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Prevention / Detection / Correction PDC Model

Your Basic Foundation for the HP Roadmap

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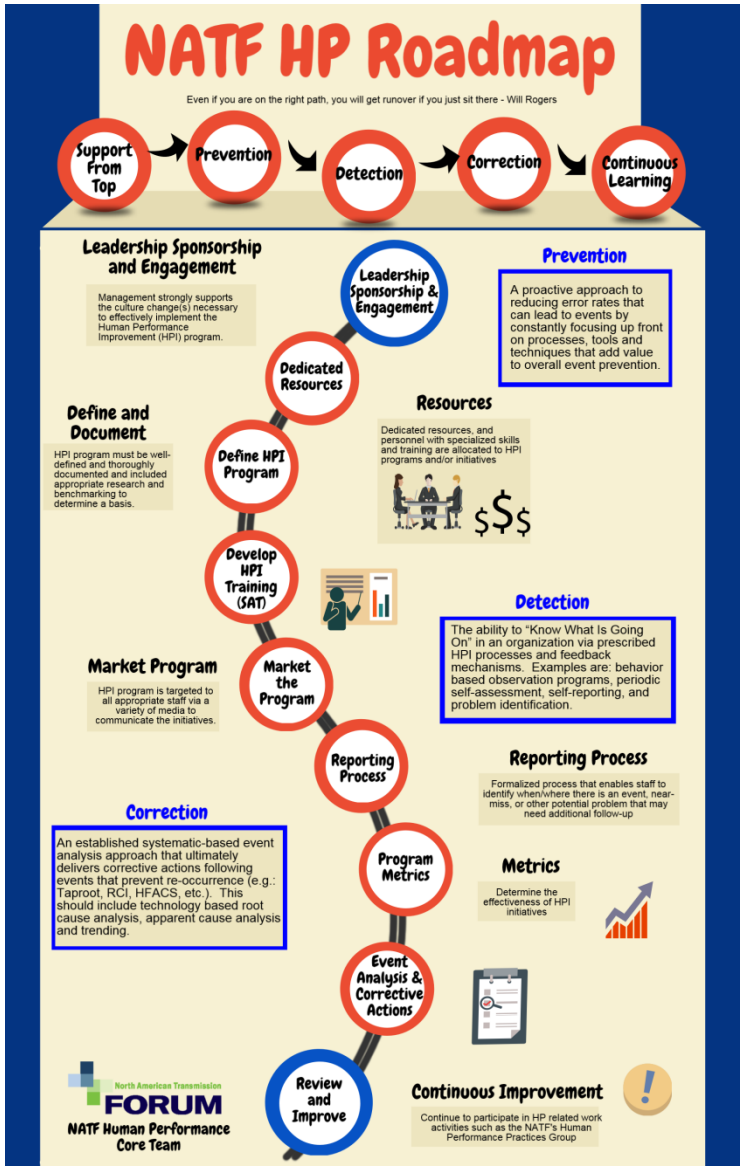

Roadmap provides an overview to an Effective and Value-Added HPI Program

"Why"

"What"

"How"

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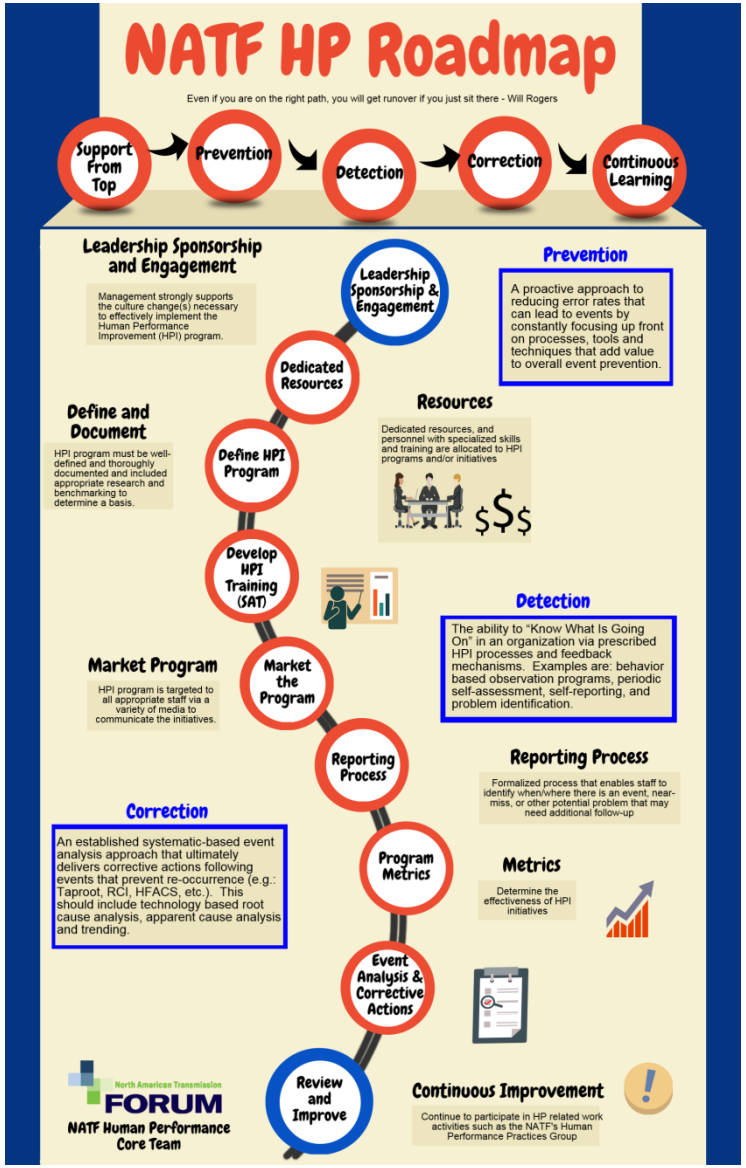

