Welcome

AEA: eStudies Series on Systems Thinking

Housekeeping

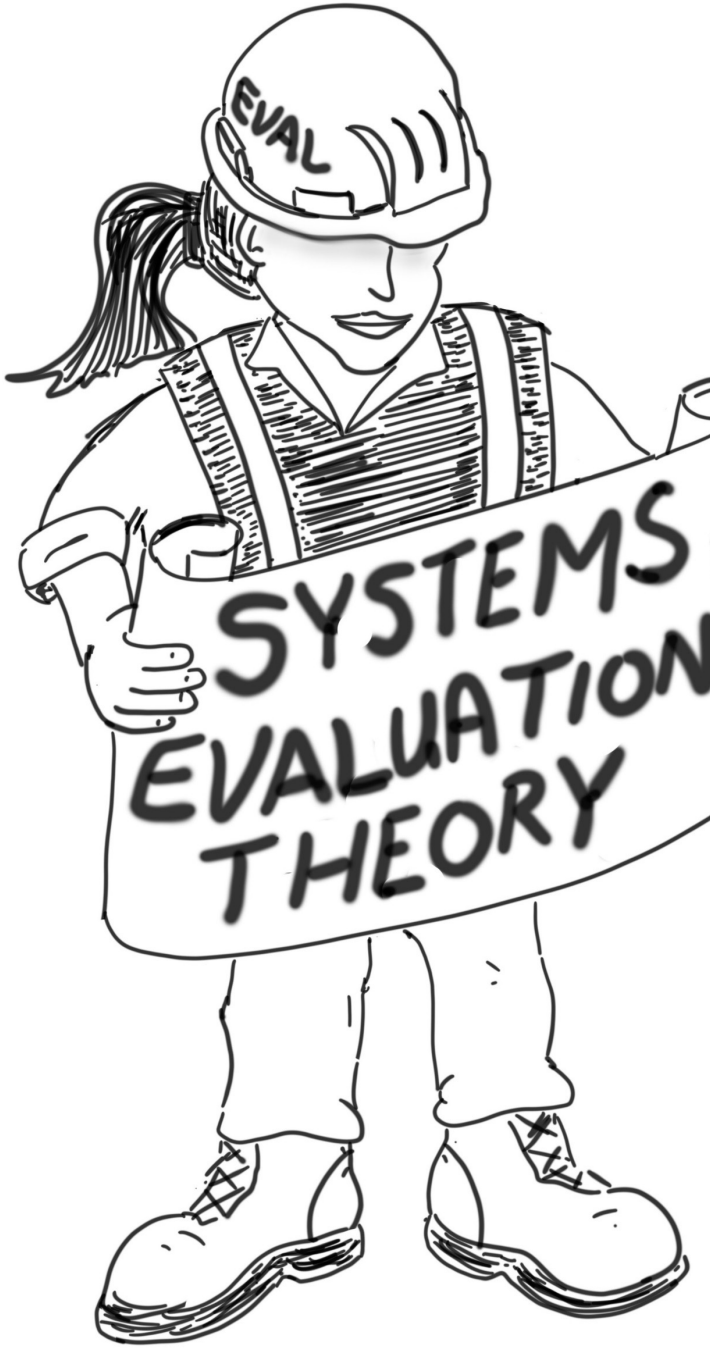
- AEA:
  - Benjamin Borucki: bborucki@eval.org
  - Zoom Issues.
  - Accessing PowerPoint slide deck and/or session recording.

- JESS, LLC:
  - Monitoring the chat: Jessica Renger jessica@justevaluation.com
  - Mentimeter issues. Jessica Renger jessica@justevaluation.com
  - Content questions: Ralph Renger ralph@justevelaution.com

- 90-minute session
  - Hopefully break about midway.

Overview of our eStudies Series

- Session 1: Limitations of current evaluation approaches.
  - Systems thinking as a solution.
- Session 2: Introduction to Systems Evaluation Theory (SET).
  - Step 1: Defining the system (complex intervention).
- Session 3: SET Step 2 and 3.
  - Evaluating system interdependence (efficiency).
  - Evaluating system emergence (effectiveness).
- Session 4: Evaluating programs as systems.



RECAP

- Complexity in interventions is difficult to evaluate because:
  A. Tools like the logic model are not fit for purpose
  B. Evaluators shy away because the challenge seems too complicated (difficult)
  C. We have no standards by which to evaluate complexity
  D. A & B
  E. All of the above
- In this series, when we say the word “complex” it means:
  A. Lots of Moving Parts
  B. Difficult to Understand
- In the clock example, what is the emergent property?
- System parts of a book include:
  A. Letters
  B. Words
  C. Sentences
  D. Paragraphs
  E. All of the above
  F. None of the above
- In your opinion, what is the emergent property of a book?
- The advantage of evaluating complex interventions using a systems lens is that:
  A. All of the moving parts now have a quality, interdependence, that can be evaluated
  B. The intervention now has a defined higher purpose, emergence, that can be evaluated
  C. The logic model becomes an appropriate evaluation tool
  D. A & B
  E. B & C

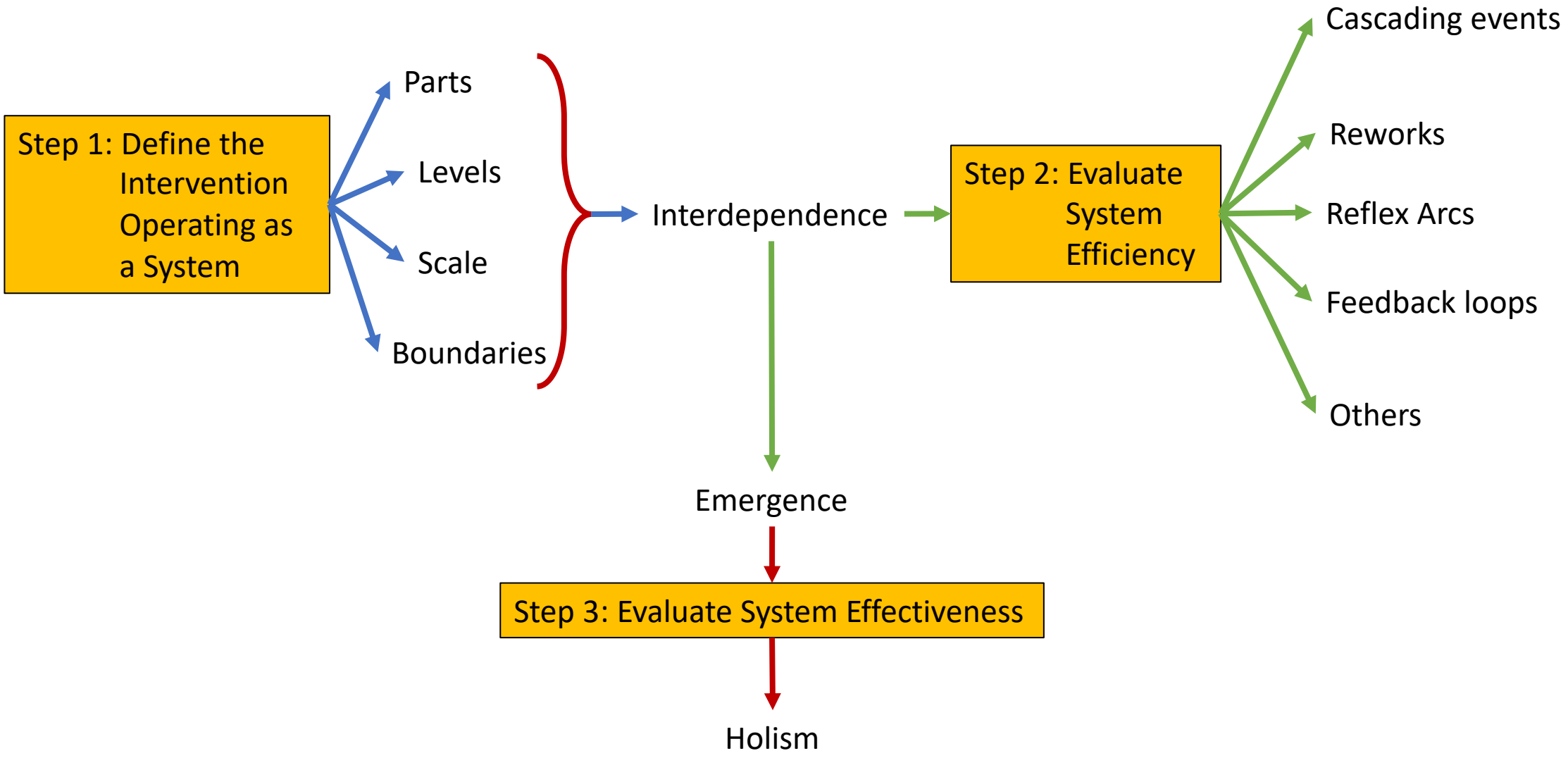
Questions from Session 1

- Are we evaluating a system? I'm confused?
  - We are using a systems approach to evaluate complex interventions.
- Time piece reference: Renger.
  - A good video for more about this: If Russ Ackoff had given a TED talk (1994). https://www.youtube.com/watch?v=OqEeIG8aPPk
- How to navigate issues of poor intervention design?
  - SET step 2 looks at interdependence which is inseparable from the intervention design. When you identify problems with how parts of the intervention are interacting, and correct those problems, you are improving the intervention design
- Yes, you can pull together all the logic models and show a common long term/emergent outcome…and yes you can acknowledge that they don't get at the interconnections...but then why do the evaluation knowing you are missing key pieces needed for utility?
- Recommendations…we will get to those in eStudy 3
- Using decolonized approaches when evaluating systems
  - Using systems thinking lens (which is integral to evaluating systems), moves away from "traditional"/western/reductionist perspectives, and towards holism and indigenous ways of knowing
- What happens is there is not a shared understanding/agreement of emergent property?
  - Our role as a facilitator
  - This is a problem
  - Leadership: critically important
  - Step 6 will help make the disconnect obvious and force them to discuss

- Objective 1: To understand the rationale behind the 3 Steps of Systems Evaluation Theory (SET).

