

Evaluating Cardiac Care Systems



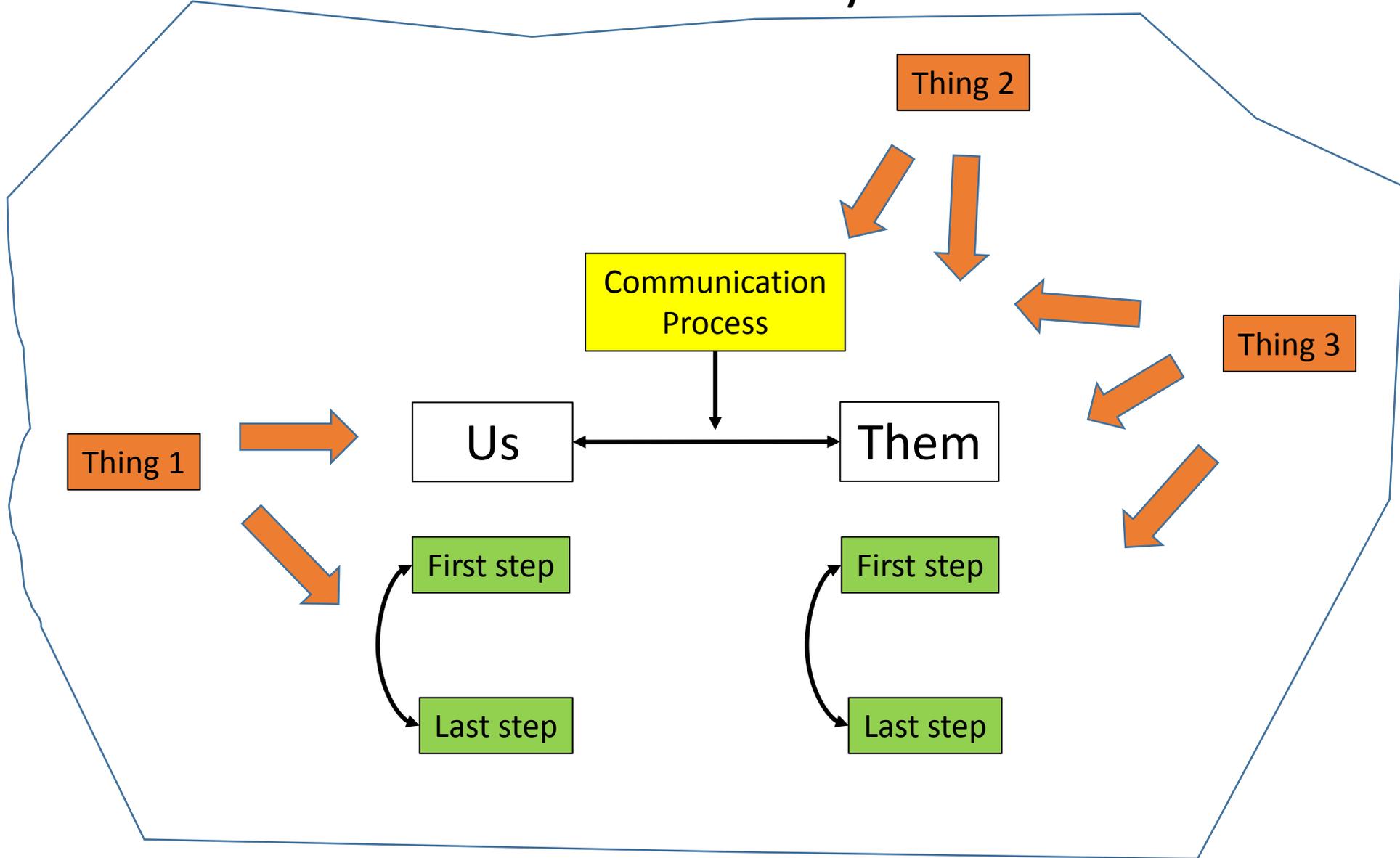
- What is a system?
- Using system theory to evaluate time critical events
 - Why?
 - How?
 - What have we've learned so far?
 - Progress/change as a result of evaluation recommendations.

Renger

Stroke – Cardiac Care Conference, 2015

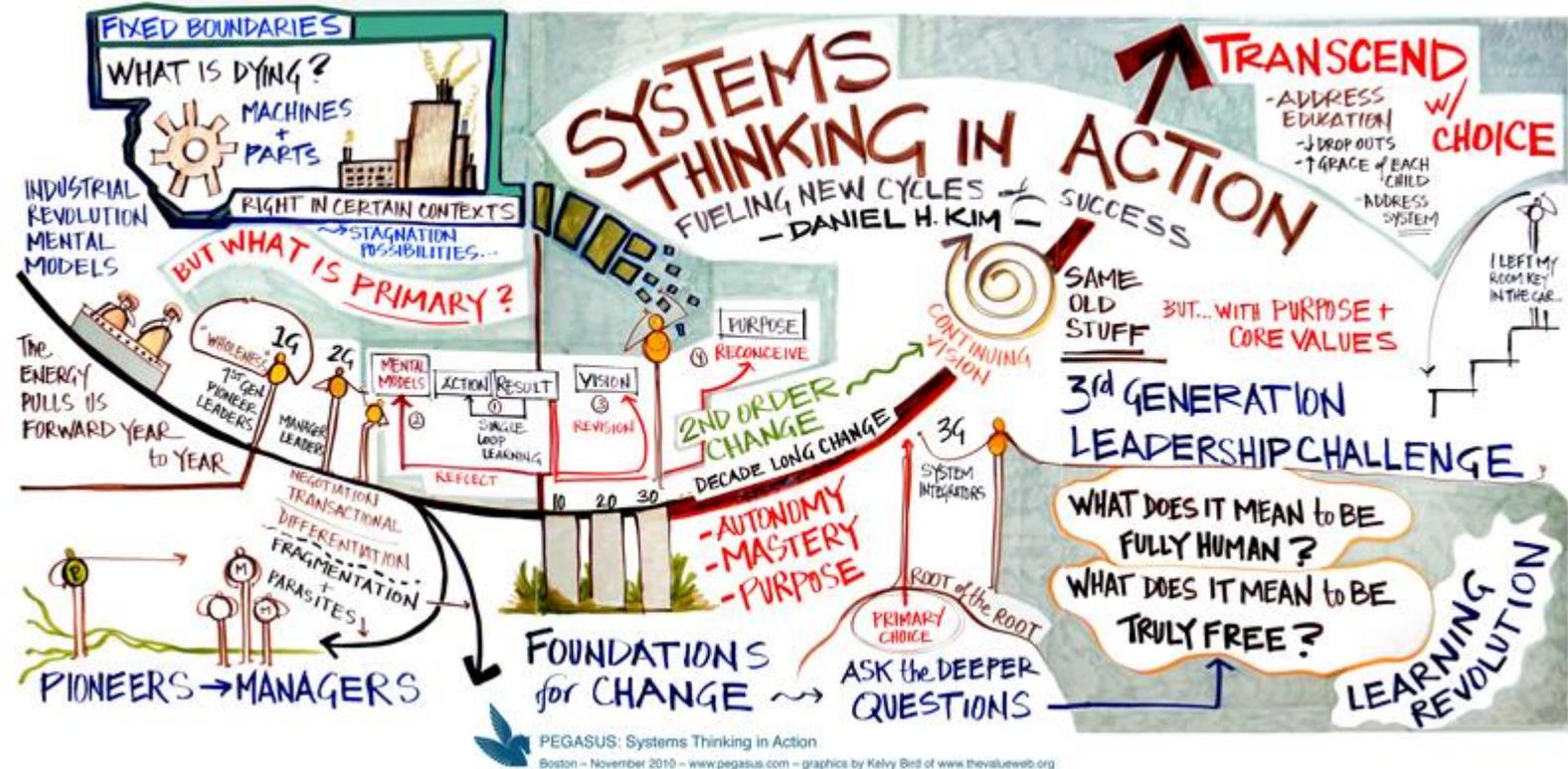
Bismarck

What is a system?