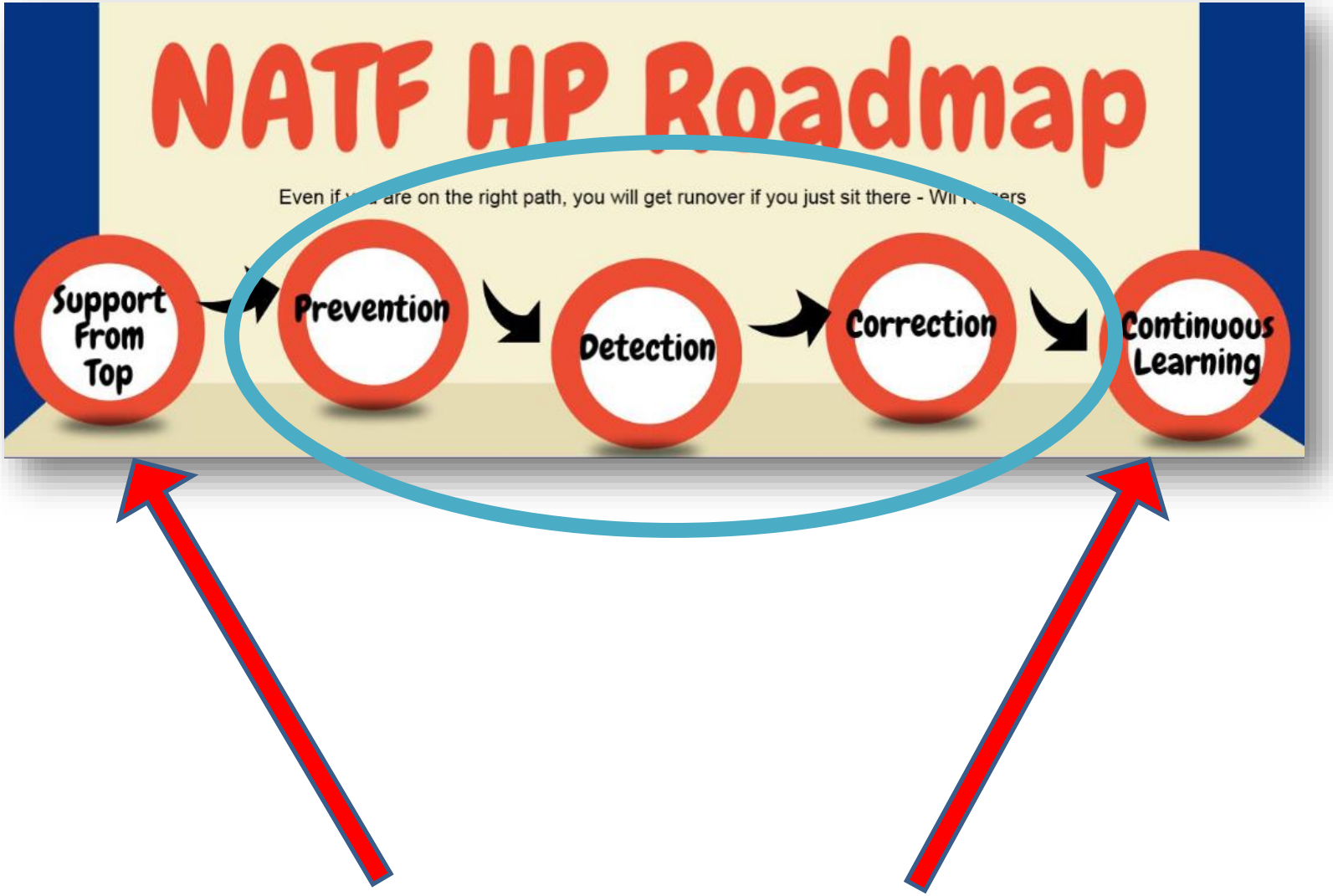

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Leadership Sponsorship and Engagement

