May 16-18
Montreal, Canada

2024

CONFERENCE

10th Anniversary Edition

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Enhancing Impact of Behavioral Medicine Through Systems Thinking- Guided Coordination of Evidence Production & Information Flow: A Co-Design Workshop

Eric Hekler, PhD

Professor and Associate Dean, Herbert Wertheim School of Public Health and Human Longevity Science (HWSPH)

Professor, Design Lab

Director, Center for Wireless and Population Health Systems, HWSPH

Director, T32 Data Science Training Program for Social and Behavioral Scientists, HWSPH

Director, Design Specialization, Design Lab

University of California, San Diego

Schedule

13:00-13:10 Plenary: **Introduction to frame define the goal of the workshop**

13:10-13:45 Breakout 1 **Goals & frameworks**

- What are the goals of the fields?
- What are the processes/frameworks that we used to achieve those goals?
- Plenary report out

13:45-14:30 Breakout 2 **Decision -focused evidence production**

- Introduction
- Who are the key actors making decisions that impact health? What evidence can be produced to support their decisions? Who are the actors who are underserved by current evidence production in our field?
- Plenary report out

14:30-15:00 Break

15:00-15:10 Plenary Reconvene, anything come up while on break, intro to next break outs

15:10-16:00 Breakout 3 **Effective flows of information and resources**

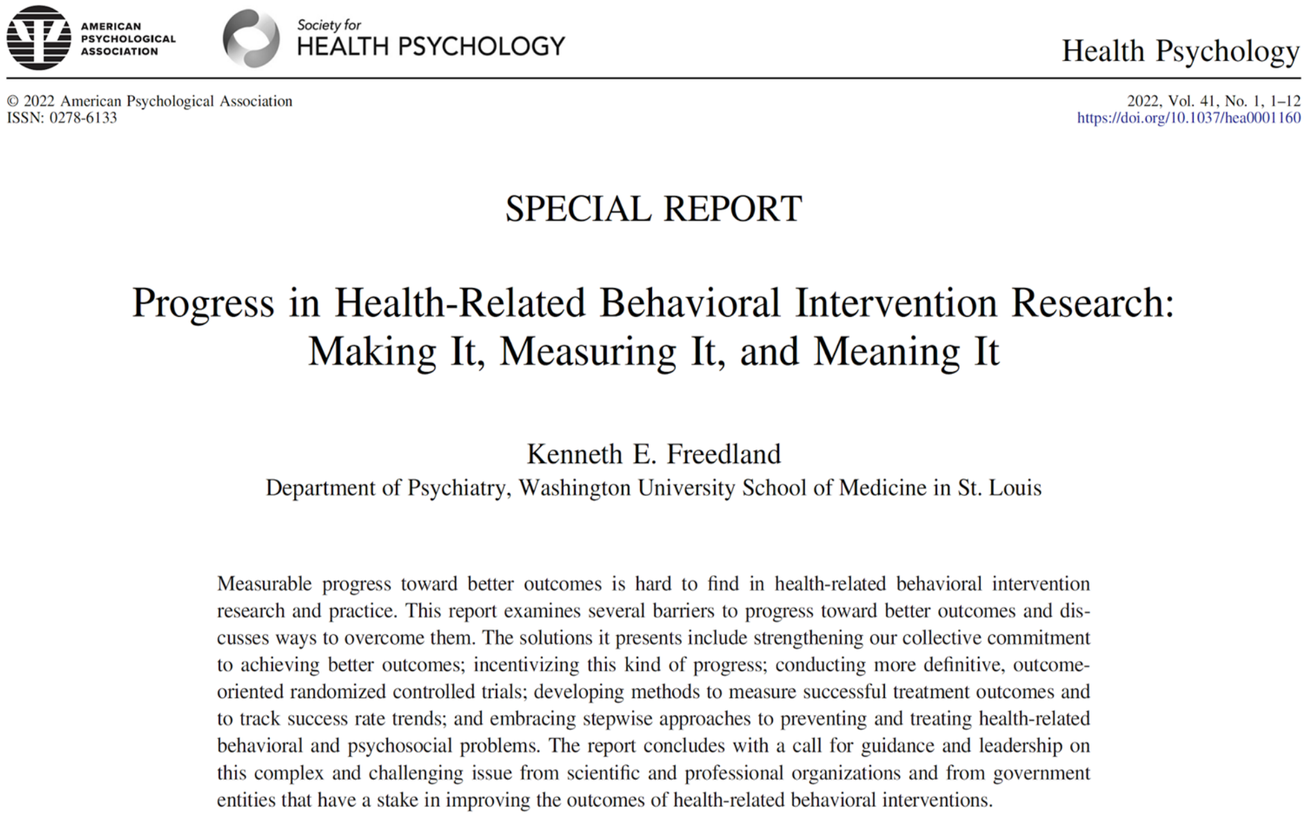
- What is the right flow of information across efforts?
- How do we support the effective funding of what is needed “now”?
- How do we support the effective transfer of tools and protocols across the processes?
- Plenary report out

16: 00-16:20 Plenary **Implications for training** :

- What should be in the core curriculum for our field to support this (to support coordination)?
- What should be sub-specializations supported in the field (to support sufficient knowledge)?

16:20-16:30 Wrap up, define next steps, if appropriate, organize a writing group

Improving impact through coordination



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Society for HEALTH PSYCHOLOGY
Health Psychology

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SPECIAL REPORT

Progress in Health-Related Behavioral Intervention Research: Making It, Measuring It, and Meaning It

Kenneth E. Freedland
Department of Psychiatry, Washington University School of Medicine in St. Louis

Measurable progress toward better outcomes is hard to find in health-related behavioral intervention research and practice. This report examines several barriers to progress toward better outcomes and discusses ways to overcome them. The solutions it presents include strengthening our collective commitment to achieving better outcomes; incentivizing this kind of progress; conducting more definitive, outcome-oriented randomized controlled trials; developing methods to measure successful treatment outcomes and to track success rate trends; and embracing stepwise approaches to preventing and treating health-related behavioral and psychosocial problems. The report concludes with a call for guidance and leadership on this complex and challenging issue from scientific and professional organizations and from government entities that have a stake in improving the outcomes of health-related behavioral interventions.

- Barriers
  - Setting a goal of impact
  - Poor incentives
  - Lack of outcome-oriented trials
  - Lack of tools for measuring progress
  - Lack of real-world aggregate success criteria
  - Lack of a productive strategy
- One key recommendation
  - Focus on stepped care & population health

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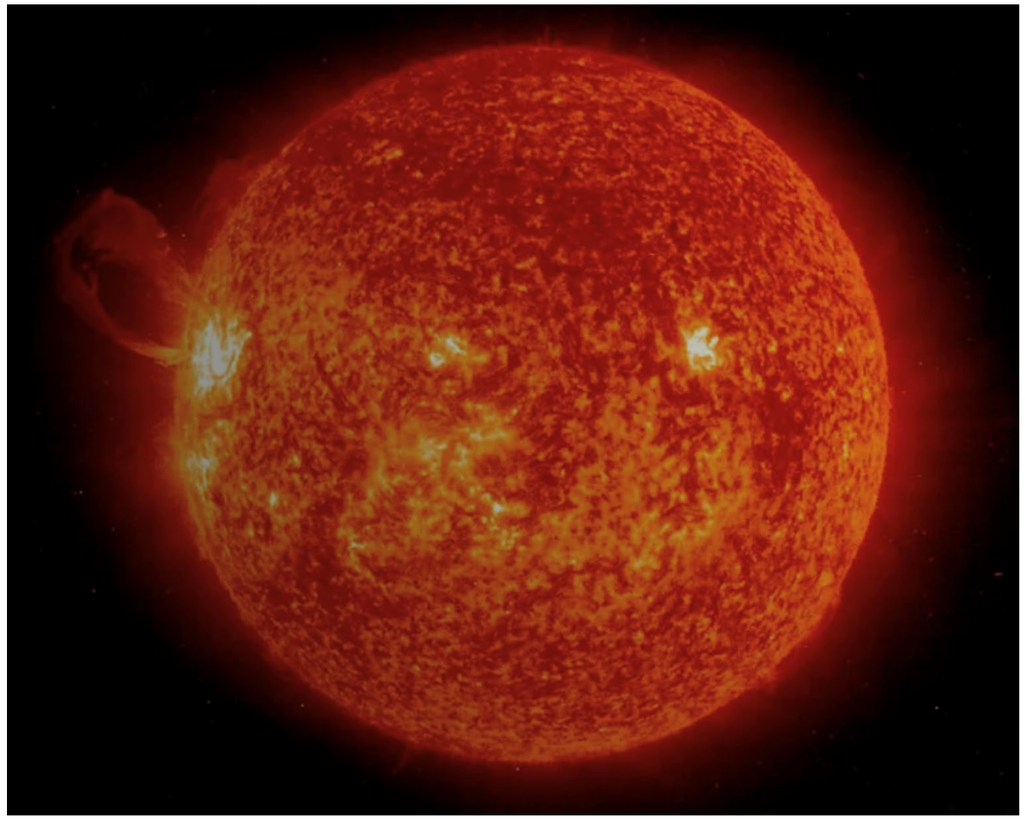
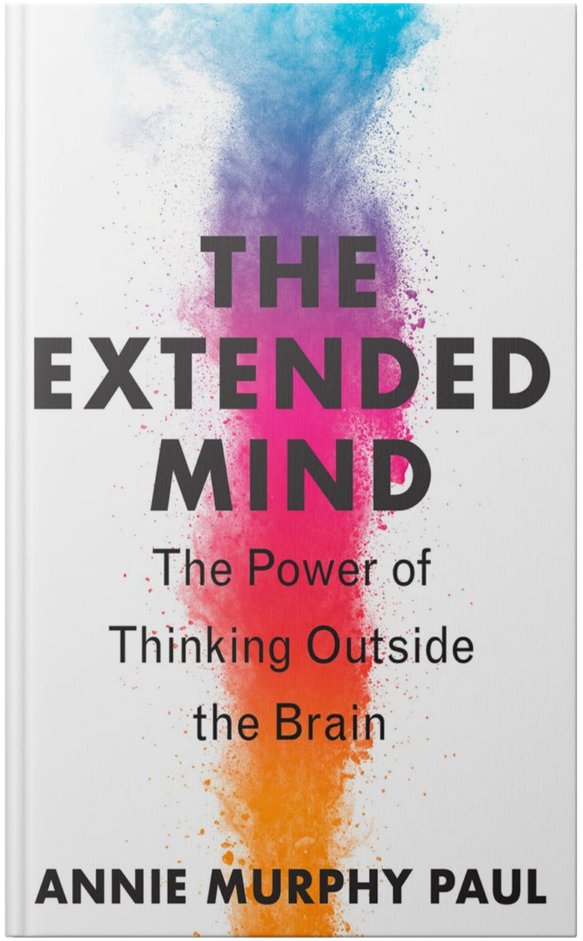
Where do “boxes” (boundaries) come from?