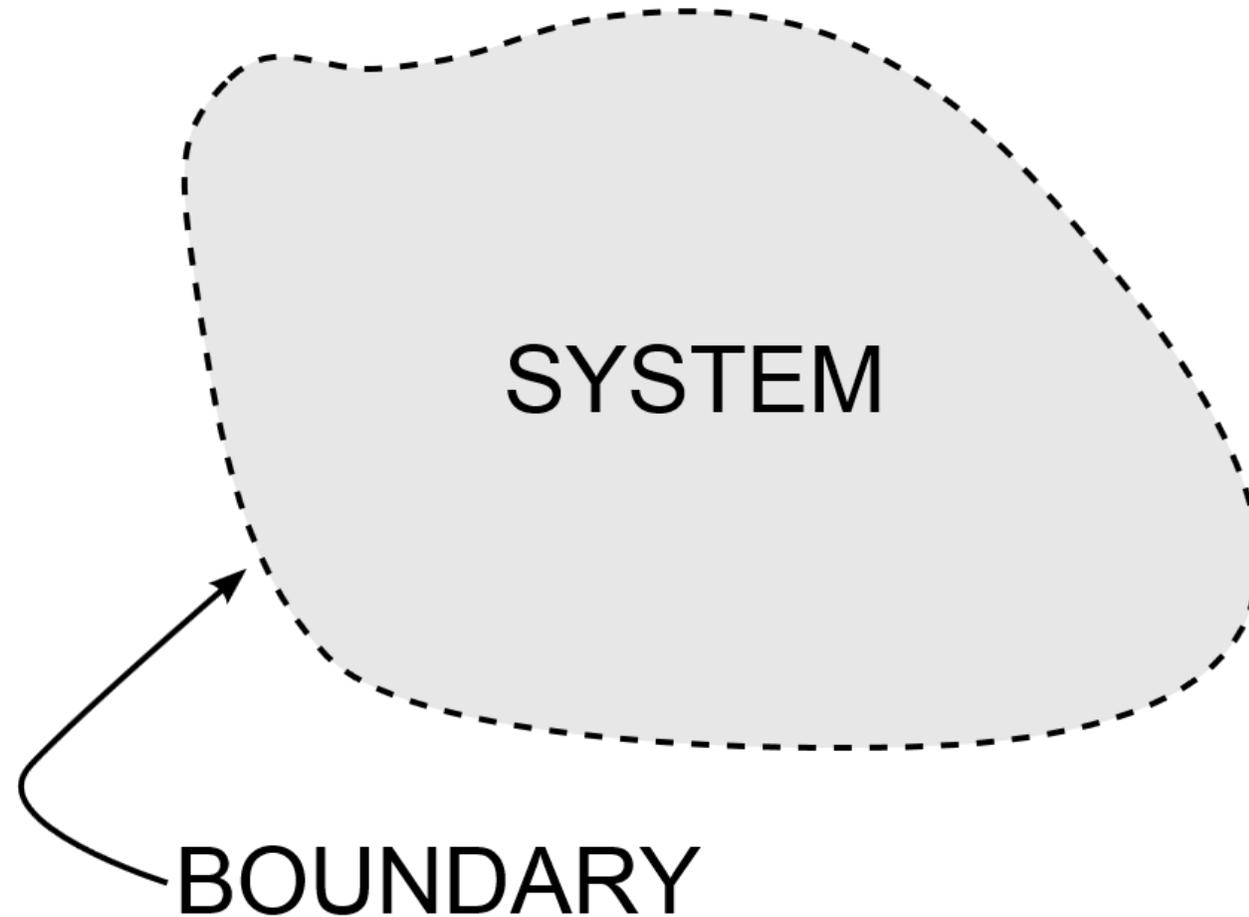
How do you evaluate a system?

