaningful categories to identify different themes and the relationships between them. It enables the quick analysis and retrieval of data, especially when dealing with vast amounts of data. Coding facilitates analysis by categorizing data from interview transcripts or survey data when responses are from free response questions. Based on the collection priorities, data will be sorted into high-level topics or main category headings. As additional topics emerge, new subcategories or subheadings may be added. When available, organizations can use content analysis software to tag key themes. Figure 7 depicts the general process used for both the color coding and tagging methods.

**Figure 7: Color Coding and Tagging Methods**

**Color Coding and Tagging**

The process described in Figure 7 is detailed in Table 5 with the differences between color coding and tagging.

**Table 5: Color Coding versus Tagging Processes**

<table>
<thead>
<tr>
<th>Step</th>
<th>Color Coding</th>
<th>Tagging</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1: Clean Notes</strong></td>
<td>Cleans the notes by reviewing them for readability, ensuring the notes capture critical information, and expanding on any key topics.</td>
<td>Cleans the notes by reviewing them for readability, ensuring the notes capture critical information, and expanding on any key topics.</td>
</tr>
<tr>
<td><strong>Step 2: Create Legend</strong></td>
<td>Create a legend assigning <strong>colors</strong> to different high-level topics using the collection priorities as a baseline for the list of topics.</td>
<td>Create a legend assigning <strong>icons</strong> to different high-level topics using the collection priorities as a baseline for the list of topics.</td>
</tr>
<tr>
<td><strong>Step 3: Create Topic Pages</strong></td>
<td>Create a separate page in the document for each high-level topic from the legend.</td>
<td>Create a separate page in the document for each high-level topic from the legend.</td>
</tr>
<tr>
<td><strong>Step 4: Create References</strong></td>
<td>Copy and paste the legend into every interview page for reference.</td>
<td>Copy and paste the legend into every interview page for reference.</td>
</tr>
</tbody>
</table>
Step 5: Highlight to Tag Notes

Highlight interview notes passages, assigning appropriate **colors** based on the topic and/or context of the passage.

Tag interview notes passages, assigning appropriate **icons** based on the topic and/or context of the passage.

Step 6: Consolidate Notes by Topic

Copy and paste the **highlighted** sections into their respective topic pages along with the names and titles.

Copy and paste the **tagged** sections into their respective topic pages along with the names and titles.


2.2. Validation

Figure 8 depicts the Validation Phase, which refers to the process of checking the accuracy, completeness, and quality of data before using, importing, or otherwise processing the data. During Validation, personnel analyze the collected data to identify and ensure the accuracy of observations and potential recommended actions. Validation is also when personnel must determine whether additional data is needed to demonstrate the effect of the observation.

When personnel identify a need to collect additional data, they can conduct:

- Additional interviews with stakeholders;
- Deeper or more extensive review of existing policy and doctrine; and/or
- Additional interviews with SME, such as response officials, to better understand the subject or process.

Validation consists of two elements. The first element is conducting data analysis to identify conclusions, insights, and trends. The second element is developing observations, analyses, and potential recommended actions.
2.2.1. DATA ANALYSIS TECHNIQUES

Data analysis is the process of interpreting data to discover useful information, formulate conclusions, and support decision making. Data analysis leverages empirical evidence to inform continuous improvement activities, informs and supports the creation of products, and enables personnel to compare what happened during an incident to what should have happened. The following key questions can be used to discover useful information:

- What happened? What key actions or decisions were completed and by whom?
- What should have happened based on current plans, policies, and procedures?
- What are the key differences between what happened and what should have happened?
- What factors caused those differences to occur?
- What could have been done or needs to be done going forward to improve outcomes?
- Has this issue been observed and documented for other, similar types of incidents?

During data analysis, the validity and reliability of data is determined. Validity refers to the correctness and reasonableness of information. Reliability refers to the degree to which data is reasonably complete and accurate, meets the intended purposes, and is not subject to inappropriate alteration. Data may not be valid if it does not represent the desired population, is misinterpreted, and/or there are errors and gaps in the data (e.g., if respondents do not have the desired knowledge, have a reason not to tell the truth, or choose not to respond).

Although not intended to be comprehensive, the following section will detail several commonly used analysis techniques in continuous improvement, including:

- **Data Synthesis**: Compiling and reviewing data from multiple sources to identify common issues.
- **Event Reconstruction**: Consolidating information from multiple sources into a single, fact-based account of what happened during an incident.
- **Root Cause Analysis**: Determining the originating factor(s) that directly led to a specific outcome, using a structured method.

**Data Synthesis**

Data synthesis typically involves collecting large amounts of information or observations, identifying potential issues requiring resolution from across these observations, and examining the strength of evidence (or remaining gaps) for each issue. The benefits of data synthesis include that it compiles and analyzes a large amount of information; identifies potential strengths, areas for improvement, potential best practices, and mission critical issues within and beyond the collection priorities; and examines the strength of evidence (or remaining evidence gaps) for potential observations.
The first step when conducting data synthesis is to combine all data in one document or dataset, organizing it by theme. This can be done by creating a database, which is described in Section 2.1.4. Quantitative Data Collection, and/or data coding, which is described in Section 2.1.5. Data Cleaning and Coding. After the data is combined, organizations can analyze the data to identify themes that may have been identified by multiple people and/or from multiple sources. When the quantity of data is limited, analysis can be a manually assessed to identify themes. However, if there is a large amount of data, statistical analysis may be a better option.

If an organization has the expertise and resources to conduct statistical data analysis, they can use methods such as regression analysis and pattern analysis, to analyze quantitative data. Regression analysis can be used to identify cause and effect relationships and measure the effects of changing variables on specific outcomes. Pattern analysis can be used to uncover regularities in data related to occurrences of other events. It can identify the probabilities of certain outcomes and signal where interventions in a recommended action might be needed.

Event Reconstruction
Event reconstruction refers to consolidating information from multiple sources into a single, fact-based account of what happened during an incident. It establishes a fact-based account that continuous improvement personnel can use to confirm or identify discrepancies between individuals’ accounts or opinions of what they think happened. Event reconstruction facilitates issue identification further by organizing all data into one account and clarifying cause and effect relationships. It also serves as a tool to help answer formal inquiries and support follow-on planning efforts and other preparedness activities, such as the development of future trainings and exercises.

By providing a fact-based account of what happened, personnel can:

- Trace the underlying factors that caused an issue to arise or led to an observed positive outcome;
- Clarify potential cause-and-effect relationships;
- Develop targeted questions for stakeholder interviews (e.g., to clarify an inconsistency or address a gap in the data); and
- Reconcile conflicting information that is obtained through interviews.

When analyzing data, it is necessary to reconstruct a detailed, accurate account of what happened, how it happened, when it happened, where it happened, and who was involved. Reconstruction does not always explain the reason something happened; this can be explained using other analyses (such as root cause analysis, which is described in the next section). The results of the event reconstruction can be used to develop an incident timeline that can be included in the after-action review product to establish a factual record of what happened.

For example, when analyzing a hurricane, it is important to know:
What happened: A category 3 hurricane.


Where it happened: In the Gulf of Mexico and made landfall in Houston, Texas.

Who was involved: 5,000 individuals in Texas and Louisiana were displaced from their homes.

Root Cause Analysis

After establishing the background of what events happened, the “why” can be examined. A root cause is the source of, or underlying reason behind, an observed outcome. When analyzing data, identifying root causes is a tool that can be used for generating effective recommendations. Understanding the underlying reason behind an issue is important to being able to identify and apply the appropriate solution to ensure better outcomes in the future.

To be effective, recommended actions should address the causes of a problem rather than just its effects or symptoms. Failure to identify and describe root cause(s) can lead to the treatment of an issue’s symptoms or effects rather than the actual issue. If only the symptoms or effects are addressed, this can cause recurring problems and areas for improvement, an inability to consistently replicate strengths and innovative practices, inefficient use of resources, and decreased stakeholder satisfaction.

The accuracy and quality of any root cause analysis depends on the accuracy and quality of the qualitative and quantitative data used to inform the analysis, as well as the capability to examine the data. When conducting root cause analysis, organizations can consider the following:

Identify and examine the most likely root causes.

Once a root cause has been initially identified, question whether a greater, more actionable level of detail could be further identified using the “5 Whys Method.” The “5 Whys Method,” exemplified in Figure 9, involves consecutively asking and answering a series of dependent questions about why something occurred. Although the number five is only a general guidance of the number of questions that may be asked and questions do not have to begin with “why”, each consecutive question should get closer to identifying the root cause.
Once a root cause has been identified, determine any recommended actions. Question whether an actionable recommendation addresses the root cause itself or a symptom.

2.2.2. OBSERVATIONS

Data collected and analyzed can be communicated through written observations, which explain what occurred and provide supporting evidence. An observation is a written summary of a strength, potential best practice, area for improvement, or mission critical issue derived from collected and validated data. Observations from an incident are independent summaries of information and can be compiled into an AAR or used to inform the development of other continuous improvement products.

The best observations seek to persuade decision-makers to take action on a key finding. Organizations cannot reasonably act on every finding and balance other organizational priorities. An observation must be an objective source of evidence, but it must also show an organization that it is in its own best interest to take action. Describing the effect clearly is the best way to make this argument.

Collecting observations is important for the consistent identification of trends or issues observed during the lifecycle of an incident. Each observation:

- Identifies what happened and what the effect was;
- Includes the synthesis of quantitative and qualitative data outlining the root cause;
Demonstrates a significant positive or negative effect to the success of the organization’s mission; and

Identifies recommendations for improvement.

A finalized observation will have supporting evidence from multiple sources; show there is demonstrable operational effect; and have further analysis, such as a root cause analysis, conducted.

During the observation development process, the category of observation will dictate the types of questions that may be answered to reconstruct incidents comprehensively and accurately and best inform the reader on the subject matter of the observation. These questions, although not exhaustive, serve to inform the type of information that an observation could include. The goal is to maximize the actionable information presented in every observation through brief, concise, and neutral language that clearly conveys the analyzed data objectively.

**Strength (STR):** Activities within policy or guidance that yielded the desired result in a particular incident. STRs document processes or systems that are working and being implemented as intended.

**Potential Best Practice (PBP):** Activities not within policy that yielded better results than could have been expected from solutions within policy under the same conditions.

**Area for Improvement (AFI):** Activities that resulted in outcomes that did not meet expectations set out in plans, or instances where the program followed the process or system requirements, but the outcome was inadequate.

**Mission Critical (MC):** An issue that has significant operational effects that may lead to mission failure or loss of life or bodily injury. MCs should be immediately elevated to senior leadership for consideration.

**Writing Observations**

When writing an observation, it is important to use plain language that is understandable and accessible to all audiences, including external stakeholders with limited organizational knowledge. Strong observations can include a topic sentence, discussion of evidence, desired outcome(s), and recommended actions.

**Topic Sentence:** Makes a specific assertion or claim about something that occurred regarding a particular topic and describes the effect.