Where is the boundary of the sun?

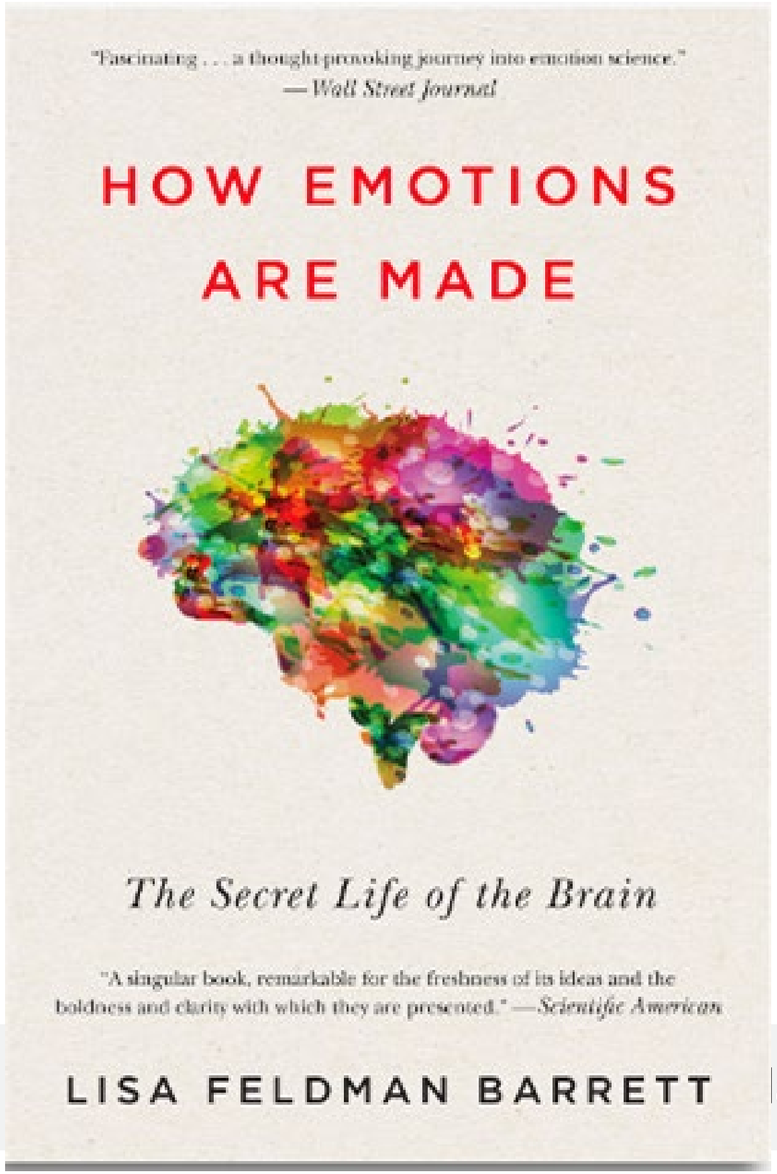


https://science.nasa.gov/sun/ & https://www.deviantart.com/coolarts223/art/Solar-system-by-ai-982526029

Where is the boundary of your mind?



Where are color boundaries on a rainbow?



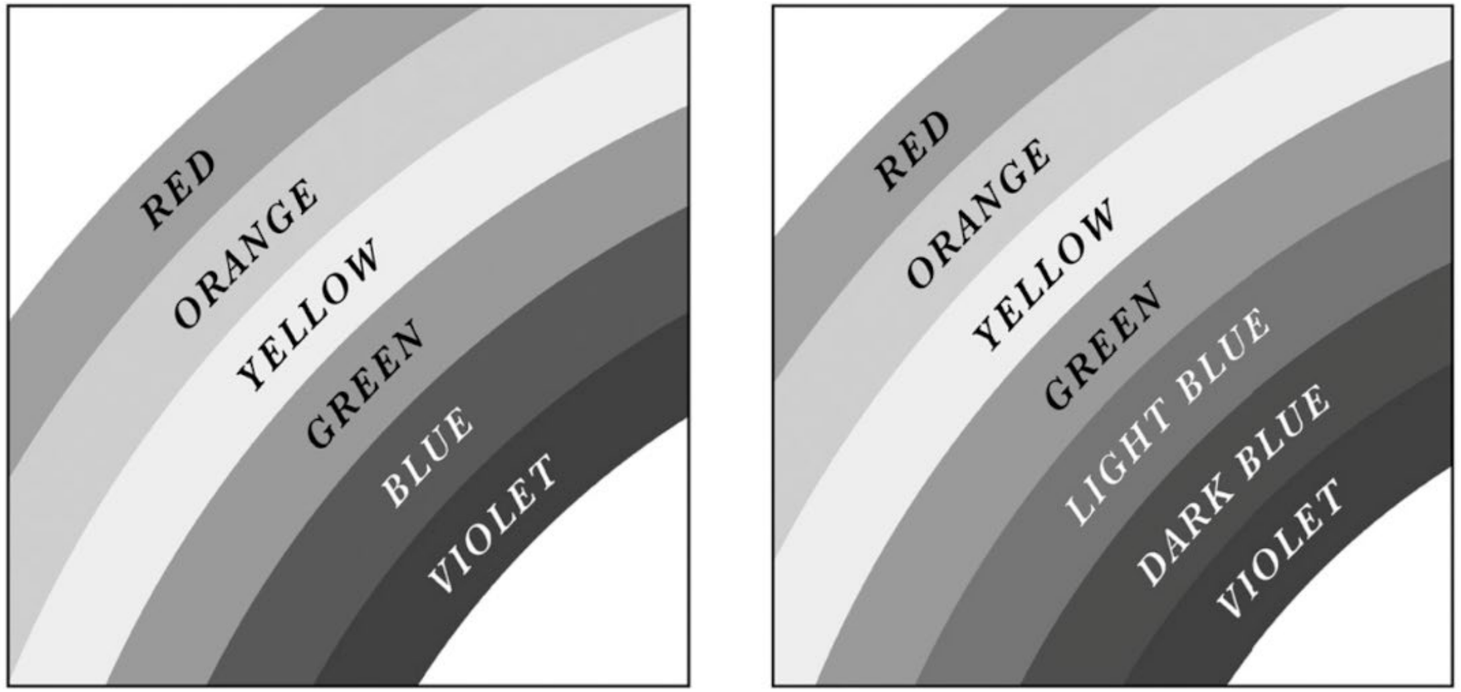


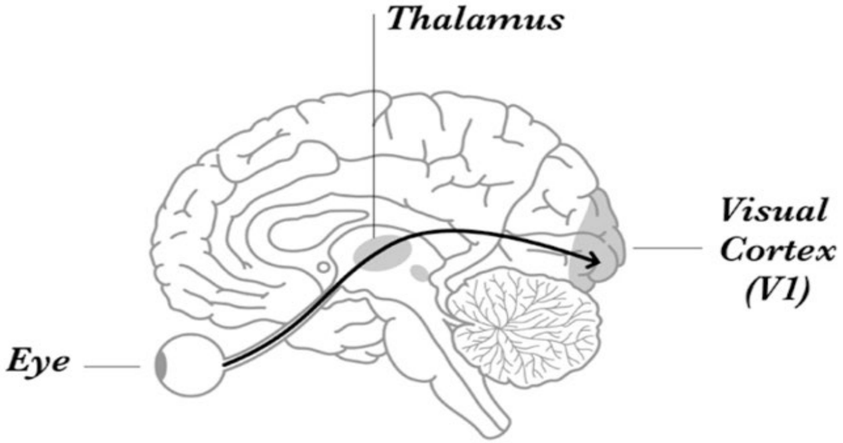
Figure 7-2: Rainbow drawings are culture-specific

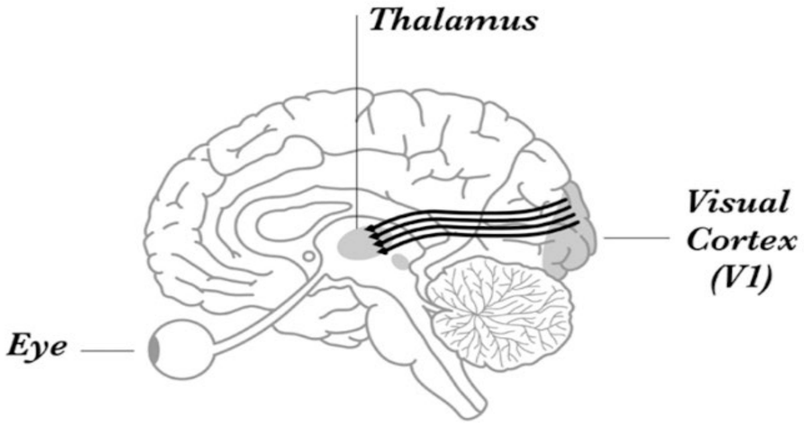
How do we explain all of this?