- Need to incorporate Systems **Thinking**
- Need to consider Systems **Theory**

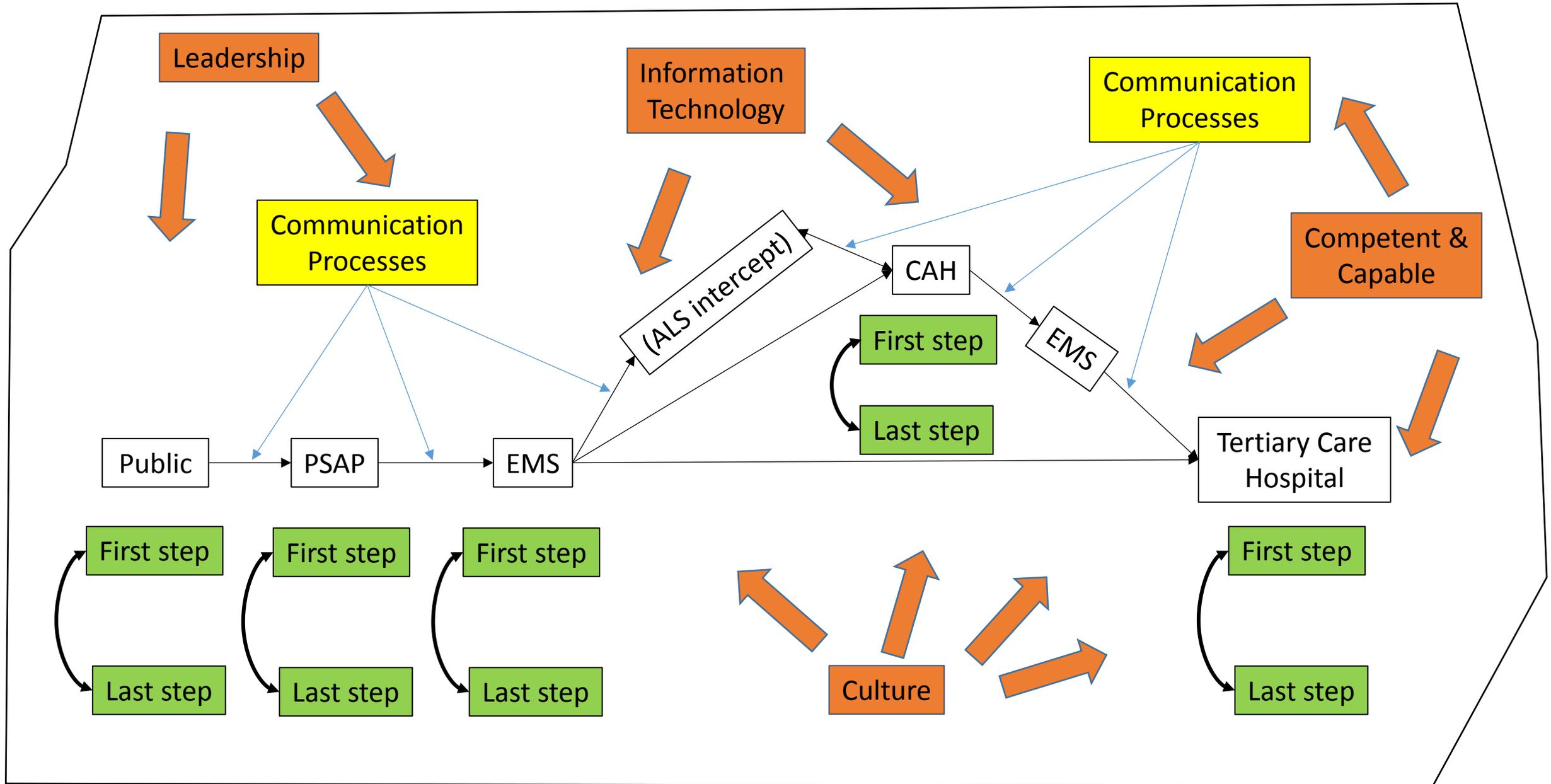


System Theory: Boundaries

SURROUNDINGS

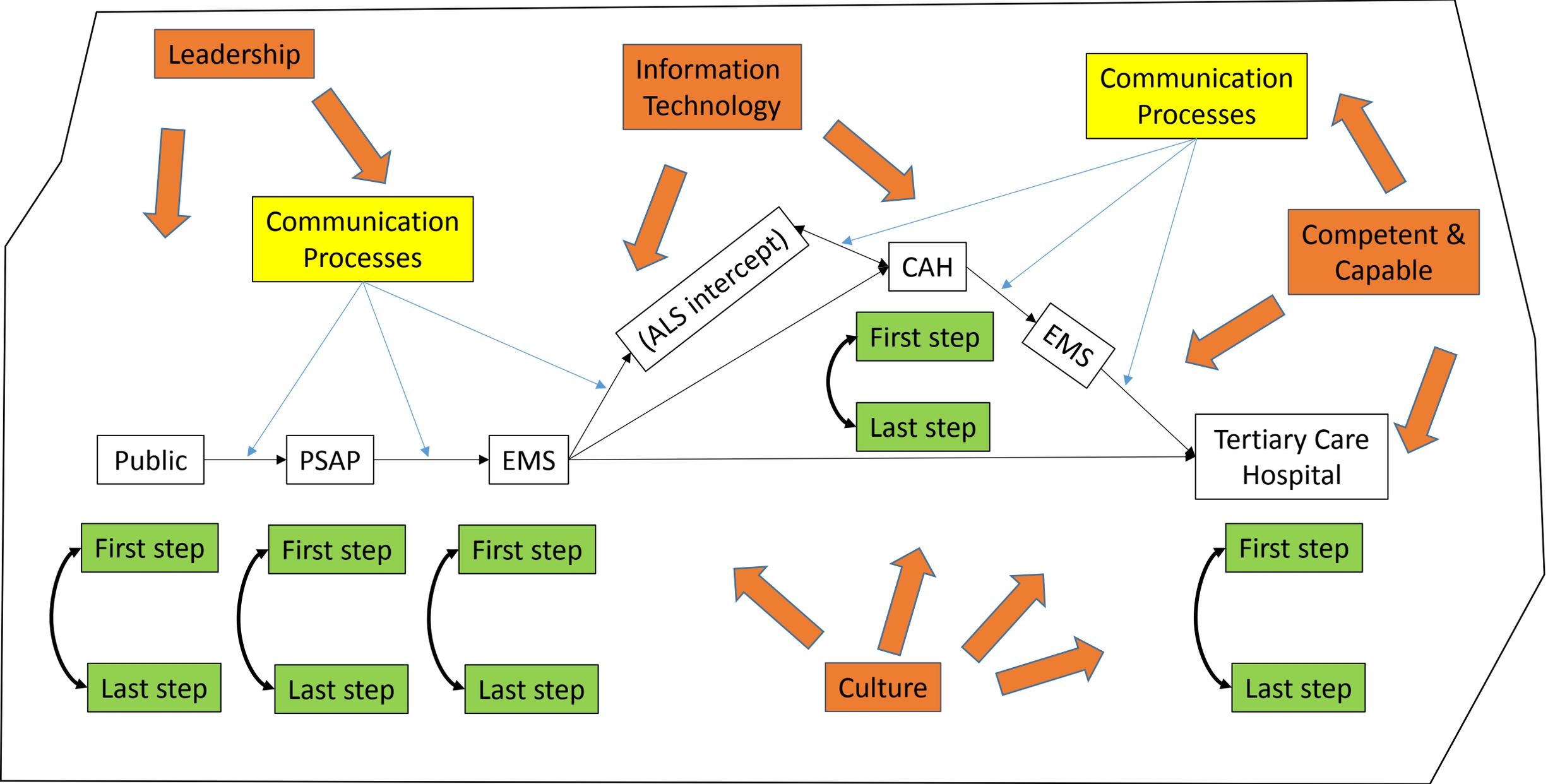


Response System: Time Critical Events



System Theory: Process Models