**Discussion of Evidence:** Elaborates on the topic sentence by providing relevant background information and supporting evidence to detail what happened, why it happened, has it happened before, and the effect.
- **Desired Outcome(s) and Recommended Actions**: Describes the ideal future state when action is taken on an observation; and list the actions that could be taken to meet the desired outcome(s). These can be proposed by interviewees or other SMEs and will be finalized in the resolution phase.

### Observation Terminology

Different organizations may use different terminology to refer to each part of an observation. As long as observations include these parts of an observation, the specific label of each part can vary by organization.

Many organizations will call the “Topic Sentence” the “Observation” or “Finding.” “Discussion of Evidence” may also be called “Analysis” or “Narrative.” “Recommended Action” is also known as “Corrective Action” or “Course of Action.”

For an Observation Workbook Template and Observation & Question Tracker, refer to FEMA’s PrepToolkit: [https://preptoolkit.fema.gov/web/cip-citap/ncig-resources](https://preptoolkit.fema.gov/web/cip-citap/ncig-resources).

### Topic Sentence

The topic sentence is the first element of an observation and makes a specific assertion or claim about something that occurred regarding a particular topic and describes the effect. As depicted in Figure 10, the three main parts of a topic sentence are: the topic, the specific assertion of the claim about the topic (this claim is often about the root cause), and effect observed as a result. The specific assertion is an argument that is supported by facts from the discussion section of the observation.

```
Topic Sentence = Topic + Specific Assertion + Effect
```

Writing a topic sentence helps to start drafting an observation and keep the observation focused. The topic sentence also helps narrow the observation subject to a single idea and provides a summary of the observation narrative to be developed.

Topic sentences can be drafted as trends and themes are identified during data collection and analysis. A working topic sentence does not need to be perfectly worded. Over the course of the observation drafting process, the topic sentence will be refined and revised as additional information and data is collected and analyzed.
Discussion of Evidence

The discussion of evidence elaborates on the topic sentence by providing relevant background information and supporting evidence to detail what happened, why it happened, if it has happened before, and the effect. This section could describe the relevant history and purpose of the policy or action under discussion. Then, it could explain what happened, using sources or other details. If the same observation has occurred in the past, identify the frequency and refer to other documents describing those occurrences. Finally, it could provide evidence and analysis of effectiveness or the potential effectiveness that is reasonably supported.

When discussing the evidence, evaluate the evidence by assessing its relevance, representativeness, sufficiency, and accuracy. Address any other factors that could explain the issue and explain why these alternative explanations are wrong.

Desired Outcome and Recommended Actions

Finally, an observation could include a desired outcome and one or more recommended actions to suggest solutions to leadership and potential responsible entities if action is appropriate. The desired outcome is a description of the ideal future state for the finding to be considered resolved. During the Validation Phase, all recommended actions suggested by SMEs during interviews or other engagements may be documented. These draft recommendations could then be presented at the Action Planning Workshop (APW), where SMEs and other stakeholders will use them to develop final recommended actions. In instances where the APW is not possible, the recommended actions can be sent out to stakeholders for edits and concurrence.

The next section (Resolution) discusses how personnel can involve stakeholders into the recommended action development process. Involving relevant SMEs and responsible entities in the recommended action development process ensures recommendations are feasible, will address the root cause, and increases the likelihood that the responsible entities will agree to implement a recommended action. Personnel can work with the appropriate responsible entities to develop recommendations for as many observations as possible.

Observation Example

Category: Area for Improvement

Topic Sentence: Multiple city departments did not have updated Continuity of Operations (COOP) plans at the time of the ice storm incident, which resulted in gaps in the city’s ability to provide critical city services within the time period specific for restoration of services.

Discussion of Evidence: City employees were unsure of emergency and COOP operational procedures, which included processes to engage emergency back-up power systems when they did not automatically turn on following power outages. These power outages caused multiple city buildings to lose power, and without back-up generators engaged, multiple city facilities became inaccessible due to access and safety concerns. The closure of these
facilities led to operational issues in providing some crucial city services, including some services deemed mission essential functions in several departmental COOP plans. The affected operational areas included public works and education, which resulted in cascading effects to water sanitation and childcare.

**Desired Outcomes:** All city departments have up-to-date COOP plans to support the delivery of crucial city services before, during, and following a disaster incident, and each department follows a regular plan review cycle that includes review and maintenance processes occurring at least every two years.

**Recommended Action #1:** Each city department must develop or update a departmental COOP plan and establish a regular review and maintenance cycle for the plan.

**Recommended Action #2:** In alignment with the city’s Integrated Preparedness Plan, develop and conduct exercises every other year focused on departmental COOP plans for each departments’ personnel.

**Validating Observations**

After drafting the observation, the observation can be shared with SMEs, including interviewees, hotwash participants, focus group participants, and/or survey respondents who have knowledge about the observation. These SMEs may review the observation to ensure that it is accurate. Once the relevant SMEs have reviewed and approved the observations, observations may need to be reviewed by an organizations’ leadership. Some organizations may also consider setting up a working group of personnel who regularly review observations. After receiving leadership and/or working group approval, an observation may be considered final.

**2.3. Resolution**

**Figure 11** depicts the next phase of the continuous improvement process, the Resolution Phase.

After the Discovery and Validation Phases, the goal is to use the developed observations to take measurable steps that will lead to improved operational capabilities. During the Resolution Phase, personnel use observations to develop and finalize the recommended actions that were drafted during observation development and Validation. The Resolution Phase consists of developing an Action Plan to prompt program and leadership approval for recommended actions; conducting an APW to identify resource needs, an accountable lead, and expected timeframe; and tracking and resolving issues.
2.3.1. RECOMMENDED ACTIONS

Recommended actions describe actions that help maintain strengths, institutionalize potential best practices, and address areas for improvement and mission critical issues as identified in observations. Recommended actions are a list of the activities that could be taken to meet the desired outcome(s). These can be proposed by interviewees or other SMEs. They can be actionable and achievable. Providing multiple recommended actions instead of singular recommendations can be beneficial as many actions are often required to solve a complex problem. Additionally, it gives stakeholders the opportunity to become involved in the change process, take action at their level, and see a path to success.

Terminology: Homeland Security Exercise and Evaluation Program and National Continuous Improvement Guidance

Although HSEEP and this guidance discuss similar concepts, there are some differences in terminology.

This guidance uses the term Recommended Action, instead of Corrective Actions to refer to activities identified to maintain strengths, institutionalize potential best practices, and address areas for improvement and mission critical issues.

This guidance uses the term Action Planning, instead of Improvement Planning to refer to the process of identifying recommended actions.

An effective recommended action could:

- Describe an activity which a reasonable person would be able to understand when it is complete;
- Be realistic and effectively address the validated observation;
- Describe what makes this activity different than something that already exists;
- Identify the responsible entity who will complete it;
- Be reviewed by SMEs;
- Be developed in coordination with and assigned to a responsible entity for implementation; and
- Include a clearly defined timeline for completion.

Recommended actions do not solely need to address problems identified in observations (i.e., areas for improvement); they can take action on positive topics identified in observations as well. For example, a recommended action based on a best practice identified in an observation could be to add that best practice to a plan or standard operating procedure. Recommended actions may also be iterative and dynamic. An observation is research that does not generally change, but recommended actions may be added during the decision process and may even change as the team
takes action. This is completely appropriate as long as the action stays true to addressing the root cause of the observation.

### Recommended Action Examples

**Recommended Action #1:** Each city department must develop or update a departmental COOP plan and establish a regular review and maintenance cycle for the plan.

**Recommended Action #2:** In alignment with the city’s Integrated Preparedness Plan, develop and conduct exercises every other year focused on departmental COOP plans for each departments’ personnel.

The next section discusses how staff can involve stakeholders in the recommended action development process. Involving relevant SMEs and responsible entities in the recommended action development process ensures recommended actions are feasible and that the responsible entities agree to implement a recommended action. Personnel may work with the appropriate responsible entities to develop recommended actions for as many observations as possible.

### 2.3.2. ACTION PLANNING

An important component of the Resolution Phase is for organizations to organize and conduct an APW to socialize recorded observations and to develop and finalize appropriate recommended actions to be included in an Action Plan. The APW is a workshop that brings together multiple stakeholders to facilitate the development, adoption, and implementation of recommended actions. The workshop could include those entities potentially responsible for taking action.

During the Action Planning process, leadership makes the explicit decision of whether or not each recommended action will be taken. Not all recommended actions will be implemented, and leadership should make the decision on which ones will be implemented. If there is not an explicit decision, it may be assumed that all recommended actions will be implemented, which can cause the Action Plan to fail. If possible, organizations should document leadership’s decision on whether or not a recommended action should be implemented and the rationale (e.g., resources, legal or policy barriers).

This decision can be made during the APW, if leadership are available to participate. However, if leadership is not present at the APW, a separate meeting should be held to determine which of the recommended actions from the APW will be implemented. Additionally, if leadership can only attend a portion of the APW, that time should be used to discuss which recommended action should be implemented. Other participants can discuss additional details when leadership is not present.
An Action Plan is a document that can be used to track, assign, and finalize actions from observations. The Action Plan serves as a single location of data that can be referenced and updated as necessary to ensure that actions are implemented and that relevant points of contact (POC) understand their responsibilities. The plan provides a common understanding of what actions are being taken, who is taking them (e.g., the responsible entity), and when they will be completed.

The first step in preparation of an APW is identifying the appropriate personnel, including responsible entities, who could attend the APW and sending out a meeting invitation and agenda. In some cases, the planner or office developing the observations may develop an initial set of recommended actions for other stakeholders to review and redirect as necessary. It is important to identify and work with responsible entities when developing an Action Plan. Responsible entities are programs, agencies, or organizations accountable for completing their assigned recommended actions in a timely manner.

For example, the responsible entity for a recommended action based on an observation about rebuilding infrastructure following a flood may be a local public works department.

Responsible entities could:

- Have authority to carry out recommended actions for observations;
- Play an active role in recommended action development during the Action Planning process, including writing recommended action language, determining recommended action assignments, and establishing timelines for recommended action completion; and
- Complete recommended actions according to the timeline established in the Action Plan. It is important to note that sometimes the Action Plan will not have a timeline, or there are unforeseen barriers to implementation. In certain instances, recommended actions will be completed outside of the recommended timeline. It is important to allow for some flexibility in how and when responsible entities give recommended actions.

### Defining Responsible Entities

Some observations and recommended actions will require more than one responsible entity to work together to resolve an observation or it may not be clear who the correct responsible entity is. Here are some suggested tips to consider:

- Plan for a leadership decision meeting to define a responsible entity when it is ambiguous or difficult to determine.
- Establish a single responsible entity but also define supporting entities that must provide resources to resolve the observation.
Break the recommended action down into more specific tasks in order to track accountability more effectively.

The next step in planning an APW is to disseminate an after-action review product or drafted observations to the relevant stakeholders to capture potential recommended actions that are mentioned in the after-action product. It is important that the relevant stakeholders have time to review the after-action product and digest the recorded observations to begin brainstorming recommended actions prior to the APW taking place. Recommended actions developed during the after-action review process will serve as the foundation for the Action Plan.

