

# Culture of Safety

## The Pilots Respond

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# Research Support

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- Foundation for Airmedical Research and Education Grant





COHO M&A Seminar March 2008

# Pilot Safety Survey

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- Zoomerang Survey

800+ Respondents

Pilot Demographics

Pilot Credentials & Training

Crew Resource Management

Facilities, Equipment & Maintenance

Job Satisfaction

Finding Solutions

# Narrative Responses

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- 82. What are the important factors needed to improve safety?
- 84. Do you have other comments, ideas, or suggestions to improve safety in the air ambulance industry?
- 88. Have we missed key issues regarding safety?

# Methods

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- Consolidated Questions #82, 84 & 88
- **Safety is not and never will be independent of an operator's ability to generate revenue.** If you really want to improve safety within the industry, you need a safety program that effects each operator equally in regard to the cost associated with implementing said safety improvements. Otherwise, it's all just "eye-wash" for the FAA and the hospitals. **The FAA needs to implement minimum equipment and safety requirements** for all Air Ambulance programs. **The Air Ambulance industry is extremely competitive.** No operator will take any legitimate action to improve safety (or anything else) if it adversely effects their bottom line and their ability to remain competitive within the industry.
  - Revenue – FAA – Competition

# Methods

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- Text Analysis
  - Inter-rater agreement
- Coding into Categories
  - Excel Spreadsheet
- Focus on issues of “Culture”

# Results

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- 384 of the pilots responded with narrative responses
- Categorized into 6 Categories
  - Pilot
  - Management
  - Crew
  - Operations
  - Regulatory
  - Equipment

# Management Factors

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- Analysis
- Competition
- Credentials
- Empowerment
- Quality control
- Revenue
- Staffing
- Vendor Relationships

# Pilot Factors

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- Accountability
- Compensation
- Credentials
- Crew configuration
- In-flight workload
- Mentoring
- Physiology
- Rest
- Shift length/rotation
- Staffing
- Training

# Crew Factors

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- Accountability
- Credentials
- Drug Testing
- Teamwork
- Training
- Rest
- Shift length

# Operational Factors

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- Procedures (check lists, response times)
- Outreach Education

# Regulatory Factors

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- Certification (CAMTS)
- Data (Accident/Incident Reporting)
- FAA (Regulation/Inspection)
- FAR & Standards (part 135/91 conflict, weather minimums)
- Public Aviation (weather reporting capacity)

# Equipment Factors

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- Aircraft
- Autopilot
- Boots
- Communication
- GPS
- Helmets
- Icing Detection
- IFR
- Moving map
- Navigation
- Night Sun
- NVGs
- Radar Altimeter
- Storm Scope
- TCAS
- Wire cutters
- Workload analysis
- Weather Radar

# Safety Culture Factors

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- “Blunt end” or “Swiss Cheese” models of Safety  
Accumulation of multiple, complex factors

Pilots are at the sharp end of multiple system factors

# Pilot Views of Airmedical Safety

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- *The industry talks about wanting to have a safety culture and does little or nothing to have the pilots get together and discuss this safety culture. The ones who are sent to safety seminars are the non-flying crew members, and while that has empowered some of them to raise issues regarding safety, it shows the pilots that the programs and operators are really only interested in paying lip service to safety and it is up to the pilot to have safety in mind.*

# Pilot Views of Airmedical Safety

- *These are the main people who will determine if you have a safe program or an accident waiting to happen. Because of the Iraqi war, I have flown at a lot of different programs and I would say that 70% of program directors and CFN's are unqualified to run an aviation operation. Now you have a situation where the least qualified people have an extraordinary amount of influence on the safety culture of an operation. It's not directly their fault. It's just that they don't know what they don't know. What makes most program administrators hazardous is their failure to establish a culture of safety for their operation. Instead they become focused on competition, making themselves look good by increasing flight volume, or the ever present BS 5-minute launch time and fast medical turn around time. What they are NOT focusing on is safety. That is because they don't know what safety looks like. They have no idea of what their program should be like, and therefore cannot move it in that direction.*

# Pilot Views of Airmedical Safety

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- *Medical management makes decisions which effect the safety culture at our program even though they have ZERO aviation experience. The vendor, who has the FAA mandated aviation management in place, has a rule to always do whatever the medical management wants since they are the customer. So essentially, even though Part 135 dictates that experienced aviation managers will be operationally in charge the reality is that the medical management runs the show. And we wonder there is a problem?*