Why:

- Sets culture and influences change
- Establishes corporate objectives
- Emphasizes importance
- Provides resources
- Enables engagement in industry Human Performance forums

Leadership Sponsorship and Engagement

What:

- Importance and Value
- Enthusiastic support
- Human Performance champions
- Fluently “Speaks HP”
- Resources and personnel
- Addresses systemic weaknesses
- Focus on the cause, not the person

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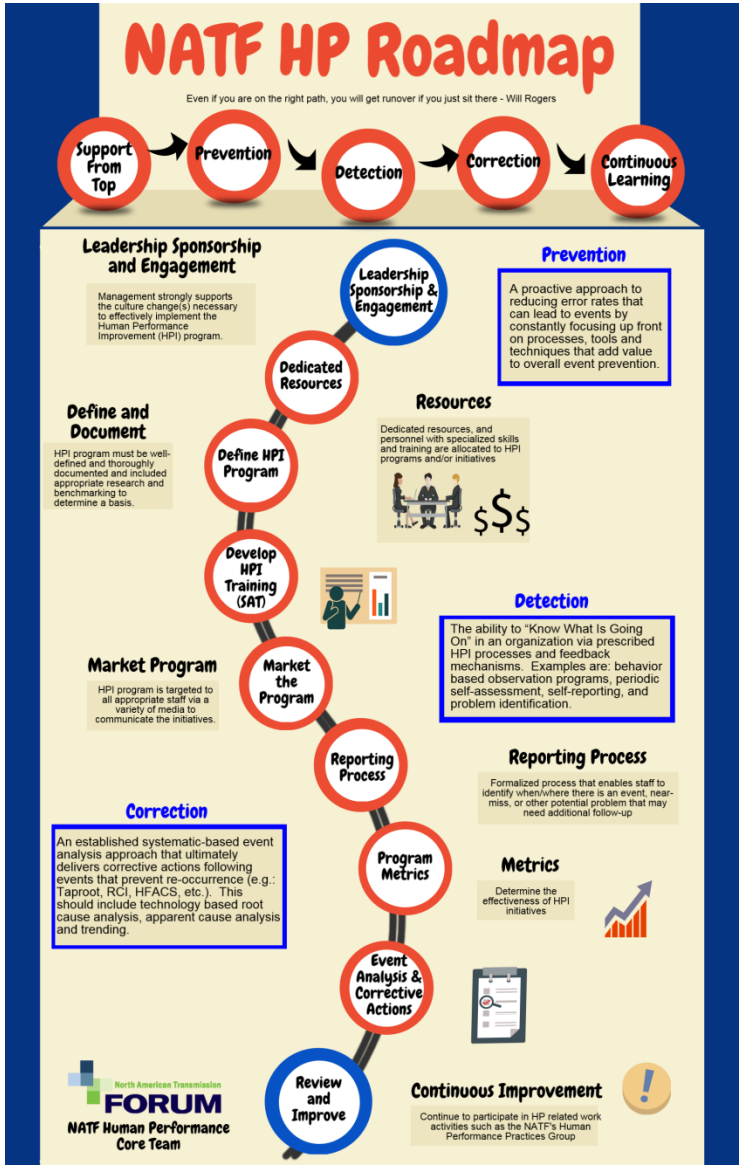
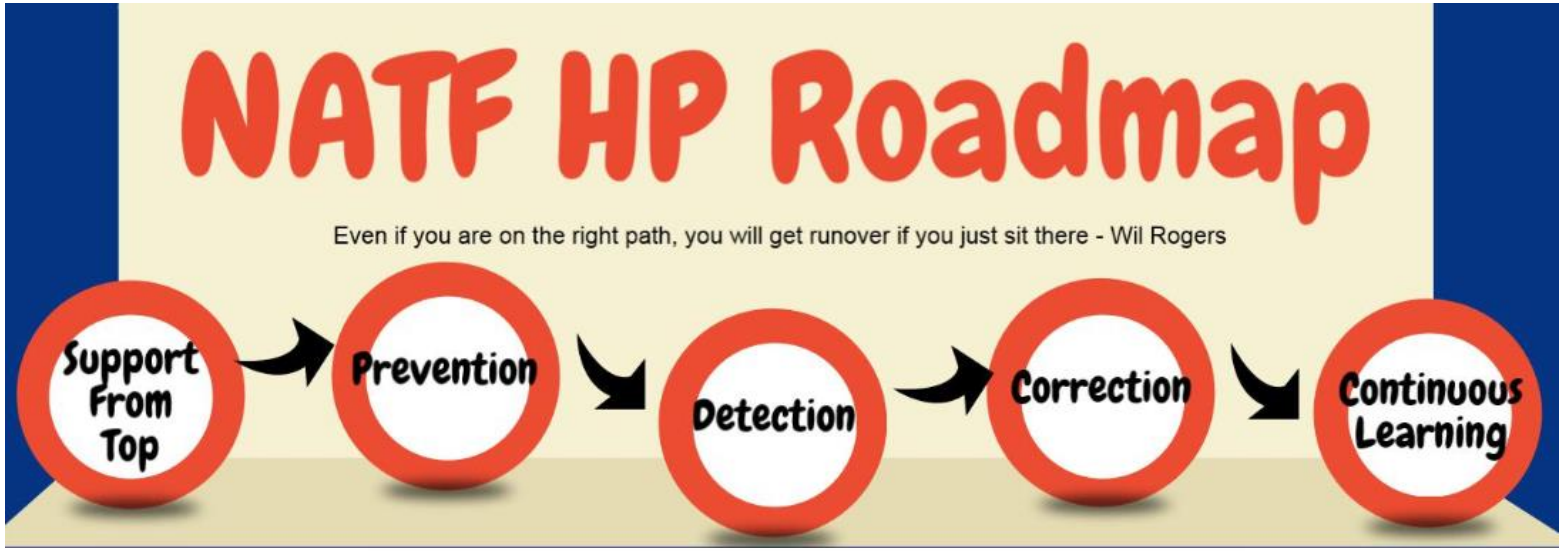
Leadership Sponsorship and Engagement