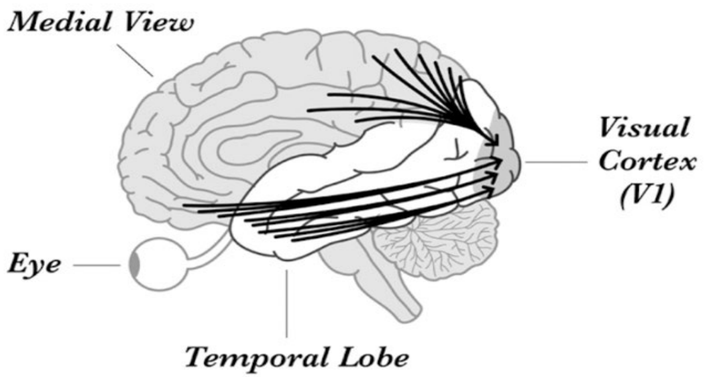
1) Neural connections (approx) from eye to visual cortex

9) Neural connections (approx) from visual cortex to thalamus (10x more)

90) Neural connections (approx) from Cortex to visual cortex (90% of all connections to cortext))







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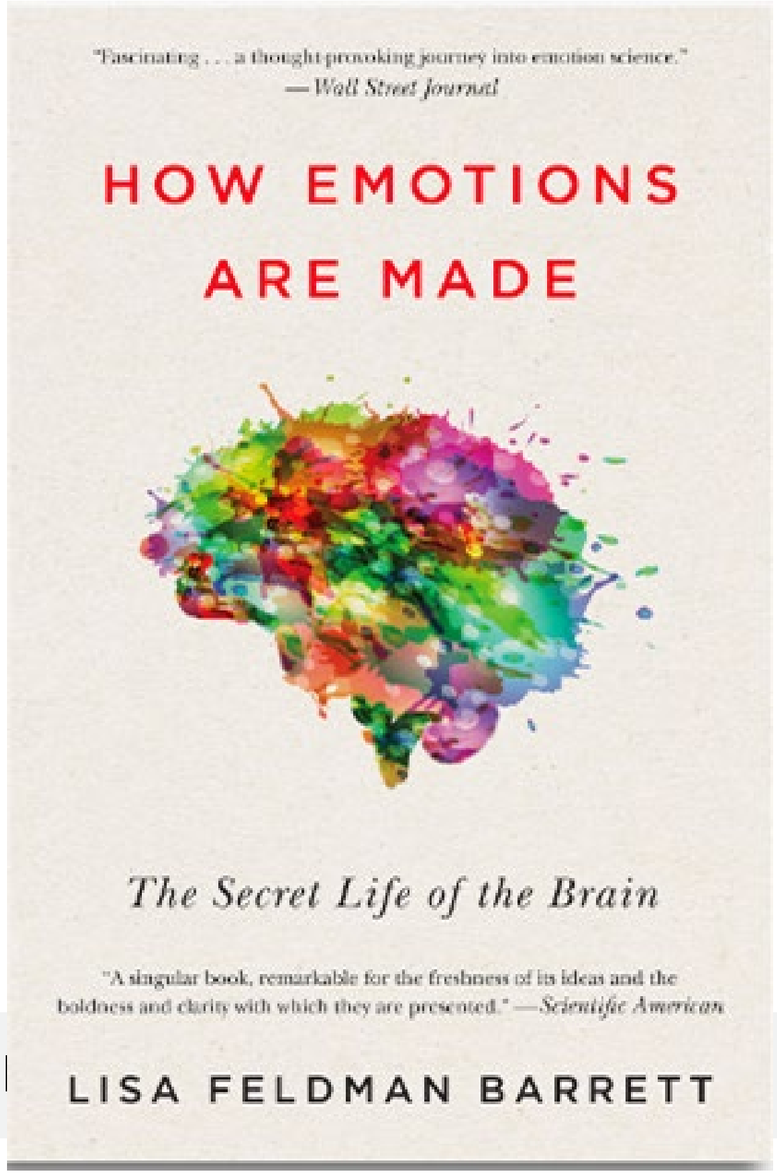
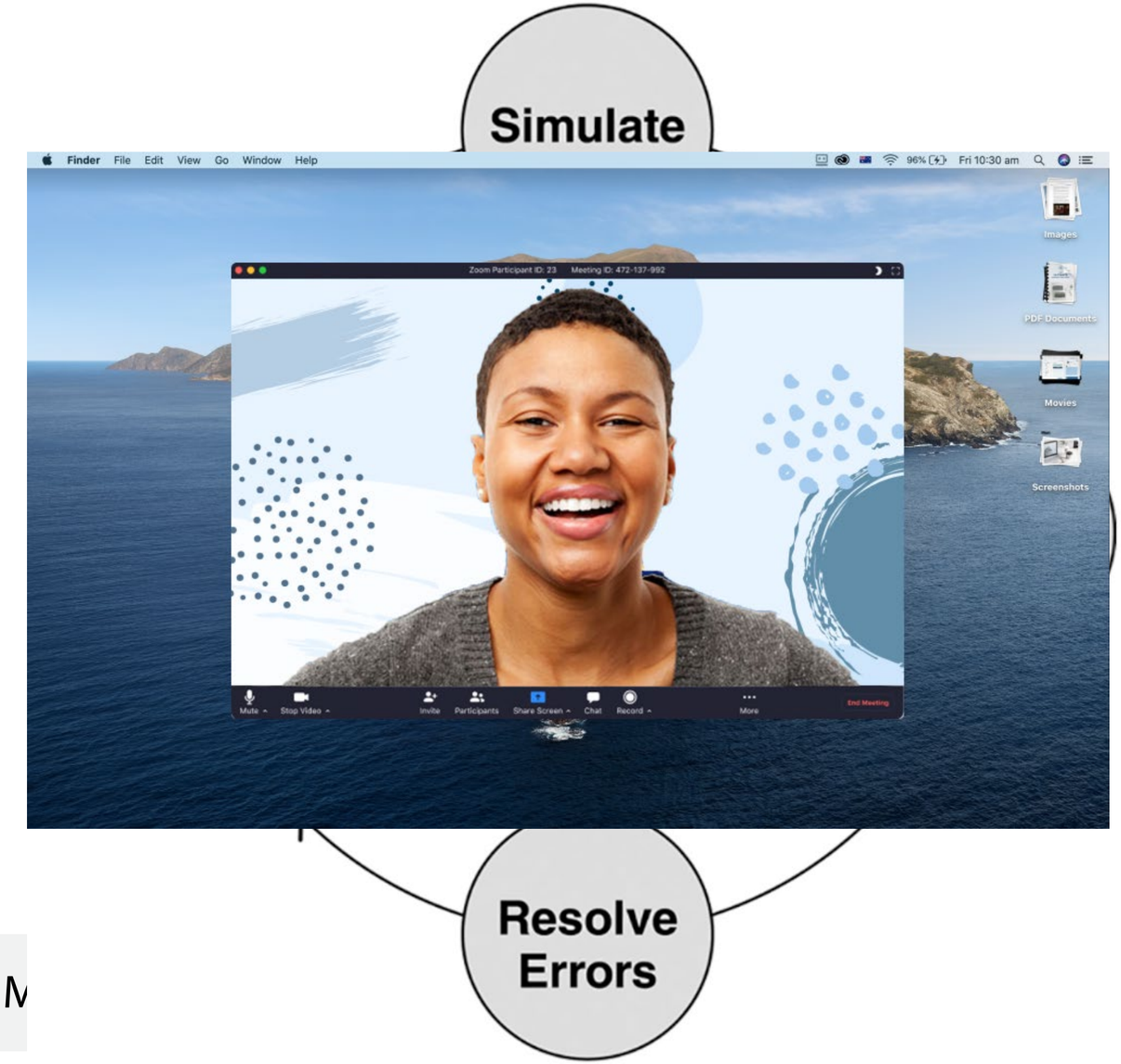
Our experience of reality is a prediction





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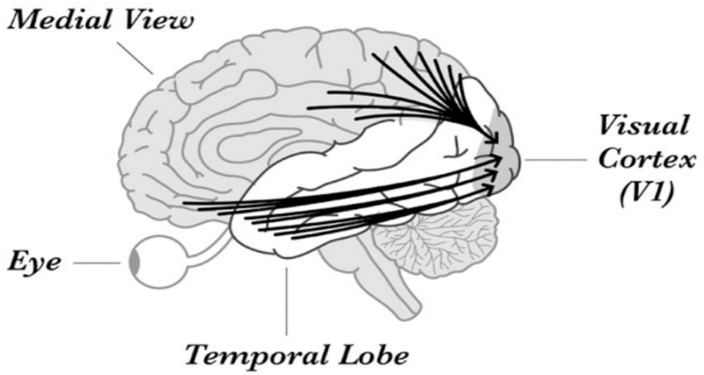
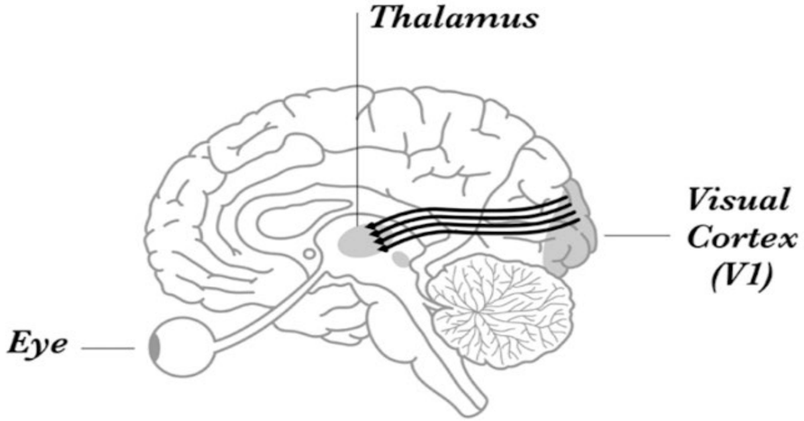
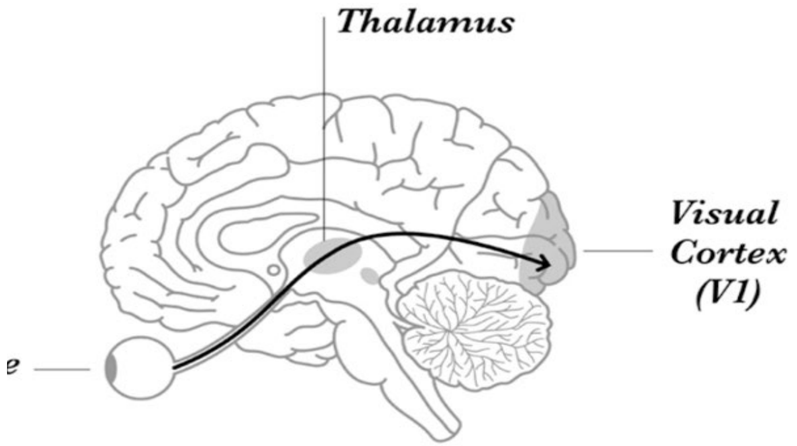