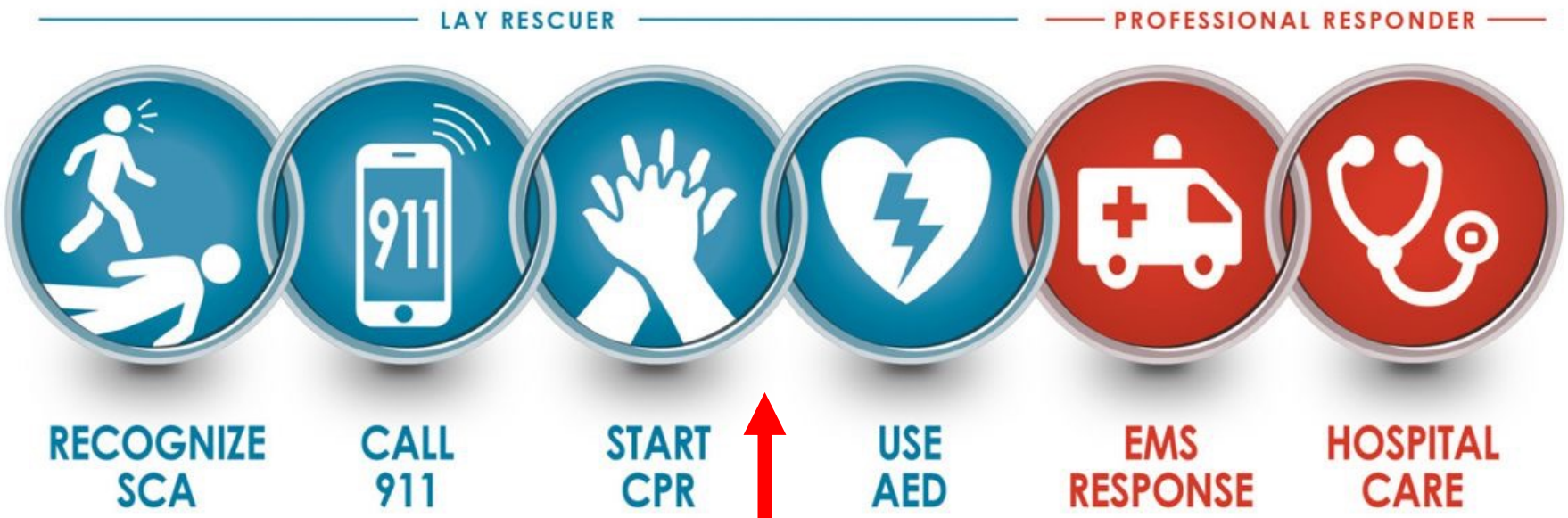
- Objective 2: To understand how to implement Step 1 of SET

Rationale of Systems Evaluation Theory (SET)

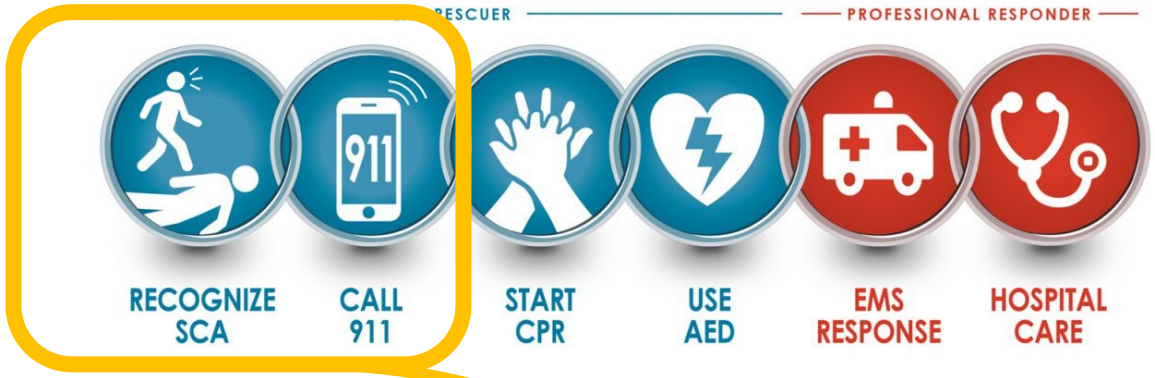


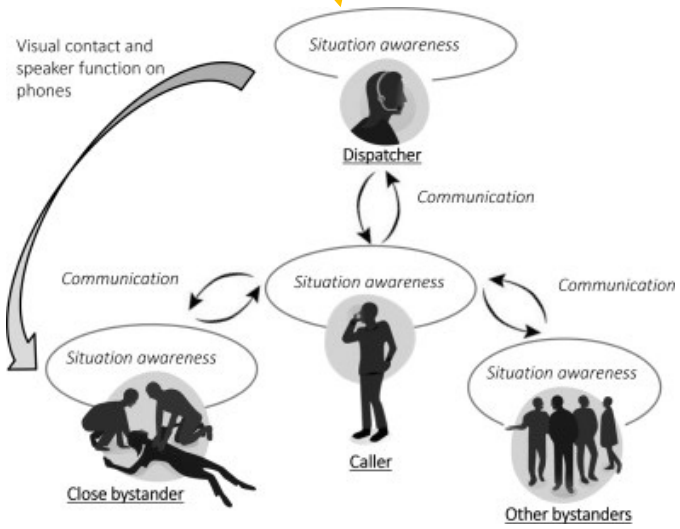
The Challenge

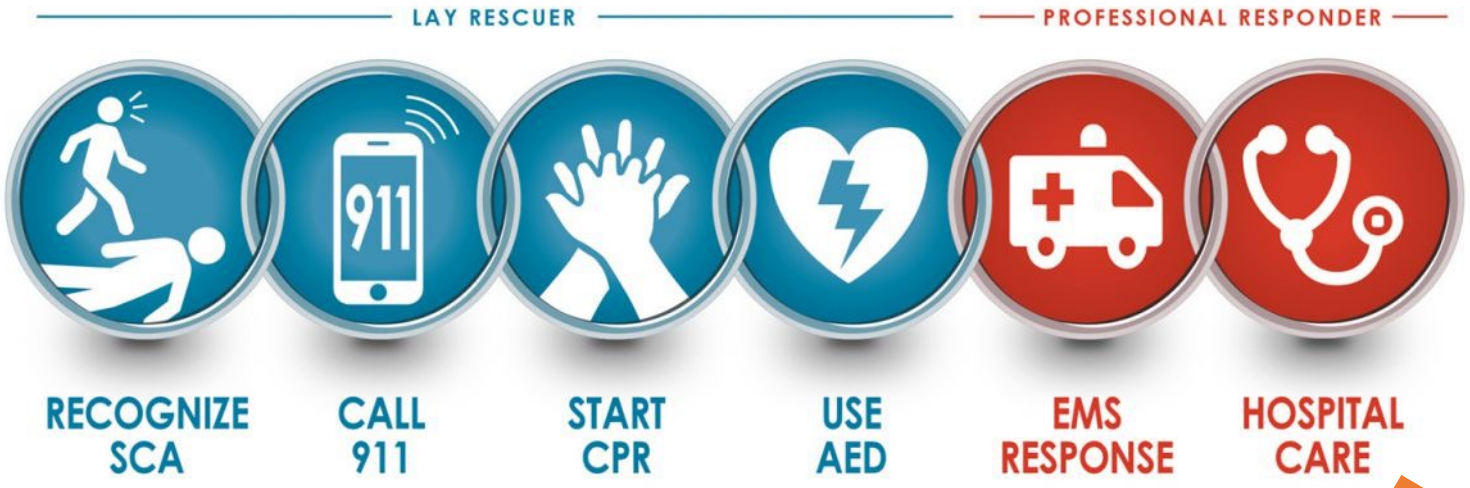
The Greater Challenge

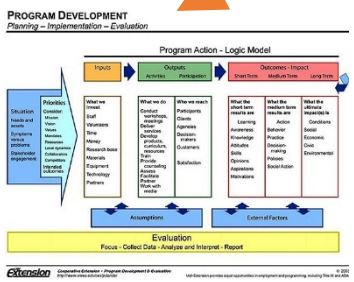


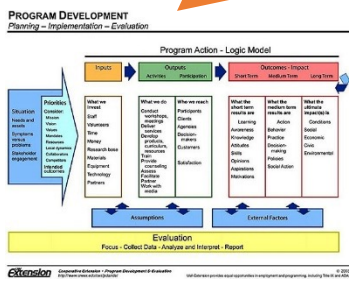
The intervention is operating as a system