How:

- Educate leadership
- Benefit of predicting the likelihood of an event
- Conduct self-assessments
- Benchmark!
- Engage your entire organization
- Provide success stories at industry meetings





Prevention

A proactive approach to reducing error rates that can lead to events by constantly focusing up front on processes, tools and techniques that add value to overall event prevention.

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Develop Human Performance Training

Why:

- Successful implementation of the program requires relevant training (knowledge and awareness; specific training)
- Communicates the existence and importance of the program
- Improves sustainability – continuous improvement

Develop Human Performance Training

What:

- Identify resource needs for initial and ongoing training
- Determine the need for internal or external training
- Integrate HP into other training

Develop Human Performance Training

How:

- Establish training objectives utilizing the program document
- Use systematic approach (ADDIE)
- Hire a training vendor/dedicated resource
- Pilot the training – check and adjust
- Utilize a train-the-trainer for champions
- Dynamic learning activity/recorded media
- Computer based training/online training

Market the Program

Why:

- Communicates the benefits of the program
- Gains buy in throughout organization
- Maintains visibility of the human performance program
- Shares lessons learned

Market the Program

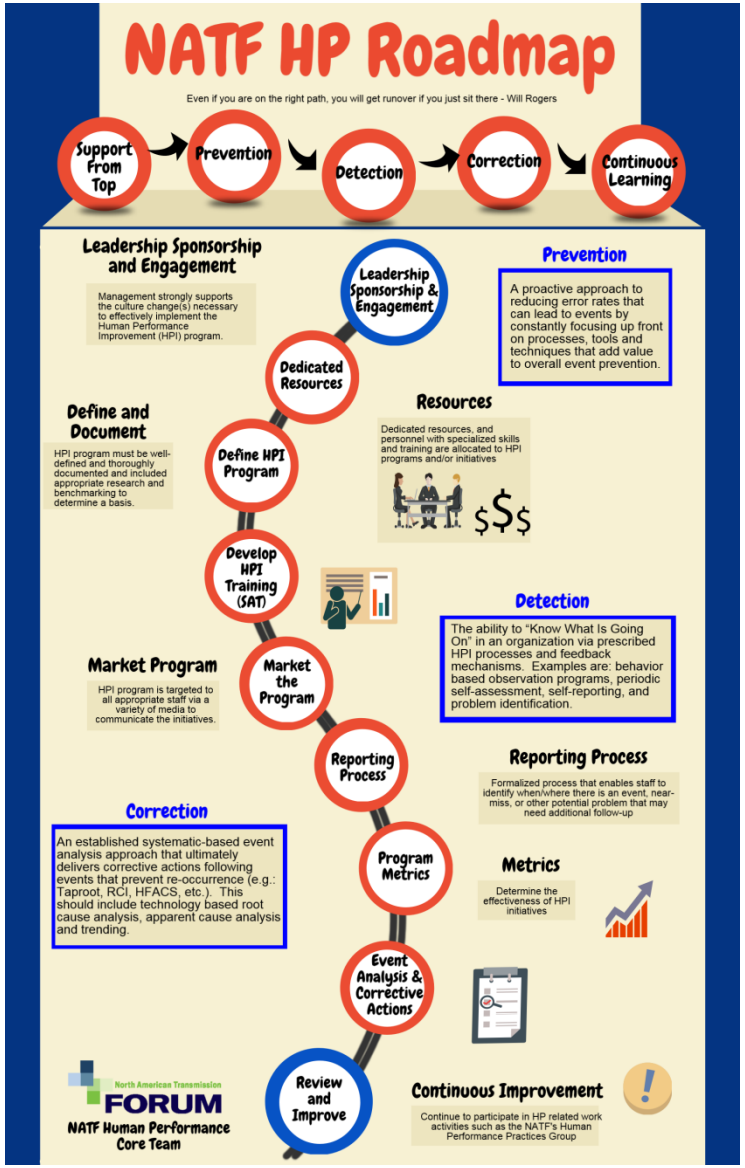
What:

