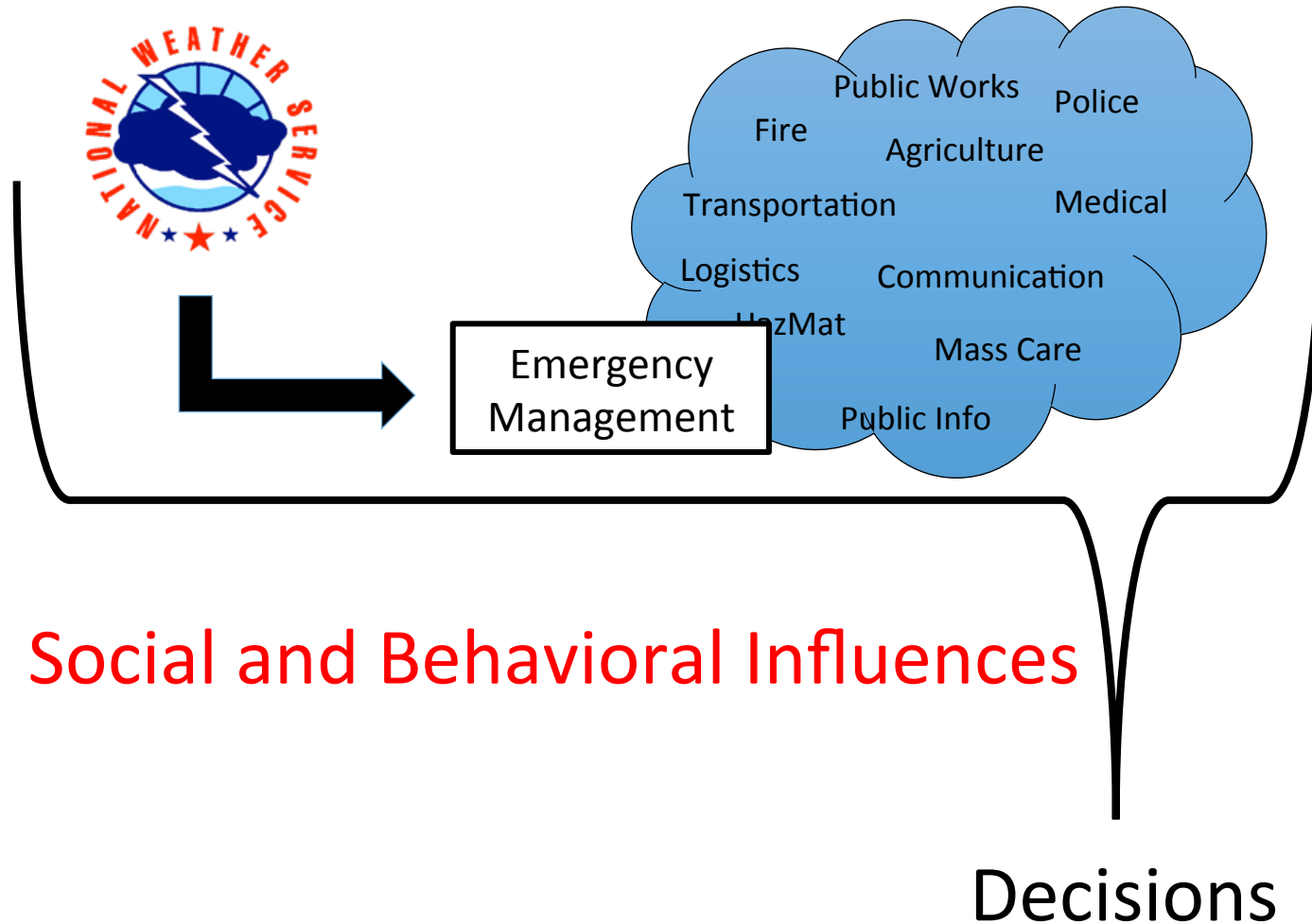


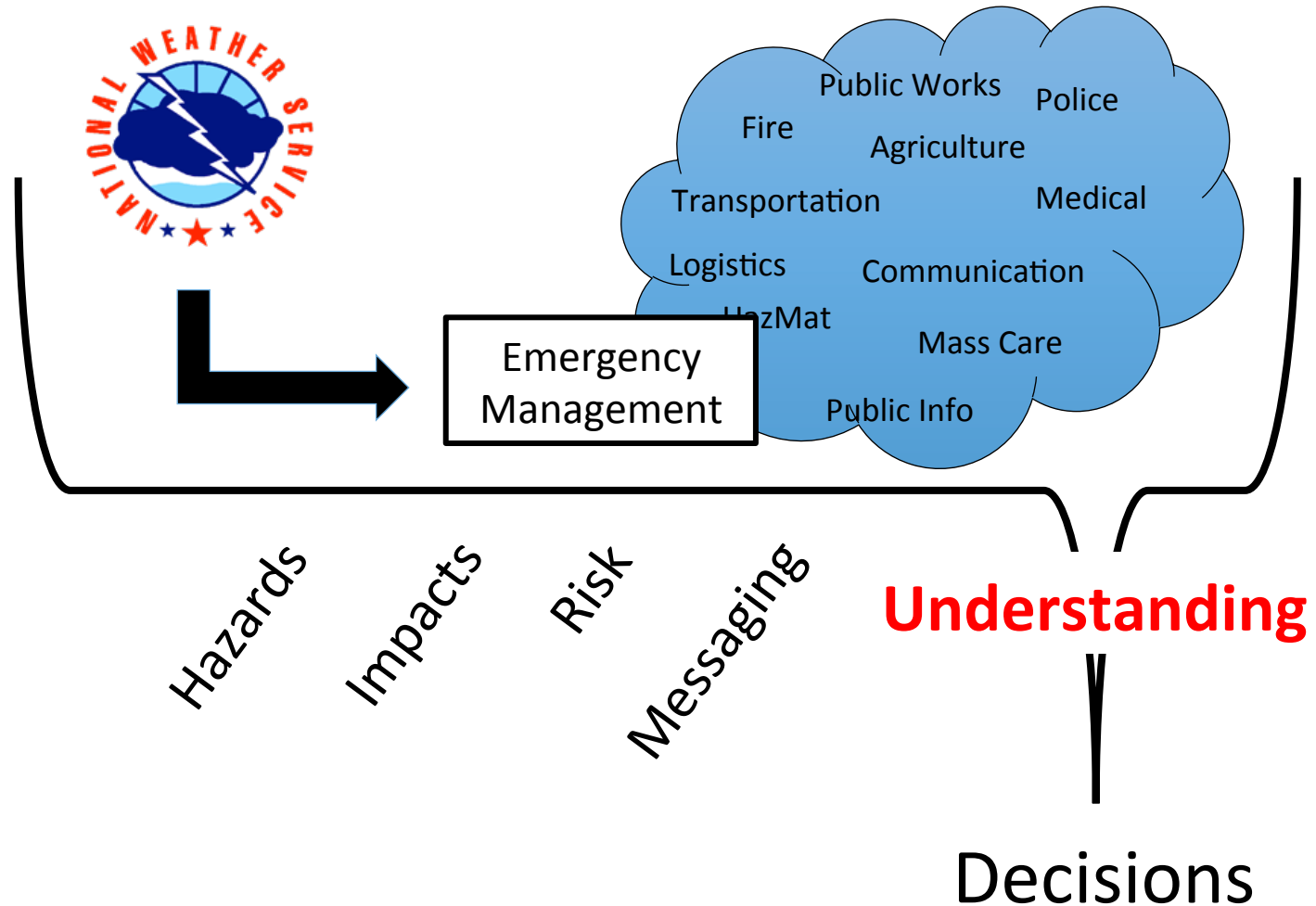
# Weather Training for Emergency Managers: A Perspective from the EM Community

Kenneth Galluppi, Arizona State University  
Liza C. Kurtz, Arizona State University  
Burrell Montz, East Carolina University