After identifying the responsible entities and disseminating the after-action review product, the third step in planning an APW is to identify a lead facilitator, lead note-taker, and any additional support (e.g., co-facilitator or second note-taker).

Creating the Action Plan

The Action Plan will be developed after the APW using the recommended actions identified during the APW. When creating the Action Plan, it is important to identify the Action Plan manager who will be responsible for managing the plan and ensuring accountability by regularly tracking and updating the status of recommended actions. When possible, the Action Plan manager should be a third party not involved in implementing recommended actions that can hold responsible entities accountable.

The Action Plan is a living document. As such, as the responsible entities make progress on recommended actions, the Action Plan manager should track and update these recommended actions in the Action Plan until all recommended actions are complete. In some cases, the Action Plan manager may be tracking open recommended actions from multiple incidents, which can be accomplished using separate Action Plans or using a consolidated approach to track all open recommended actions within a unified tracking system (e.g., spreadsheet or project management software solution). For complex Action Plans, the manager may be an accountable tracking body with multiple people or organizations tracking progress.

The Action Plan manager also works to consolidate and finalize recommended actions from observations into the Action Plan. This task includes ensuring that recommended actions are effective and that responsible entities agree on the final recommended action language and timelines included in the Action Plan.

Table 6 illustrates the key elements of an Action Plan which are: 1) observation topic sentence, 2) recommended action, 3) responsible entity (both person and position), 4) status, and 5) target completion date. However, stakeholders can customize an Action Plan to fit their organizational needs and priorities. For example, numbering and categorizing recommended actions by capability, planning, organization, equipment, training, and exercises (POETE) areas, or lifelines may be useful, or including names for POCs within each responsible entity. Additionally, stakeholders may want to prioritize certain recommended actions over others as high or low priority, as identified during the
APW. Include all information that will help the Action Plan manager and other stakeholders best track the recommended actions to completion.
### Table 6: Action Plan Example

<table>
<thead>
<tr>
<th>Observation Area for Improvement: Multiple city departments did not have updated Continuity of Operations (COOP) plans at the time of the ice storm incident, which resulted in gaps in the city’s ability to provide certain critical city services.</th>
<th>Recommended Action #</th>
<th>Core Capability</th>
<th>Recommended Action</th>
<th>Responsible Entity</th>
<th>Point of Contact</th>
<th>Status</th>
<th>Target Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Planning Each city department must develop or update a departmental COOP plan and establish a regular review and maintenance cycle for the plan.</td>
<td>Each city department, in coordination with the city's Office of Emergency Management</td>
<td>Complete</td>
<td>August 30, 2021</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Planning In alignment with the city's Integrated Preparedness Plan, develop and conduct exercises every other year focused on departmental COOP plans for each departments’ personnel.</td>
<td>Each city department, in coordination with the city's Office of Emergency Management</td>
<td>In Progress</td>
<td>March 31, 2023</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
When possible, the Action Plan should also include success criteria and/or metrics by which to measure each action. A recommended action can be considered implemented successfully if the outcome resembles the desired outcome described in the observation. These success criteria and/or metrics can be used to evaluate whether the recommended action was successful implemented and had the desired effect on the root cause. Success criteria and/or metrics can be developed for various time intervals (e.g., three months after implementation, six months after implementation, one year after implementation) to ensure that immediate, near-term, and long-term effects are measured. Additionally, success criteria could include the intended effects on various personnel, including staff and leadership, and communities. The assessment of the success criteria is then addressed as part of the fourth phase of the continuous improvement, known as Evaluation, which is further described in Section 2.4: Evaluation.

Facilitating the Action Planning Workshop

Finally, personnel can schedule and hold the APW. The length of the APW is dependent on how many observations will be addressed, and there may be a need to hold additional APWs if there are a large number of observations. If multiple APWs are necessary, the first meeting will typically be longer as participants become familiar with the process and their responsibilities, although follow-up meetings can be shorter.

At the beginning of the first APW, the APW facilitator should explain the purpose of the meeting to ensure all participants understand what the meeting is intended to focus on and their role in the discussions. Additionally, the APW facilitator should share any ground rules to ensure participants understand who has the authority to make decisions and the ranking/voting procedures. The APW facilitator also communicates the level of consensus required to make decisions. This is important because the APW must be a collaborative process and sometimes disagreement over responsibilities may need to be resolved and agreed upon.

During the APW, an APW facilitator keeps the discussion focused on the selected topics based on the APW Priority Matrix (defined in the callout box). The primary goal of the APW should be to determine: 1) time of implementation, 2) agreed upon improvement action, 3) owner, 4) milestones, and 5) problems or limitations that may be barriers to the implementation of a
recommended action. Throughout the APW, participants should discuss each of these items in relation to specific recommended action. Throughout the APW, the group will collectively assign recommended actions to appropriate owners, which will also be recorded in the Action Plan.

2.3.3. ISSUE TRACKING AND RESOLUTION

Issue tracking is the primary accountability function of the continuous improvement process. Recommended actions captured in the AAR and/or Action Plan should be tracked and continually reported on until completion.

The Action Plan manager is usually different from the APW facilitator and is responsible for tracking recommended actions and coordinating with responsible entity. The Action Plan manager communicates regularly with the responsible entities on the status of their recommended actions, timelines for completion, and any additional context or issues. The Action Plan manager and other responsible entities can use email, meetings, or a shared spreadsheet or database as regular tracking and communication methods.

It is important for Action Plan managers and responsible entities to work together to track whether actions have the desired effect. Assessing whether a recommended action is effective in addressing the targeted issue is a critical aspect of this phase. An ineffective recommended action may not address the root cause of an issue, which may require returning to an earlier phase of the continuous improvement process to reassess the root cause and develop a new recommended action. When assessing the effectiveness of a recommended action, it is especially important to include various stakeholders in the assessment to ensure that the effect of recommended actions on all personnel and populations are identified.

Various stakeholders may be interested in knowing the status and progress on the implementation of recommended actions, including:

- Organization leadership, who has a vested interest in the status of recommended actions;
- Other community partners, who can learn from successful recommended actions;
- Interviewees, who want to know the effect of their participation in the continuous improvement process; and
- Programmatic points of contact responsible for review and evaluation.

Importantly, if the owner of a recommended action would like to remove the action (no longer pursue it as a project), then the Action Plan should define who has the authority to approve this. For additional information on how organizations can develop an issue tracking and resolution system, refer to Chapter 5: Establishing and Managing a Continuous Improvement Program.
2.4. Evaluation

During the Evaluation Phase, depicted in Figure 12, personnel examine the implementation of specific recommended actions to determine the extent they have strengthened the organization, institutionalized best practices, addressed areas for improvement, and/or resolved mission-critical issues. Evaluation aims to measure the effectiveness, or success, of recommended actions marked completed in the Action Plan and that the recommended actions are effective in addressing the root cause.

The Evaluation Phase begins after a discrete recommended action is marked complete during the issue resolution process. During the Evaluation Phase, the effects of completed recommended actions can be measured using various methods, including by conducting data collection during steady state, assessing similar future incidents, and/or assessing exercise data.

2.4.1. Data Collection During Steady State

Sometimes, the effect of a recommended action can be measured by using the data collection methods, including surveys and interviews, described in the Discovery section of this document. Data can be collected multiple intervals after the recommended action has been implemented to measure the immediate, near-term, and long-term effects of a recommended action. Although collecting data during steady state periods of time can identify some effects of a recommended action, it may not test the effect of a recommended action during an incident. Not all recommended actions need to be tested during future incidents and/or exercises.

2.4.2. Assessing Recommended Actions in Similar Future Incidents

If the recommended action is about an operational activity, recommended actions may need to be tested during a future incident similar to the incident that resulted in the recommended action. Completed recommended actions can inform collection priorities for future similar incidents to collect and analyze data to identify the effect of the recommended action.

The challenge with testing the effect of a recommended action during a similar future incident is that it is difficult to predict when a similar incident may occur again. Sometimes, it may be years until a similar incident occurs and, by that time, the near-term effects of the recommended action may not be apparent.

In many cases, recommended actions need to be assessed over a longer period of time. When this is the case, data has to be collected on a recommended action during a longer period of time, including during multiple incidents and steady state periods. This is especially true if a recommended action
leads to a programmatic change. For example, if a recommended action suggested updating planning guidance, this will likely result in a need to update trainings on the new guidance, and ensure personnel attend these trainings. These changes will be implemented over a longer period of time.

2.4.3. ASSESSING RECOMMENDED ACTIONS THROUGH EXERCISES

In ways similar to real-world incidents, exercises can also be used to test recommended actions. Exercises are a particularly useful means to test a recommended action when a similar incident may not occur in a certain timeframe. Exercises can be used to validate recommended actions and identify the effect on capabilities. Recommended actions may be assessed over the course of multiple exercises to ensure that all long-term effects are also measured. Recommended actions and other after-action review products can be used to inform exercise planning, including an Integrated Preparedness Planning Workshop (IPPW).

3. After-Action Review Products

The observations, analysis, and recommended actions developed during the continuous improvement process can be presented to stakeholders and leadership in an AAR, QLR, After-Action Review Briefing, and/or Action Plan. When possible, and with the approval of leadership, these products may be shared with all relevant staff in an effort to increase transparency and build trust with stakeholders.

The after-action review product selected for an incident should be determined prior to planning data collection, since it will inform the continuous improvement activities that are taken. Based on the final product and/or intended use, the continuous improvement activities can be selected and scaled. For example, when developing an AAR, an organization may collect and analyze data and draft and validate observations. After developing the AAR, the organization may conduct an APW to develop an Action Plan.

3.1. After-Action Report

An AAR is developed after exercises and real-world incidents to summarize key evaluation information and continuous improvement-related analytical findings, including strengths, potential best practices (e.g., innovations), and areas for improvement, as well as recommendations for potential recommended actions. It is a detailed and comprehensive documentation of an incident that takes more time and resources than a QLR or After-Action Review Briefing.

For an example AAR Template, refer to FEMA's PrepToolkit: https://preptoolkit.fema.gov/web/cip-citap/ncig-resources.

3.2. Quick Look Report

A QLR is a time-sensitive document that may precede a full AAR and highlights major findings or high-priority issues from an after-action review that require attention. Generally, a QLR does not
contain as detailed analysis as what would be found in an AAR. It often includes a limited set of priorities with supporting narrative, a brief overview of the methodology, and may include recommended actions.

A QLR can include a description of the document’s purpose, a brief event overview, description of the methodology and scope of data collection any analysis, preliminary findings, recommended actions, and a conclusion. A QLR is used to inform senior leaders, decision makers, and program areas about major findings requiring attention. A QLR should be produced quickly post-incident or exercise following data collection, within approximately one month.

3.3. After-Action Review Briefing

A presentation to leadership on the incident(s) that includes major takeaways for leadership, including observations with supporting data. The briefing may include methodology, recommended actions, and other elements of the AAR, QLR, and/or Action Plan.