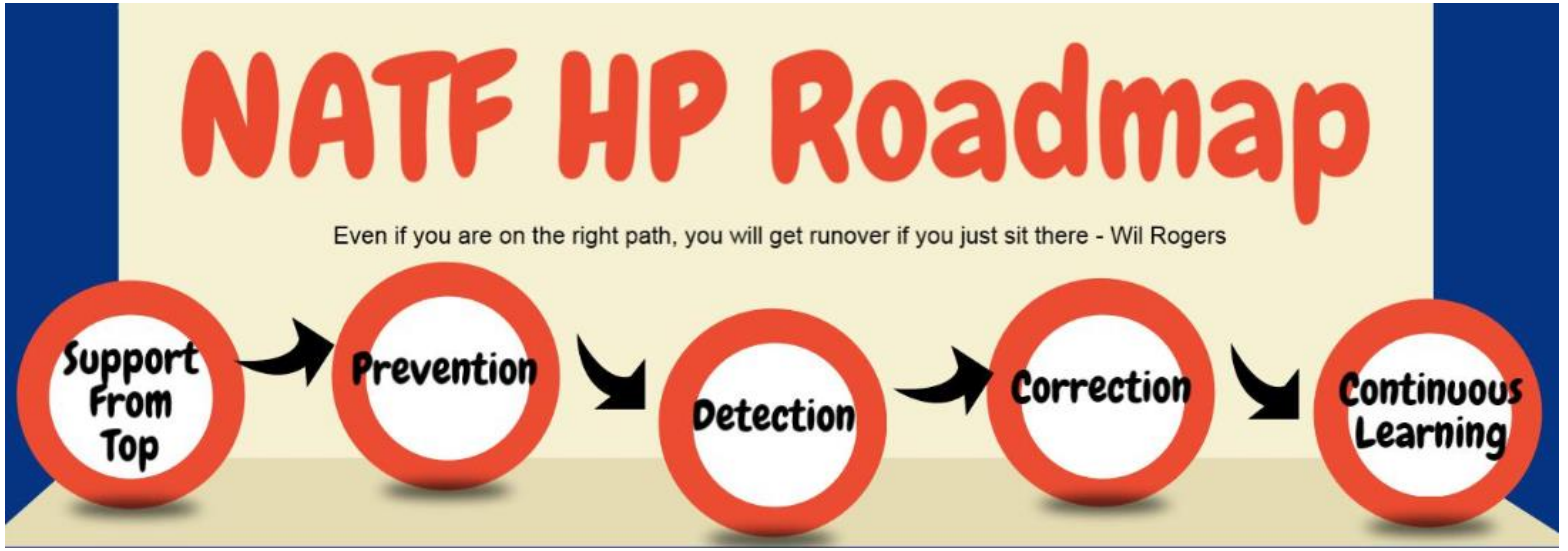
- Various media “streams”, outlets - posters, emails, newsletters etc.
- Incorporated into meeting content
- Leadership messaging
- Branding (trinkets, stress balls, lanyards, note pads)

Market the Program

How:

- Leadership provides the resource to market the program
- Leadership and “HP Champions” provide messaging
- Target to all generations and demographics (across levels of organizations, front line workers, supervisors)
- Share program achievements internally and with other NATF members
- Keep leadership team informed of program progress and achievements





Detection

The ability to "Know What Is Going On" in an organization via prescribed HPI processes and feedback mechanisms. Examples are: behavior based observation programs, periodic self-assessment, self-reporting, and problem identification.

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Reporting Process

Why

- To proactively identify problems and issues so changes can be made to prevent conditions that can lead to events.
- To foster a culture in which events that may affect system reliability and/or personal safety are recognized by everyone in the organization, and are consistently reported.
- To change or reinforce behaviors that reduce the likelihood of events
- To eliminate blame (recognizing the first principle of human performance that all humans make mistakes) and culturally reward self-reporters.