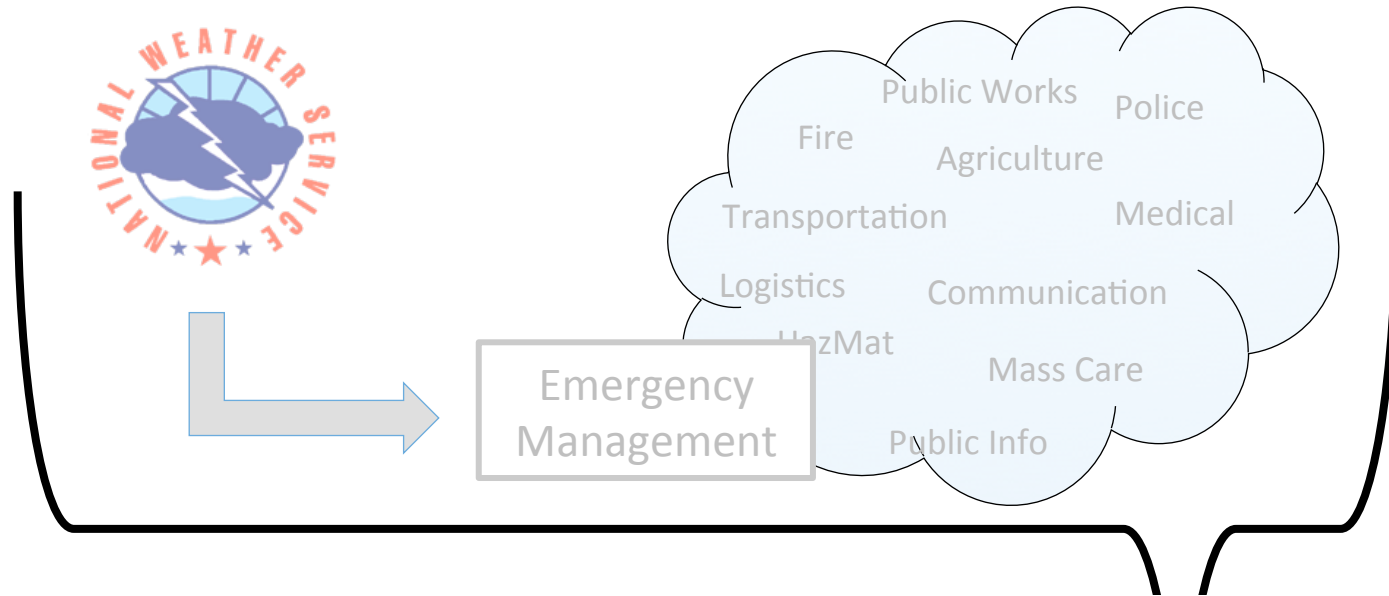
# EM Weather Decision Making



# EM Weather Decision Making



# EM Weather Decision Making



Understanding

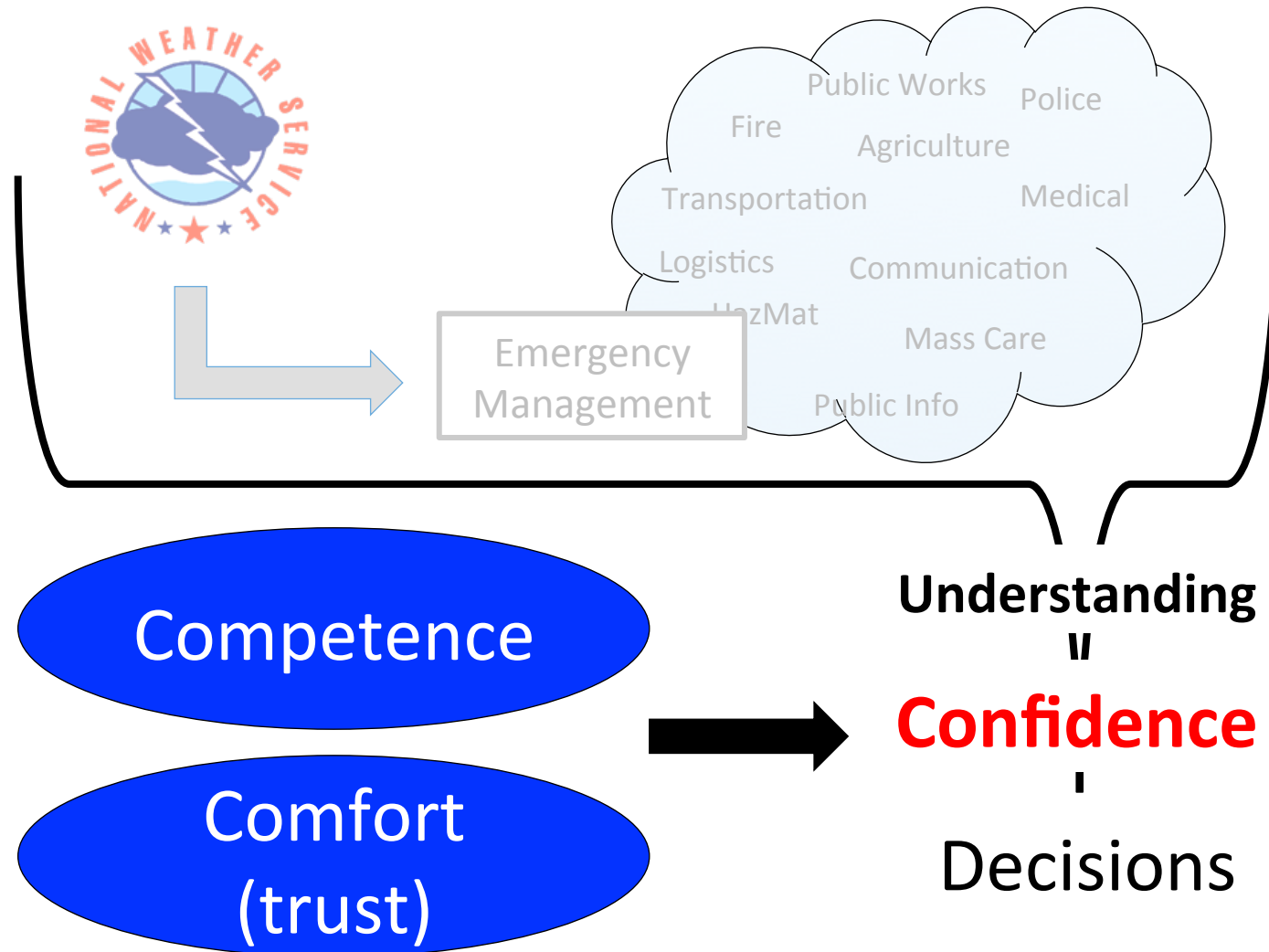
||

**Confidence**

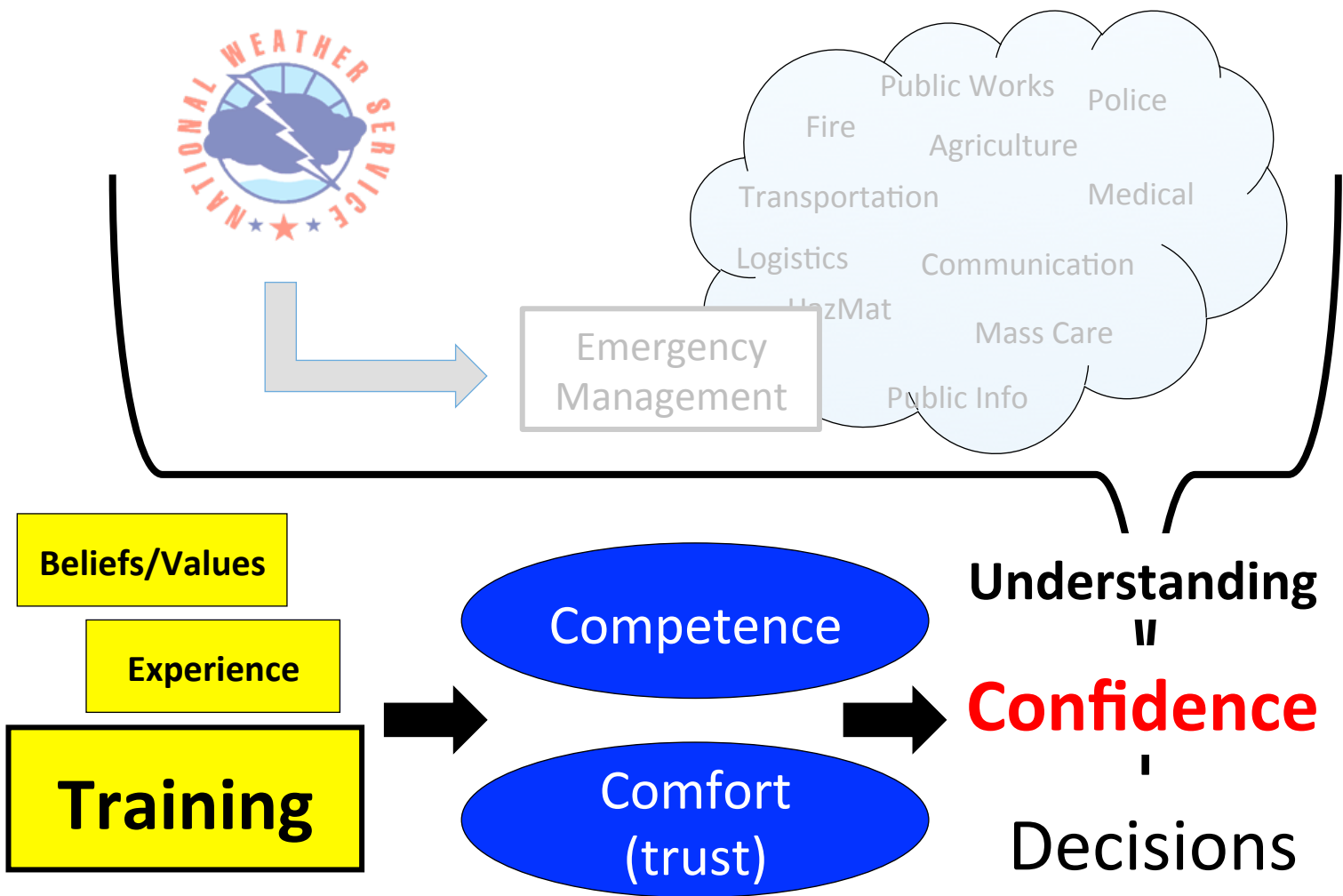
|

Decisions

# EM Weather Decision Making



# EM Weather Decision Making



# Background

- Characterized by larger project context
- When information is presented, it may not be “understood,” for example:
  - Information **cannot be found**
  - Information is **not clear**
  - Information is **not relevant** for needs of EMs
  - Information is **not trusted**
- Several pathways towards clarity, relevance, and trust...
  - Change the information presented.
  - Change EMs’ ability to assimilate and synthesize through training.

# Problem Statement



The weather enterprise focuses on meteorology.  
**From the EM point of view, what “weather” training is needed?**



# Methods

- Design:
  - Uncover mismatch between current trainings' purpose and content, and the EMs' decision-making needs.
- Surveys:
  - Approx. 700 emergency managers from across U.S.
  - 2 surveys on training
  - Data available upon completion of project.

# Current Training

- 50% of EMs are formally trained in weather
- 80% of EMs rate training “very” or “extremely” important compared to other training.
- Common trainings:
  - NWS Spotter Training, Skywarn, FEMA (“Hazardous Weather”)
  - Meteorology-focused rather than emergency management-focused