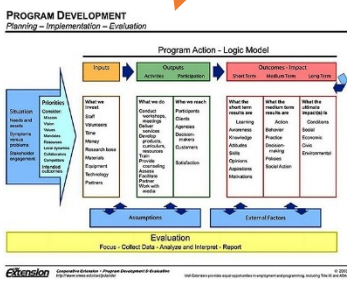


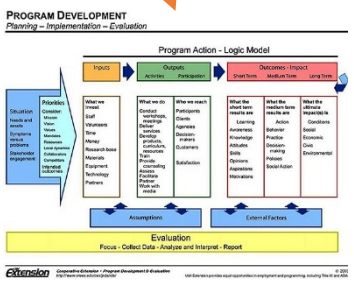


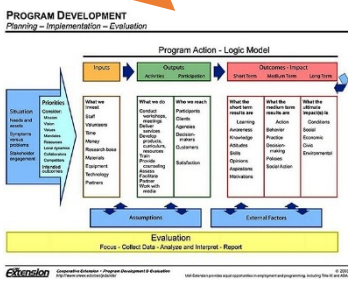


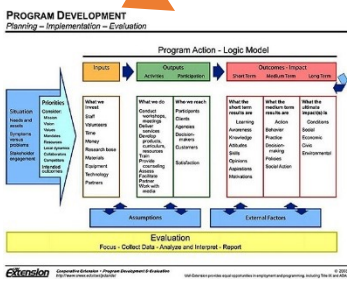






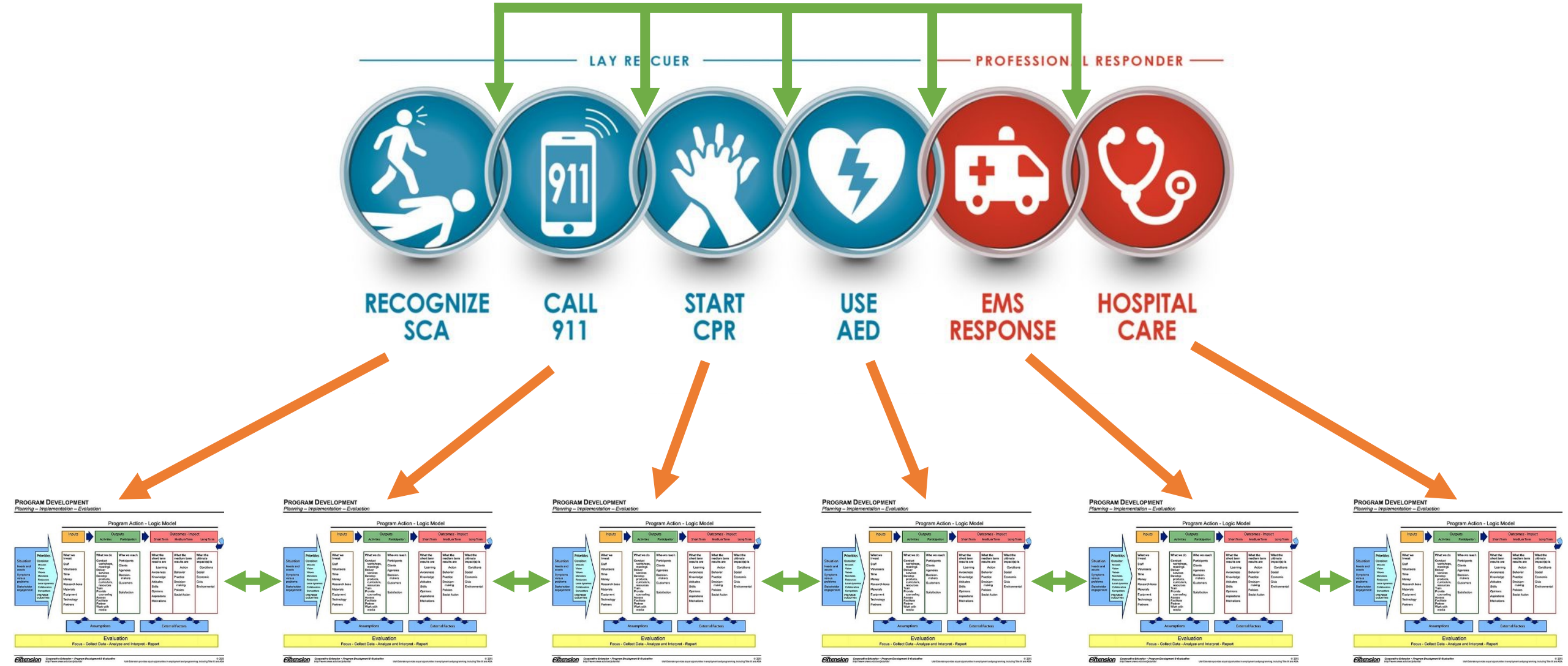






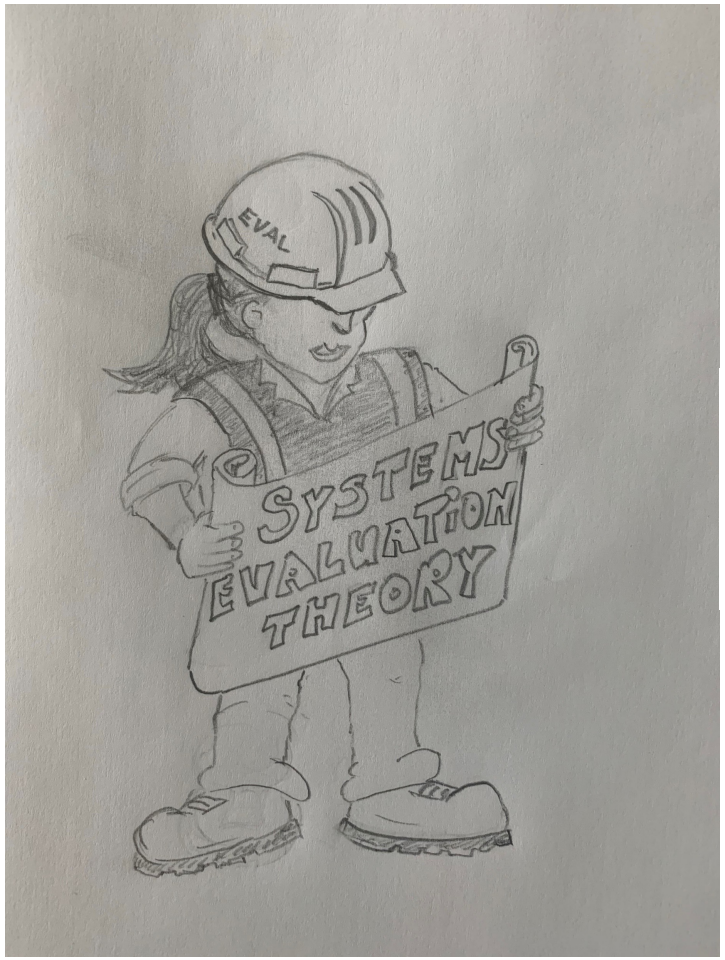
Using multiple logic models to capture complexity aka Coupling and Scaffolding Logic Models

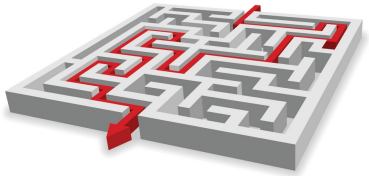
The problem with trying to adapt program logic approaches to the systems problem.



SET: A better tool for the job

- A blueprint for how to evaluate interventions operating as systems that is aligned to an understanding of the system properties
  - Step 1. Define the system (i.e., complex intervention).
  - Step 2: Evaluate system efficiency (i.e., interdependencies).
  - Step 3: Evaluate system effectiveness (i.e., emergence).