Reporting Process

What

- Identify types of issues/errors that could affect system reliability and/or personal safety
- A proactive approach that allows ***anybody*** to document or report ***anything*** they feel is an issue (within established thresholds)
- Available 24x7x365, user friendly
- Promote observation activities and coaching

Reporting Process

How

- On-line form for reporting events and/or near-misses
- Suggestion Box
- Observation program
- Reporting Hotline

Program Metrics

Why

- To determine or identify the effectiveness of HP initiatives
- To provide an indicator of actions and behavior
- To allow for trending and analysis of events that affect system reliability and safety
- To allow for historical analysis to determine whether corrective actions are having the intended effects.
- An equitable and transparent measurement of events, regardless of department or job classification, promotes a “just culture”.
- To compare various categories of events.

Program Metrics

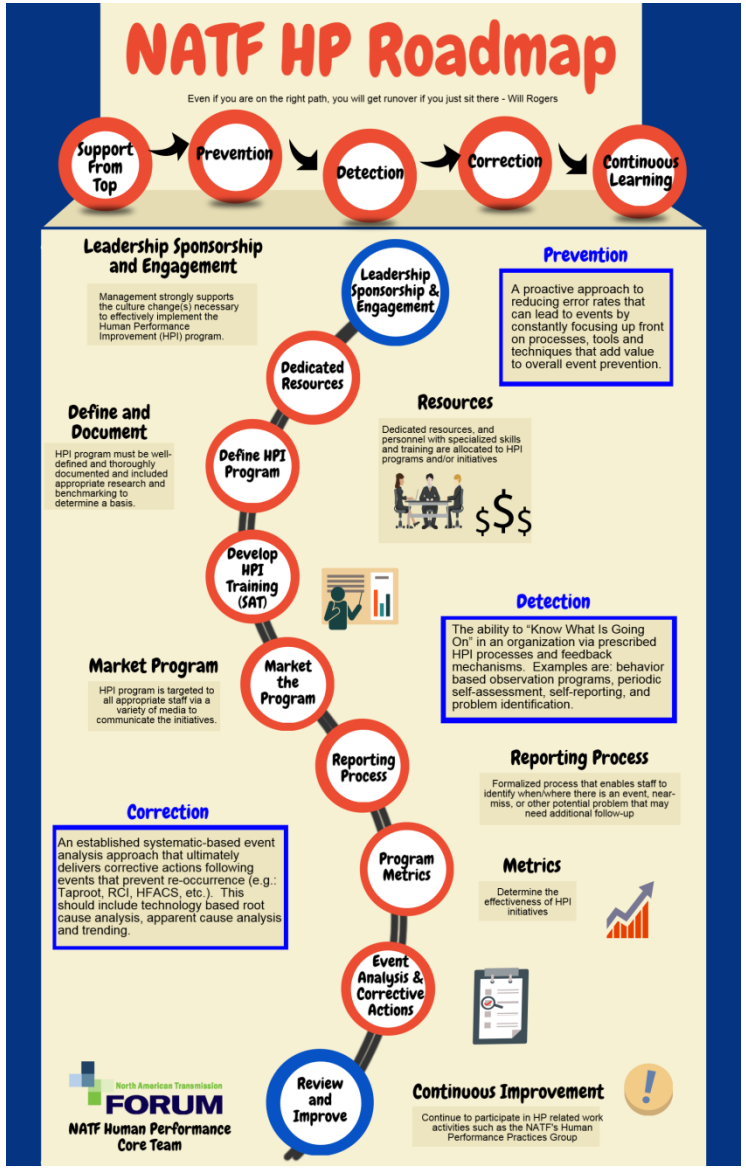
What

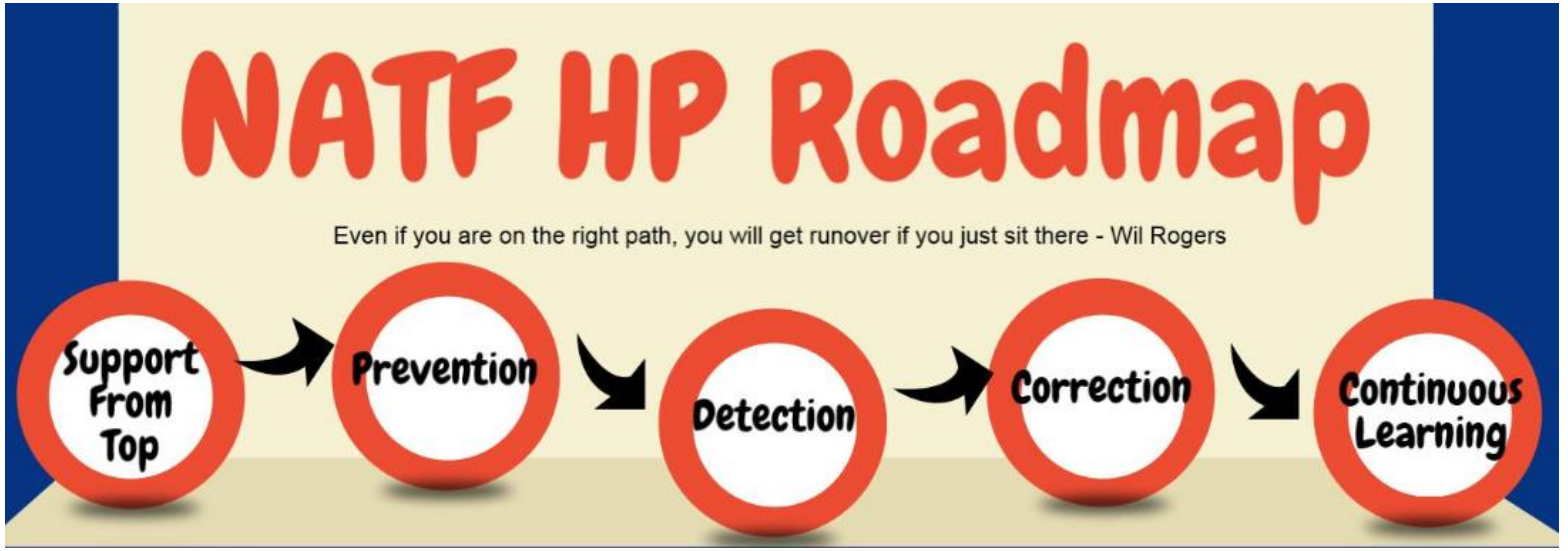
- Event Rate
- Human Error Caused Events
- Error Rate
- Corrective Action Effectiveness
- Event Clock Resets

Program Metrics

How

- Develop dashboards for leadership
- Colored indicators
- Benchmark ratio of self-reported / self-revealing events
- Analyze system operations data to identify human error cause of reliability events





Correction

An established systematic-based event analysis approach that ultimately delivers corrective actions following events that prevent re-occurrence (e.g.: Taproot, RCI, HFACS, etc.). This should include technology based root cause analysis, apparent cause analysis and trending.

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Systematic Approach to Event Analysis – Why?

- Essential part of an effective HPI program
- Causes are not always self-revealing
- Causes are not always what you think they are
- Guards against biases, assumptions , knee-jerk reactions
- Not enough time or resources to continually Band-Aid issues
- Gives voice to evidence and data vs. emotions and opinions

Systematic Approach to Event Screening – What?

APPENDIX 3: Event Criteria – DELIVERY OPERATIONS AND SERVICES

Category	Level 1 – Independent Root Cause Analysis (RCA)	Level 2 - Apparent Cause Analysis (ACA)	Level 3