# Key Issues

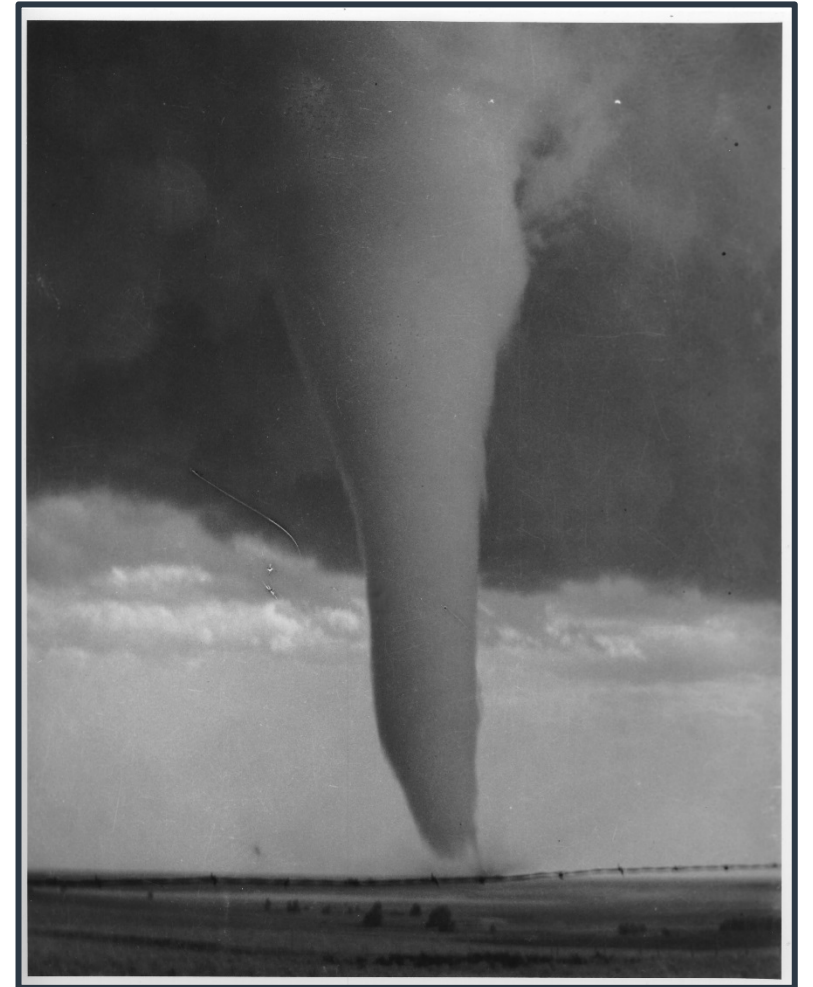
- 3 key issues to address in training....
  - **Relevance**
  - **EMs as Information Brokers**
  - **Training as Relationship Building**

# Relevance

*EMS cannot and do not want  
to be meteorologists.*

Six **critical** elements:

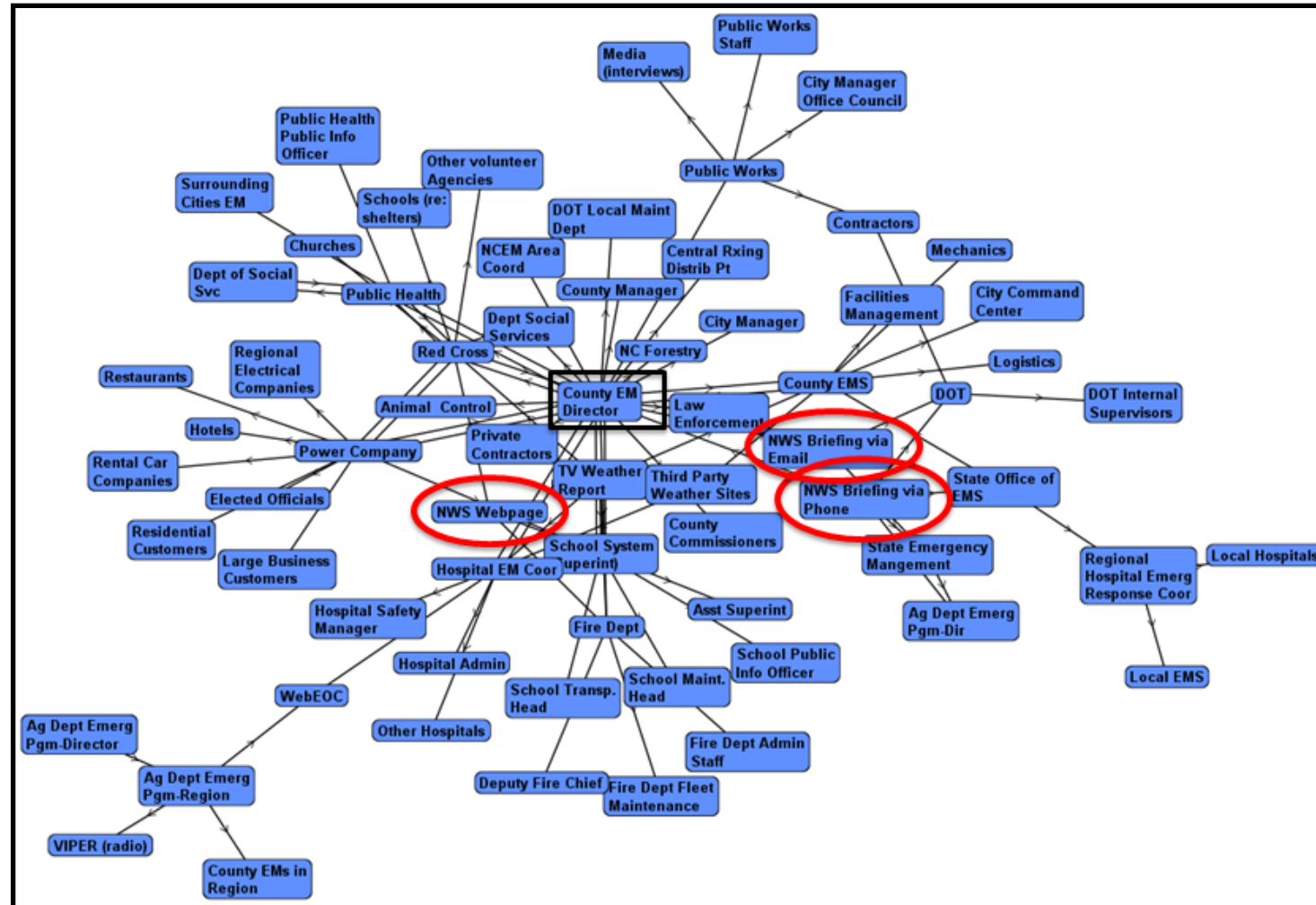
- What
  - Where
  - When
  - How long
  - Current conditions
  - How sure are you?
- And how/where to find this info (products)