OBJECTS	Animals that fly	Animals that fly	Animals that fly
OBJECTS + GOALS	Things that fly	Things that fly	Things that fly
GOALS	**Romantic Love** *(passion, longing, lust)*	**Tough Love** *(discipline, criticism, punishment)*	**Brotherly Love** *(affection, cooperation, association)*
	Goal: Desire	Goal: Help	Goal: Connection

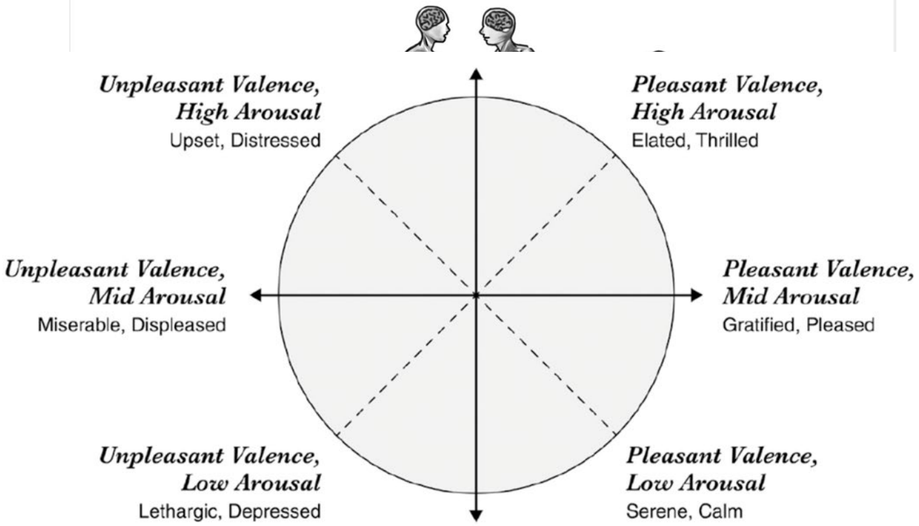
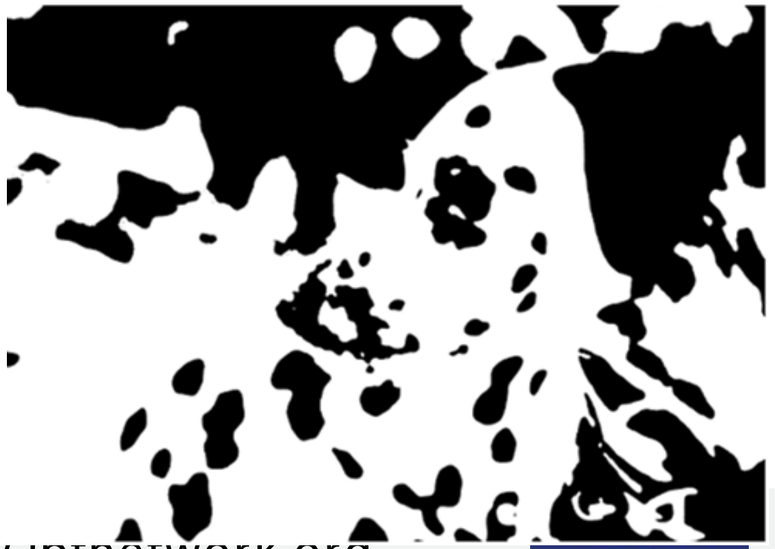
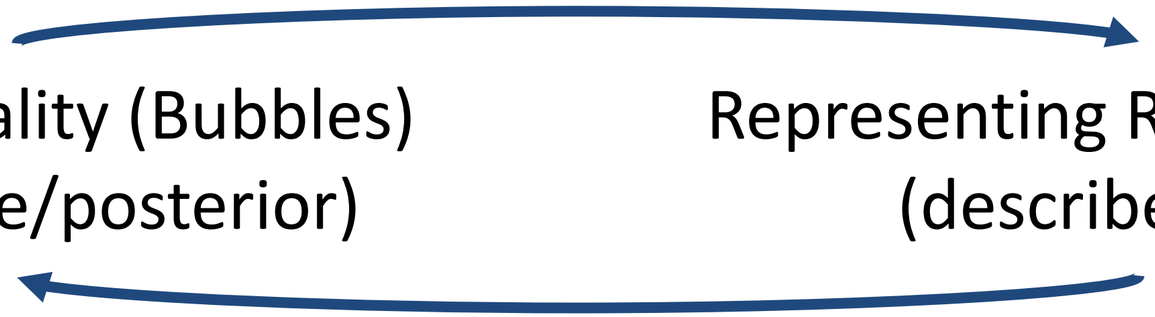


Figure 4-5: An affective circumplex



Implications

- Our experience of reality is an ever adjusting prediction
- “Reality” manifests as a perennial feedback loop



Bubbles (Realizations)

- Realizing Reality
- Subjectivity
- Life

Boxes (Representations)

- Representing Reality
- Objectivity
- Things/Material

Group Bubbles (Realizations)

Beethoven's Ninth at UC San Diego Epstein Family Amphitheater

Author: Garrett Harris

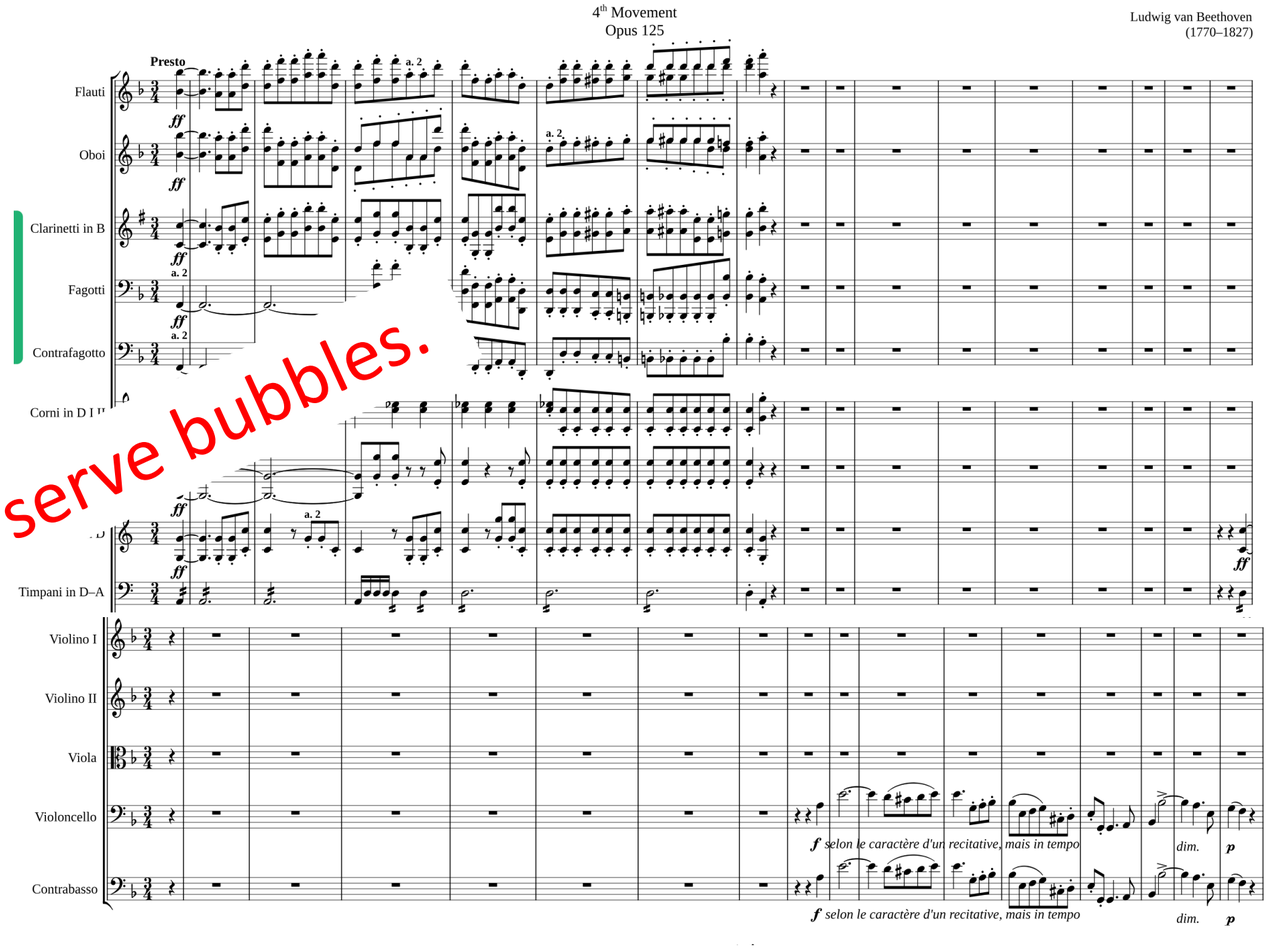
Publish Date: June 30, 2023

Classical Music

Michael Francis

https://www.sandiegoreader.com/news/2023/jun/30/beethovens-ninth-epstein-family-amphitheater/

Group Boxes (Representations)



Boxes need to serve bubbles.

https://musescore.com/classicman/scores/5668962

Intentions for today's workshop

- I'm NOT saying the "boxes" I (with others) have created is right per se.
- Instead, I'm offering ideas as prototype representations to to help spur discussion towards creating a shared "bubble" today.
- **Goal:** 1) Develop a shared "Bubble" of reality as it is for our field (like performing Beethoven's 9th); 2) Produce the "boxes" (representational systems) of that "bubble" to help coordinate one another (like the sheet music).