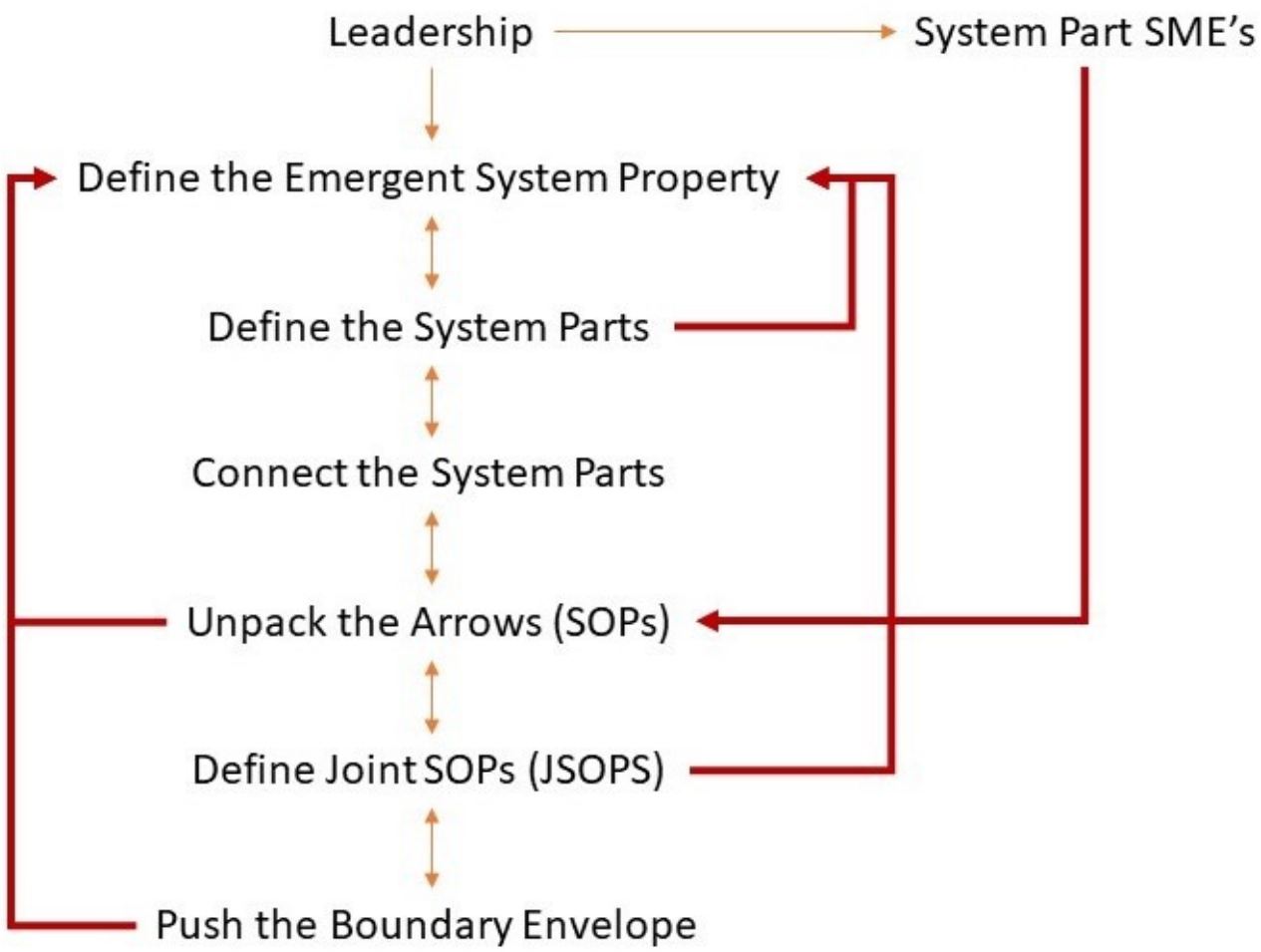




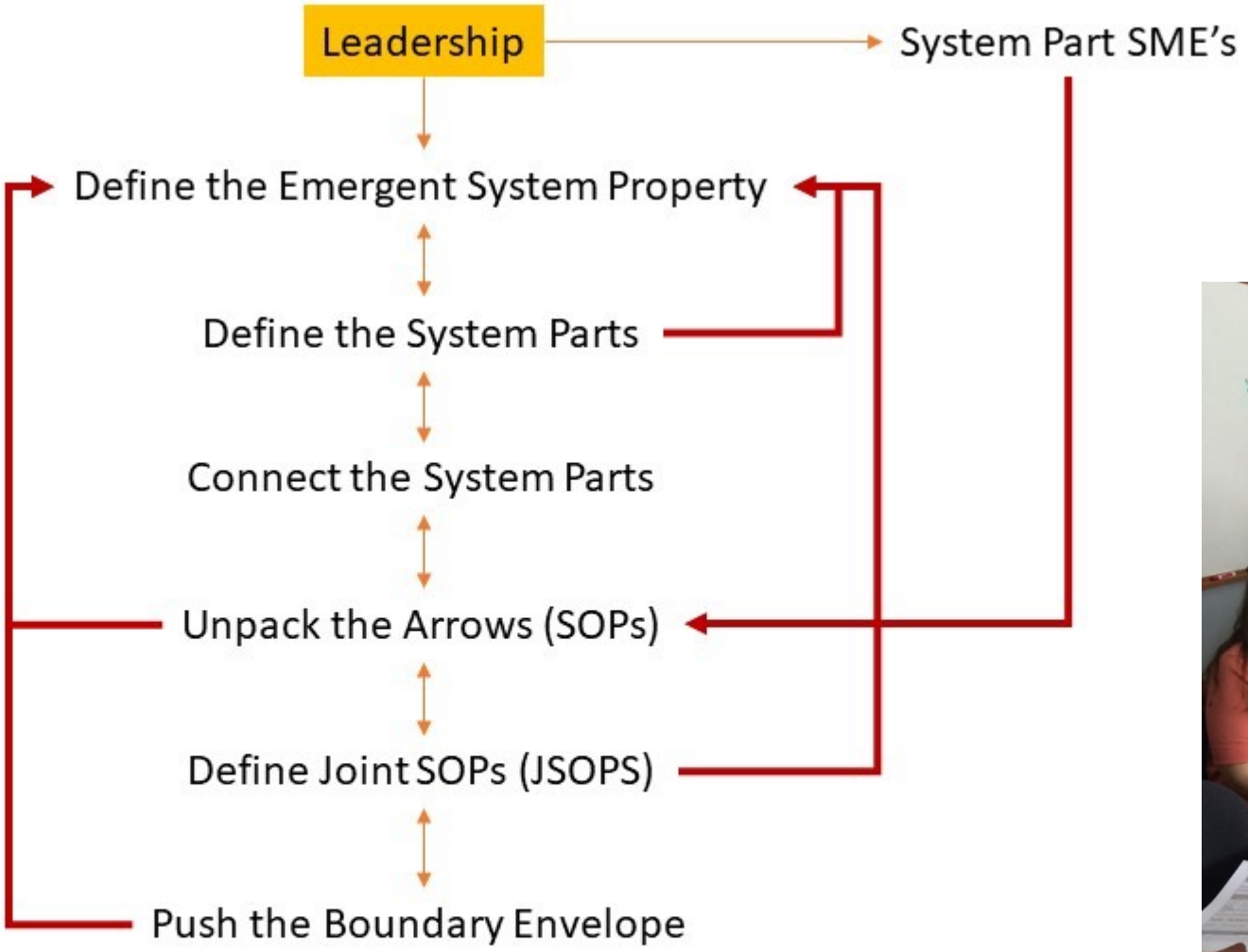
SET Worksheet

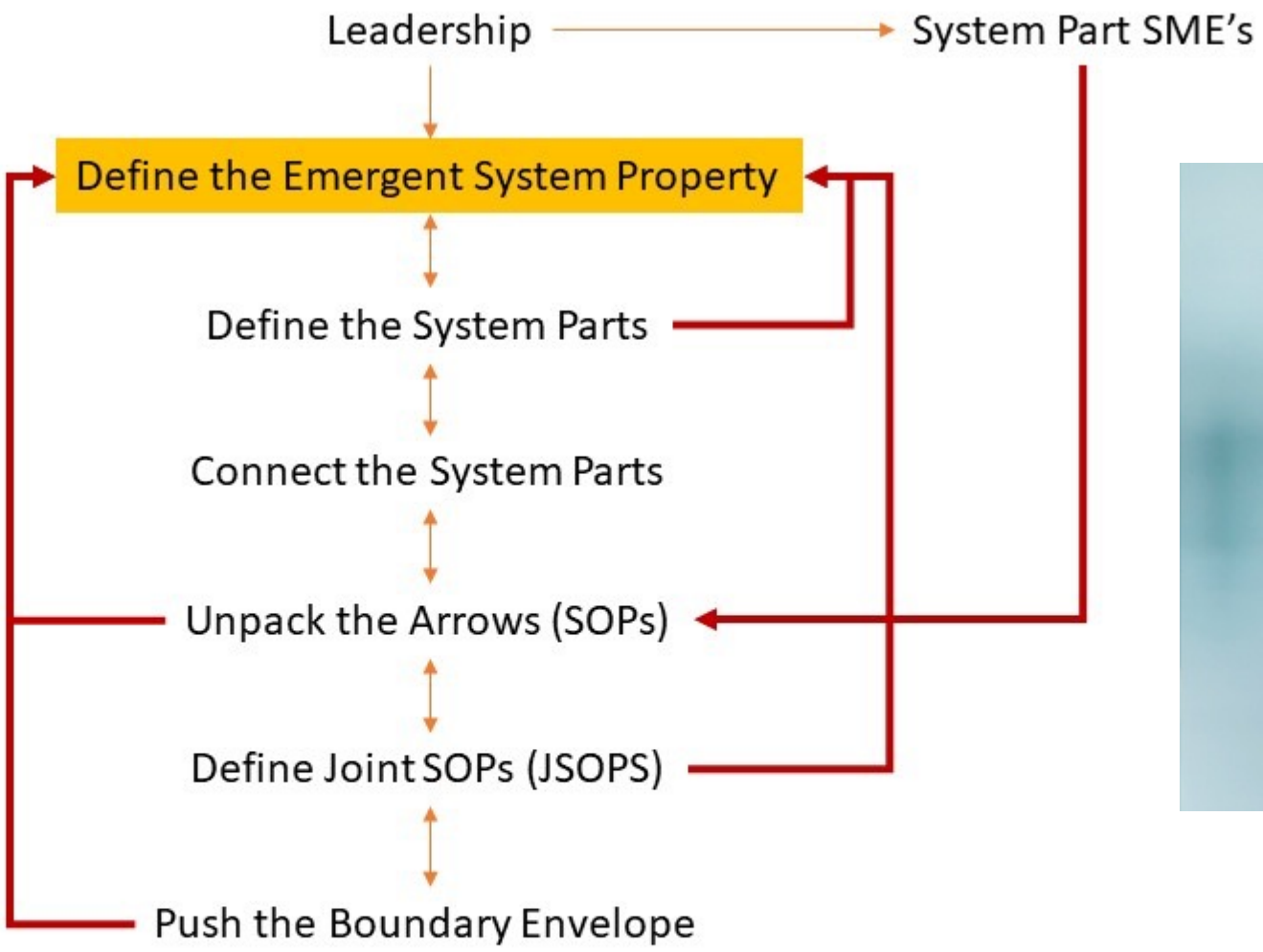
Available on our website:
https://www.justevaluation.com/aea-estudy-2022

Step 1: Define the System (i.e., the complex intervention)

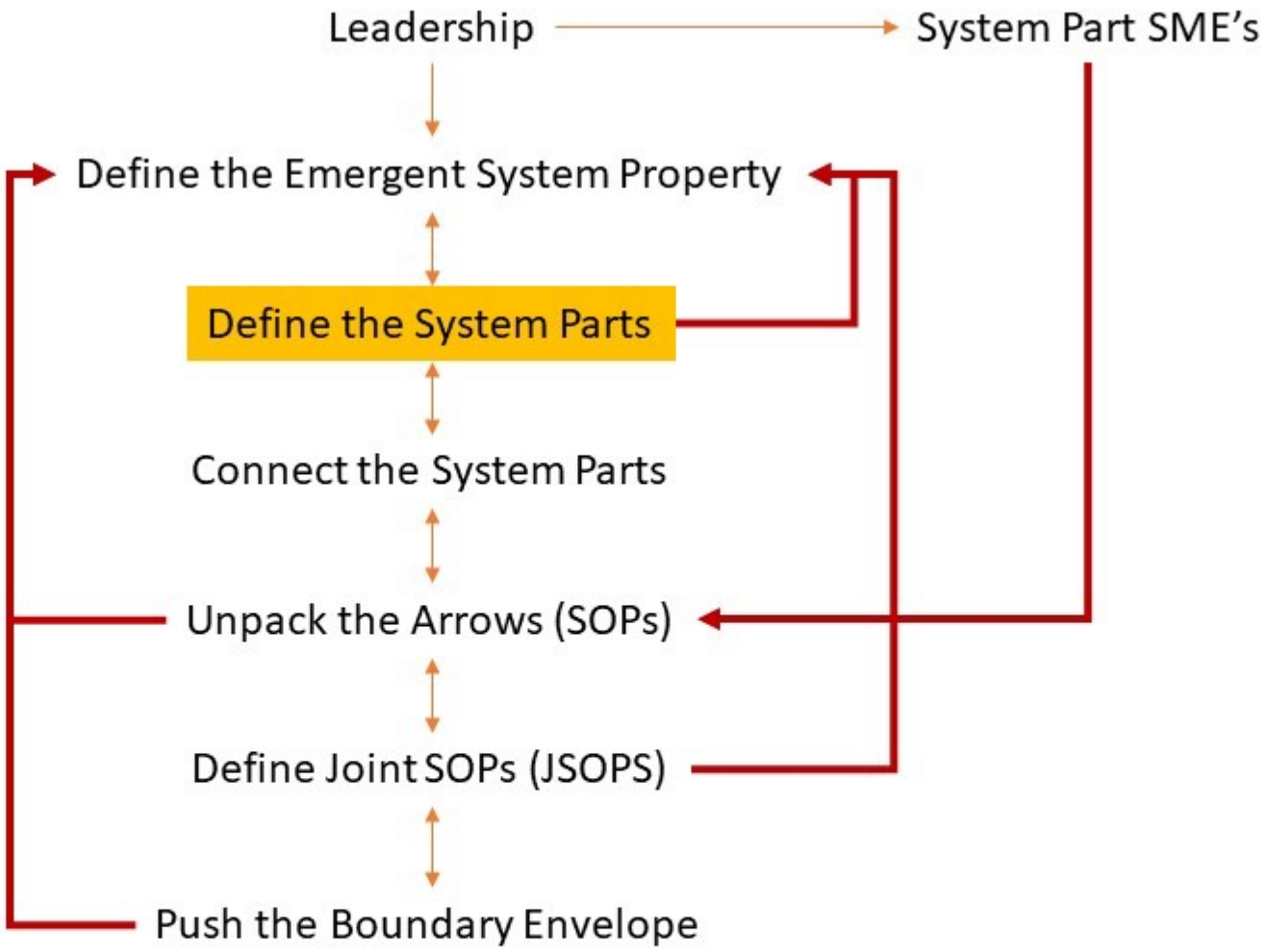


Cardiac System of Care Example




Leadership
System Part SME's
Define the Emergent System Property
Define the System Parts
Connect the System Parts
Unpack the Arrows (SOPs)
Define Joint SOPs (JSOPS)
Push the Boundary Envelope