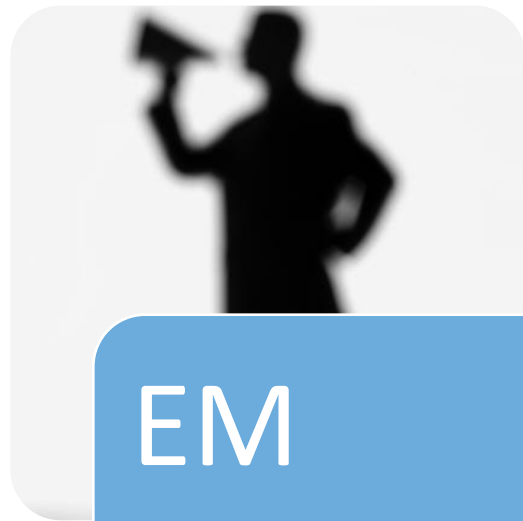
# Relevance

- EMs want information driven by *operations*.
- When asked how to increase their understanding...
  - 23% - more meteorology
  - 72% - assessing the impact of weather events
  - 77% - using weather info for decisions
  - 77% - making decisions when weather info is uncertain
- Over- and under-confidence
  - The “Goldilocks Problem”

# EMs: Information Brokers



# EMs: Information Brokers



## EM

- Receives weather information



## Utilities

- Precipitation
- Wind conditions



## Fire

- Flooding
- Lightning strikes

# Trust and Comfirt

Relevant content



Competence

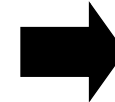
Comfirt  
(trust)

Understanding

**Confidence**

Decisions

**Training**



Reciprocal  
relationships





# Trust and Comfort

## Seminars & Classroom Training:

- “Allows for asking questions”
- “Good group environment”
- “Engage in active discussion”
- “Interaction with participants extremely valuable”

... but

- “Difficult to schedule”
- “Too much information”

## Online Training:

- “Work at own pace on own schedule”
- “[Good] for simple concepts or review”

... but

- “No interaction”
- “Lack of participation with instructor and colleagues”

Training is about content **and** relationships.

# Trust and Comfort

EMs have challenged the weather enterprise:  
the relationship must go **both** ways.



- 80% say trainers *must* know EMs' jobs
- 45% say forecasters should take EM training

# Summary

Training must shift from *assumptions* to *needs*.

- Training must consider...

*Relevance* – to operations and decisions

*Position* – EMs as an information hub

*Relationship* – Training means content **and** comfort

# Recommendations

## **Relevance** – focus on application, not meteorology

- Train EMs to identify and utilize six critical elements
- Make sure you know the job!

## **Position** – “train the trainer”

- EMS as ‘briefers’

## **Trust and comfort**– facilitate relationship building

- Provide ways to interact with weather enterprise and other EMs.