# Pilot Views of Airmedical Safety

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- *Pilots need to be made to feel as if they are an integral part of the system by the operator and by the customer. By disregarding the pilots as the EMS aviation system has done since its' inception, the pilots have been made to feel like second-class citizens, who are tolerated by the people who are carried by them safely through the sky, and considered cannon fodder by the people who write the checks for the program. The industry talks about wanting to have a safety culture and does little or nothing to have the pilots get together and discuss this safety culture.*

# What's Next?

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- Concept Mapping – Mixed Methods
  - Reduce to 100 focus prompts
  - Sorting
  - Rating for Prevalence, Priority & Feasibility
    - Pilots
    - Program Directors
    - Medical Crew

# Software – Concept Systems

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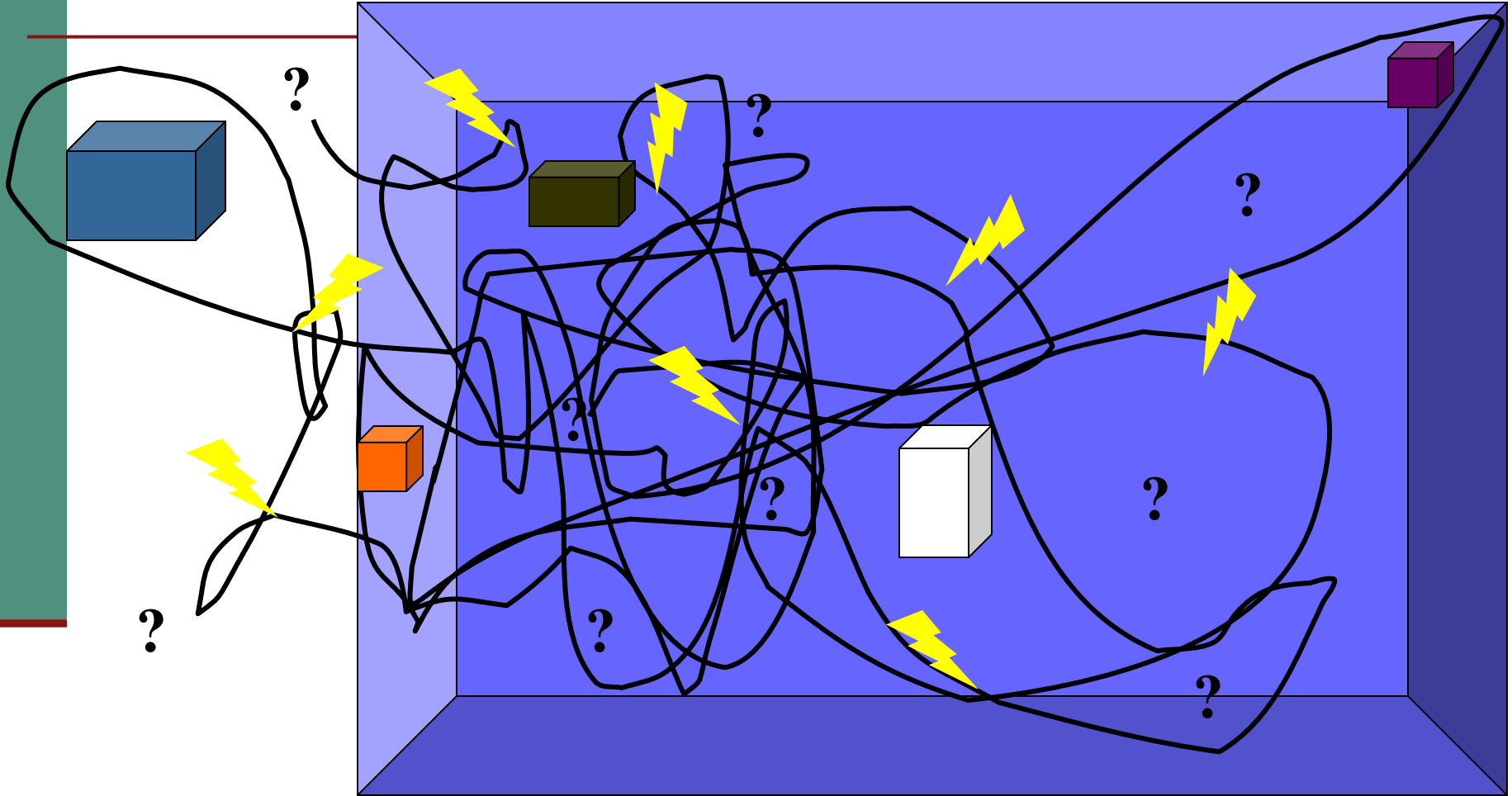