The big picture (will zoom in)

Pipelines / Activities

Goals

Multi-Sector Organizing & Action

Community Organizing & Action

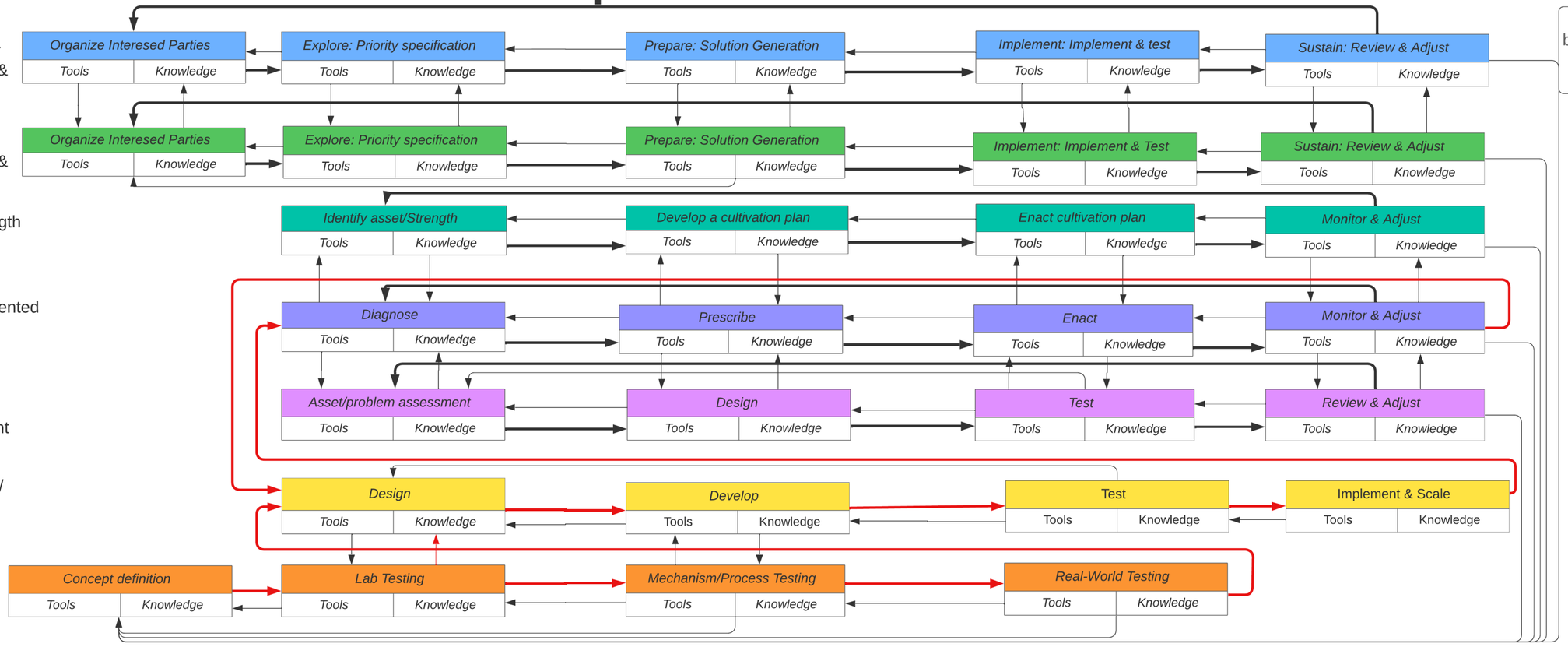
Asset/Strength -oriented Practice

Problem-oriented Practice

Continous Quality Improvement

Intervention/ Solution Creation

Concept / System Creation



Examples Toolkits/ Frameworks

Collective Impact; Coalition building practices from Community Psychology; Ripple Effects Mapping; CBPR;

CBPR; Particiopatory Action research; Community-driven research;

Sports science; Positive Deviance research; Appreciative Inquiry; Coaching; Engineering; Community-driven research

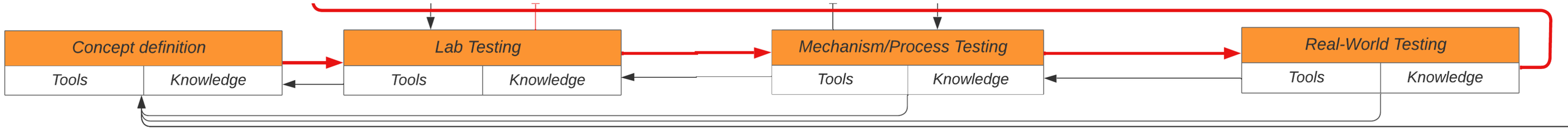
Evidence-based medicine and its variations; Screen diagnose, treat, repeat paradigm.

PDSA; PRECEED/PROCEED; Lean ; Six Sigma ; DTx RWE Framework;

ORBIT; Implementation Mapping; Behavior Change Wheel; MOST; DTx RWE Framework (bridge);

Basic psych & social science (e.g., psychophys; cognitive biases); Implementation science ("implementation" concepts"); System dynamics;

GOAL: Concept/system creation



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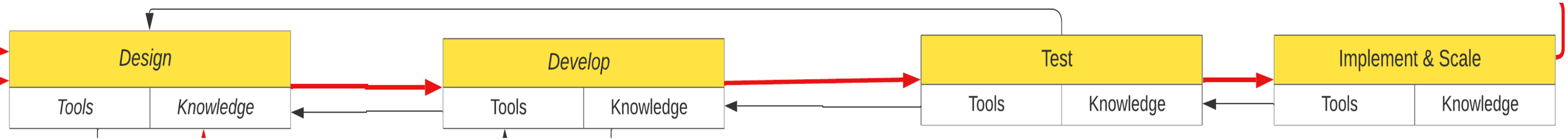
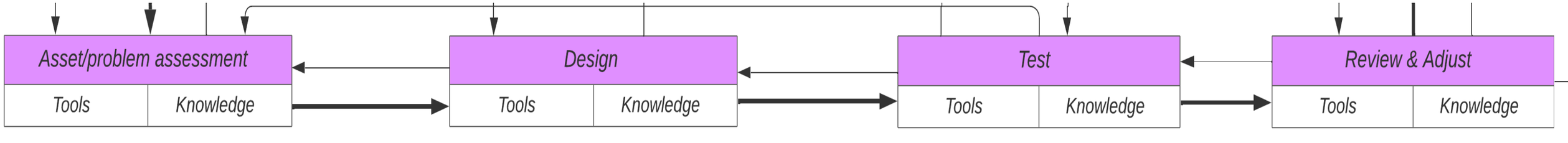
GOAL: Intervention/ Solution/ Guidelines Creation



ORBIT; Implementation Mapping; Behavior Change Wheel; MOST; DTx RWE Framework (bridge);

GOAL: Continuous quality improvement



PDSA; PRECEED/PROCEED;
Lean ; Six Sigma ; DTx RWE
Framework;

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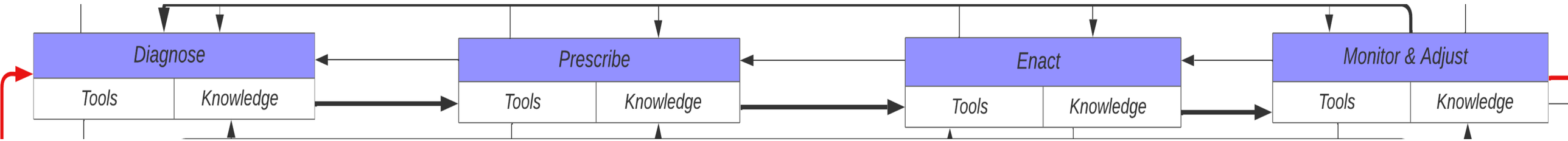
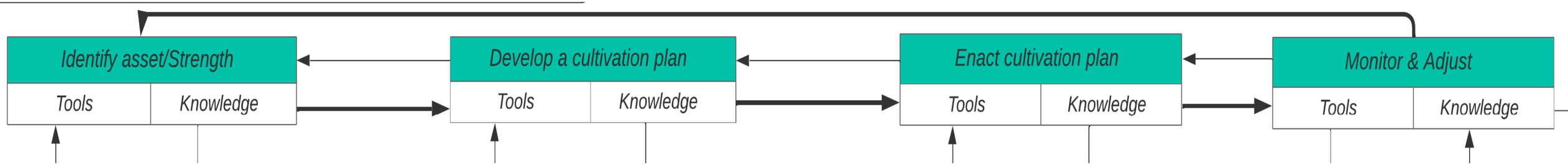
GOAL: Problem-solving practice



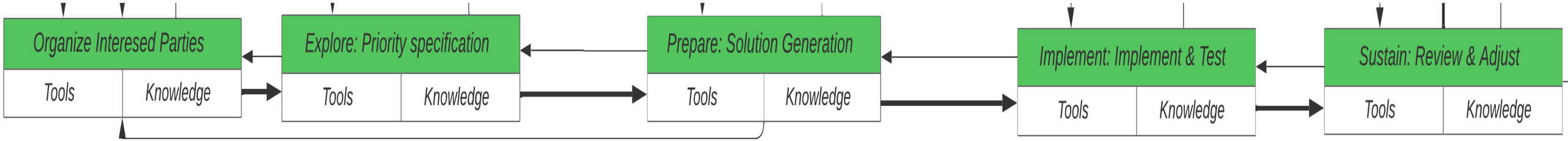
Evidence-based medicine and its variations; Screen diagnose, treat, repeat paradigm.