Safety	• Employee Fatality or serious injury with a potential for fatality. Meets the Serious Injury and Fatality (SIF) criteria described in **Section 7.1.** • Near Miss incidents that did not result in serious injury/fatality but had the potential if circumstances had been different. Note: Refer to **Section 7.1** for exclusions.	OSHA recordable event that does not meet Level 1 criteria. Note: Refer to **Section 7.2** for exclusions on minor OSHA recordable events that do not require a formal investigation. **Vehicle Events**: Preventable vehicle incidents will be categorized as a Level 2. A forma ACA is not required. Please refer to HS-003 Record Keeping for Vehicle Accidents to determine if the incident is a Preventable Vehicle Accident (PVA).	Minimal further lessons can be achieved by additional investigation beyond what has already been performed in documenting the event.
Environmental	A reportable environmental event resulting in a significant impact as described in **Section 7.1.**	Any other reportable environmental event as described in **Section 7.2.**	
Operations Reliability	Human Error Outage events totaling 150,000 CMI or more. This excludes major storm events. Note: Outage Investigative Process under Asset Management investigates all significant outage. Scope of this document is outages deemed to be caused by Human Error after the initial Asset Management Investigation is completed.	• Switching and/or tagging error which creates an unsafe condition, public injury, and equipment damage or customer outage. Switching error is defined as open/close wrong device, switch or breaker, drop load, close device when all employees and equipment are not clear. • Non-storm related distribution feeder breaker/ recloser lockout. • Flash events (excluding pulling meters where proper procedure is followed).	
Financial	Error that results in repair, rework, redesign or billing mistake in excess of $100,000.	• Error that results in repair, rework, redesign or billing mistake in excess of $50,000 but less than $100,000. • Customer property damage claims paid in excess of $5,000. • Employee damage to company equipment, including preventable vehicle events in excess of $20,000.	
Customer Service	Significant adverse public relations event as determined by management.	Event affecting ability to provide services causing a significant public impact as determined by management.	
Management Discretion	Other significant event or near miss determined by management.	Any event or condition determined by management to need further investigation.	