William Trochim, PhD

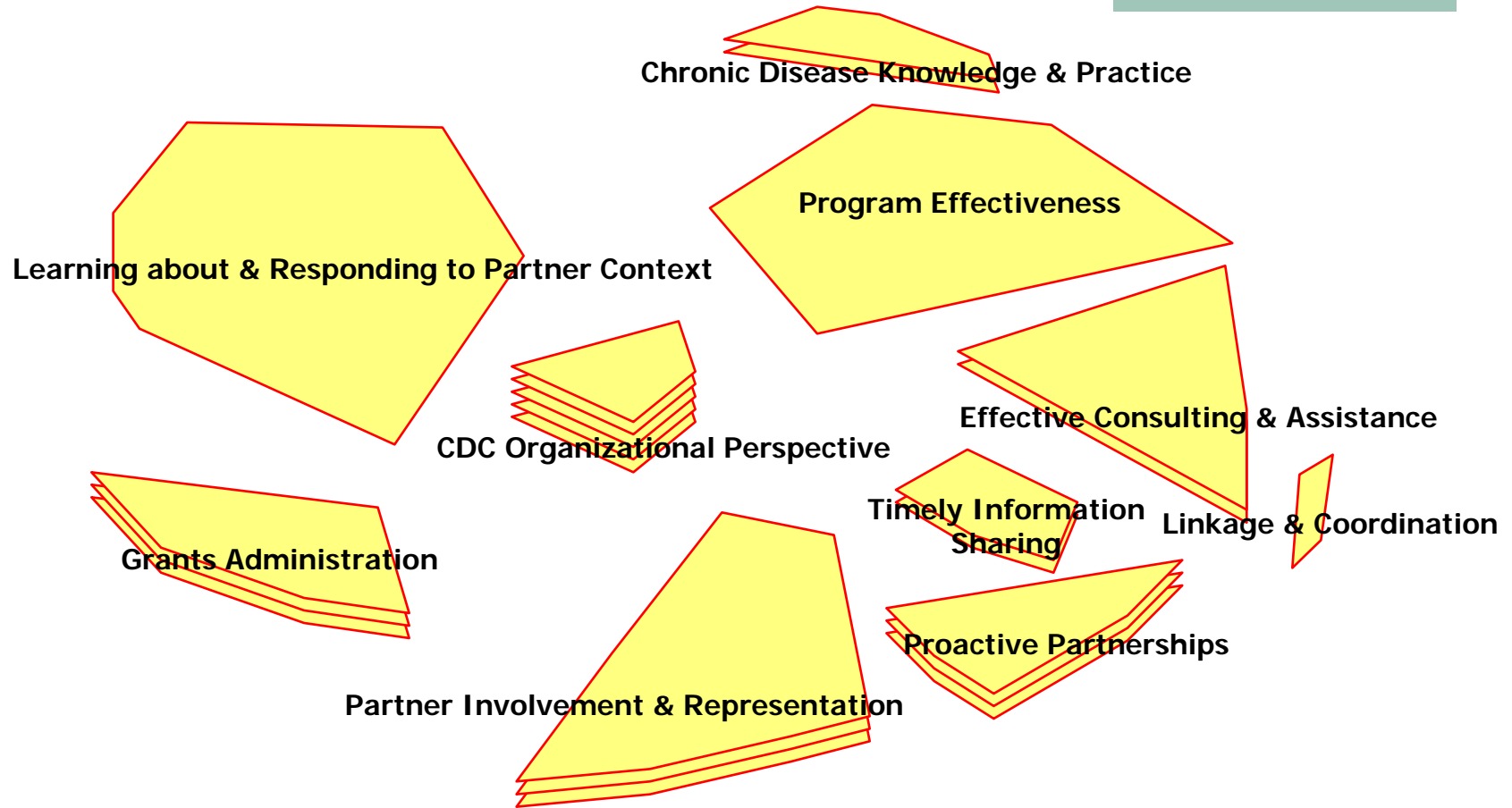
Cornell University

<http://www.conceptsystems.com/index.php>

# This is a group's brain



# This is a group's brain on concept mapping



Source: CDC NCCDPHP Project Officer of the Future

COHO M&A Seminar March 2008

# Concept Mapping: A definition

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- “Concept mapping is a structured process, focused on a topic or construct of interest, involving input from multiple participants, that produces an interpretable pictorial view of their ideas and concepts and how these are interrelated. The process is participatory in that it is inherently a mixed methodology that integrates high-quality qualitative and quantitative techniques.”