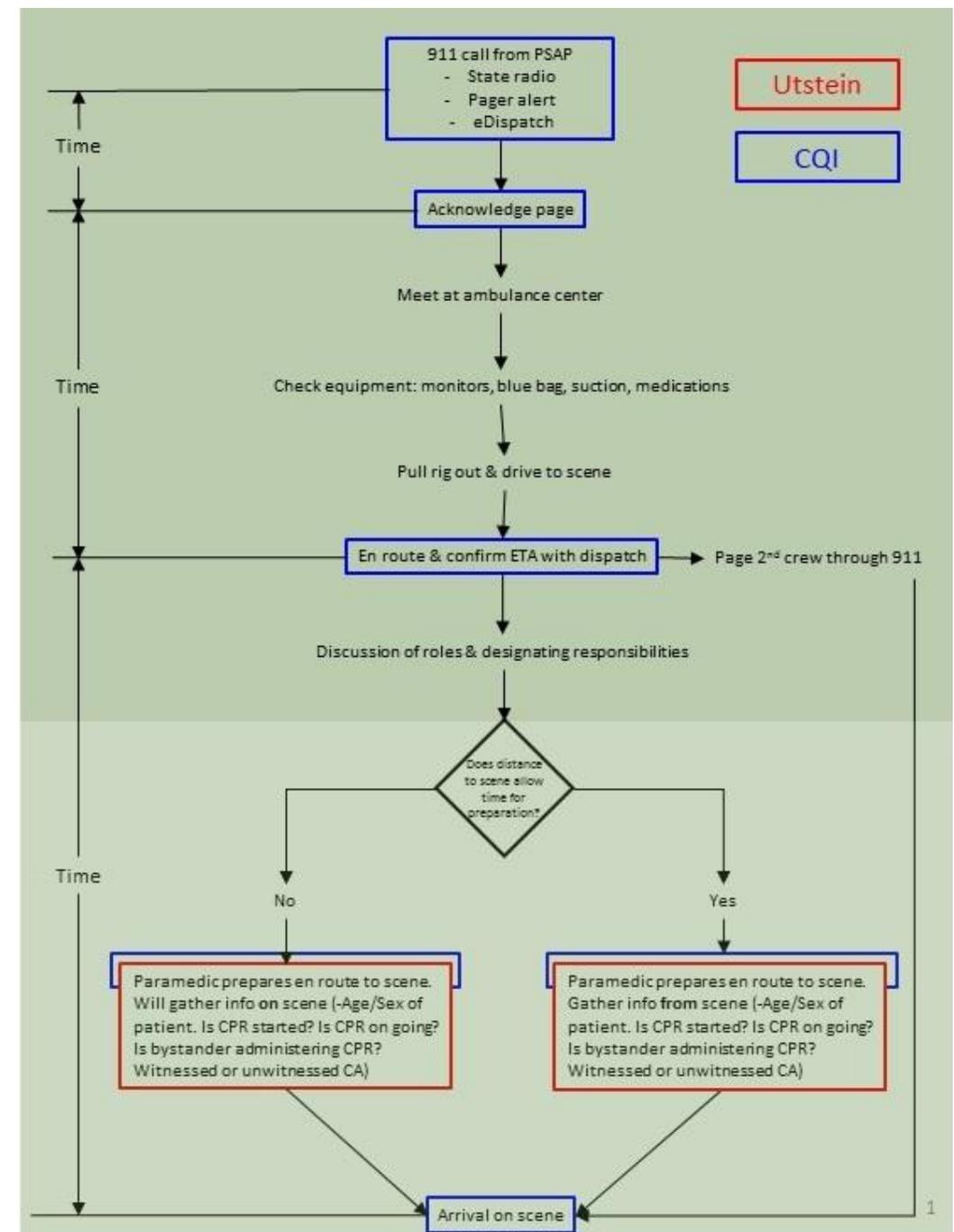




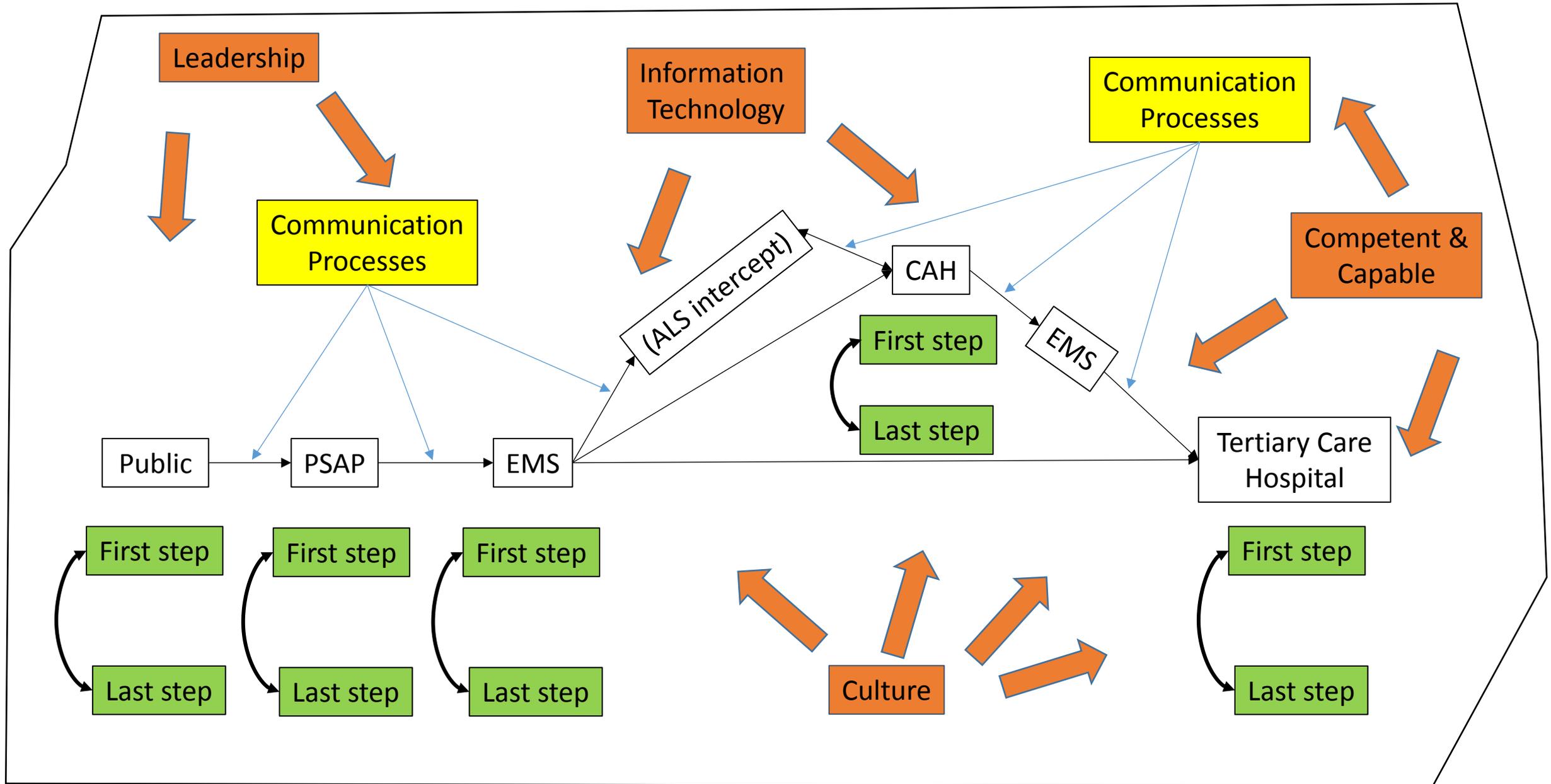
Documenting the subsystem processes



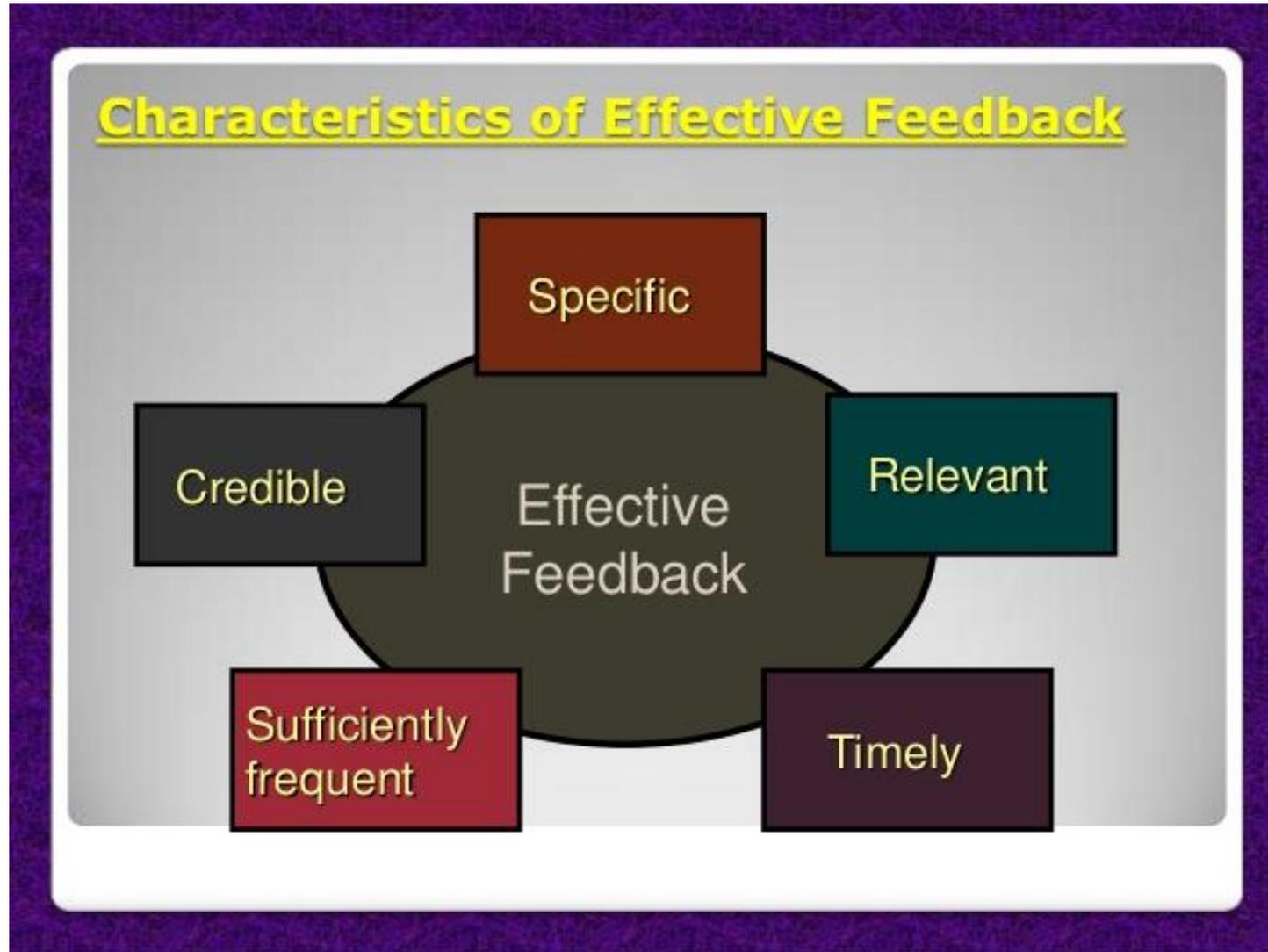
Improving the utility of process models: Integrating time stamp data with process maps