GOAL: Asset-cultivation practice



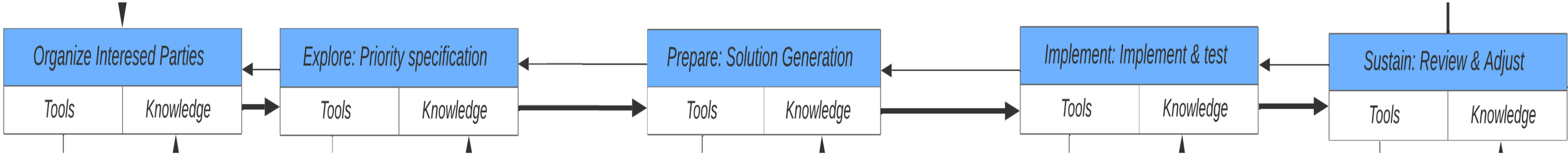
Sports science; Positive Deviance research; Appreciative Inquiry; Coaching; Engineering; Community-driven research

GOAL: Community-organizing & action



CBPR; Particiopatory Action research; Community-driven research;

GOAL: Multisector organizing & action



Collective Impact; Coalition building practices from Community Psychology; Ripple Effects Mapping; CBPR;

Break out session 1: Are these the right goals? Frameworks?

13:10-13:20 Instructions about Goals (~10 minutes)

- Read and review the figure, focusing first only on the left column, the goals.
- Before getting into wordsmithing (we'll do that), generally speaking,
  - Are these all the possible goals of our field? Is anything missing?
  - Are there goals that have been separated that you think need to remain combined? If so, which ones and why?
- Now, wordsmithing. Are you OK with the labels given? If not, how would you edit or refine (please do not spend too much time on this as this can quickly become a rabbit hole activity)?

13:20-13:30 Instructions about Frameworks (~10 minutes)

- Now, jump over to the "example frameworks box" and review those for each goal (right side).
- Are these the right framework for each goal? Is anything missing? Is anything in the wrong plac
- For those of you that know the framework, look now at the middle section and the pathway. Recognizing the goal was a generic structure of tasks, does this generic structure generally honor the framework for a goal? If not, how would you improve it/what would you change?

Break out session 1: Are these the right goals? Frameworks?

13:30-13:45 Plenary discussion (15 minutes)

- Each group provide a report out on what key conclusions
  - Consensus on goals in general? If not, where was the tension?
  - Wordsmithing suggestions on goals
  - Are these the right frameworks for each goal? What was missing?
  - Recognizing the desire for a generic structure, was the ”pipeline” for each goal sufficient at documenting each key stage of the process? If not, what are your team’s suggested edits? Where were there tensions?
  - **Please be sure to document on your white sticky board poster for documentation purposes.**

Schedule

13:00-13:10 Plenary: **Introduction to frame define the goal of the workshop**

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- What are the processes/frameworks that we used to achieve those goals?
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16: 00-16:20 Plenary **Implications for training** :

- What should be in the core curriculum for our field to support this (to support coordination)?
- What should be sub-specializations supported in the field (to support sufficient knowledge)?

16:20-16:30 Wrap up, define next steps, if appropriate, organize a writing group

Do you need a hole? Then a shovel is a great idea!

Are you in a hole with a shovel? Is a shovel what you need to get out of a hole?

http://coping.us/images/Compendium_of_ACT_Metaphors.pdf

Decision-focused evidence production

- GOAL: **Evidence-informed decision-making**
- Decision-focused evidence production
  - Production of evidence to support decision-making of all relevant actors to health (e.g., individuals, communities, policy makers)
- Nomothetic (i.e., population-focused methods) support population-focused decisions.
- Idiographic (i.e., time-series oriented methods) can support decision-making of individuals and communities.
- Both are valuable and needed.

Population-focused decision evidence (nomothetic)

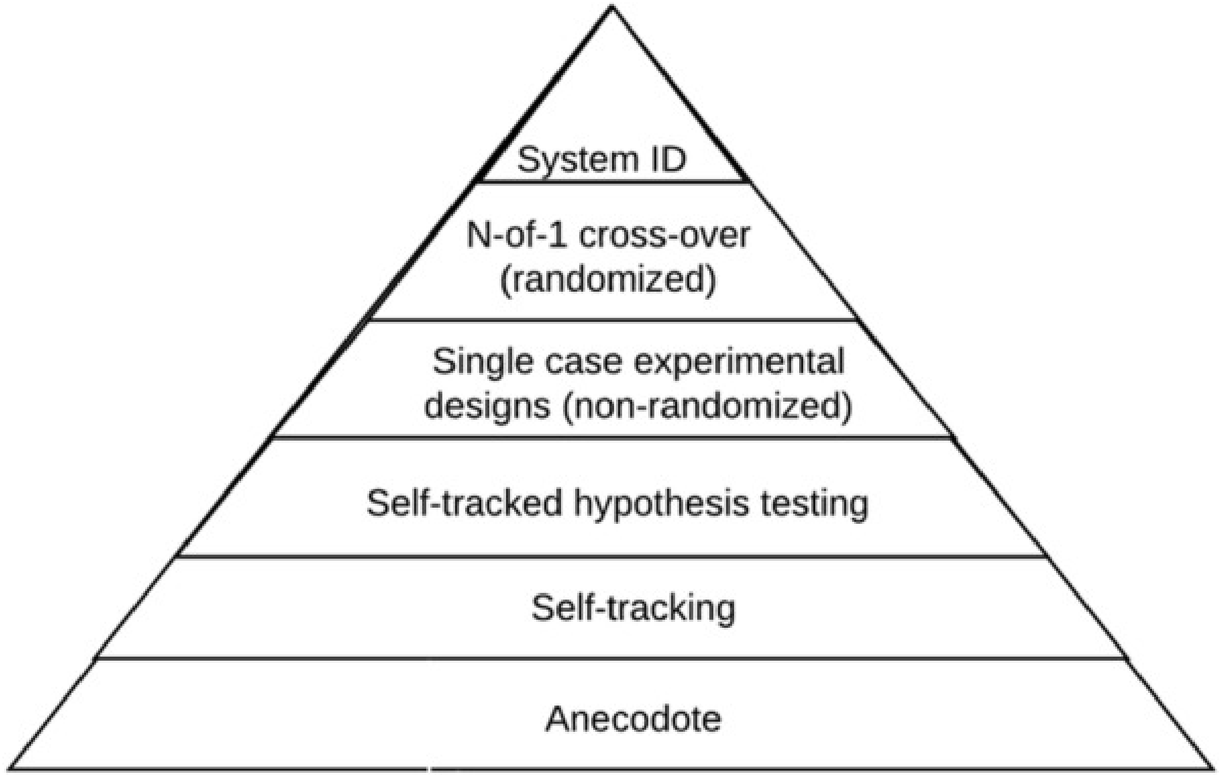
- GOAL: **Evidence-production for population-level decisions**
- Examples
  - Epidemiology
  - ORBIT and other clinical trial pipelines
  - Most of biomedical research
- Data used about prior persons/communities to help future persons/communities ("big data paradigm" definition)

https://bmcmedicine.biomedcentral.com/articles/10.1186/s12916-019-1366-x

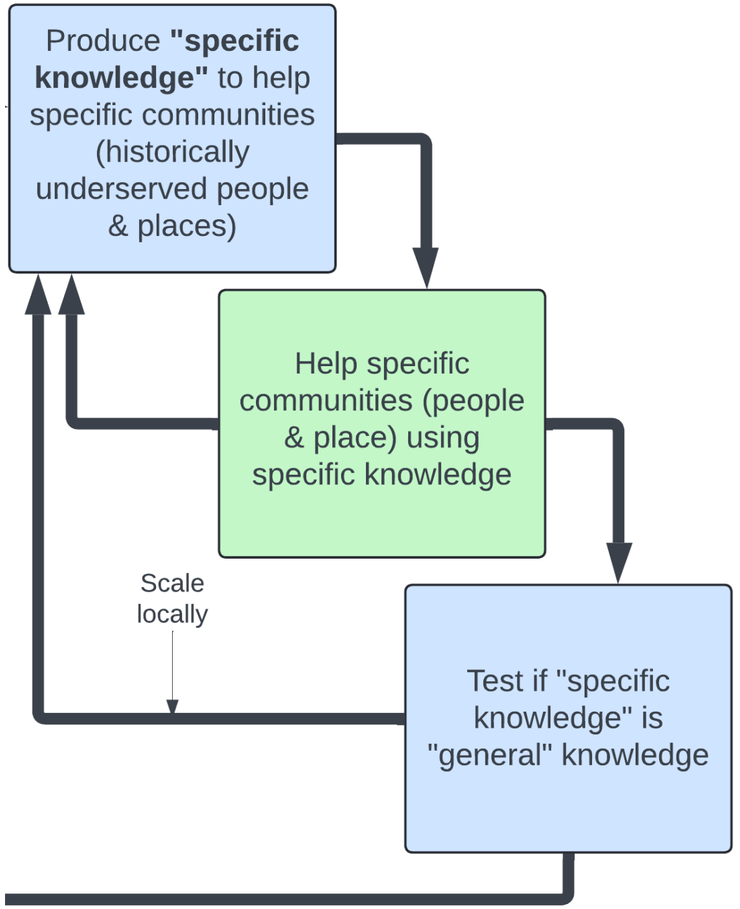
Individual & Community-focused decision evidence (Idiographic)

- GOAL: **Evidence-production for individuals & communities**
- Individual methods examples
  - Described in the Small Data paradigm (e.g., system identification, personal science, etc)
- Community method examples
  - community based participatory research (CBPR); Participatory action; Community-driven design; Plan-Do-Study-Act (PDSA) quality improvement cycles; some implementation science approaches*; agile scientific approaches; decolonial methods; Sarvodaya Shramadana Movement methods; systems thinking for social change; multisector collective impact.
- Data from persons/communities used to help themselves ("small data paradigm" definition)
- Focus is on iterative learning and improvement over time for individuals/communities.