The After-Action Review Briefing is produced following an AAR. It can be presented in the recommended format: executive summary, event overview, analysis of core capabilities, scope and methodology, observations, recommended actions, and a conclusion. After-Action Review Briefings can contain observations that are validated by relevant incident SMEs for accuracy. It is intended to affect an action or persuade a decision or policy and to inform the reader of significant findings on a specific topic. They can be presented to either disaster or regional leadership to assist.

3.4. Action Plan

The Action Plan discussed previously is another product that can result from an after-action review. After the after-action review is completed and an APW is conducted, the Action Plan is the central repository for recommended actions, and associated observations. The Action Plan can be used to present recommended actions that were determined for each observation and the future plan for improvement to leadership.

An Action Plan differs from an AAR, QLR, and Action-Action Review Briefing because it may be developed after an AAR, QLR, and After-Action Review Briefing are complete.

For an Action Plan templates and additional Action Planning resources, refer to FEMA’s PrepToolkit: https://preptoolkit.fema.gov/web/cip-citap/ncig-resources.
Chapter 3: Incident Operations

Chapter 3 describes an organization’s role in supporting incident operations. During incident operations, continuous improvement professionals provide advice from past incidents and incorporate real-time analysis to emergency managers and decision makers. Using findings and lessons learned from past after-action reviews and incidents, personnel provide emergency managers with trend analyses directly applicable to the ongoing incident.

This chapter will describe the advisory and decision role of continuous improvement support throughout an incident. Using the insight from past incidents to engage leadership and help with more informed decision-making during incident operations is crucial to the success of the operation.

Many organizations may not have the resources and staff to provide continuous improvement support during incidents; however, as a program matures, continuous improvement programs and personnel should look at provide advisory and decision support during incident operations. This chapter describes how a program can provide advisory and decision support during incident operations.

1. Roles and Responsibilities

An organization’s continuous improvement responsibilities during incident operations varies depending on the incident. Often, they work out of the Emergency Operations Center (EOC). In the EOC, they may report to EOC command staff or other EOC leadership, based on the organization’s specific command structure.

In the EOC, personnel may attend staff and leadership meetings to provide insight from past incidents to inform operational incidents. Attending meetings and engaging with responders and leadership is an important way for personnel to build relationships with these organizational stakeholders. These relationships help ensure that organizations supporting the response will be willing to participate in data collection efforts (e.g., interviews, surveys, direct observation), address request products, and support implementation of recommended actions. Incident operations support provides personnel with a prime opportunity to show the added value of a continuous improvement program.

2. Real-Time Analysis

Real-time analysis is any assessment that is conducted during ongoing operations. Real-time analysis can address current problems by operationalizing information to provide immediate feedback to decision makers or EOC staff. This feedback can provide leadership with information during operations and can lead to a mid-course adjustment, if needed.

Although the full after-action review process can take months to complete, it is often important for emergency managers to receive real-time feedback to improve processes immediately. The focus of
real-time analysis is advising from a historical learning and perspective and bringing emerging issues
to the attention of leadership. Personnel facilitate this by sharing the real-time, preliminary results of
observation of operations, meetings, or other operational opportunities for improvement.

Below are some ways personnel embedded in response operations can provide real-time analysis:

- Engage in informal conversations with staff to understand operational gaps and opportunities, as
  their time allows. During response operations, ensure that staff know that the continuous
  improvement personnel is available at their convenience to discuss the operations and any real-
  time challenges noticed. This may even include short five-minute conversations as staff walk
  from one meeting to another. Synthesize all the informal feedback received and evaluate if there
  are operational consequences that should be communicated to operational leadership. If so,
  develop a short and concise email or document for leadership with findings.

- Ensure that the contact information of the continuous improvement personnel assigned to the
  disaster is shared with all staff. Operational leadership should encourage all staff to email the
  continuous improvement advisor with any real-time information and feedback about the
  operation. The continuous improvement personnel should synthesize all feedback received and
  evaluate if there are operational consequences that should be communicated to operational
  leadership.

- With the approval of operational leadership, and pending the time and availability of staff,
  continuous improvement personnel can perform interviews and hotwashes during event
  activation. Any interviews and hotwashes should be used to identify major operational gaps. A
  quick summary or report of findings should be communicated to operational leadership.

- With approval of operational leadership, the continuous improvement personnel may distribute a
  short survey to staff if there are specific areas of feedback that leadership seeks input. General
  survey questions about operations may also prompt staff to provide operational input. Given the
  nature of the response; however, the survey should be concise and short to respect participants’
  time. Survey users can answer qualitative questions as desired.

- Pending the findings, operational leadership may request that the continuous improvement
  personnel perform rapid improvement workshops to work through any identified problems.

3. Decision Support Products

When supporting an incident, continuous improvement personnel may develop quick-turn products
to effectively present trends or other information to emergency managers or decision makers. These
products are intended to provide decision makers with the applicable information from past
incidents to make decisions and drive change during the ongoing incident by providing summaries
and pulling excerpts from previous incident products (e.g., AARs) that might be helpful in the current
situation. Personnel can develop these products by searching for existing observations in AARs that apply to a certain type of incident, time range, region, and/or theme (e.g., staffing or continuity of operations). Providing leadership with preparedness data (e.g., from the THIRA/SPR) about community capabilities can help make more informed decisions.

Examples of products include knowledge snapshots or trend analyses. Notably, both products can and typically should be prepared during steady state operations. They can be difficult to complete during an incident and organizations (especially those with limited resources) would be best served preparing them beforehand. For example, prior to the beginning of hurricane or wildfire season, organizations that expect to be affected should develop or update knowledge snapshots and trend analysis for common topics.

3.1. Knowledge Snapshot

A Knowledge Snapshot is a time-sensitive analytical product that delivers a high-level overview of a specific topic to leadership or other relevant stakeholders. The intent is to provide decision makers with additional analysis or context of a specific consideration, upon request. The Knowledge Snapshot uses existing information from previous similar incidents to provide relevant insight to decision makers or planners. These products can be developed relatively quickly and focus primarily on actionable guidance related to a specific department or program area. They are helpful to have for organizations with significant continuous improvement capabilities, but resource constrained organizations can focus on other priorities.

Knowledge Snapshots typically incorporate verified, peer reviewed information from AARs, government reports, and academic research. Whenever possible qualitative observations should be supported by quantitative metrics.

The audience of the Knowledge Snapshot can be all staff if operational leadership approves. At the onset of a disaster, continuous improvement personnel could share a summary of past relevant lessons learned that may be applicable to the new incident, as that information should be accessible to all staff. The Knowledge Snapshot should consolidate existing information about a specific topic, program, or location to inform decision makers about considerations and recommendations from previous incidents.

If possible, continuous improvement programs can prepare Knowledge Snapshots during steady state in anticipation of an incident. For example, prior to hurricane season or wildfire season, organizations can draft knowledge snapshots that can be updated during an incident to apply to a specific incident.

For a template of a Knowledge Snapshot, refer to FEMA’s PrepToolkit: https://preptoolkit.fema.gov/web/cip-citap/ncig-resources.

See the callout box for an example of findings from a knowledge snapshot about post-incident transportation.
Example of Knowledge Snapshot Findings

### Highway/Roadway/Motor Vehicle

**Roadway Status:** After the hurricane made landfall, loss of electronic communications and rapidly changing road conditions as a result of flooding and landslides interfered with initial roadway assessment efforts.

- **Implications:** Challenges in communication and unfavorable road conditions can reduce situational awareness.
- **Mitigating Action:** Field personnel submitted once or twice daily verbal or hand-written reports on the status of roadways to their chains of command. These field reports increased situational awareness.

**Detour Planning:** After the 2013 train derailment, emergency management officials engaged in road detour planning to utilize the state highway system rather than the local system.

- **Implications:** Detour planning would help avoid overtaxing local roads with the amount of traffic that would have been diverted from the Interstate. Although it did not become necessary to close the Interstate, the coordination between the State Department of Transportation, State Highway Patrol, and County Sheriff’s Office resulted in the creation of an agreed-upon plan.

### 3.2. Trend Analysis Report

A Trend Analysis Report can be developed for various topics (e.g., inter-organization communication, sheltering, evacuation) at the request of emergency management personnel before, during, or after an incident to understand patterns from similar past incidents. Trend analysis is used to identify recurring strengths or challenges and changes over time. Additionally, trend analysis is used to describe themes over a distinct period, related to a specific topic, type of incident, or otherwise, and how the associated outcomes were managed in the past. The goal of trend analysis is to identify themes and changes over time to guide planning, training, exercise development, and other improvement efforts. Trend analyses are supported by standardized data. Collecting consistent data over time from each incident and exercise will support the development of trend analyses within an organization.

A Trend Analysis can also identify common recurring core capabilities; POETE—planning, organization, equipment, training, and exercises—areas; and observations from past after-action reviews, THIRA/SPR, and other assessments related to similar threats and/or hazards. A Trend Analysis shows which incident scenarios are most likely to occur, and subsequently, how those incidents were handled in the past.
Chapter 4: Process Improvement

Chapter 4 describes how organizations can use process improvement as a tool to complement and support continuous improvement to build efficient and effective processes. This chapter discusses how process improvement can be applied to emergency management. Organizations can seek industry-standard trainings and resources, in addition to technical expertise, for additional information on process improvement methods and tools.

1. Overview of Process Improvement

Process improvement is the act of examining processes to identify opportunities to maximize efficiency and effectiveness. Some of the goals of process improvement are to reduce waste and errors, improve quality of services, process reliability, lessen variation, and boost productivity and efficiency. Although process improvement targets individual processes, continuous improvement encompasses the system of processes.

Emergency managers can use process improvement techniques to help identify and analyze their internal processes to increase efficiency and effectiveness of operations. Process improvement can occur at any point in the continuous improvement process, either in steady state or incident operations. Additionally, as part of the Resolution Phase, process improvement can be used to identify solutions to improve a process that addresses the root causes of ineffectiveness or inefficiency. Specifically, in the Action Plan, key findings can be worked through a process improvement method to design a new future process that is more effective. Process improvement can also be used as the basis for the analysis of an observation.

Pre-requisites for facilitating process improvement include:

- Identifying the problem, goals, scope, requirements/limitations, and stakeholders;
- Measuring current process performance; and
- Analyzing the problem and its root cause.

1.1. Tools

There are many different tools that can be used to improve processes within an organization. Each tool takes different approaches towards the same end goal of analyzing processes to find improvements. When applying process improvement tools within an organization, it is important to identify which tool best aligns with the improvement objectives. Although there are many tools, this document will briefly describe four: Cause and Effect Analysis, Process Mapping, Value Stream Mapping, and Kaizen (Rapid Improvement Event).
1.1.1. **CAUSE AND EFFECT ANALYSIS (FISHBONE DIAGRAM)**

Cause and Effect Analysis (Fishbone Diagram) involves using a diagraming method to fix problems by identifying all possible causes of a problem. Figure 13 depicts a fishbone diagram, which is an example depiction of the cause-and-effect analysis. This fishbone diagram identifies causes using categories. These categories can be adjusted to be more relatable to the specific team doing the diagraming. For example, emergency managers might use the POETE—planning, organization, equipment, training, and exercises—areas as categories. Benefits of cause-and-effect analysis are that it helps teams understand that there are many causes that contribute to a problem; it graphically displays the relationship of the causes to the effect and to each other; and it helps to identify areas for improvement.