System Theory: Feedback Mechanisms



Evaluating Feedback Mechanisms



What are we learning about feedback mechanisms?

- Not specific
 - Explicitly stated process lacking
 - Data needed for CQI not clear
- Not credible
 - Data entry integrity
 - Urban biased benchmarks: CARES
- Not timely
 - Several months to get feedback
 - Often loop not closed at all
- Not sufficiently frequent



Improving feedback by improving database credibility

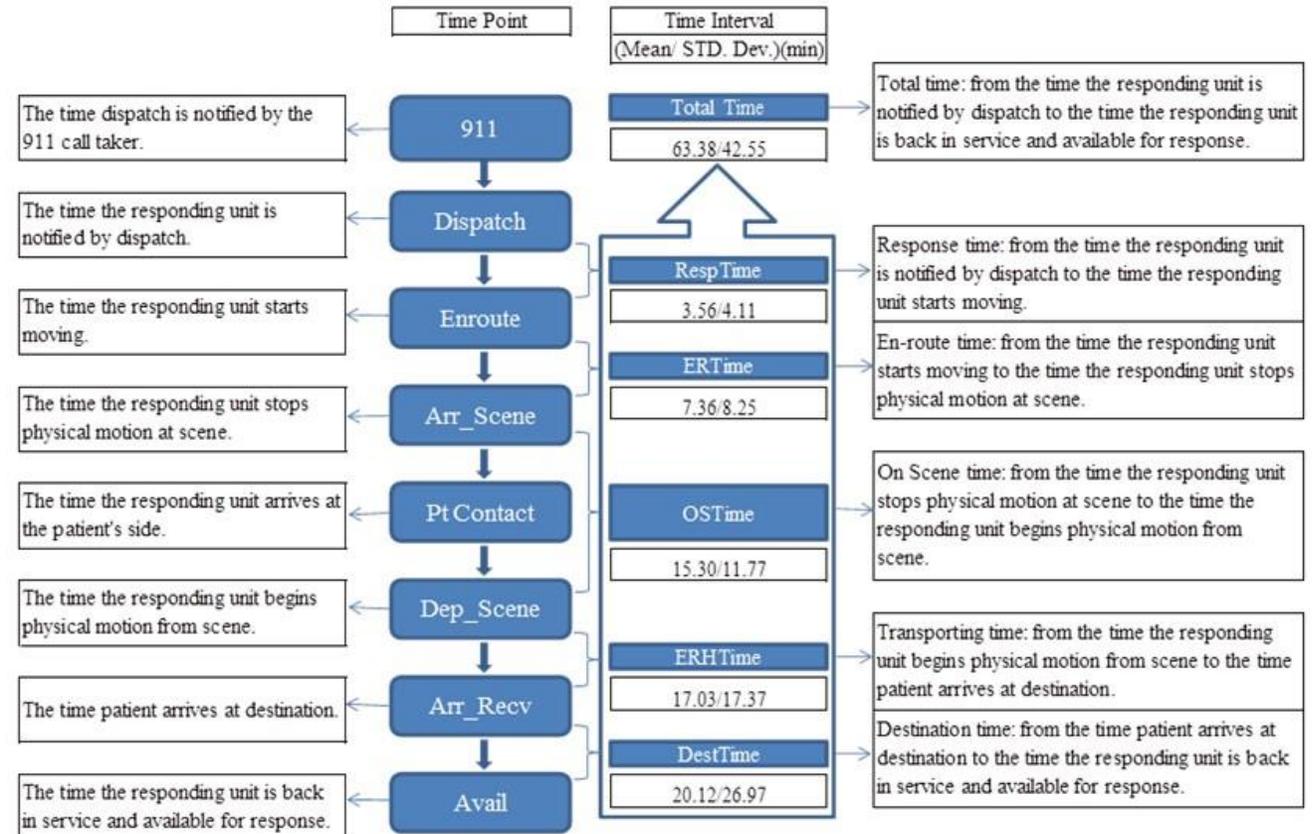
- Working with existing vendor to introduce error checking fields
- Looking for other vendors
- Collaborate with other rural states to establish benchmarks?
- Not a silver bullet



Improving feedback credibility through education

- Analyses of EMS database “as is” compared to when data is cleaned
 - Understanding the consequences of entering poor data

System Performance Measures and Benchmarks



Improving feedback by providing timely data



Improving feedback by increasing motivation



Improving motivation through incentives and friendly competition



Improving motivation by making feedback relevant, specific, and timely

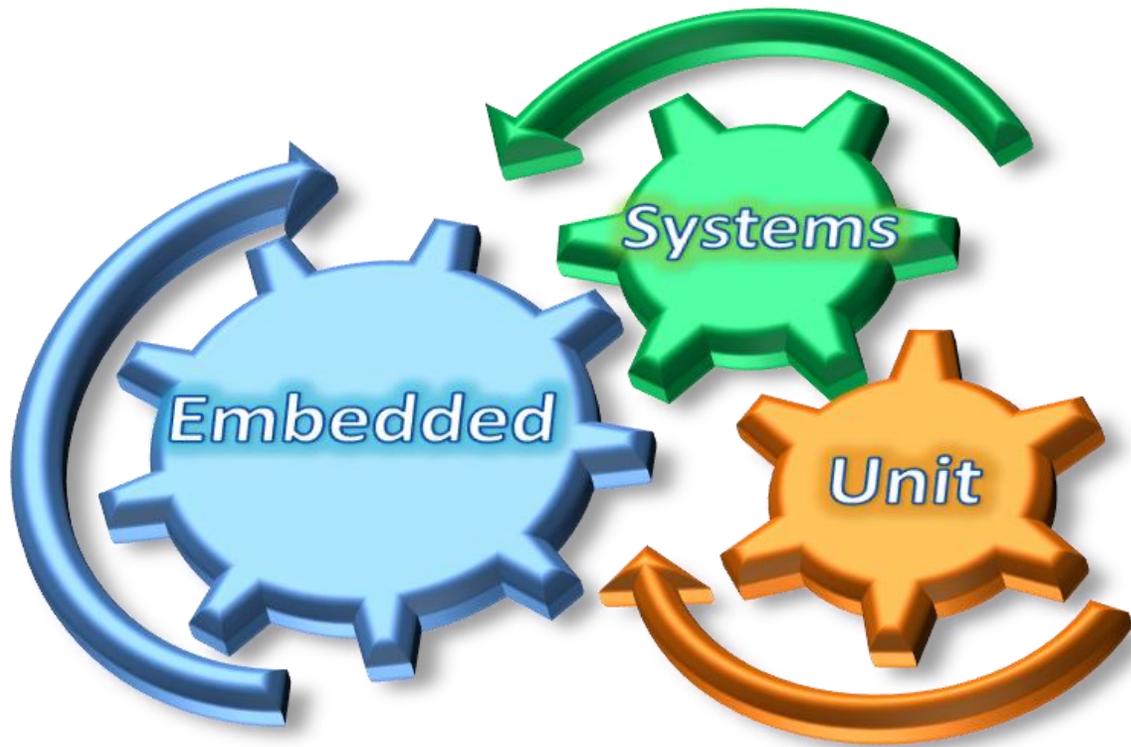
A Community-Based and Representative Board