MEDICAL
CARE
HEALTH



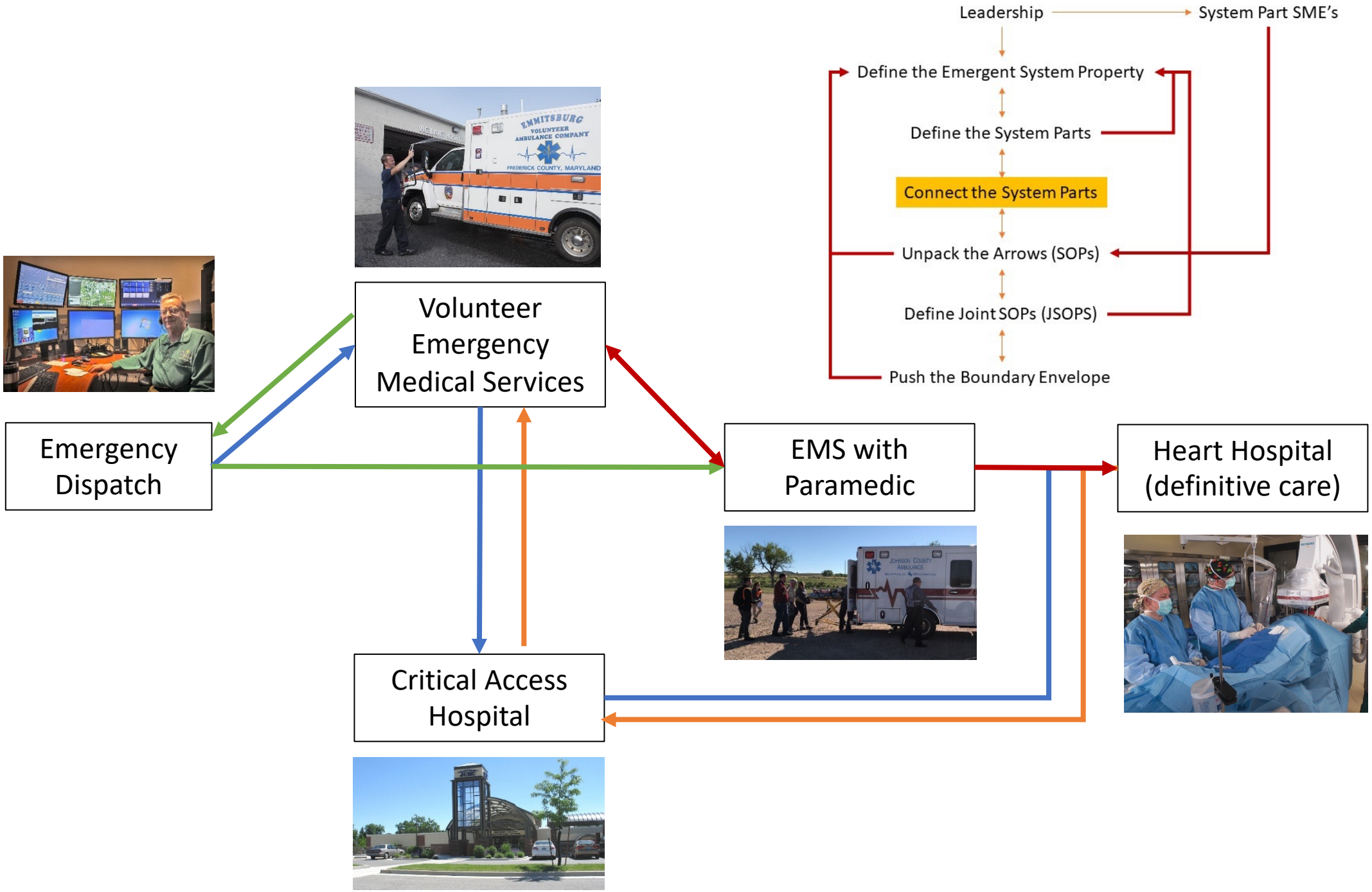
Emergency Dispatch

Volunteer Emergency Medical Services

EMS with Paramedic

Heart Hospital (definitive care)

Critical Access Hospital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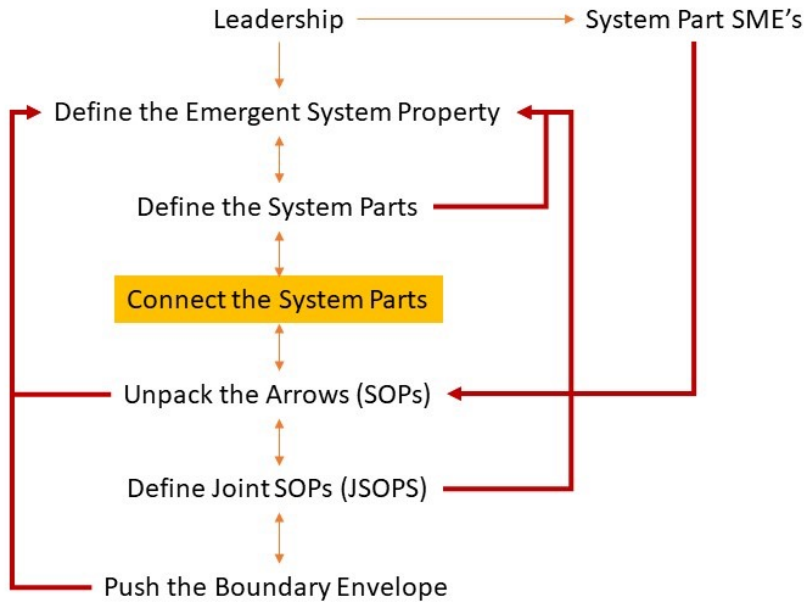

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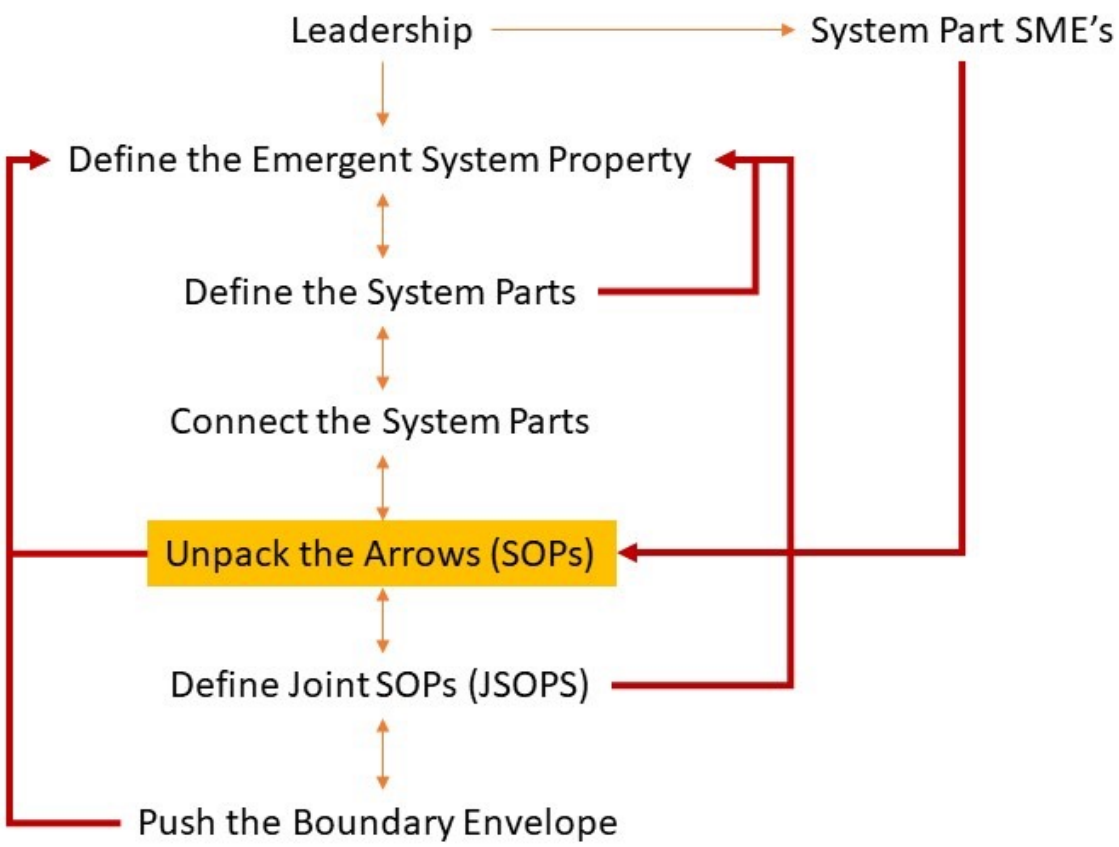
Critical Access Hospital

Using Process Flow Mapping to “unpack” the arrows



Process Flow Mapping for Systems Improvement: Lessons Learned

Ralph Renger and Makenzie McPherson
University of North Dakota

Trista Kontz-Bartels
The Leona M. & Harry B. Helmsley Charitable Trust

Karin L. Becker
University of North Dakota

Abstract: *This article fills a gap in the evaluation literature by detailing how to conduct process flow mapping: a continuous quality improvement (CQI) method. The importance of process flow mapping and the steps required to complete the method are illustrated in the context of evaluating a cardiac care system. The article discusses several challenges and solutions in conducting process flow mapping, including (a) selecting appropriate subject matter experts, (b) mapping simultaneous processes, (c) terminating mapping, (d) integrating process flow maps, and (e) validating process flow maps. The article concludes by reinforcing the importance for systematically documenting new evaluation methods for dissemination and utility purposes.*

Keywords: *continuous quality improvement, feedback mechanisms, process flow mapping, system evaluation*

Résumé : *L'article comble une lacune dans la littérature d'évaluation en décrivant la schématisation des processus opérationnels : une méthode d'amélioration continue de la qualité (ACQ). L'importance de la schématisation des processus opérationnels et les étapes de mise en application de la méthode sont illustrées dans le contexte d'un système de soins cardiaques. L'article discute de plusieurs défis et solutions en matière de schématisation des processus opérationnels, y compris a) le choix des bons experts, b) la schématisation de processus simultanés, c) la conclusion de la schématisation, d) l'intégration des schémas de processus opérationnels et e) la validation des schémas de processus opérationnels. L'article se termine en soulignant l'importance de documenter systématiquement les nouvelles méthodes d'évaluation à des fins de diffusion et d'utilisation.*

Mots clés : *amélioration continue de la qualité, mécanismes de rétroaction, schématisation des processus opérationnels, évaluation de systèmes*

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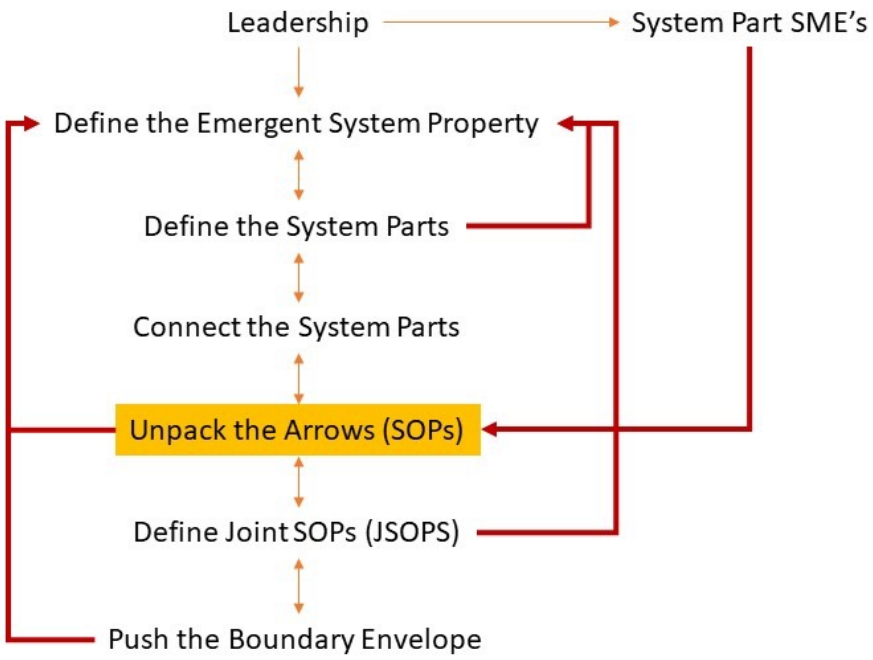
doi: 10.3138/cjpe.267