Trochim, 1989

# Concept Mapping's two keys

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- “...focused on a topic or construct of interest...”
  - To the field
  - To the client
  - To the participant
- “...involving input from multiple participants...”
  - Who can contribute
  - Who have a stake in the issue
  - Who will be heard

# What is the Concept System?

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## A method that...

*Focuses and helps objectify the group planning process*

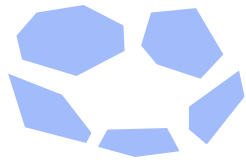
**Helps individuals *think as a group*...**

**...without losing their *individuality***

**Helps groups to *manage complexity*...**

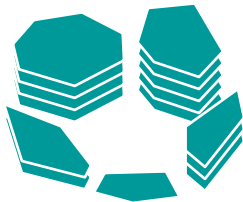
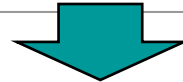
**...without *trivializing or losing detail***

# Concept System Processes



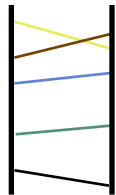
**C**oncept **M**apping (Sorting input)

To *organize* the issues



**M**easurement (Rating input)

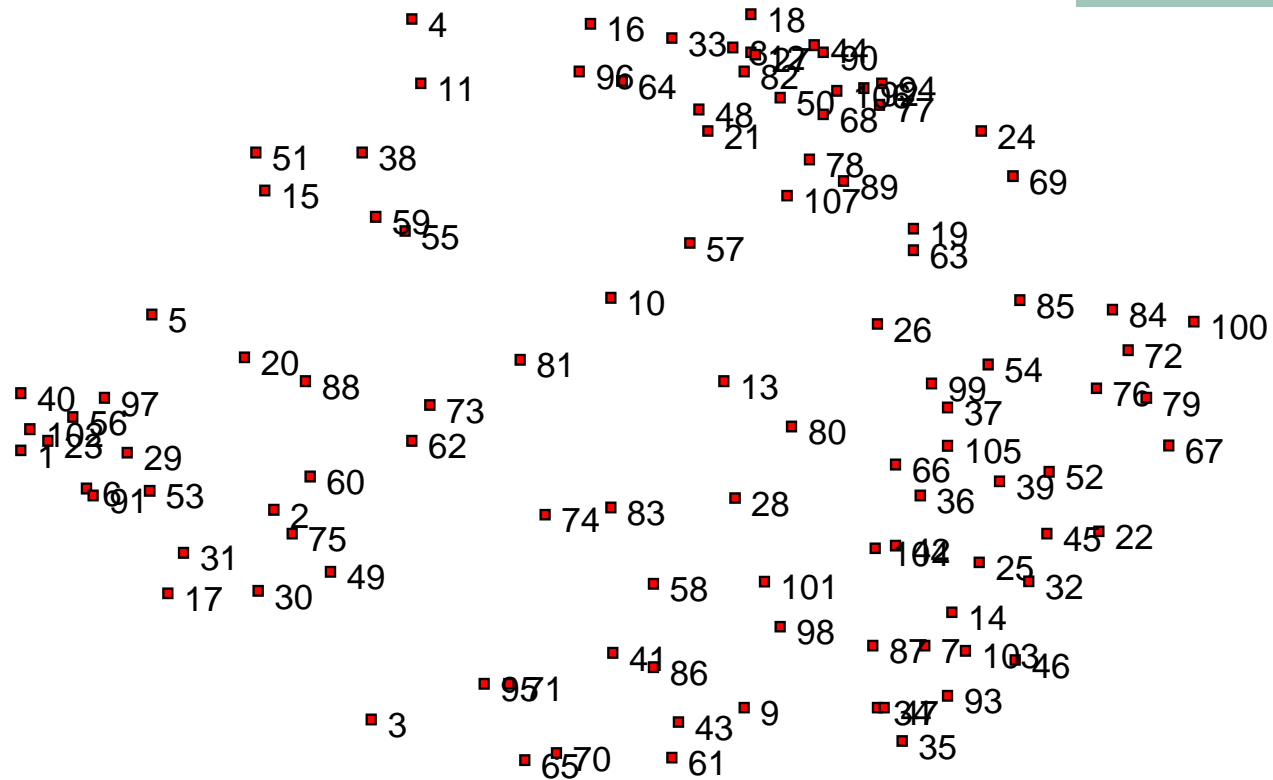
To *observe* expectations and results