Organizations can create a cause-and-effect analysis by starting with a problem statement. Write the statement towards the right of the diagram, where the word “Problem” is located in Figure 13. Next, brainstorm the major categories of causes of the problem. In this example, the categories are the POETE—planning, organization, equipment, training, and exercises—areas. These are suggestions, the causes of the problem might vary depending on the organization. Next, write these categories of causes as branches from the main arrow. Then, brainstorm all the possible causes of the problem. Causes can be written in several places if they relate to several categories. Next, ask “why does this happen” about each cause. Continue to ask why, with sub-causes branching off the causes. Finally, when the group runs out of ideas, focus attention to places on the chart where ideas are few. This cause-and-effect analysis can help assist in process improvement by getting to the underlying causes of problems in an organization. Figure 13 visualizes the steps in this process.

![Figure 13: Steps in Cause-and-Effect Analysis](image)

In an emergency management context, cause-and-effect analysis can be used to identify why a specific problem is recurring. For example, if personnel identify that a majority of staff are not up-to-
date on training requirements, cause-and-effect analysis can be used to identify causes, including limited spare time, lack of incentive to complete training, and no regular reminders from leadership.

1.1.2. PROCESS MAPPING

A process map, also known as process flowchart, process chart, functional flowchart, and process model, visualizes the workflow of an existing single organizational process from start to finish. The process map identifies inputs, actions, and outputs; helps stakeholders visualize a process; and uses common symbols and terminology easily understood by everyone. The process map helps depict entire processes in one visualization so that organizations can later identify potential areas for improvement. Unlike a value stream map, a process map does not typically reflect bottlenecks and inefficiencies. Figure 14 depicts the process of creating a process map.

To conduct process mapping, organizations should:

- **Identify the Process**: Choose a process to focus on. It might help to prioritize a process that is struggling to achieve outcomes.
- **Identify the Key Players**: Get the right people involved, which includes those who have deep knowledge of the process being optimized. SMEs can help to determining critical information within a process and highlight some of the problem areas.
- **Outline the Process Map**: Outline the process map, ensuring that all major steps are captured.
- **Identify the Start and End**: Determine where the current process starts and end and the steps in-between.
- **Identify the Start and End**: Use basic flowchart symbols to enhance the process.
- **Validate the Process Map**: Get feedback and validate the enhanced process map with team members.

Ultimately, process mapping can be used to visually represent a workflow, which can help a team understand a process more clearly.

There are many ways to use process mapping in emergency management. For example, emergency management organizations can use process mapping to identify and visualize processes within an
EOC to enhance understanding of how various functions and personnel interact and coordinate within the EOC during and after an incident. Similarly, organizations can map out external affairs and public messaging procedures to improve communications with the public before, during, and after an incident.

1.1.3. **VALUE STREAM MAPPING**

A value stream map is a tool used for analyzing the current state and designing a future state. It employs a flowchart documenting every step in a process. Value stream mapping helps organizations visually represent an individual’s perceptions of a process, which helps identify the value of a product, process, or service to the organization. Value stream maps can be used to eliminate waste, reduce cycle process times, and implement process improvement. Steps that do not add value, that represent waste, or that the end user does not want are not part of the value stream.

Organizations can create a value stream map using a template, software, drawing, or even on a whiteboard or piece of paper. Before creating the map, it will be helpful to think about and outline all the processes and stakeholders involved. If a process map has already been created, this is a good starting point; and if the process map does not already identify stakeholders involved, notate the stakeholders first. From there, organizations should start to visualize how these process and stakeholders relate to each other. When creating a value stream map, it may be helpful to use a flowchart software, which will have various icons embedded. However, value stream maps can also be created on a white board and include post-it notes with additional information. Ultimately, value stream mapping can be used to analyze and optimize process improvement in an organization. **Figure 15** describes the value stream mapping process.

![Value Stream Map Process](image)

**Figure 15: Value Stream Map Process**

Value steam maps can be used to analyze the same processes as a process map, although it is used for a different purpose. Some examples of how a value stream map can be implemented in an emergency management context are to identify redundancies in how personnel interact and communicate in an EOC during an incident, public messaging procedures, and how grant applications are managed.
1.1.4. **KAIZEN (RAPID IMPROVEMENT EVENT)**

Kaizen (Rapid Improvement Event) is a method to identify, solve, implement, and track changes made to improve a process or system, in up to 90 days. Rapid process improvement is often used during an incident response to immediately implement lessons learned and improve outcomes. This is applicable to both field and other settings, such as an EOC. Rapid process improvement does not necessarily replace the continuous improvement process described in Chapter 2: Continuous Improvement Process and can be applied across all phases of emergency management.

Rapid process improvement is conducted under compressed timelines, with a small and focused scope, under existing authorities, and provides immediate results. In general, it does not require extensive trend analysis, requires immediate concurrence from leadership, does not wait for future funding sources, and adheres to strict timelines. In contrast, continuous improvement is on-going, consisting of short- medium- and long-term data collection, analysis, and solutions being implemented, requires trend and root cause analysis, and requires increased collaboration with external partners. In both the full continuous improvement process and rapid improvement process, decisions are not made unilaterally, diversity in feedback is important, improvement are made by the process owner, and leadership support is required.

Rapid Improvement Events are sessions where decision makers involved in the particular area of focus are brought together to define the current state of the process, identify the problems and their root cause, propose solutions, and develop a plan to implement those. The revised process is then documented, socialized, and implemented. An important aspect in Rapid Improvement is to monitor and evaluate the implementation of the revised process to determine if the changes have been effective or if the process needs to be modified further. **Figure 16** describes the stages of the rapid improvement process.

---

**Figure 16: Stages of Rapid Process Improvement**

- **IDENTIFY**: This stage is when the problem, the team that interacts with the problem, the timeline, and impacts of the problem are identified.

- **SOLVE**: This stage is when discovery workshop(s) are conducted to build a foundation for solution development.

- **IMPROVEMENT**: During this stage, solution action owners are engaged, actions are implemented and tracked, and results are documented.
Identify

The rapid improvement process begins with a meeting with the process owner and other stakeholders. The team must determine if a request for rapid improvement process is feasible and the correct way to resolve the existing problems. The conditions are right for rapid improvement if there is a shared sense of urgency for improvement, the project or event is ongoing so improvements can be realized before the work concludes, leadership supports the timeline, resources, and approvals. Finally, the team determines if the agreed-upon timeline is feasible.

If rapid improvement is the appropriate solution for the organization problem, the process can begin. On Day 1, the process owner sets the rapid improvement goal and develops the rapid improvement timeline. The goal developed should be a SMART Goal—specific, measurable, attainable, relevant, and time-based.

An example of a SMART Goal is:

- Identify and submit three mitigation projects to capitalize on new grant opportunities by the end of the application period.

SMART Goals

Specific: Goal should address the five Ws—who, what, when, where, and why.

Measurable: Goals should include numeric or descriptive measures that define quantity, quality, and cost.

Achievable: Goals should be within the control, influence, and resources of the responsible owner/assignee.

Relevant: Goal should be instrumental to the mission of the organization.

Time-bound: Goal should have a specified and reasonable timeframe to be completed.

Solve

Data collection for rapid process improvement must have a narrow scope tied with the rapid improvement goal and target areas that have consensus for change. Data collection processes for rapid process improvement mirror those for the continuous improvement process described in Chapter 2: Continuous Improvement Process.

Improvement

In the final weeks of rapid improvement, actions are implemented, tracked, and documented. These improvement actions follow the same processes as those described in Chapter 2: Continuous Improvement Process.
Chapter 5: Establishing and Managing a Continuous Improvement Program

Chapter 5 describes how whole community partners can establish and manage a continuous improvement program. It describes considerations for establishing governing policies of the program and organizing staff structure, types of programs, and training resources. The objective of this chapter is to provide tips and tools on how to keep a continuous improvement program operating in the days, months, and years after its creation.

This chapter is intended to be a scalable and flexible resource that can be used by all whole community partners, including those with limited resources. Although most organizations will not have the resources to implement a full continuous improvement program with all the procedures and policies described in this chapter, organizations are encouraged to select parts that are applicable to their specific needs and priorities.

1. Governing Policies

When establishing a continuous improvement program, the organization should establish the governing policies for the program. The policies should establish an organizational structure or lines of reporting and accountability, including the office or agency the program or position resides in, the position the program lead reports to, and specific branches or teams. Policies may also establish required positions, roles and responsibilities, program priorities, collection methods, and strategic goals. The size and scope of a continuous improvement program may vary based on availability of staff and resources to support the program.

When establishing the governing policy for the program, it is important to consider the following questions. When developing the governing policy, the organization should discuss all of these questions and try to address as many as possible in the policy. If possible, it may be helpful to refer to other similar organizations’ governing policies.

- What existing or related continuous improvement practices (e.g., internal or external audits, best practice documentation) are already being conducted?
- How often should continuous improvement policies be evaluated and updated?
- What types of incidents will require an after-action review?
  - Who will review and approve after-action review products?
2. Types of Programs

The ability of an organization to establish and build a continuous improvement program varies based on multiple factors, such as leadership commitment, funding, personnel, and experience. Based on these specific capabilities, an organization may choose to establish a fully staffed continuous improvement program, designate a continuous improvement team, or assign a full- or part-time continuous improvement staff member. Additionally, regional entities or neighboring communities can decide to establish a regional continuous improvement regional. It may be especially beneficial for the surrounding communities of a metropolitan area to coordinate on continuous improvement efforts.