Individual-focused



Community-focused

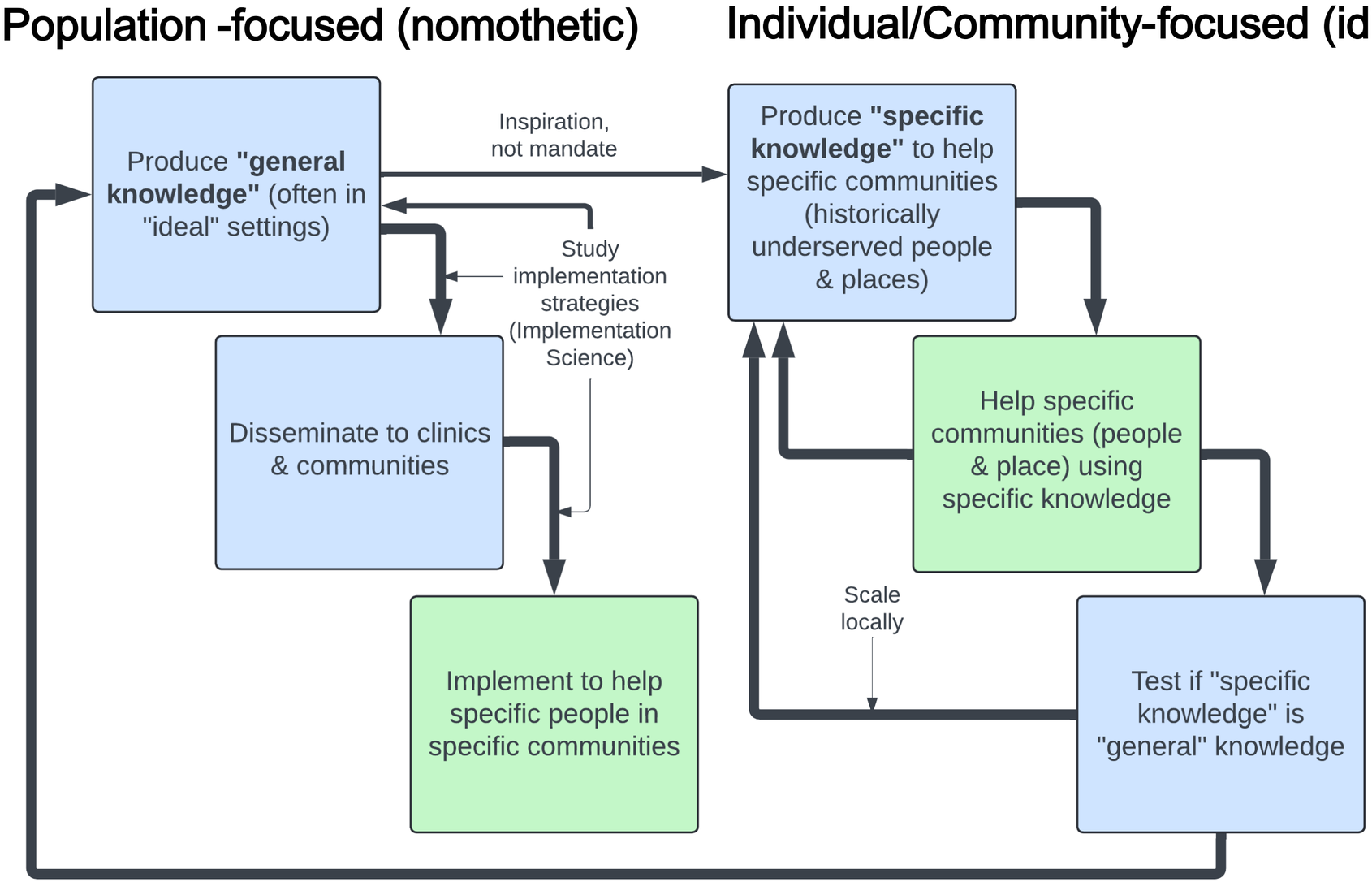


https://bmcmedicine.biomedcentral.com/articles/10.1186/s12916-019-1366-x

Evidence production strategies exist on a continuum of multiple dimensions

	Population-focused decisions (nomothetic)	Continuum	Individual- and community-focused decisions (idiographic)
Evaluator?	**External** to community	←→	**Embedded** within community
Arbiter of "truth"	**Expert consensus**	←→	**Community consent**
Perspective	3rd person (**Subject/"Object"**)	←→	2nd person (**Subject|Subject**)
Theory change	**General knowledge** to guide action	←→	**Local knowledge** to guide action
Type of success	Create & test **generally useful "things"**	←→	Cultivate **local "processes" towards health**
Test of success	**Frequentist tests** primarily	←→	**Benchmarks** & **Bayesian** stat
Orientation	"**definitive**" and "**explanatory**"	←→	"**good enough**" and "**pragmatic**"
Evidence type	**Quant** prime, qual second	←→	Quant and qual **equally used**
Consensus	**Meta-analysis** & **systematic review**	←→	**Iterative triangulation**
Use of evidence	Decisions for **populations & settings**	←→	**Individual & community** decisions
Focus	**Problem-solving** primarily	←→	Problem-solving & **asset cultivation**
Starting point	Prior **population-based knowledge**	←→	**Communities and their local conditions**
Role of EBP	**EBP is disseminated w/ fidelity** to form	←→	**EBP provides inspiration not mandated**
Determinants	**Biology followed by behavior**	←→	**Social, cultural, and environmental**
Time orientation	**Time-limited** (e.g., 5-year trial)	←→	**Continuous and iterative**
Causal patterns	**Linear** (e.g., DAGs) primarily	←→	**Linear, cyclical, and emergent, +**
Manage complexity	**Reduction via "ideal" conditions**	←→	**Needs/assets/priorities reduce complex.**
Data orientation	**Population** measures & analyses	←→	**Time-relevant** in context meas. & analyses

The approaches are complementary and fill the other's gaps



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These approaches can be blended

Journal of Medical Internet Research | Journal Information | Browse Journal | Submit Article

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Preprints (earlier versions) of this paper are available at https://preprints.jmir.org/preprint/49208, first published May 21, 2023.

The Digital Therapeutics Real-World Evidence Framework: An Approach for Guiding Evidence-Based Digital Therapeutics Design, Development, Testing, and Monitoring

Meelim Kim[1,2,3,4]; Kevin Patrick[1,3]; Camille Nebeker[1,3,4]; Job Godino[1,3,5]; Spencer Stein[6]; Predrag Klasnja[7]; Olga Perski[1,8]; Clare Viglione[1]; Aaron Coleman[9]; Eric Hekler[1,3,4]

Citation

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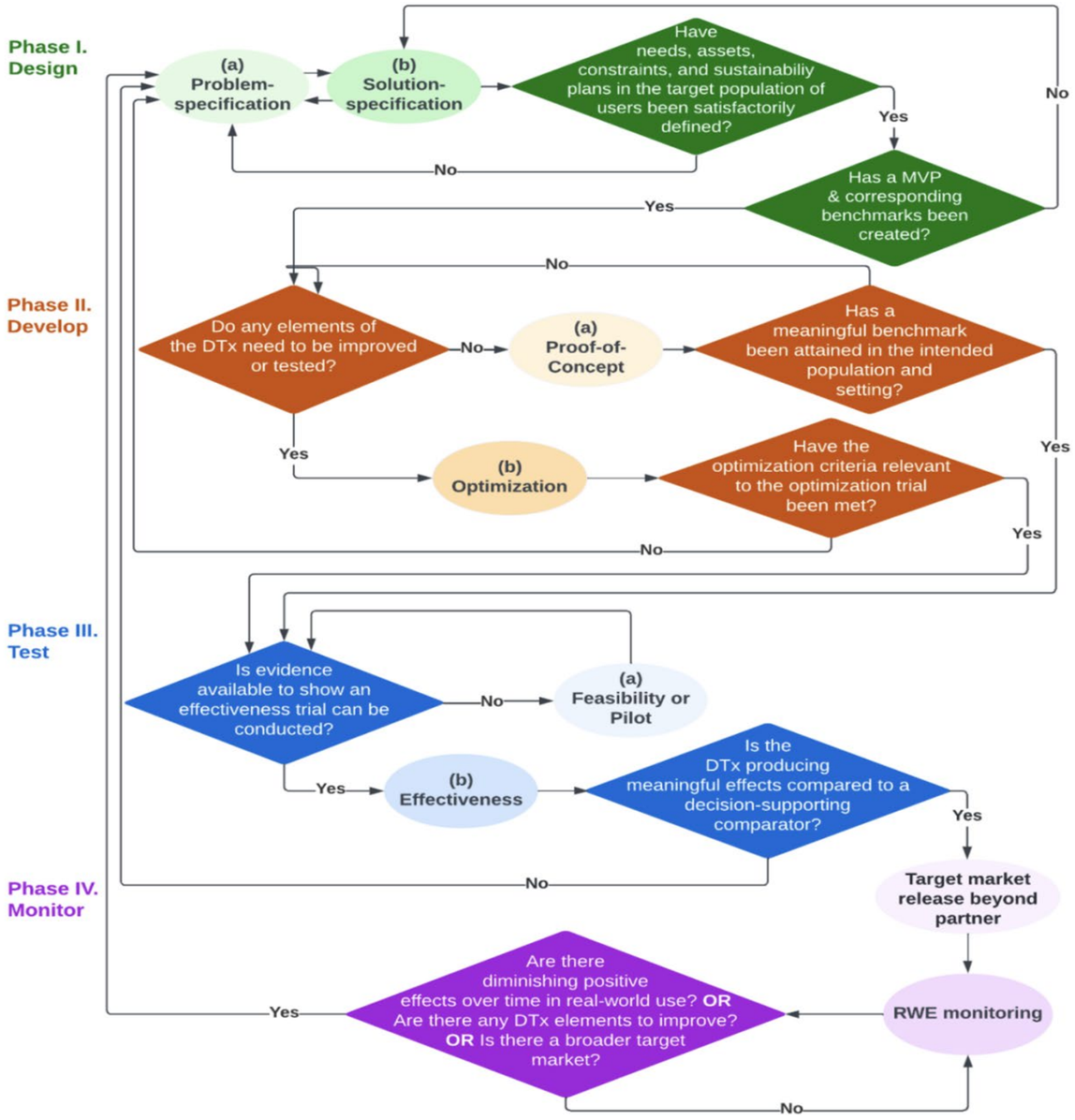
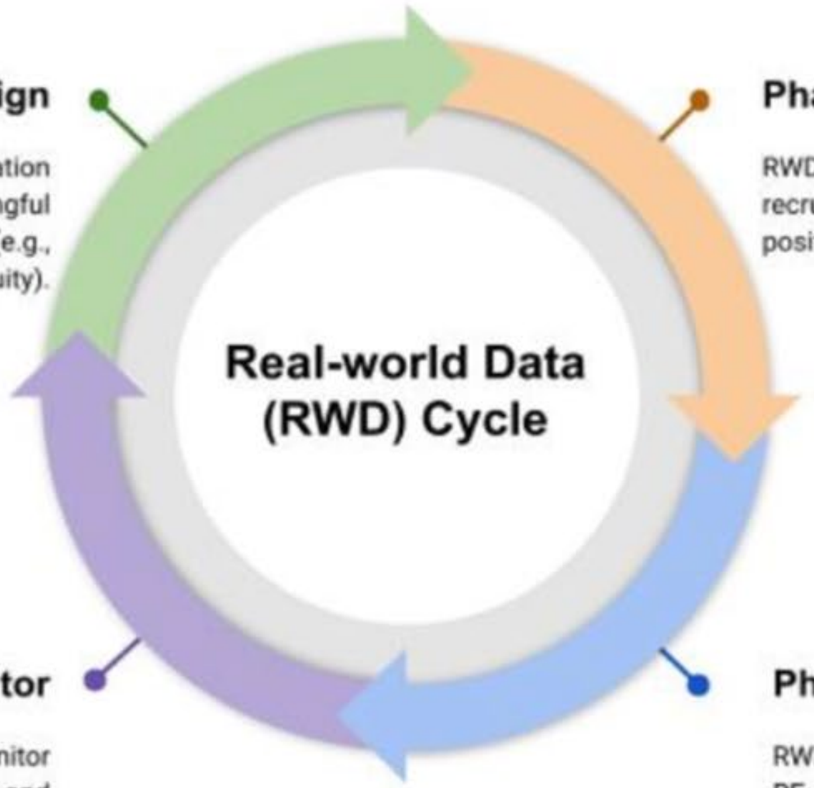