ALS jump in
BLS situation update
ALS assessment
normal
abnormal
pt location
transport on ALS protocols
notify hospital
arrive hospital
cot transfer in room
Stop
focusing on how
stressed
you are
and
Remember how
blessed
you are!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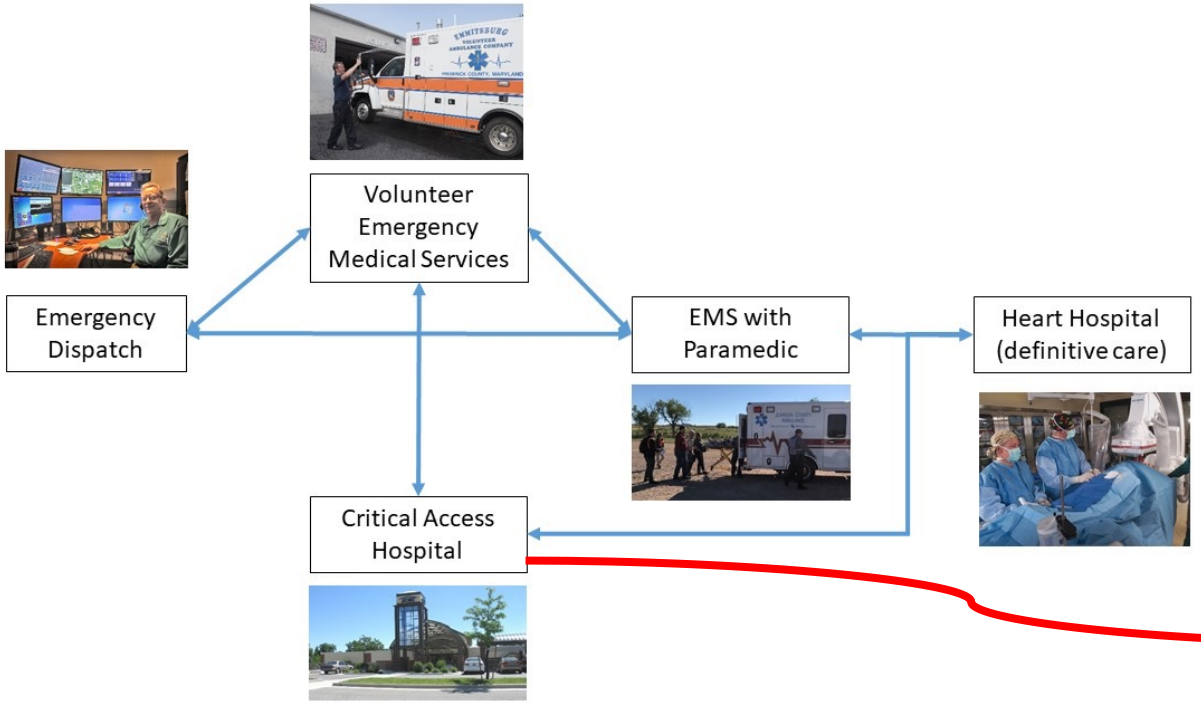
Volunteer Emergency Medical Services
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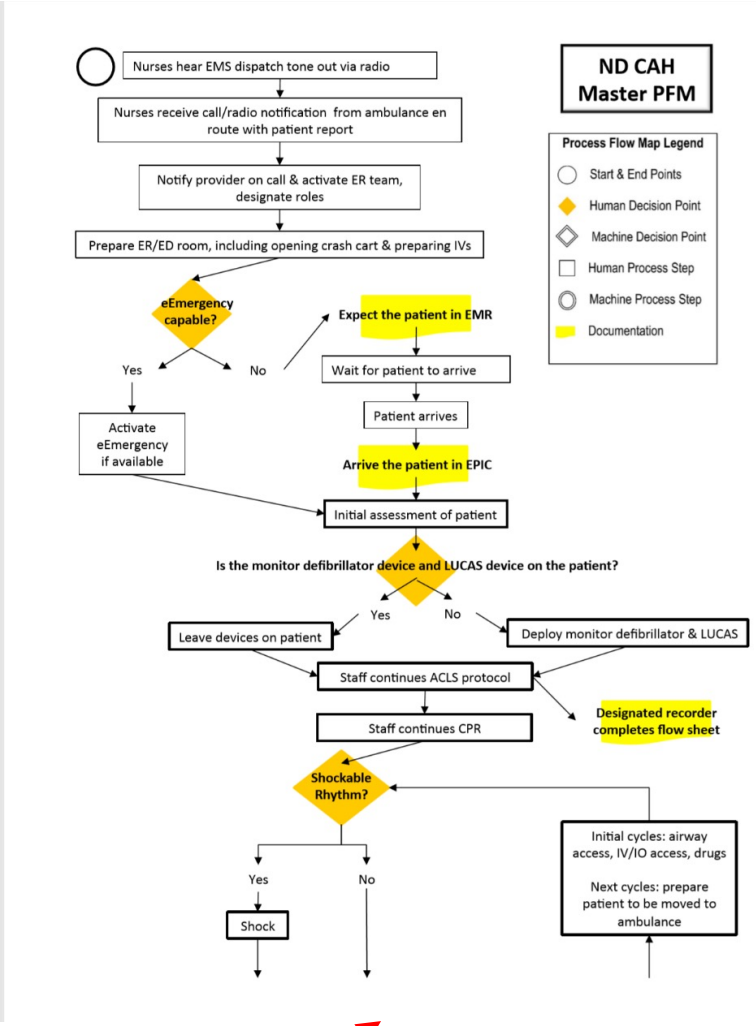
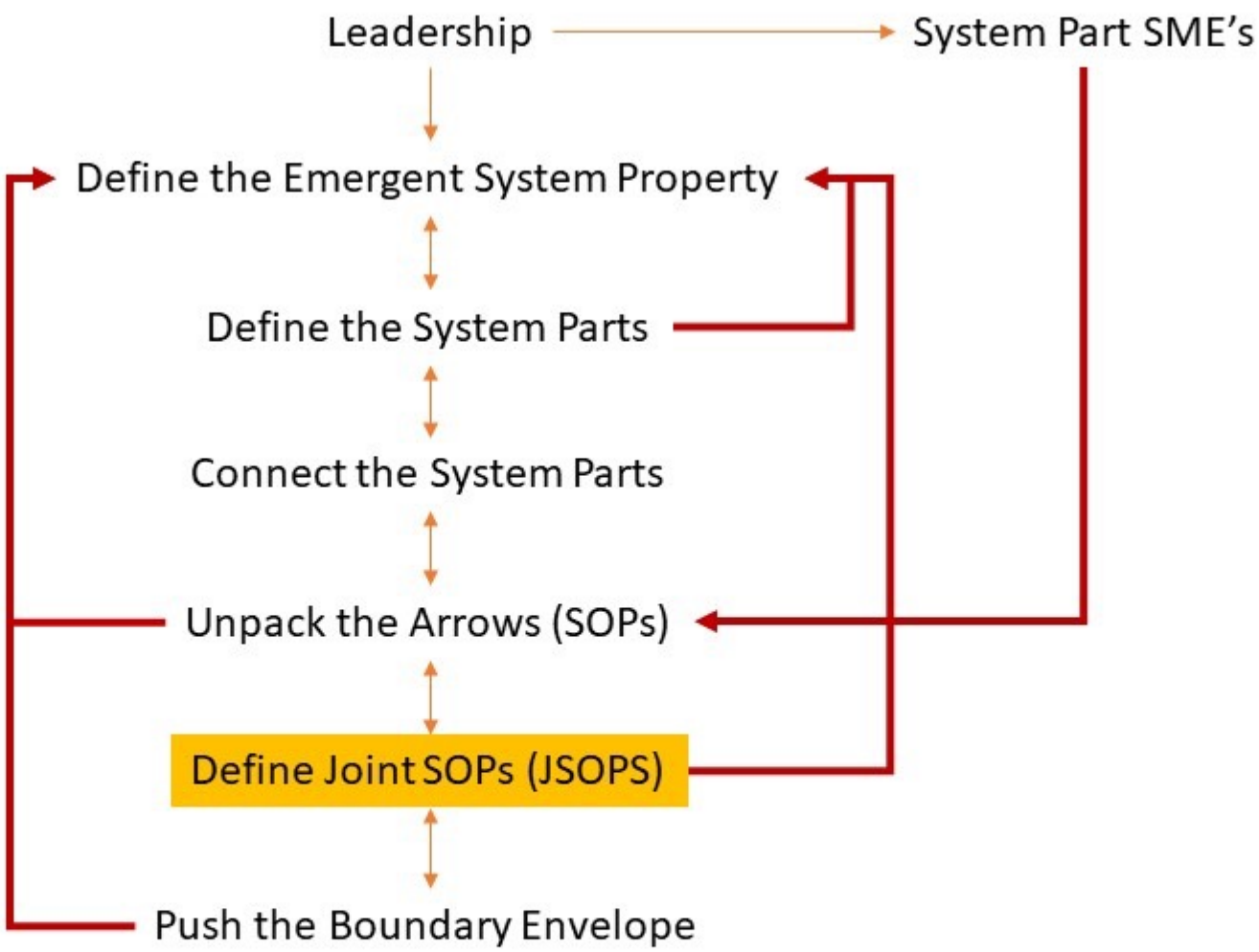

ND CAH Master PFM
Process Flow Map Legend
Start & End Points
Human Decision Point
Machine Decision Point
Human Process Step
Machine Process Step
Documentation
Nurses hear EMS dispatch tone out via radio
Nurses receive call/radio notification from ambulance en route with patient report
Notify provider on call & activate ER team, designate roles
Prepare ER/ED room, including opening crash cart & preparing IVs
eEmergency capable?
Yes
No
Activate eEmergency if available
Expect the patient in EMR
Wait for patient to arrive
Patient arrives
Arrive the patient in EPIC
Initial assessment of patient
Is the monitor defibrillator device and LUCAS device on the patient?
Yes
No
Leave devices on patient
Deploy monitor defibrillator & LUCAS
Staff continues ACLS protocol
Staff continues CPR
Designated recorder completes flow sheet
Shockable Rhythm?
Yes
No
Shock
Initial cycles: airway access, IV/IO access, drugs
Next cycles: prepare patient to be moved to ambulance

Why are SOPs necessary to complete the evaluation?

The SOPs are the standard of acceptability against which we make evaluative judgements!



Method Note

American Journal of Evaluation
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DOI: 10.1177/1098214020986619
journals.sagepub.com/home/aje
SAGE

Using the Homeland Security Exercise and Evaluation Program (HSEEP) Building Block Approach to Implement System Evaluation Theory (SET)

Ralph Renger[1], Jessica Renger[2], Marc D. Basson[3], Richard N. Van Eck[3], Jirina Renger[4], Eric Souvannasacd[3], and Gary Hart[3]

Abstract

This article shares lessons learned in applying system evaluation theory (SET) to evaluate a Clinical and Translational Research Center (CTR) funded by the National Institutes of Health. After describing how CTR support cores are intended to work interdependently as a system, the case is made for SET as the best fit for evaluating this evaluand. The article then details how the evaluation was also challenged to facilitate a CTR culture shift, helping support cores to move from working autonomously to working together and understanding how the cores' individual operating processes impact each other. This was achieved by incorporating the Homeland Security Exercise and Evaluation Program (HSEEP) building block approach to implement SET. Each of the seven HSEEP building blocks is examined for alignment with each of SET's three steps and the ability to systematically support the goal of moving CTR cores toward working interdependently. The implications of using HSEEP to support SET implementation for future evaluations are discussed.