Organizations can create a maturity model to guide the development of their continuous improvement program. Table 7 provides an example on how to assess the current situation and identify steps forward. The model has four levels of potential organizational maturity, as well as the expected capability and steps to develop the capability. Newer continuous improvement components begin at the bottom of the model, in the initial phase, and gradually build to the optimized phase. Although this reference model provides a guide, development of a continuous improvement program is not always a linear process. Capabilities are not required to be developed in this order and some organizations might have capabilities that are different from others. Ultimately, organizations can use this example to build their own models.
## Table 7: Building a Continuous Improvement Program Maturity Model

<table>
<thead>
<tr>
<th>Phase</th>
<th>Capability</th>
<th>Steps to Develop Capability</th>
</tr>
</thead>
<tbody>
<tr>
<td>4) <strong>Optimized</strong></td>
<td>- Dedicated funding to support program and improvements&lt;br&gt;- Flexibility to assess disasters of varying impacts and complexity&lt;br&gt;- Institutionalized policies and procedures related to continuous improvement&lt;br&gt;- Matrixed program across Departments and Agencies</td>
<td>- Develop a multi-year financial strategy to sustain continuous improvement efforts&lt;br&gt;- Cross train additional staff to support the Continuous Improvement Unit, as needed&lt;br&gt;- Review statutes, policies, plans, and procedures and make necessary changes to ensure that continuous improvement is fully integrated across departments and agencies&lt;br&gt;- Develop stakeholder outreach strategy and detail employees from other Departments and Agencies</td>
</tr>
<tr>
<td>3) <strong>Established</strong></td>
<td>- Full staffing with all necessary training&lt;br&gt;- Authority to implement and assign changes across departments and agencies&lt;br&gt;- Ability to use preparedness information to inform actions</td>
<td>- Create a Continuous Improvement Unit within the agency that oversees continuous improvement planning and execution&lt;br&gt;- Leadership establishes authority for the Continuous Improvement Unit to implement and assign changes across departments and agencies&lt;br&gt;- Operationalize preparedness information identified during continuous improvement efforts during real world events/incidents</td>
</tr>
<tr>
<td>2) <strong>Defined</strong></td>
<td>- Some staff dedicated to continuous improvement&lt;br&gt;- Develop AARs and improvement plans&lt;br&gt;- Interagency forum to discuss issue resolution</td>
<td>- Identify, hire, and train staff dedicated full-time to continuous improvement&lt;br&gt;- Establish formal mechanism for after-action reporting and improvement plans&lt;br&gt;- Develop an interagency coordinating body to track issues to resolution</td>
</tr>
<tr>
<td>1) <strong>Initial</strong></td>
<td>- Ad hoc staff assigned to continuous improvement&lt;br&gt;- Record strengths, areas for improvement, and potential best practices from incidents and events</td>
<td>- Identify staff to surge on continuous improvement projects&lt;br&gt;- Develop ability to react to disasters and track strengths, areas for improvement, and potential best practices</td>
</tr>
</tbody>
</table>
3. Leadership

An effective continuous improvement program should have leadership that exhibits several key characteristics and traits. Leadership should be passionate about seeing the organization improve, can communicate difficult information in a way that helps people see the value in change, has previous continuous improvement experience, helps identify the primary cause of a problem, and holds people accountable for implementation of recommended actions. The program leadership should be trusted and respected by other leaders and personnel throughout the organization.

The vision of leadership should be to build a culture of continuous improvement where change is deliberate, and improvement is championed. Establishing a protocol to implement and evaluate continuous improvement activities is key to sustaining culture. It will take time to build and will require consistent commitment to the process.

Continuous improvement requires engagement with senior leadership to determine collection priorities. It is important to have leadership buy-in as that support is necessary to implement recommended actions. A common pitfall in continuous improvement is limited or missing senior leadership support. Ideally, leadership is able to lead by example and lay the foundation for a culture of continuous improvement.

4. Personnel

New or small continuous improvement programs may only have one staff member responsible for the continuous improvement program who may also have other responsibilities in the organization. Additionally, organizations may not have the resources to fully dedicate a single staff member to focus solely on continuous improvement and that individual must support multiple roles. In that case, it is important to consider whether there are any conflicts of interest and the best way to manage time between various roles. For example, if one personnel is serving in both a continuous improvement role and public affairs role, they may not be the ideal person to provide an outsider’s perspective when creating a value stream map for the public affairs social media posting process. This is where establishing clear policies to guide a continuous improvement program can be helpful. Developing roles and responsibilities, program priorities, and recognizing when the program schedule is most demanding can help programs stay organized when there are competing interests. Additionally, organizations may choose to fill continuous improvement positions by employing contract support. When employing continuous improvement positions with contract support, there is still a need to engage stakeholders and responsible entities and a need to assign someone to track change that happens after an after-action review.

As a continuous improvement program matures, personnel may identify skill sets and capabilities for staff to develop. Recognizing the different skill sets for the team puts them in the best position to succeed and keeps them engaged in the work.

Continuous Improvement Program staff should:
1597 - Take a proactive approach to coordinate with other offices and agencies;
1598 - Look at wide-ranging issues and consider innovative solutions;
1599 - Possess the ability to analyze issues from multiple perspectives and identify root causes; and
1600 - Develop and maintain partnerships both inside and outside the organization.

1601 If an organization has the resources for multiple staff, it may identify staff to fill three core functions: team lead, data collection support, and analysis support. Table 8 describes the responsibilities of these positions. Figure 17 depicts a basic staff organizational chart. Small and/or resource-constrained organizations may scale these positions as required to support these basic functions based on the resources available. In many cases, one personnel may be assigned all these responsibilities, and it may be one of many responsibilities.

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5. Recruitment

1611 After an organization has identified the roles necessary for their continuous improvement program, the next consideration is recruitment and hiring. Below are several characteristics that an
organization can look for in a prospective employee to help identify qualified personnel who may be a successful addition to an organization’s continuous improvement program.

- Flexible and adaptable to evolving field operations;
- Ability to conduct research and gather information through interviews;
- Ability to collect and analyze qualitative and quantitative data;
- Knowledgeable in project and team management, problem solving, relationship building, communication, facilitation, and/or quantitative/qualitative analysis;
- Knowledgeable about organizational programs and emergency management; and
- Strong written and verbal communication skills, including the ability to develop quick-turn deliverables and present to senior leadership.

6. Finances

Some organizations can use grants to build and finance continuous improvement programs and projects. Not all organizations qualify for FEMA grants, but it is important to determine what types of funding an organization could access to fund a continuous improvement program. Organizations interested in receiving funding through a FEMA grant can coordinate with their state and/or city to apply for and request funding. States and cities have varying procedures to award grant funding to recipients and eligibility does not guarantee a recipient will receive funds.

Taking advantage of opportunities to fund continuous improvement activities is a great way to build a program.

FEMA Preparedness Grants

The below grants can be used to:

1) Fund a continuous improvement program
2) Hire continuous improvement staff
3) Set up a continuous improvement program

**Homeland Security Grant Program (HSGP):** Includes a suite of risk-based grants to assist state, local, tribal, and territorial efforts in preventing, protecting against, mitigating, responding to, and recovering from acts of terrorism and other threats.

**Emergency Management Performance Grant (EMPG):** Provides SLTT emergency management agencies with the resources required for implementation of the National Preparedness System and works toward the National Preparedness Goal of a secure and resilient nation. The
allowable costs under EMPG includes support efforts to build and sustain core capabilities across the prevention, protection, mitigation, response, and recovery mission areas.

**Tribal Homeland Security Grant Program:** Provides funding directly to eligible tribes to strengthen their capacity to prevent, prepare for, protect against, and respond to potential terrorist attacks.

One example of a FEMA grant is the Homeland Security Grant Program (HSGP). The HSGP’s allowable costs support efforts to build and sustain core capabilities across the nation in preventing, protecting against, mitigating, responding to, and recovering from acts of terrorism and other threats. Tribal nations can also use funding from the Tribal Homeland Security Grant Program to fund continuous improvement activities.

Another federal grant that can be used for continuous improvement is the Emergency Management Performance Grant (EMPG), which can provide funding to help close capability gaps or sustain capabilities identified in the THIRA/SPR process and other relevant information sources like AARs. Grant funding can be used to improve training and exercise programs, innovation, and appropriate administrative, finance, and logistics systems.

Continuous improvement personnel can evaluate existing capabilities and identify areas of improvement that can be used to request and justify grant investments.

For additional information on FEMA grants, refer to [https://fema.gov/grants](https://fema.gov/grants) or the FEMA Preparedness Grants Manual at [https://fema.gov/grants/preparedness/manual](https://fema.gov/grants/preparedness/manual).

### 7. Supporting Organizational Learning and Improvement

When establishing and building a continuous improvement program, it is important to identify and leverage leaders and personnel within the organization who support continuous improvement. It is crucial to create a program that is solutions-oriented, aligned with agency priorities, and viewed as a partner and resource.

There may be personnel within the organization who are skeptical of a continuous improvement program. In this case, organizations can continue to engage to build trust with these personnel by:

- Focusing on timely and open communication that shows that the stakeholder is important to the process;
- Sharing knowledge by explaining the process, reasoning behind each step, and the specific benefit of findings on the stakeholder;
- Being open to feedback to demonstrate a willingness to hear opinions on how things are going and how they can be improved; and
Exceeding expectations to develop a reputation as someone who delivers exceptional results and does not promise unrealistic results. A culture of continuous improvement will take time to build and will require consistent commitment to the process. Personnel must remain committed to the process and its shared goals.

7.1. Navigating Priorities

Continuous improvement program duties may involve navigating competing priorities within an organization. It is important for continuous improvement staff to consider both agency priorities and the things that people outside of the organization care about. Consider whether priorities are being organized in a solutions-oriented way or accusatory. Consider if the past culture been one of blaming and finger-pointing or seeing failure as an opportunity to learn and grow. These are key considerations that can affective decision-making. Although continuous improvement analysis identifies areas for improvement in a non-attributional manner, avoiding a focus on past mistakes helps align an organization and shift the conversation towards learning and advancement.

7.2. Programmatic Success Factors

The following factors can provide a guide on some of the possible ways to measure the success of a continuous improvement program.

- **Obtain commitment throughout the organization:** Leadership and staff at all levels are supportive of the same continuous improvement goals and willing to actively support resolution of issues.

- **Ensure everyone is involved:** Staff at all levels of an organization should be involved in the continuous improvement program, and there should be dedicated personnel with allocated time to review operations to objectively draw connections between identified issues.

- **Maintain strong communications:** Keep all relevant stakeholders aware of continuous improvement progress until each recommended action is completed.

- **Revisit continuous improvement activities:** Establish a regular process to evaluate continuous improvement methods and make modifications to make future continuous improvement activities more effective.

- **Cultivate a culture of learning:** A culture of learning will take time to build as staff learn that mistakes lead to learning and will require consistent commitment at all levels of the organization.

- **Include key partners outside of the organization:** Level of involvement from other stakeholders like states, other localities in the region, the private sector, and non-profit organizations.
7.3. Internal Program Evaluation

In addition to these success factors, an individual continuous improvement program can develop a process to evaluate its own processes and products. One method to evaluate internal processes is by using a logic model. A logic model is a detailed visual representation of a program and its theory of change. It communicates how a program works by depicting the intended relationships among the resources available to operate the program, the activities the program carries out, and the changes or results the program hopes to achieve, which are referred to as outputs and outcomes. Figure 18 describes the logic model.

Figure 18: Logic Model

The first step in developing a logic model is to identify the high-level mission of the program (this may already exist in the form of a mission or vision statement or strategic plan). Based on the high-level mission of the program, the program can use the logic model framework to depict the intended relationships among resources available to operate the program, the activities the program carries out, and the changes or results the program hopes to achieve which are referred to as outputs and outcomes. In addition to program evaluation, logic models can be used to ensure that stakeholders have a clear and shared understanding of how a program is intended to work. Each component of the logic model is described in Table 9.