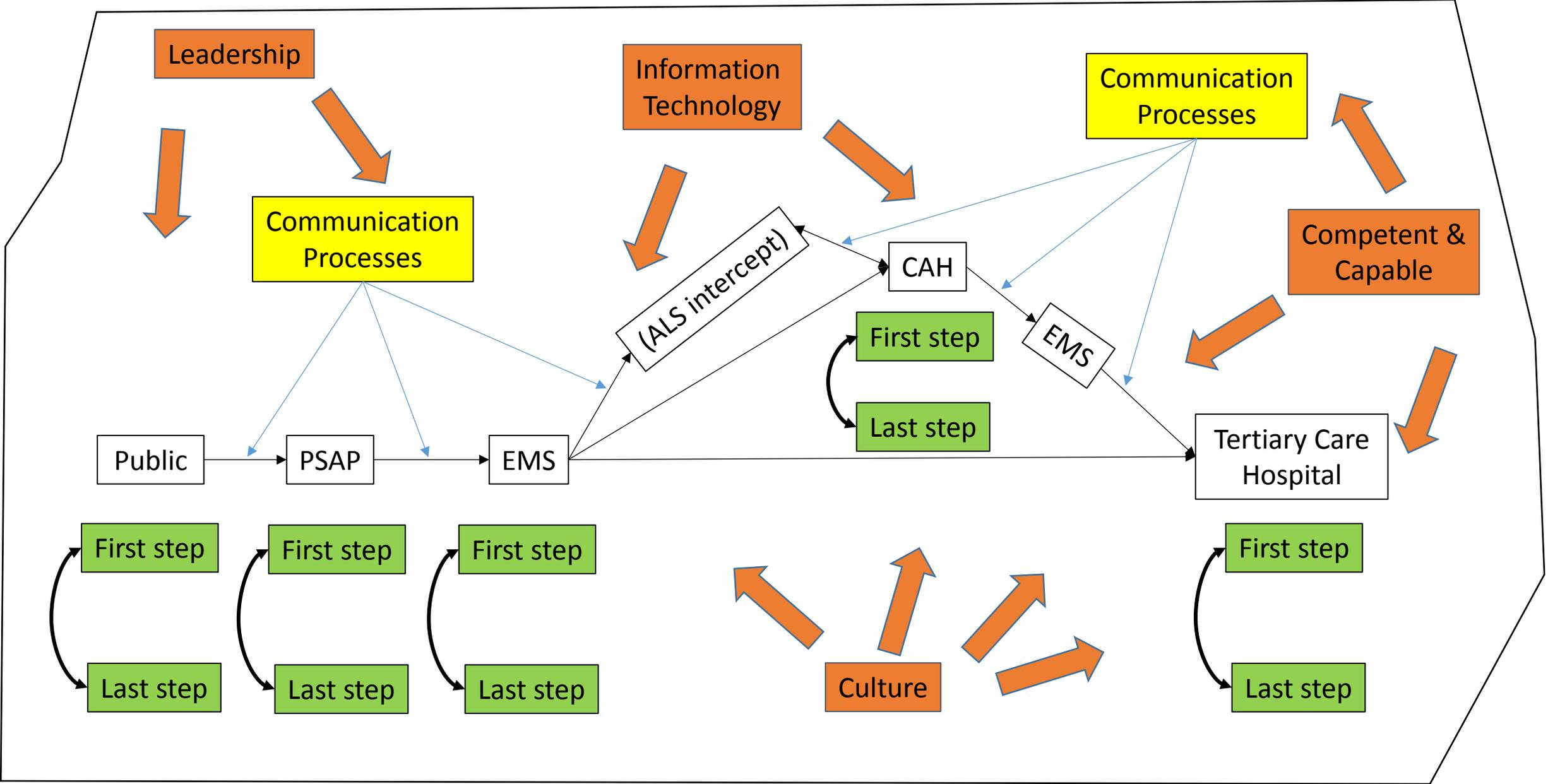
1. No formal board oversight.
2. Board consists of internal service members only.
3. Board includes internal service members AND some combination of elected officials, hospital leadership/staff, and/or governmental administrators.
4. Voting board members includes ONLY some combination of elected officials, hospital leadership/staff, and/or governmental administrators PLUS business/financial member – no service members in voting capacity.
- 5 Board includes all of #4 AND at least one engaged patient representative.