Keywords

systems, systems evaluation, mixed methods, homeland security exercise and evaluation, system evaluation theory

The credibility and relevance of our discipline often hinge on evaluators' ability to find solutions for emergent and novel problems: to develop new keys to open new locks (Williams, 2010). In this article, we describe the challenges, and what we believe to be an innovative solution, that arose in

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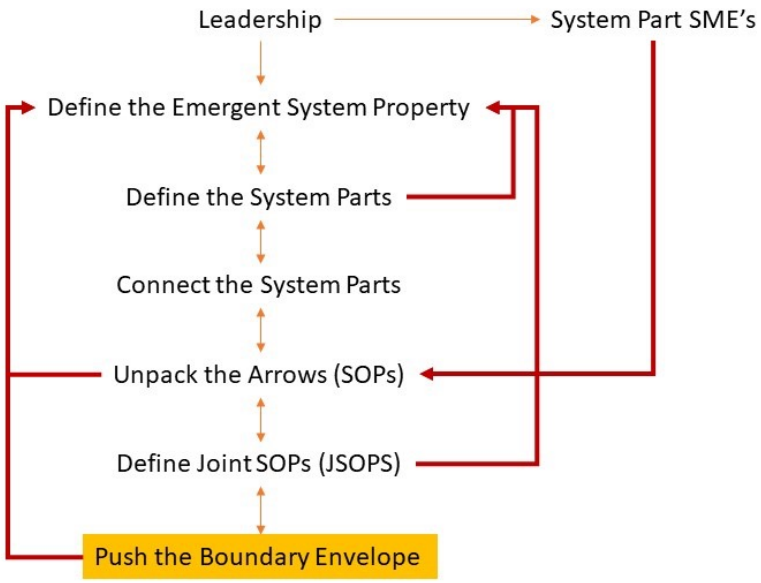
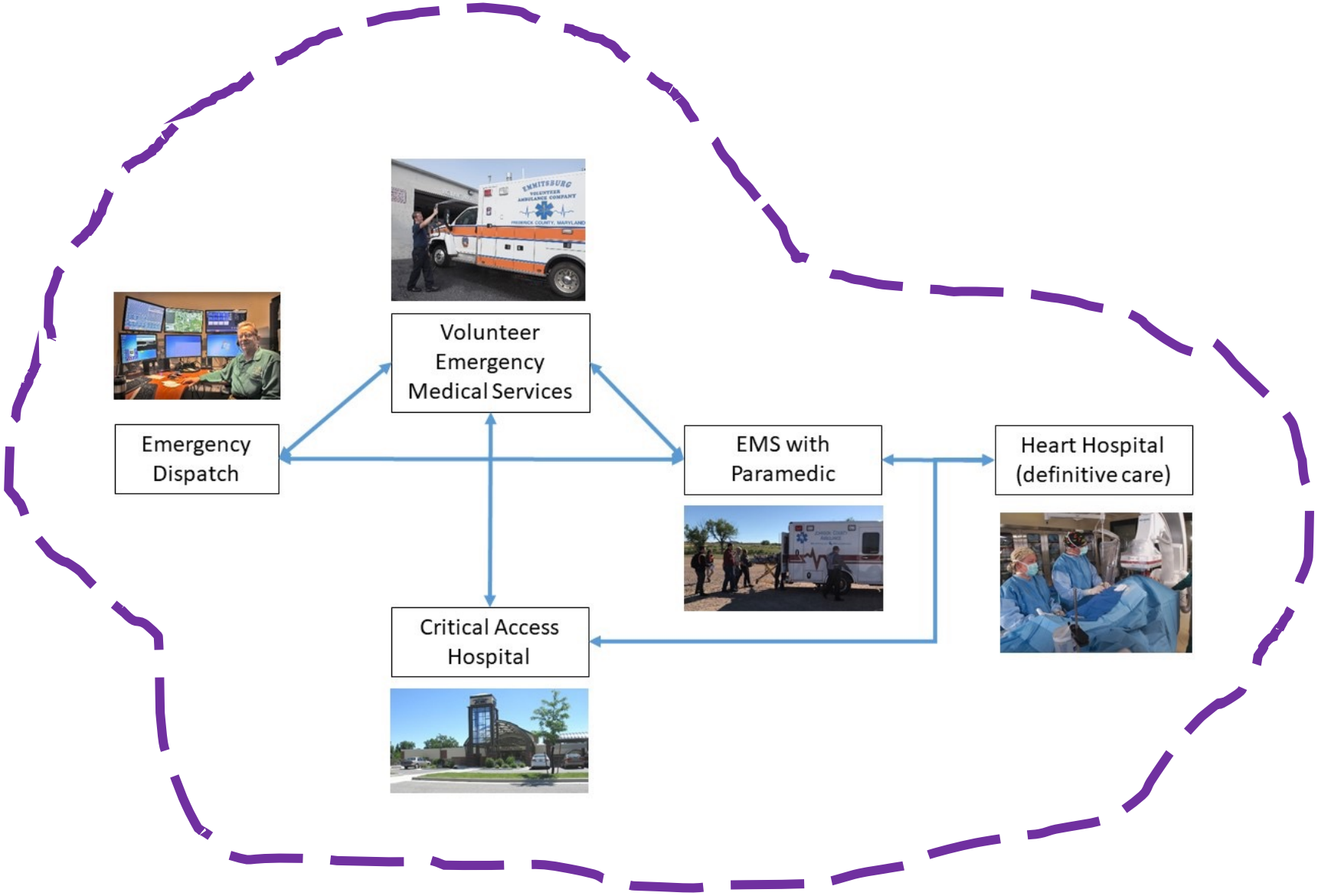
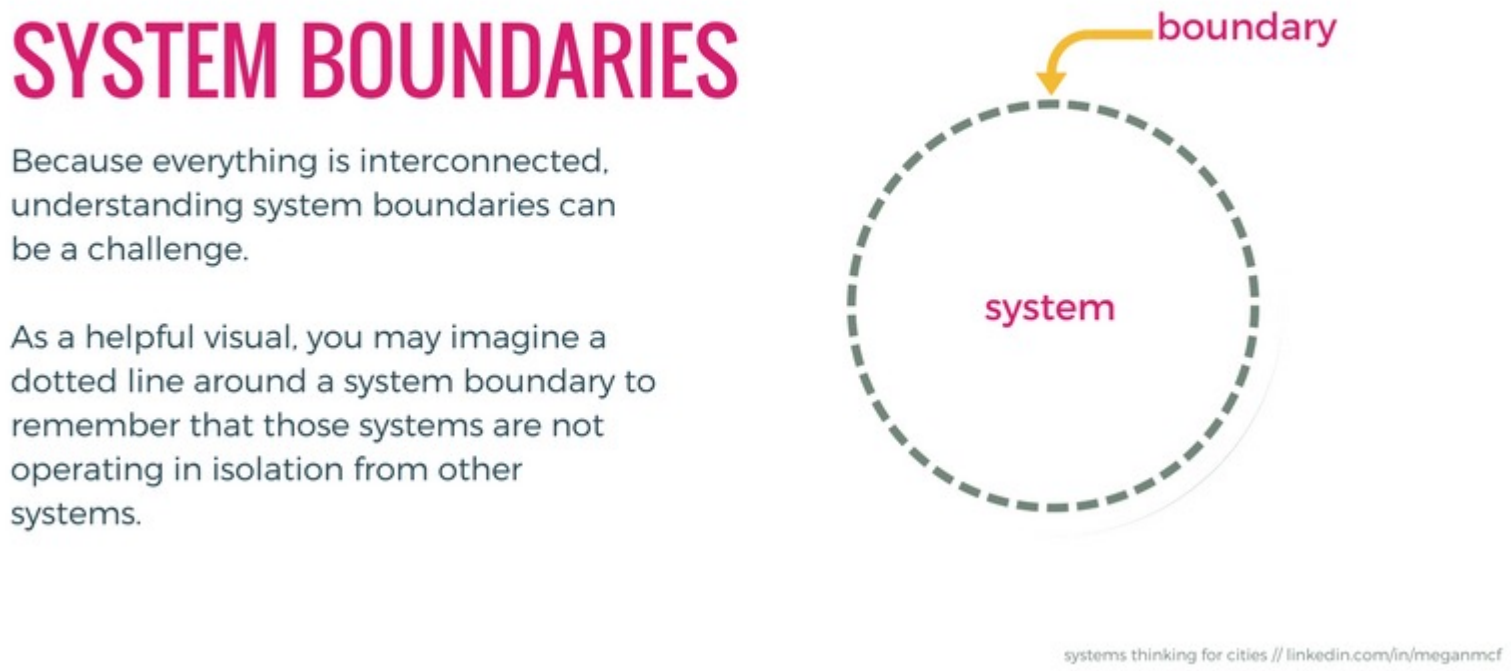
Email: ralph@justevaluation.com