Table 9: Logic Model Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inputs</td>
<td>Human, financial, organizational, and community resources available for carrying out a program’s activities to invest and commit to implement activities.</td>
<td>• Funding</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Program Staff</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Volunteers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Research</td>
</tr>
<tr>
<td>Component</td>
<td>Description</td>
<td>Examples</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Activities      | Discrete processes, tools, events, and actions taken to bring about intended changes or results. | ▪ Training program  
▪ Exercise event |
| Outputs         | The direct products of a program’s activities and may include types, levels, and targets of service to be delivered by the program. | ▪ Number of individuals attending a training program |
| Outcomes        | The expected changes that result from activities. Outcomes quantify changes in knowledge, attitude, behavior, or condition. | ▪ Short term: Changes in knowledge, skills, and/or attitudes  
▪ Medium-term: Changes in behavior or action  
▪ Long-term: Changes in condition or status |
| Performance measures | Quantitative measures to evaluate outcome. | ▪ Percent of staff with a specific certification |

### 7.3.1. PERFORMANCE MEASUREMENT AND PROGRAM EVALUATION

A logic model can be used to guide both performance measurement and program evaluation activities. Performance measures should be identified for all desired outcomes listed in the logic model. These performance measures should be monitored and reported on an ongoing basis to identify progress made toward goals. This may require programs to be able to collect data on the specific activities carried out and the direct products and services produced by a program’s activities. The logic model can help identify components of a program to include performance measurement and identify indicators and the measures of progress/performance that align with program components. For example, if an organization is aiming to increase the percentage of staff with a specific certification, they should consider setting up a spreadsheet where staff can mark if they have enrolled in the course and completed the course. This can be a simple way to identify whether goals are being met.

Program evaluation is a set of in-depth research activities that answer specific questions about program processes and/or program outcomes. Program evaluation is typically more of a long-term project, versus performance measurement which is an ongoing effort. For example, a program may determine that every five years they will conduct an internal evaluation of the skillsets of their staff. During this program evaluation, they may use the data collected on the performance measures to inform their findings. However, this program evaluation may include a more intensive collection of data, including interviewing and surveying staff.
8. Training

Continuous improvement programs should establish consistent training processes for any personnel on the team. Personnel could be trained in the continuous improvement process, AAR writing, data collection and analysis, incident operations, and process improvement.

FEMA’s Emergency Management Institute (EMI) provides an independent study course, IS-45: Continuous Improvement Overview, that is designed to provide whole community partners with an introduction to continuous improvement.

To access course IS-45: Continuous Improvement Overview, visit FEMA’s EMI website at: https://training.fema.gov/is/courseoverview.aspx?code=IS-45.

Additionally, FEMA’s PrepToolkit offers training on specific continuous improvement topics, such as effective use of surveys, after-action reviews, improvement action tracking, and process improvement.

To see up-to-date schedule of FEMA’s continuous improvement trainings and to register for a specific training, visit FEMA’s PrepToolkit: https://preptoolkit.fema.gov/web/cip-citap/ncig-resources.

9. Systems

9.1. Issue Resolution System

It is important for continuous improvement programs to establish issue resolution and tracking systems to track Action Plans and actions throughout the organization. Developing an issue tracking system ensures that continuous improvement programs can clearly communicate ongoing improvement actions to responsible parties. The continuous improvement program can also use the issue tracking system to track its success in implementing recommended actions. Once the issue has been resolved that information may be shared with the SMEs who originally identified the issue or participated in the Discovery and Validation Phases.

Although organizations can use various programs and software to develop an issue resolution and tracking system, all systems should include the following data points, in addition to any other data the organization would like to track:

- Dates of Data Collection
Anything from all open Action Plans can be tracked in the issue resolution system, including tagging a core capability, POETE—planning, organization, equipment, training, and exercises—area, and/or community lifeline.

9.2. Product Tracker
Continuous improvement programs may also develop searchable libraries to track existing products (e.g., AARs, Quick Look Report, briefings) to ensure products are easily accessible. A product tracker can be used by the entire organization to access and circulate continuous improvement products. Additionally, an easily accessible tracker will allow organizations to quickly access and use products for collection of information, during incident operations, and for process improvement.

9.3. Recommended Actions Matrix
In some cases, an organization may track recommended actions from exercise after-action documents and recommended actions from real-world after-action documents using a single tracking tool such as a recommended action matrix spreadsheet. This allows organizations to track related recommended actions on the same topic or with the same responsible entity.
Chapter 6: Conclusion

This guidance was designed to provide guidance for whole community partners, from those new to developing a continuous improvement program, to those experienced partners looking to update and enhance their current program. Whole community partners should be able to take tools and resources from this document to strengthen their continuous improvement activities. The goal is for this to be a constant reference guide for the whole community. Those who have access to the guidance should pass it along to those who are entering the world of continuous improvement. Doing so will extend the reach of this document and will aid in developing continuous improvement capabilities for more equitable outcomes in the community.

The guidance should provide a building block for continuous improvement programs to plan out future operations. Below is a list of several ideas to consider as programs think about next steps:

- Conduct an internal assessment of all the tools/methods that have been mentioned in the guidance and determine which ones would be helpful to implement.
- Build excitement about continuous improvement at the staff and leadership level. Share the guidance with someone!
- Get some quick wins that show the value of continuous improvement work.
- Build relationships and find some strong advocates at the leadership level.
- Start sharing information about continuous improvement. It is a great way to build interest in continuous improvement, both within an organization and within the community.
# Appendix A: Acronyms

*This acronyms list provides a large set of useful acronyms related to continuous improvement and not simply those used within the National Continuous Improvement Guidance (NCIG).*

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>AFI</td>
<td>Area for Improvement</td>
</tr>
<tr>
<td>APW</td>
<td>Action Planning Workshop</td>
</tr>
<tr>
<td>CITAP</td>
<td>Continuous Improvement Technical Assistance Program</td>
</tr>
<tr>
<td>COA</td>
<td>Courses of Action</td>
</tr>
<tr>
<td>CPG</td>
<td>Comprehensive Preparedness Guide</td>
</tr>
<tr>
<td>EMPG</td>
<td>Emergency Management Performance Grant</td>
</tr>
<tr>
<td>EMI</td>
<td>Emergency Management Institute</td>
</tr>
<tr>
<td>EOC</td>
<td>Emergency Operations Center</td>
</tr>
<tr>
<td>FEMA</td>
<td>Federal Emergency Management Agency</td>
</tr>
<tr>
<td>HSEEP</td>
<td>Homeland Security Exercise and Evaluation Program</td>
</tr>
<tr>
<td>HSGP</td>
<td>Homeland Security Grant Program</td>
</tr>
<tr>
<td>IAP</td>
<td>Incident Action Plan</td>
</tr>
<tr>
<td>MC</td>
<td>Mission Critical</td>
</tr>
<tr>
<td>NCIG</td>
<td>National Continuous Improvement Guidance</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
</tr>
<tr>
<td>NIMS</td>
<td>National Incident Management System</td>
</tr>
<tr>
<td>NQS</td>
<td>National Qualification System</td>
</tr>
<tr>
<td>PBP</td>
<td>Potential Best Practice</td>
</tr>
<tr>
<td>POETE</td>
<td>Planning, Organization, Equipment, Training, and Exercises</td>
</tr>
<tr>
<td>SLTT</td>
<td>State, Local, Tribal, and Territorial</td>
</tr>
<tr>
<td>SME</td>
<td>Subject-Matter Expert</td>
</tr>
</tbody>
</table>
National Continuous Improvement Guidance

1844  SPR  Stakeholder Preparedness Review
1845  STR  Strength
1846  THIRA  Threat and Hazard Identification and Risk Assessment
Appendix B: Glossary

**Action Plan:** A plan that identifies recommended actions, assigns them to responsible entities, and establishes timelines for their completion.

**Action Planning Workshop (APW):** A workshop that brings together multiple stakeholders to facilitate the development, adoption, and implementation of recommended actions. The workshop should include those entities responsible for taking action(s).

**After-Action Report:** A continuous improvement product that provides retrospective analysis of an incident or exercise, outlining strengths, areas for improvement, potential best practices, and mission critical issues.

**Area for Improvement (AFI):** Type of observation that explains how outcomes did not meet expectations set out in plans, policies, or procedures or instances where the program did follow and established the process or system requirements, but the outcome was inadequate.

**Collection Analysis Plan:** A plan that organizes and establishes a clear approach for data collection efforts. It typically includes a brief description of the incident, purpose, scope, collection priorities, methodology, roles and responsibilities, schedule, and potential constraints.

**Continuous Improvement Process:** The process that helps emergency managers discover trends, learn lessons, and implement recommended actions. It consists of the Discovery, Validation, Resolution, and Evaluation Phases.

**Discovery:** Phase of the continuous improvement process that involves planning for data collection and the actual data collection.

**Emergency Management Performance Grant (EMPG):** Grant program that provides state, local, tribal, and territorial (SLTT) emergency management agencies with the resources required for implementation of the National Preparedness System and works toward the National Preparedness Goal of a secure and resilient nation. The EMPG’s allowable costs support efforts to build and sustain core capabilities across the prevention, protection, mitigation, response, and recovery mission areas.

**Emergency Operations Center (EOC):** An EOC is a facility from which staff provide information management, resource allocation and tracking, and/or advanced planning support to personnel on scene or at other EOCs (e.g., a state center supporting a local center).

**Evaluation:** The phase of the continuous improvement process that involves action tracking and information sharing.

**Exercise:** An event or activity delivered through discussion or action to develop, assess, or validate capabilities to achieve planned objectives.
**Exercise Objectives:** An item with a distinct outcome that a community/organization wishes to achieve during an exercise. An objective should be specific, measurable, achievable, relevant, and time-bound (SMART).

**Homeland Security Grant Program (HSGP):** Program that includes a suite of risk-based grants to assist SLTT efforts in preventing, protecting against, mitigating, responding to, and recovering from acts of terrorism and other threats.

**Incident:** An occurrence, natural, human-caused, that requires a response to protect life or property. Incidents can, for example, include major disasters, emergencies, terrorist attacks, terrorist threats, civil unrest, wildland and urban fires, floods, hazardous materials spills, nuclear accidents, aircraft accidents, earthquakes, hurricanes, tornadoes, tropical storms, tsunamis, war-related disasters, public health and medical emergencies, and other occurrences requiring an emergency response. Throughout this document, incident is also used in reference to planned events, such as exercises.

**Incident Action Plan (IAP):** A document outlining the control objectives, operational period objectives, and response strategy defined by incident command during response planning.

**Interview:** A meeting with an individual or group to collect perspectives after an incident or exercise on what happened and why.

**Knowledge Snapshot:** A time sensitive analytic product that delivers a high-level overview of a specific topic to field leadership, planners, or other relevant stakeholders upon request, at the onset of an event or exercise.

**Mission Critical (MC):** Type of observation that explains an item that has significant operational effects that may lead to mission failure or loss of life or bodily injury. MCs require immediate elevation to senior leadership for consideration.