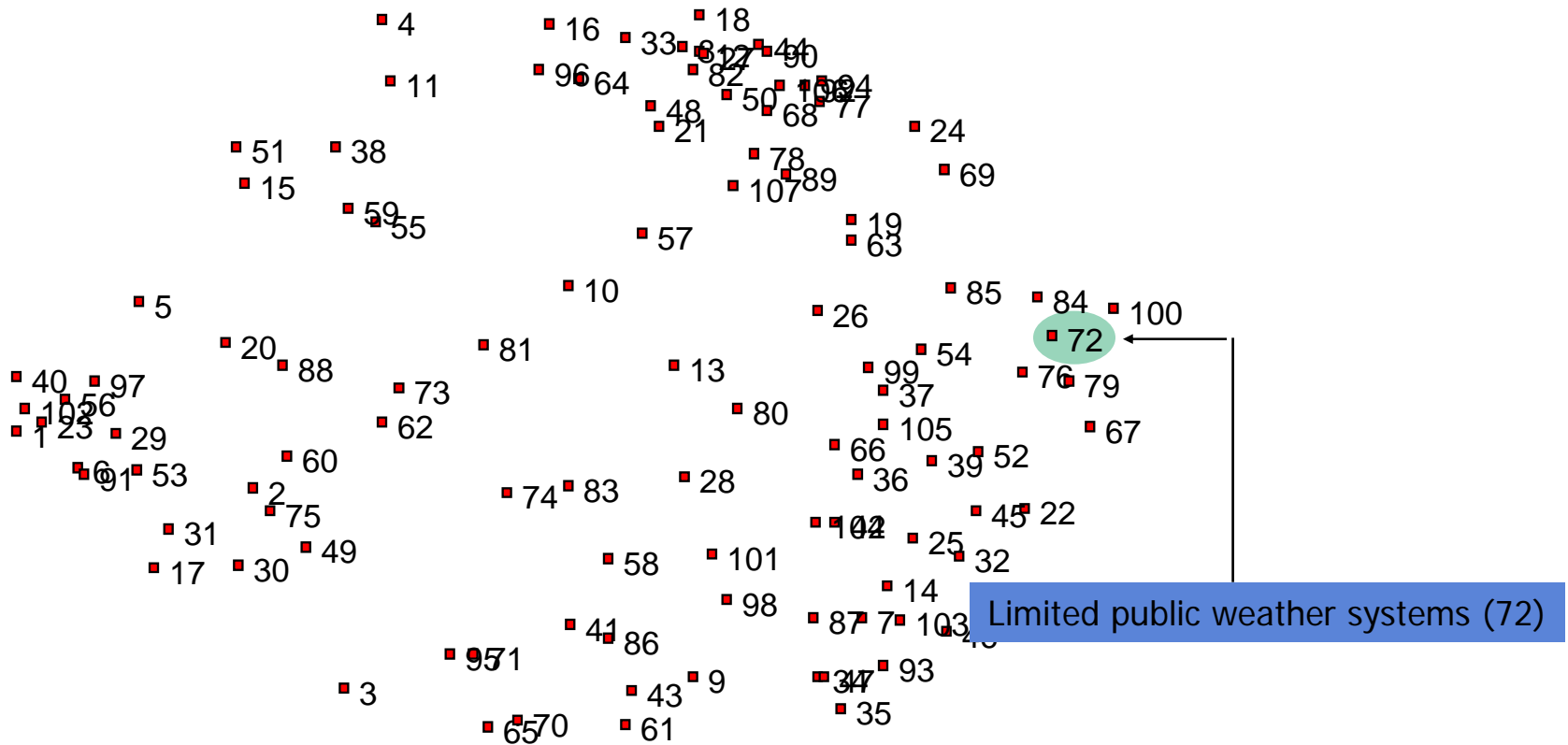
**P**attern **M**atching and Go Zones

To *link* expectations and results, importance and capacity

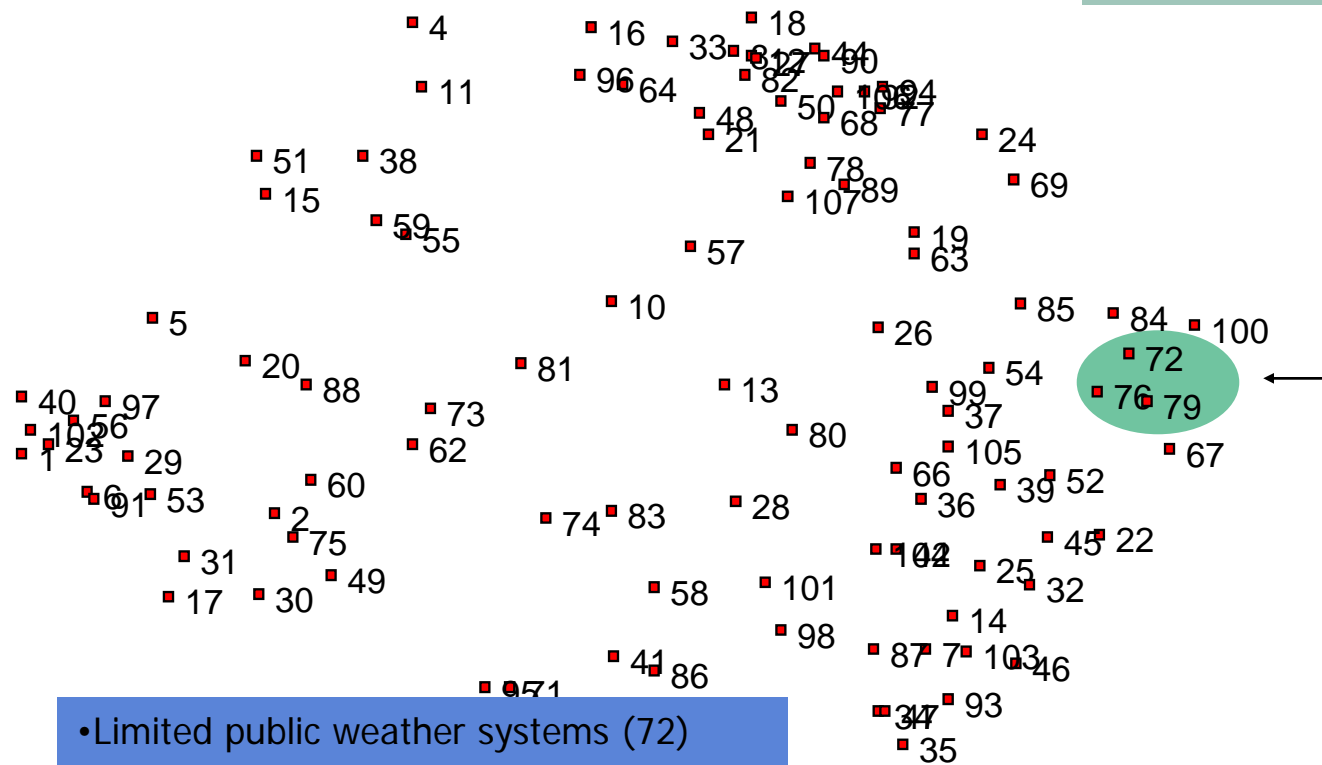
# This initial map shows all the elements in relation to one another.



# Each point represents one of the brainstormed ideas



# Conceptually similar ideas are in close proximity



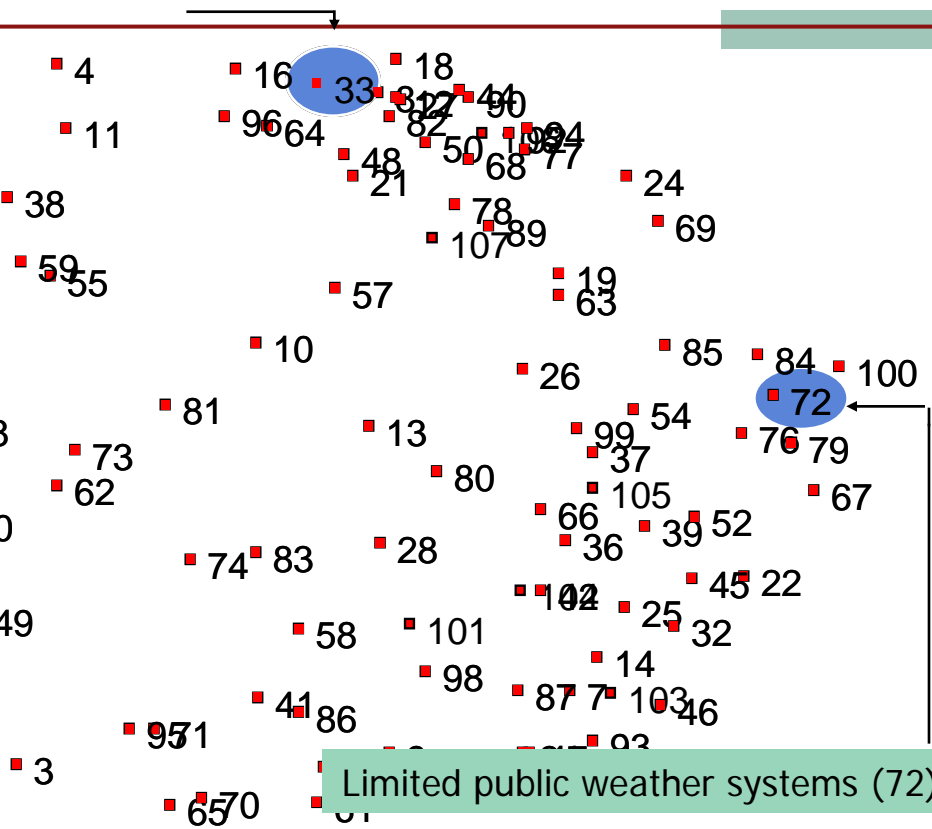
- Limited public weather systems (72)
- weather not available in rural areas (76)
- inconsistent weather minimums (79)