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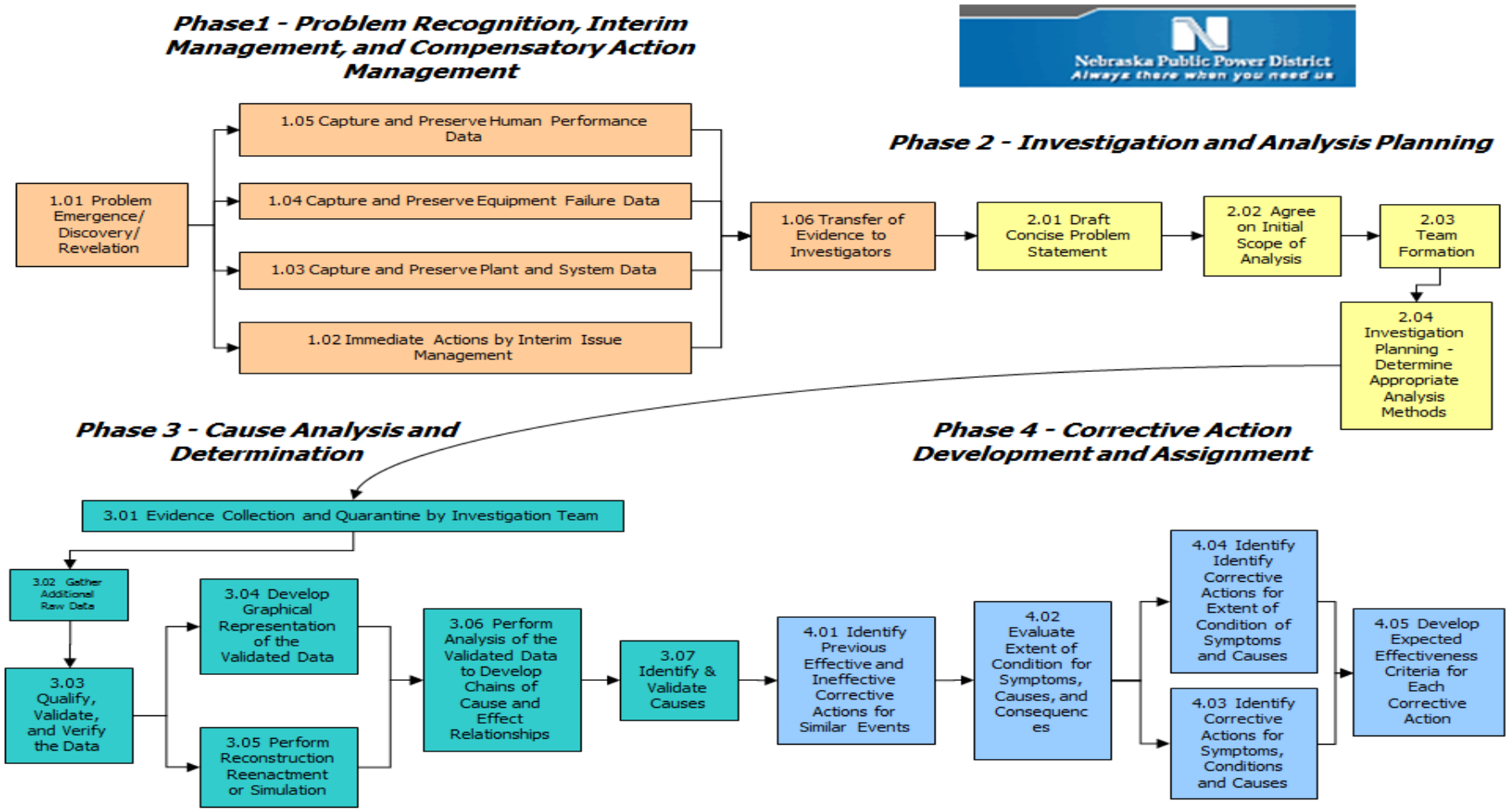
Source: Duke Energy HPI Program Document

Systematic Approach to Event Analysis – What?

- **Root Cause Analysis (RCA)** –Root Cause Analysis is the structured use of a set of formal methods for investigating and determining the root cause (s) of the inappropriate action(s) or component failure(s). Root cause is the fundamental reason or cause which, if corrected, will prevent recurrence of a problem and/or similar problems.
- **Apparent Cause Analysis (ACA)** – Is the investigation to determine the apparent cause(s) believed to be the most probable cause(s) based on readily available information at the time of the investigation.
- **Common Cause Assessment**: A cause analysis tool used to collectively evaluate a given set of data for common causes drivers and establish actions to address those driver. Common cause is not considered a standalone process of cause investigation. It is a tool used with other techniques to investigate events.
- **Trending Only** – Lowest level category for issues that has little or no potential effect on safety and or reliability of system operations and does not require a cause evaluation. Trended events may be addressed and assessed through a common cause analysis.

Source: Duke Energy HPI Program Document

Systematic Approach to Event Analysis – How?



Source: NPPD Corrective Action Program

Where Are You Now ?