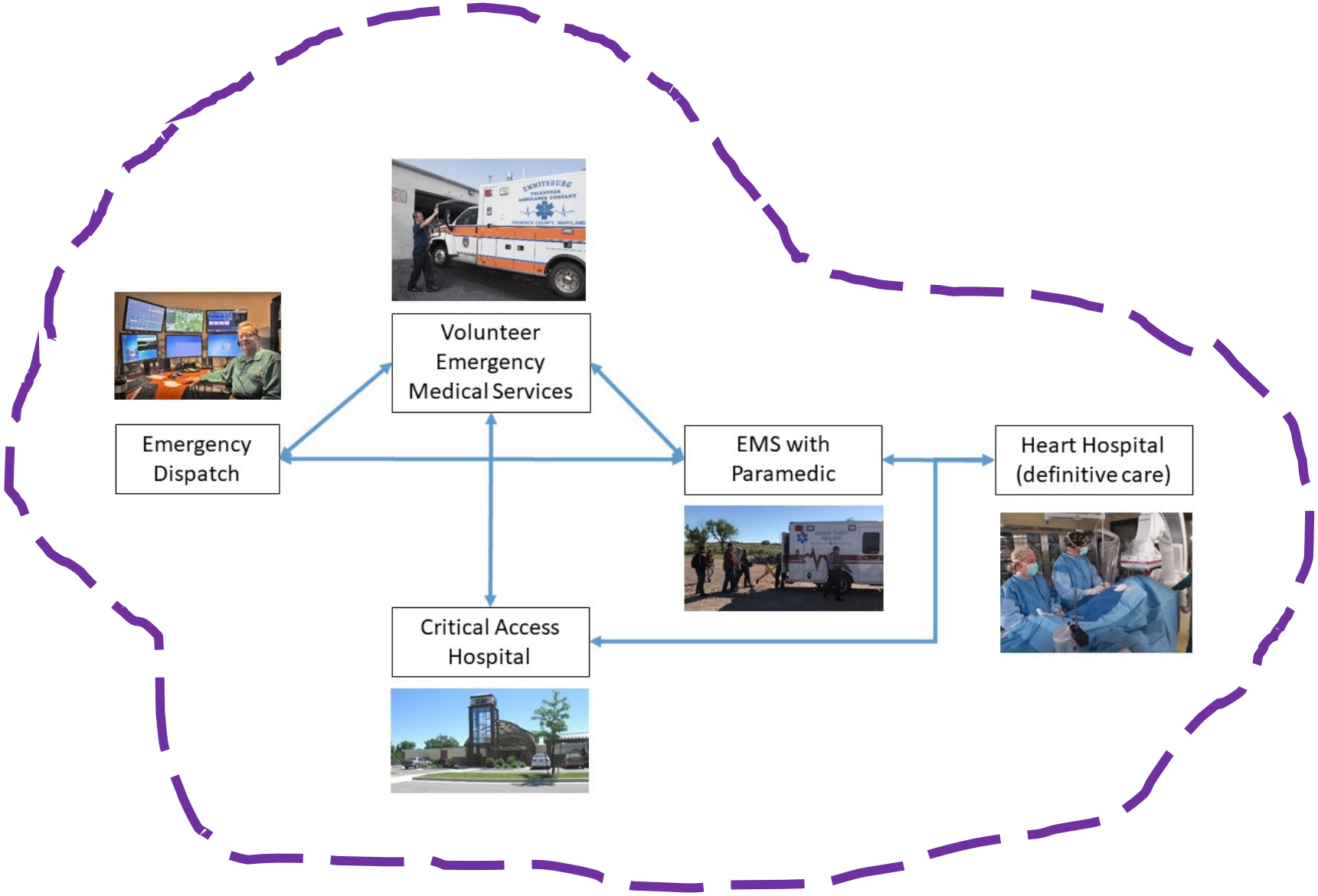


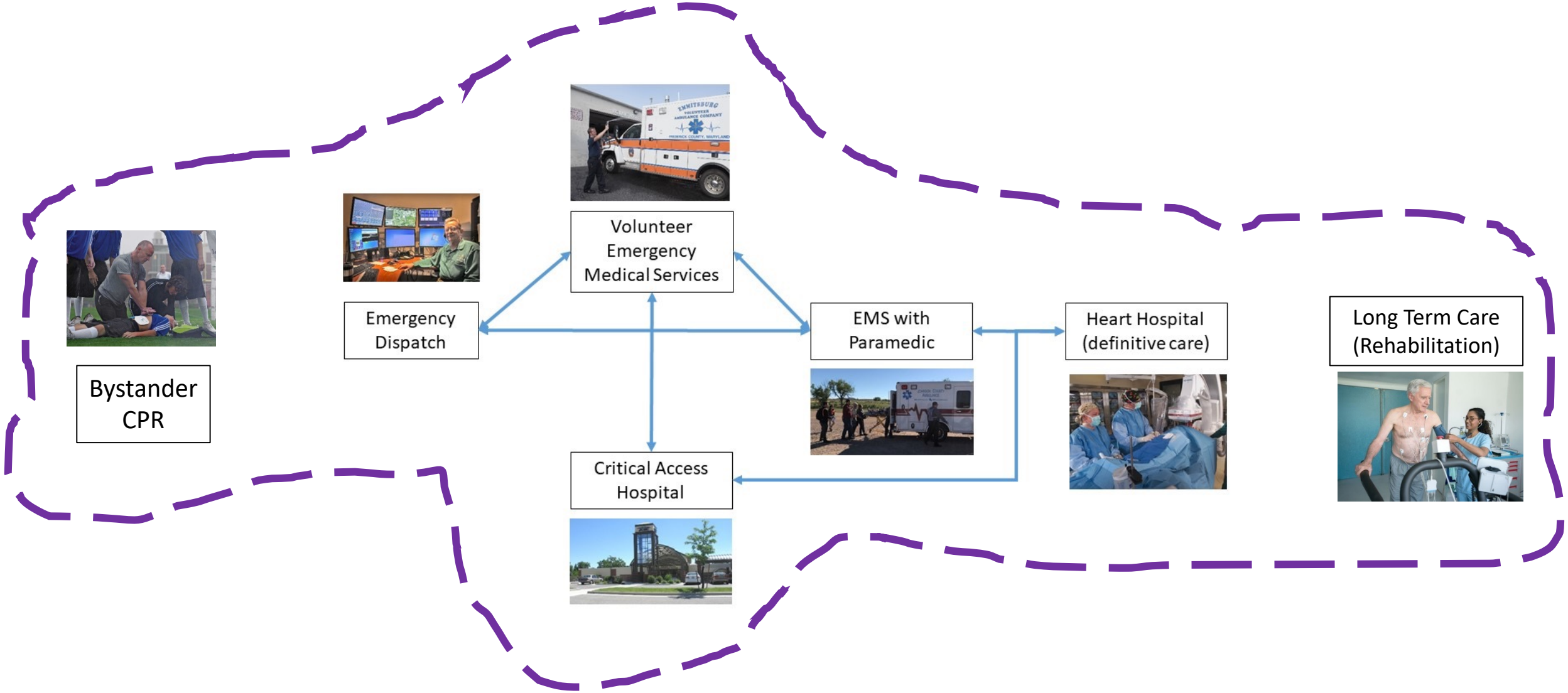


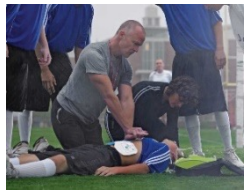
The parts included in our system form an initial system boundary

- A system boundary separates the created system from its environment (Wolski, 2020).




Volunteer Emergency Medical Services
Emergency Dispatch
EMS with Paramedic
Heart Hospital (definitive care)
Critical Access Hospital


Bystander CPR
Emergency Dispatch
Volunteer Emergency Medical Services
EMS with Paramedic
Heart Hospital (definitive care)
Long Term Care (Rehabilitation)
Critical Access Hospital



Bystander CPR

Emergency Dispatch

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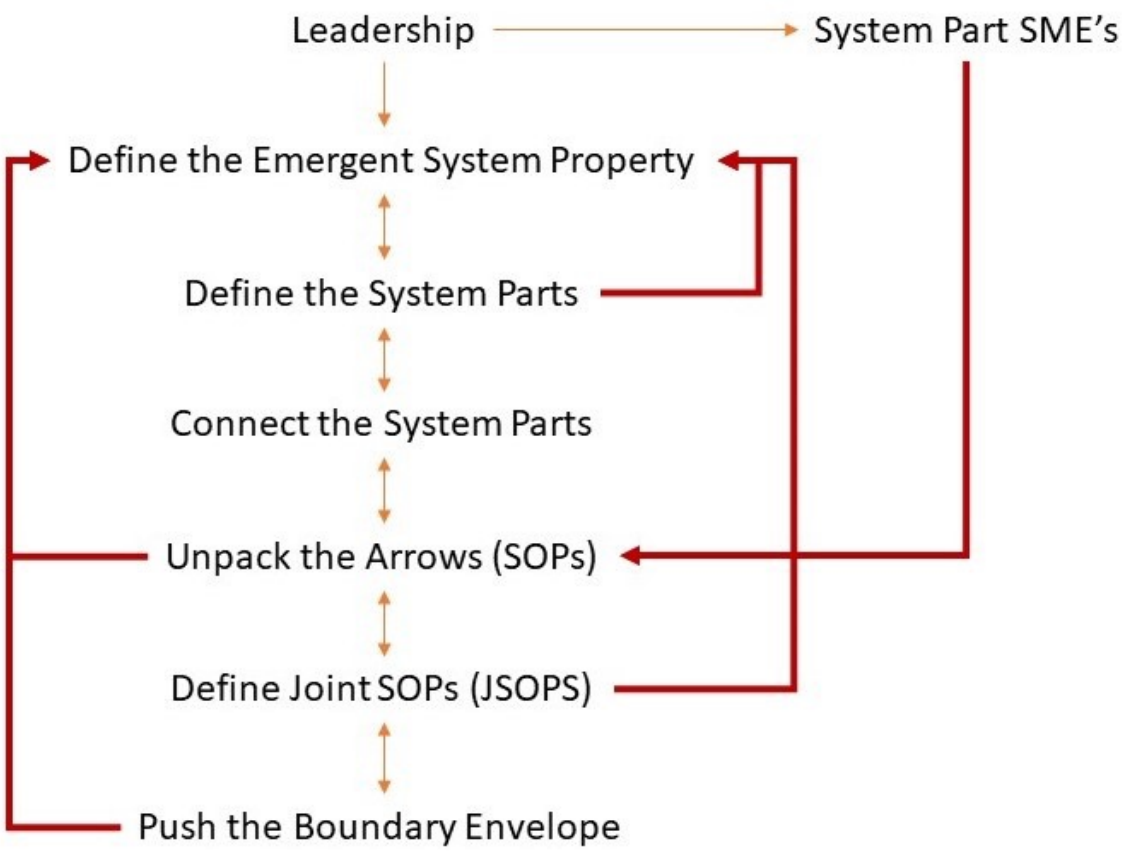
Heart Hospital (definitive care)

Critical Access Hospital

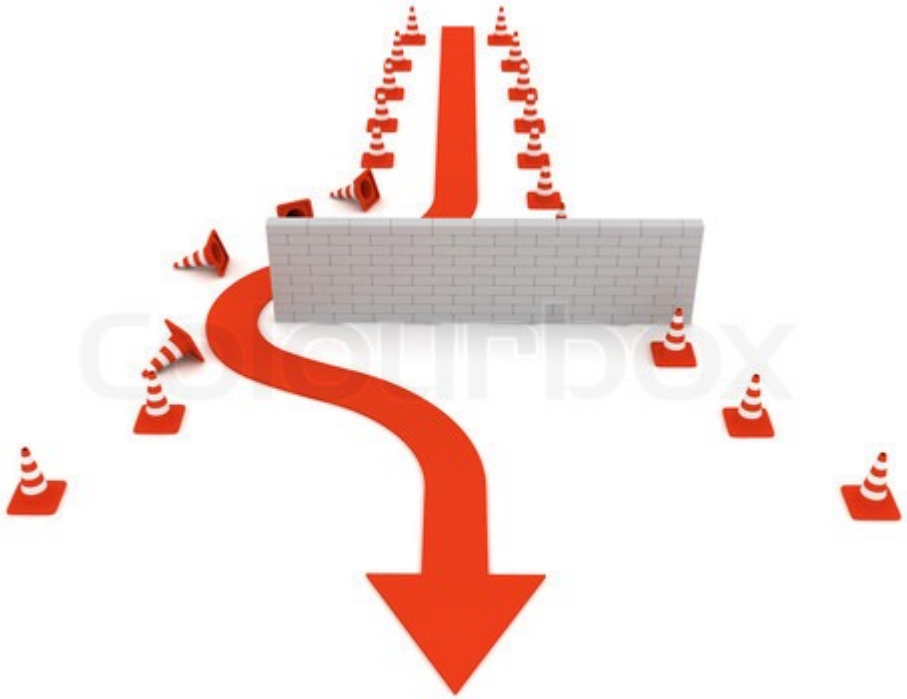
Long Term Care (Rehabilitation)

Summary: Defining the System



Step 1 Workarounds

- When you don’t have time and/or money to work through all the steps.
- “Everything around you is on fire” (Tania Buck)
- IGEM Mark Beevers example, Using existing source documentation
    - Law
    - Workflows



Benefits of Step 1 beyond evaluation

- Having defined SOPs = helps with standardizing training
- The Program Evaluation Standards (Yarbrough et. al, 2010) = we want our products and processes used
  - Products = reports
  - Processes = builds culture of cooperation; improved SOPs by just talking through; cheaper alternative