Shifting to a culture of documentation: A different end boundary

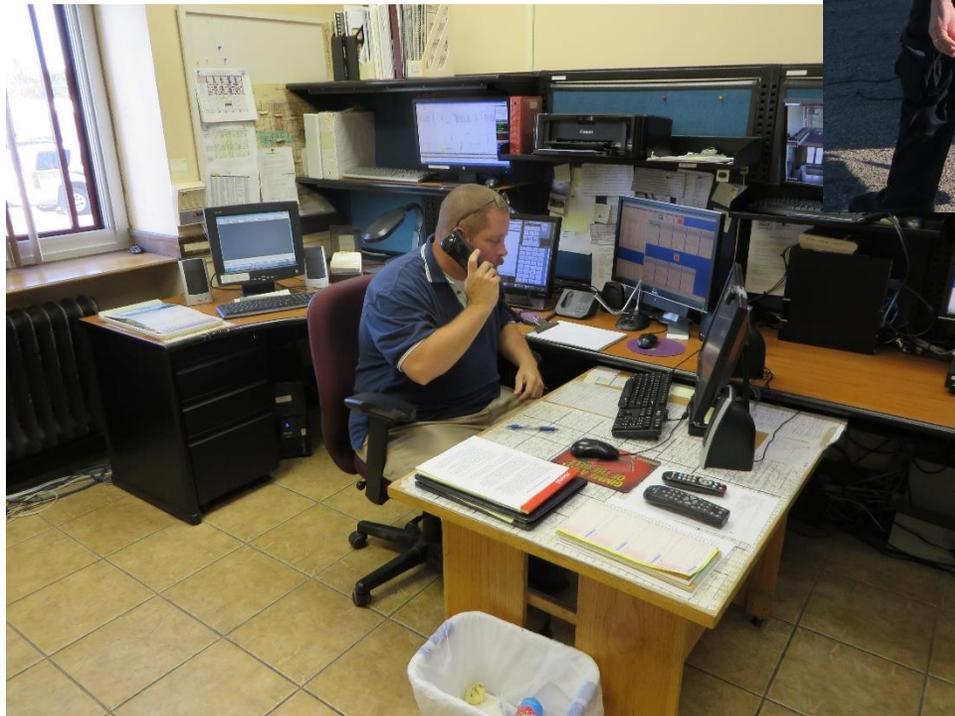


System Theory: Interdependence: Cascading Failure





Evaluating cascading failure

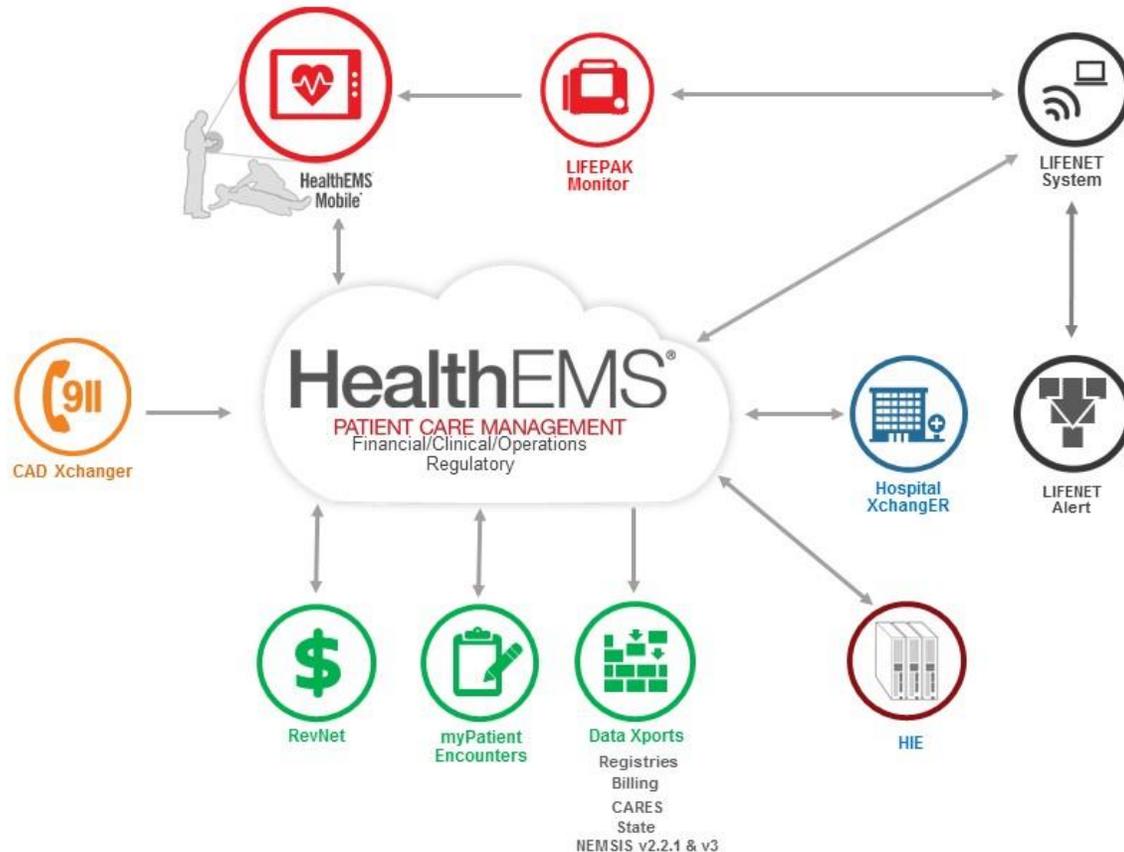


Minimizing cascading failures via EMS data integration with hospital eMRs via HIEs

- Better sharing of information
 - Close EMS feedback loop with timely, relevant patient outcome information
 - Hospital dashboard of patient information is more complete