# Conceptually different ideas are further apart

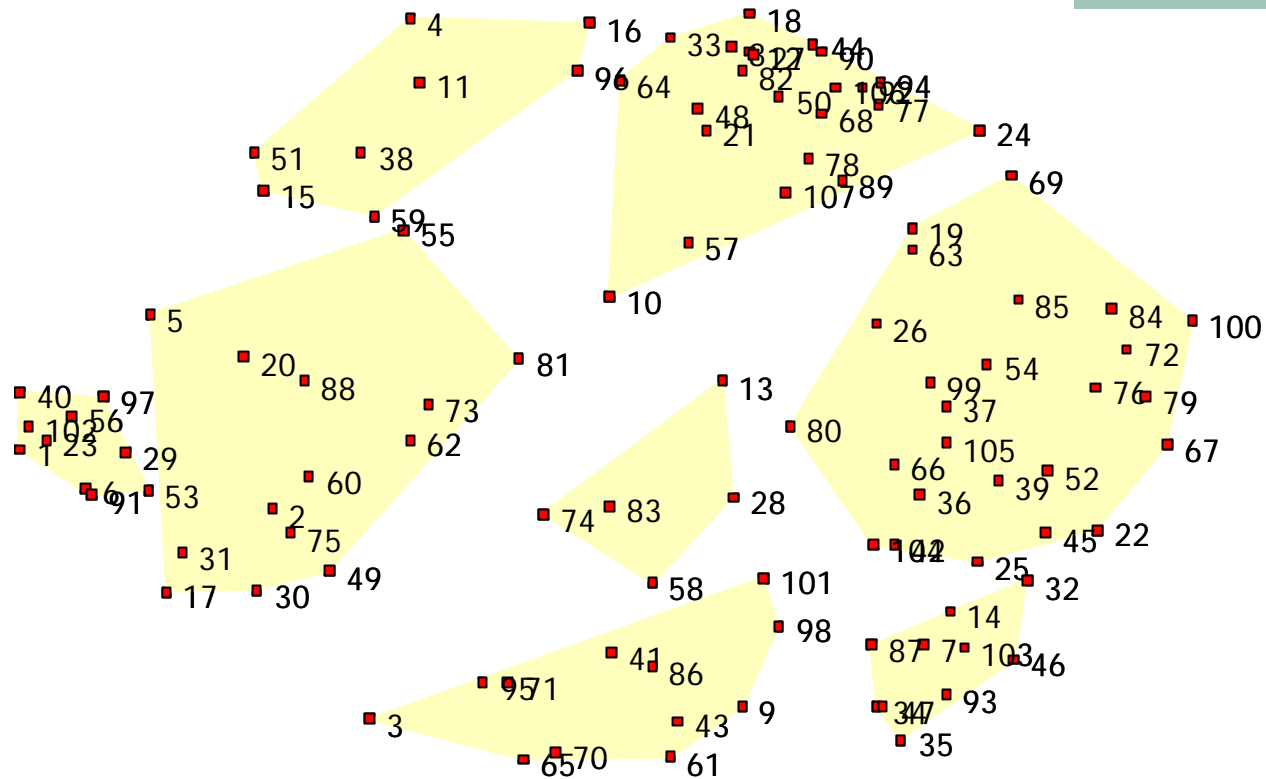
Night vision goggles

Competition (40)

Limited public weather systems (72)