https://www.jmir.org/2024/1/e49208/

Can be blended



Phase I. Design

RWD from community-serving organization informs specification of real-world challenges, opportunities, assets, and meaningful while also plausible benchmarks for targeted dimensions (e.g., effectiveness, safety, equity).

Phase II. Develop

RWD from community-serving organization supports targeted recruitment and monitoring of safety and spill-over effects, both positive and negative, and developing data-driven algorithms.

Phase III. Test

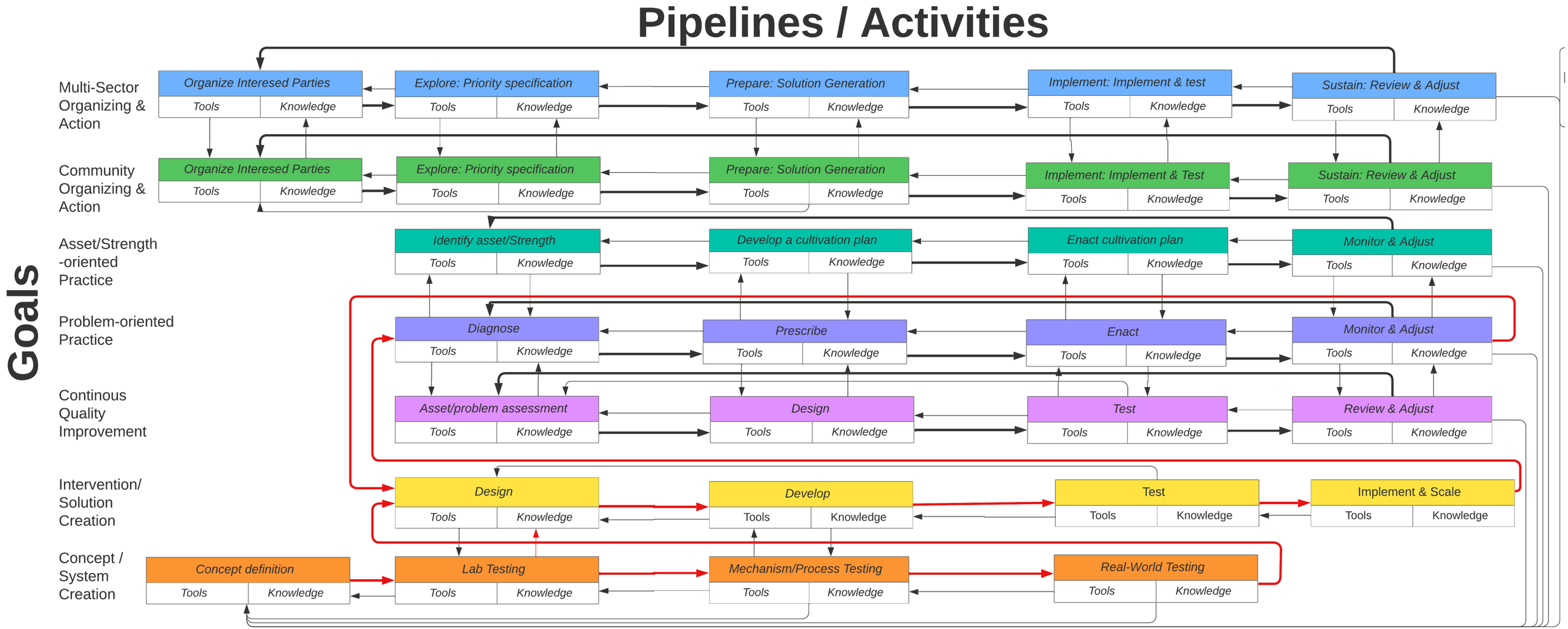
RWD from a community-serving organization is used to specify RE-AIM benchmarks that are meaningful while also plausible, and it supports targeted recruitment, monitoring of safety and spill-over effects, and running simulated clinical trials later on when a DTx is deployed.

Phase IV. Monitor

RWD from DTx is used to monitor real-world impact of DTx to monitor for sustained positive effects (e.g., health outcomes, safety, and equity); and to drive continuous iterative improvements via identifying implementation opportunities and challenges of the DTx while deployed and "off-label" uses of the DTx outside of intended population for possible market expansion.

https://www.jmir.org/2024/1/e49208/

Trends towards idiographic methods (supporting individual & community deci



Trends towards nomothetic methods (supporting population-focused decisions)

Schedule

13:00-13:10 Plenary: **Introduction to frame define the goal of the workshop**

13:10-13:45 Breakout 1 **Goals & frameworks**

- What are the goals of the fields?
- What are the processes/frameworks that we used to achieve those goals?
- Plenary report out

13:45-14:30 Breakout 2 **Decision -focused evidence production**

- Introduction
- Who are the key actors making decisions that impact health? What evidence can be produced to support their decisions? Who are the actors who are underserved by current evidence production in our field?
- Plenary report out

14:30-15:00 Break

15:00-15:10 Plenary Reconvene, anything come up while on break, intro to next break outs

15:10-16:00 Breakout 3 **Effective flows of information and resources**

- What is the right flow of information across efforts?
- How do we support the effective funding of what is needed “now”?
- How do we support the effective transfer of tools and protocols across the processes?
- Plenary report out

16: 00-16:20 Plenary **Implications for training** :

- What should be in the core curriculum for our field to support this (to support coordination)?
- What should be sub-specializations supported in the field (to support sufficient knowledge)?

16:20-16:30 Wrap up, define next steps, if appropriate, organize a writing group

Breakout session 2

13:55-14:20 Decision-focused evidence production

- Who are the key actors making decisions that impact health?
- What evidence can be produced to support their decisions?
- Who are the actors who are underserved by current evidence production in our field?

14:20-14:30 Plenary- Each group provide a report out

- Consensus on key actors? Areas of tension?
- Consensus on types of evidence needed for different actors and their decisions? Tensions?
- Consensus on actors/decisions underserved with current evidence? Tensions?
- **Please be sure to document on your poster board**

BREAK 14:30 - 15:00

Reconvene

15:00-15:10 Reconvene, anything come up while on break, intro to next break outs

Breakout 3

15:10-15:40 Breakout 3 **Effective flows of information and resources**

- Instructions: Look again at the figure, now looking at the arrows connecting each of the boxes. Which arrows (flows) are we good at? Which arrows (flows) do we need to work more on? (~15 minutes)
- For the arrows (flows), what are the funding sources that support those work? Where are there arrows that are not funded? (~15 minutes)

15:40-16:00 Plenary- Each group provide a report out

- Consensus on effective flow? Areas of tension?
- Consensus on underdeveloped flows? Tensions?
- Consensus on effective funding for flows? Tensions?
- Consensus on flows that need more funding? Tensions?
- **Please document on your board poster for documentation purposes.**

Reconvene

16: 00-16:20 Plenary **implications for training** :

- Preliminary thoughts on what should be in the core curriculum for our field to support this to support coordination? (~10 minutes)
- Preliminary thoughts on what should be sub-specializations supported in the field to support sufficient knowledge to work with fidelity? (~10 minutes)

Wrap Up

16:20-16:30 Wrap up, define next steps, if appropriate, organize a writing group

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