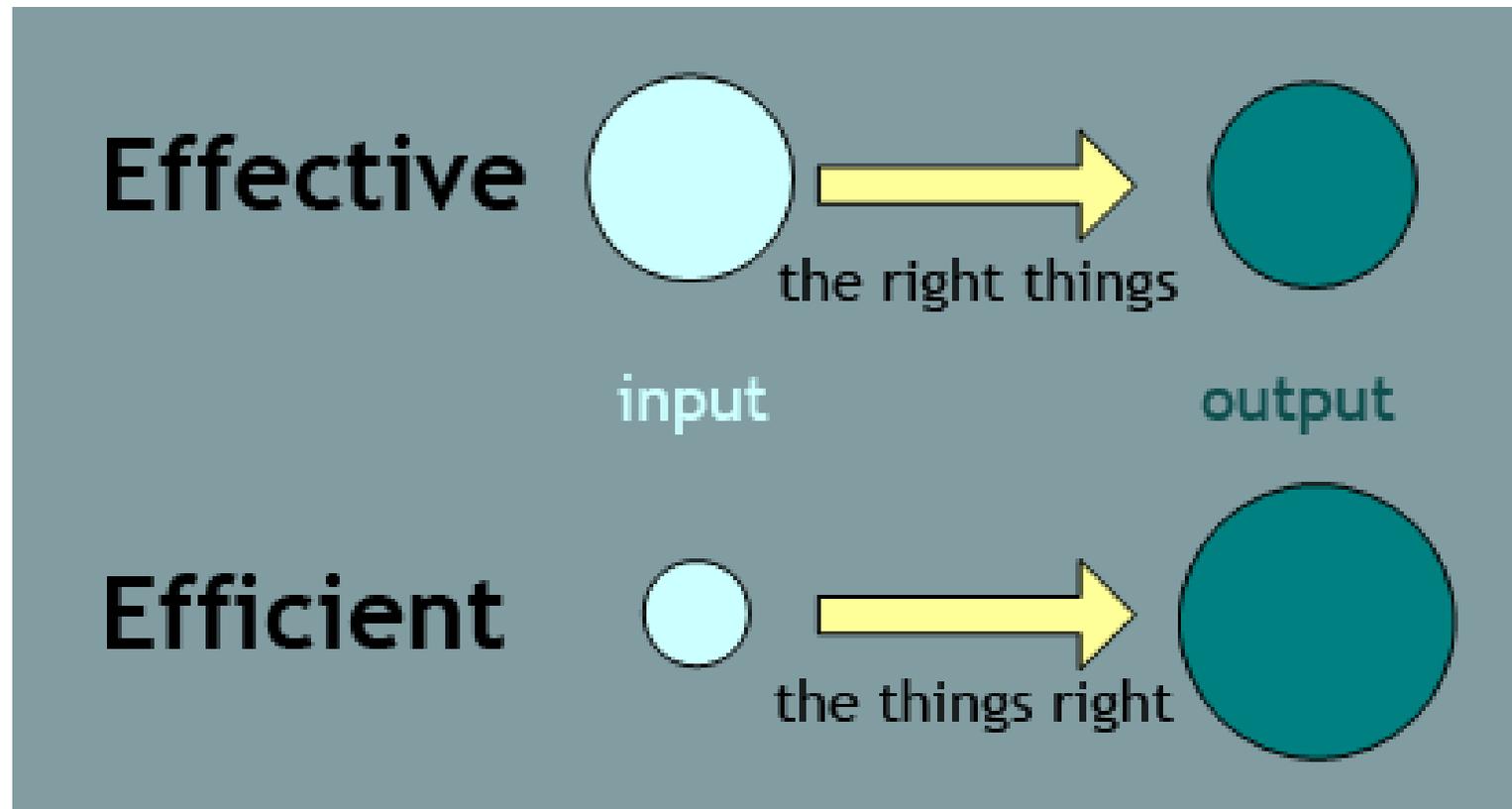


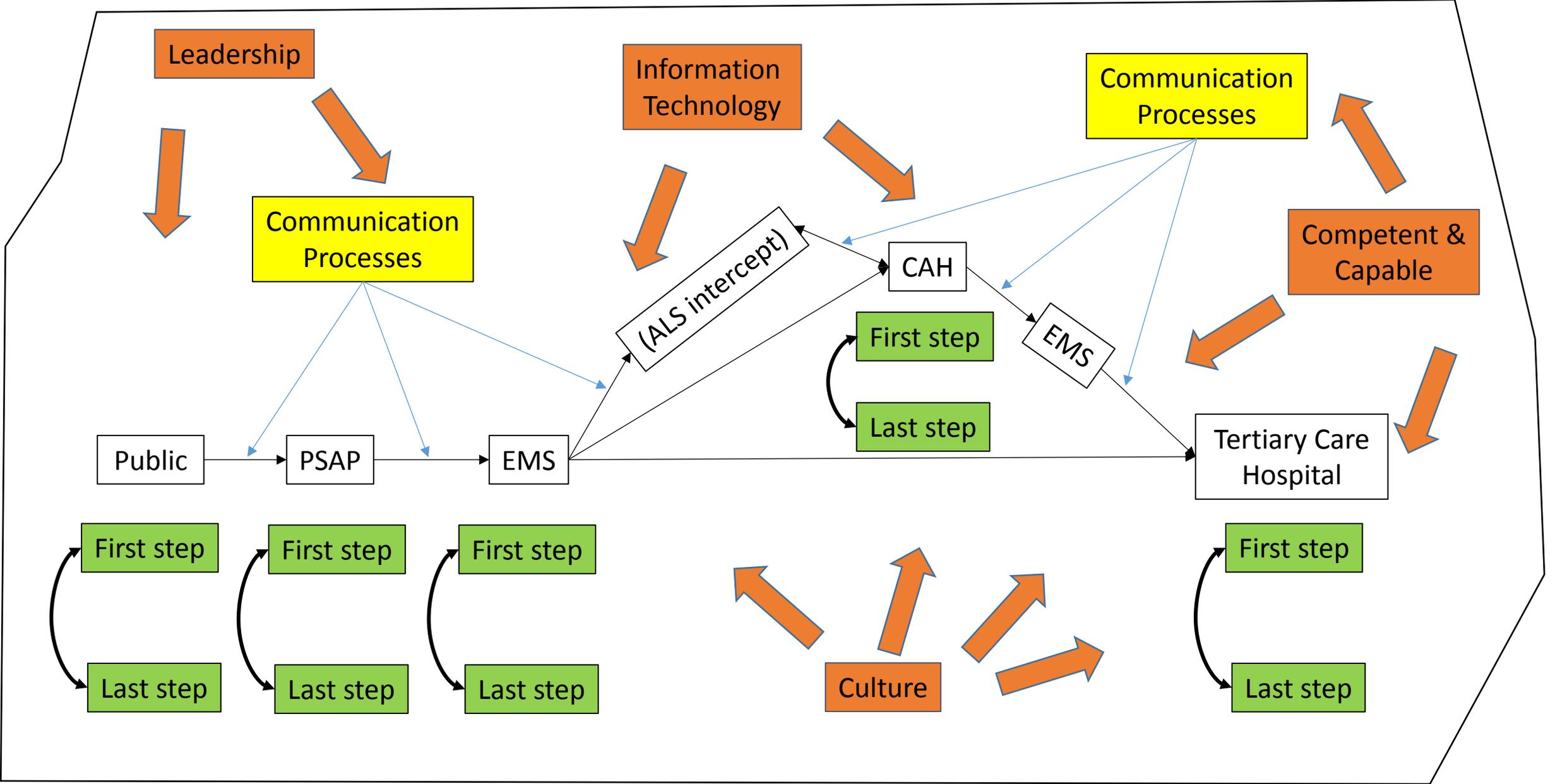
Minimizing cascading failures via real time data flow: SD Pilot



- Better data immediately
- Hospitals better prepared generally (extends Mission Lifeline concept beyond EKG data)
- Closing loops
- Increased motivation

System Theory: Parts work together toward a common goal





Evaluating efficiency & evaluating efficiently



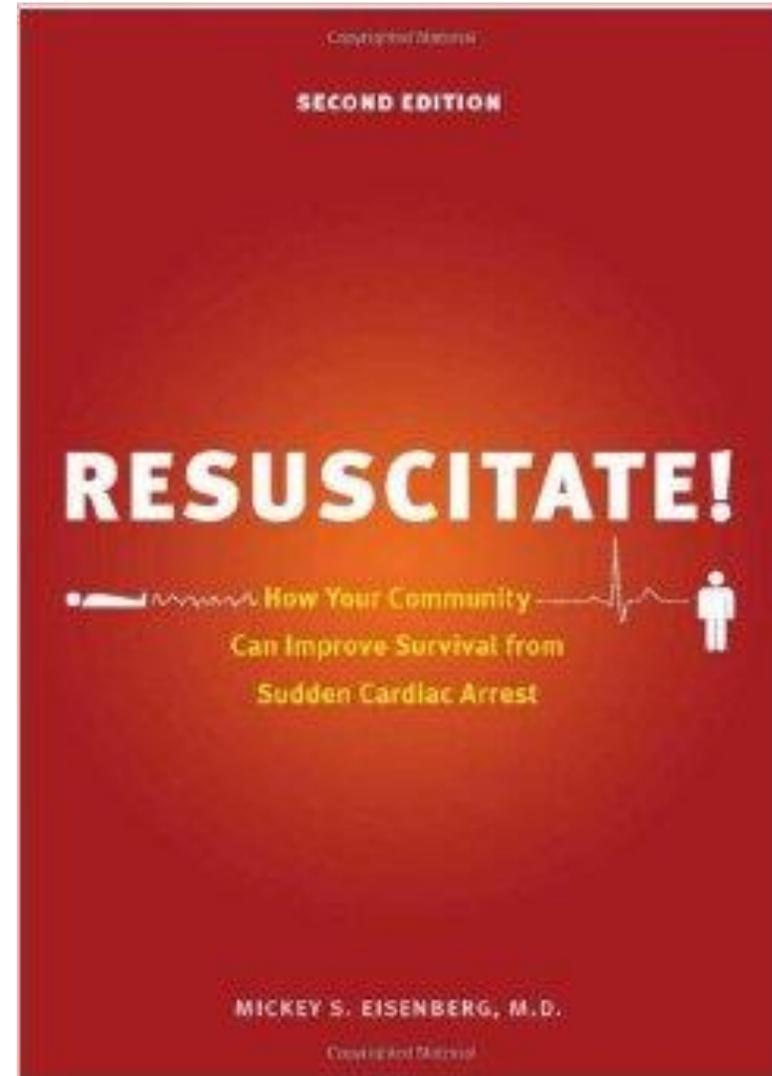
Evaluating Effectiveness

- System principles of interdependence, holistic, & synergy come into play
- Makes no sense to engage in cause effect designs to evaluate a system
 - Can't isolate effect of one system part
 - Isolation contradicts the system approach



Evaluating effectiveness

- Numerous time critical events
- Eisenberg:
 - OHCA as the surrogate



Evaluating system effectiveness





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