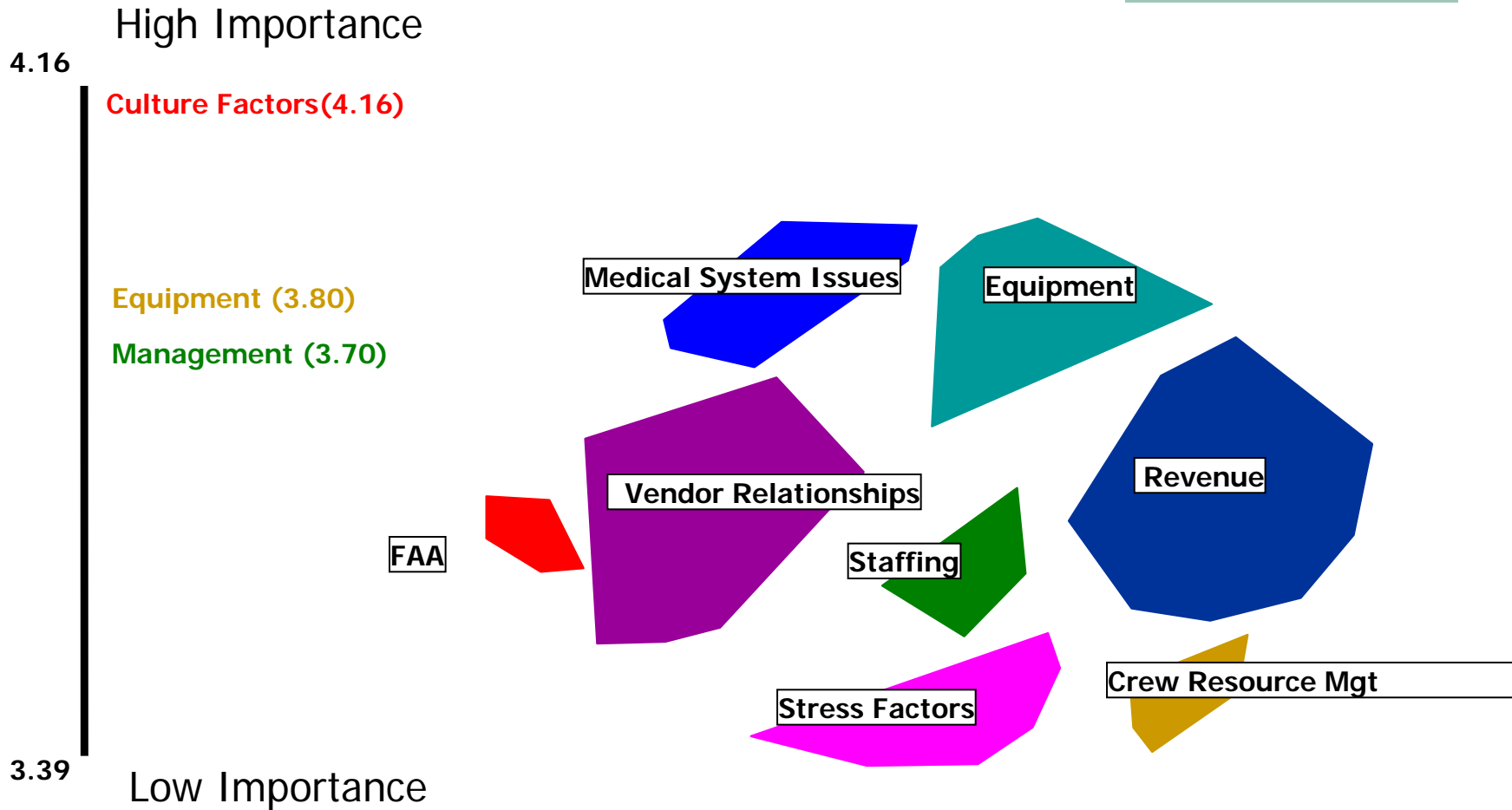


# The detailed ideas are organized into groups...



...so that many concepts can be considered in a shared structure

# Mapping AMT Safety Culture



# How Will We Build These Results?

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- The Raw Materials:
  - Statements
  - Sort Input from each participant
- The Tools
  - Aggregation of Sort Data
  - Similarity Matrix
  - Multidimensional Scaling
  - Anchoring/Bridging Analysis

# Ratings: We will ask participants...

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- To rate each item according to how important they think the item is, and...
- To rate the current action potential of each item given the current resources, relative to the other items.

# Features of the Concept System

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- guides project throughout life-cycle - *beginning to end*
- involves many *stakeholder* groups throughout the project life-cycle
- easily *scalable* and *transferable*
- uses state-of-the-art analytical tools to provide *rigor* and *credibility*
- *visual* product is easy to understand and present
- identifies disconnects *before* significant investments are made
- offers significant *cost savings* while improving the quality of project