**Observation:** The consolidated analysis of quantitative and qualitative data to address an identified strength, area for improvement, potential best practice, or mission critical issue. It should include a topic sentence, discussion of evidence, desired outcome(s), and course(s) of action.

**Policy:** Guidelines or principles set in place to achieve a particular objective.

**Potential Best Practice (PBP):** Type of observation the explain how activities not defined within policies, plans, or procedures that yielded better results than could have been expected from solutions within existing policies, plans, or procedures under the same conditions.

**Preparedness:** The actions taken to plan, organize, equip, train, and exercise to build and sustain the capabilities necessary to prevent, protect against, mitigate the effects of, respond to, and recover from those threats that pose the greatest risk to the security of the Nation.

**Recommended Action:** An action that needs to be taken to maintain a strength, institutionalize a best practice, or address an area for improvement or mission critical issue. Initially developed as an
element of an observation, recommended actions are finalized during an APW and transferred into an Action Plan for tracking and completion.

Resolution: The phase of the continuous improvement process that involves conducting an APW and developing an Action Plan.

Strength (STR): Type of observation that explains how activities within policy, plans, or guidance yielded better results than usual in a particular incident. Strengths document processes or systems that are working and being implemented as intended.

Validation: The phase of the continuous improvement process that involves data analysis and reporting.

Whole Community: A focus on enabling the participation in incident management activities of a wide range of players from the private and nonprofit sectors, including nongovernmental organizations (NGO) and the general public, in conjunction with the participation of all levels of government, to foster better coordination and working relationships.
Appendix C: Considerations for Resource Constrained Organizations

Appendix C is a consolidated resource of considerations for organizations with limited resources.

- **Qualitative Data Collection**
  - If an organization has limited resources and does not have the bandwidth to conduct all forms of data collection, they can conduct a hotwash and use a survey. The hotwash can be a good way to collect feedback and perspectives for personnel already at an incident. A survey can then be used to ask questions to many personnel at once, including those who were not at the hotwash.

- **Interviews**
  - If the organization only has an interviewer and no note-taker, the interviewer can use the following resources to record notes during an interview:
    - Record the interview (after asking all interview participants for their consent and receiving consent from all participants) and transcribe notes after.
    - Use a transcription feature on a video conferencing platform if the interview is virtual.

- **Internal Program Evaluation**
  - In many cases, continuous improvement programs may not have the resources and capacity to conduct extensive program evaluation. When this is the case, programs can take a simple approach of choosing one or two goals and assessing those goals on a specific timeline (e.g., every six months or yearly).

- **Issue Resolution**
  - Many organizations may not have the resources to build an issue resolution system, product tracker, and/or recommended actions matrix using an interactive application platform. When this is the case, organizations can start tracking observations and recommended actions using a simple spreadsheet.
Appendix D: Considerations and Resources for Working in Diverse Cultural Settings

Appendix D provides a list of potential considerations and related FEMA training resources that can be used by emergency management organizations and other organizations when conducting continuous improvement activities in diverse cultural settings and communities. Personnel can better serve the whole community by taking steps to understand cultural and social differences. Cultural settings may vary from those of personnel based on a large number of parameters or circumstance and some instances may include, but are not limited to, when personnel are working in communities they are not members of, such as tribal nations and territories, or with faith-based organizations, immigrant or refugee communities, and/or communities that speak a language other than English.

When conducting continuous improvement activities, it is important for organizations to ensure they are incorporating multiple, diverse perspectives to effectively document what happened and fully learn from past experiences. To help personnel understand and engage with different perspectives, personnel may review the following considerations when preparing for and conducting continuous improvement activities. The list of considerations defined in this appendix is not exhaustive, but the list provides some considerations organizations can adapt to ensure they are able to conduct continuous improvement activities in a more inclusive and socially and culturally sensitive manner. Organizations can build on these considerations to develop their own considerations and expectations for personnel conducting continuous improvement.

- Personnel should be able to communicate with all other activated personnel and/or community members when conducting continuous improvement activities. Personnel should consider the languages and local dialects that other personnel or community members may speak and make necessary accommodations for clear and culturally appropriate interactions. Additionally, personnel should consider non-verbal cues that may affect communications and other interactions.

- Personnel should consider the role that faith-based and community organizations may play before, during, and after response and recovery operations and the associated socially or culturally specific elements of these organizations, and their members, when conducting continuous improvement activities.

- Personnel should consider if personnel or communities have different cultural norms or customs that may influence communications or other interactions when conducting continuous improvement activities.
When applicable, personnel should consider the existing working relationships between their organization and tribal governments.

Personnel should consider and seek out the perspectives of individuals with disabilities and other access and functional needs, including considerations regarding equity and accessibility during an incident.

To support these considerations a list of FEMA trainings on related topics, available at the time of publication, is provided below. Some continuous improvement programs may consider encouraging personnel to take these independent study courses and additional trainings to further develop and learn specific skills to consider cultural differences and the application of equity throughout the emergency management cycle when conducting continuous improvement activities. FEMA has developed the following trainings that organizations may use:

- Engaging Faith-based and Community Organizations:

- FEMA Independent Study IS-368: Including People With Disabilities & Others With Access & Functional Needs in Disaster Operations:
  https://training.fema.gov/is/courseoverview.aspx?code=IS-368

- FEMA Independent Study IS-505: Concepts of Religious Literacy for Emergency Management:
  https://training.fema.gov/is/courseoverview.aspx?code=IS-505

- FEMA Independent Study IS-650.B: Building Partnerships with Tribal Governments:
  https://training.fema.gov/is/courseoverview.aspx?code=IS-650.b
Appendix E: Alignment with Federal Programs, Policies, and Guidance

Appendix E describes how the National Continuous Improvement Guidance aligns with several current federal programs, policies, and guidance including:

- Homeland Security Exercise and Evaluation Program (HSEEP)
- National Preparedness System
- National Incident Management System (NIMS)
- CPG 201: Threat and Hazard Identification and Risk Assessment (THIRA) and Stakeholder Preparedness Review (SPR) Guide (3rd Edition); and
- Evidence-Based Policymaking Act of 2018 (Evidence Act)

1. Homeland Security Exercise and Evaluation Program

The National Continuous Improvement Guidance builds on FEMA guidance provided through the HSEEP about improvement planning and evaluation. HSEEP provides a set of guiding principles for exercise and evaluation programs, as well as a common approach to exercise program management, design and development, conduct, evaluation, and improvement planning. The identification of strengths, areas for improvement, and corrective actions that result from exercises help organizations build capabilities as part of a larger continuous improvement program.

Improvement planning activities can help shape an organization’s exercise program priorities and support continuous improvement in the building and sustaining of core capabilities. Additionally, using HSEEP to develop exercises that are more representative of the challenges a particular community faces will yield data that is more beneficial to its continuous improvement program.

For additional information on HSEEP, refer to FEMA’s webpage at:
2. National Preparedness System

The National Continuous Improvement Guidance contributes to the National Preparedness Goal, and supports efforts across the whole community to improve the nation’s capacity to build, sustain, and deliver core capabilities. Preparedness is a continuous process of planning, organizing, equipping, training, exercising, evaluating, and implementing recommended actions. The National Preparedness System outlines an organized process for everyone in the whole community to move forward with their preparedness activities and achieve the National Preparedness Goal.

Figure 19 depicts the six components of the National Preparedness System. Continuous improvement practices, including a real-world after-action review, validate capabilities and inform reviews and updates. It is important to determine if activities worked as intended. Participating in exercises, simulations, or other activities helps your organization identify gaps in plans and capabilities. Additionally, it is important to regularly review and update all capabilities, resources, and plans. As risks and resources evolve, continuous improvement programs help ensure communities are prepared to address threats and hazards.

For additional information on the National Preparedness System, refer to FEMA’s webpage at https://www.fema.gov/emergency-managers/national-preparedness/system.

3. National Incident Management System

NIMS provides stakeholders across the whole community with the shared vocabulary, systems, and processes to successfully deliver the capabilities described in the National Preparedness System. When conducting continuous improvement within the emergency management space, it is important to use common terminology and plain language established in NIMS. Using the same terminology

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1 The National Preparedness Goal defines what it means for the whole community to be prepared for all types of disasters and emergencies. The National Preparedness goal is to achieve “a secure and resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk.” These risks include events such as natural disasters, disease pandemics, chemical spills, and other man-made hazards, terrorist attacks and cyber-attacks.
and structure when updating plans and processes allows for interagency coordination and a
common language when talking about continuous improvement.

For additional information on NIMS, refer to FEMA’s webpage at:

   Developing and Maintaining Emergency Operations Plans

CPG 101 provides guidance from FEMA on the fundamentals of planning and developing emergency
operations plans. It provides planning considerations, key principles, and a six-step planning
process. Continuous improvement activities and products can inform update efforts and help
planners address and overcome identified gaps resulting in more efficient and effective plans. The
adoption of recommended actions may result in addition of new stakeholders to the planning
process, addressing identified resource gaps or modifying planning assumptions or objectives.

For additional information on CPG 101: Developing and Maintaining Emergency Operations Plans, refer to FEMA’s webpage at: https://www.fema.gov/emergency-managers/national-preparedness/plan.

5. Comprehensive Preparedness Guide 201 (CPG 201):
   Threat and Hazard Identification and Risk Assessment (THIRA) and Stakeholder Preparedness Review (SPR) Guide

The THIRA is a three-step risk assessment process that is completed every three years that helps
communities identify their risks of greatest concern and helps communities determine the
capabilities needed to address those risks. The SPR is an annual three-step self-assessment of a
community’s capability levels based on the capability targets identified in the THIRA. Next, the SPR is
used to identify and address capability gaps related to POETE areas: planning, organization,
equipment, training, and exercises.

The THIRA/SPR results are also an integral part of analysis of national preparedness and national
capability gaps, which are outlined in the annual National Preparedness Report. This information can
be used at the federal level to identify areas where more resources may be needed to address
national capability gaps prior to, during, and following catastrophic events.

The THIRA/SPR also looks at all areas of POETE: planning, organization, equipment, training, and
exercises. In addition, the THIRA/SPR is used by federal partners to look at decision support, and to
report on national capabilities. This data is used in the National Preparedness Report and other
programs.
Whole community partners can use THIRA/SPR results to prioritize efforts like training and exercises, to build and sustain capabilities. The outputs of the THIRA/SPR provide communities with a foundation to prioritize decisions, close gaps in capability, and support continuous improvement programs.

For additional information on THIRA/SPR, refer to FEMA's webpage at:  

6. Evidence-Based Policymaking Act of 2018

The Evidence Act establishes processes for Federal agencies to modernize their data management practices, evidence-building activities, and statistical efficiencies to inform policy decisions. The continuous improvement processes described in the National Continuous Improvement Guidance are grounded in these Evidence Act requirements. Although the Evidence Act only applies to Federal agencies, the principles of evidence-building, high-quality evaluation, and evidence-based policy inform these best practices and can be applied by SLTTs as well.

For additional information on the Evidence Act, refer to: https://www.cio.gov/policies-and-priorities/evidence-based-policymaking.