

# A Pragmatic Context Assessment Tool (pCAT) based on the Consolidated Framework for Implementation Research

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Clinical Management Research

SHORT REPORT

Open Access



# A pragmatic context assessment tool (pCAT): using a Think Aloud method to develop an assessment of contextual barriers to change

Claire H. Robinson\*  and Laura J. Damschroder

## Abstract

**Background** The Consolidated Framework for Implementation Research (CFIR) is a determinant framework that can be used to guide context assessment prior to implementing change. Though a few quantitative measurement instruments have been developed based on the CFIR, most assessments using the CFIR have relied on qualitative methods. One challenge to measurement is to translate conceptual constructs which are often described using highly abstract, technical language into lay language that is clear, concise, and meaningful. The purpose of this paper is to document methods to develop a freely available pragmatic context assessment tool (pCAT). The pCAT is based on the CFIR and designed for frontline quality improvement teams as an abbreviated assessment of local facilitators and barriers in a clinical setting.

**Methods** Twenty-seven interviews using the Think Aloud method (asking participants to verbalize thoughts as they respond to assessment questions) were conducted with frontline employees to improve a pilot version of the pCAT. Interviews were recorded and transcribed verbatim; the CFIR guided coding and analyses.

**Results** Participants identified several areas where language in the pCAT needed to be modified, clarified, or allow more nuance to increase usefulness for frontline employees. Participants found it easier to respond to questions when they had a recent, specific project in mind. Potential barriers and facilitators tend to be unique to each specific improvement. Participants also identified missing concepts or that were conflated, leading to refinements that made the pCAT more understandable, accurate, and useful.

**Conclusions** The pCAT is designed to be practical, using everyday language familiar to frontline employees. The pCAT is short (14 items), freely available, does not require research expertise or experience. It is designed to draw on the knowledge of individuals most familiar with their own clinical context. The pCAT has been available online for approximately two years and has generated a relatively high level of interest indicating potential usefulness of the tool.

**Keywords** Qualitative, Implementation, Quality improvement, Think Aloud, Implementation science

# Consolidated Framework for Implementation Research (Originally published in 2009)

## Implementation Science



Research article

**Open Access**

**Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science**

Laura J Damschroder\*<sup>1</sup>, David C Aron<sup>2</sup>, Rosalind E Keith<sup>1</sup>, Susan R Kirsh<sup>2</sup>, Jeffery A Alexander<sup>3</sup> and Julie C Lowery<sup>1</sup>

# Research Questions

- **Retrospective Assessment**
  - What were barriers and facilitators to successful implementation?
    - Explain findings across sites
- **Prospective Assessment**
  - What are potential barriers & facilitators to successful implementation?
    - Tailor Implementation Strategies to address barriers and/or leverage facilitators

# Interpretive Approach to Context Assessment

## Construct Stem:

- The degree to which [insert construct definition]
  - Qualitative Assessments
  - Quantitative Assessments

## Example

- “Innovation Evidence-Base”
  - The degree to which...
    - ...the innovation has robust evidence supporting its effectiveness*

# INTERVENTION (“The Thing”\*) DOMAIN



# Guiding Questions

## Intervention

What is the “**thing**” being implemented?

### Telephone- based Lifestyle Coaching

- Coaching to support lifestyle change for Veterans: 6 optional modules
- Up to 10 calls over 6 months
- Centralized Coaching Center

What are **perceptions** about its properties?

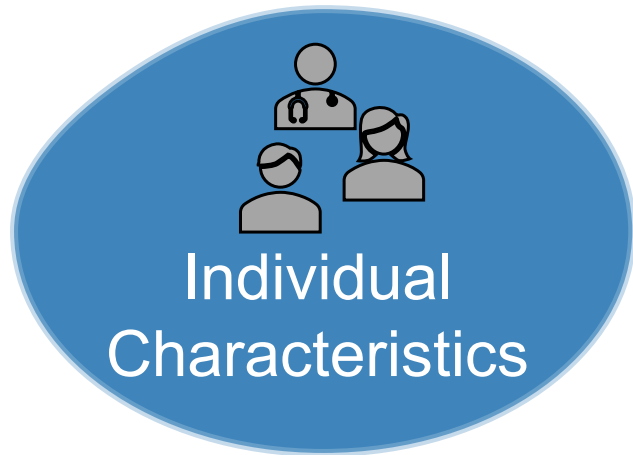
# INTERVENTION (“The Thing”\*) DOMAIN



- Intervention Source
- Evidence Strength & Quality
- Relative Advantage
- Adaptability
- Trialability
- Complexity
- Design Quality & Packaging
- Cost



# INDIVIDUAL CHARACTERISTICS DOMAIN



# Guiding Questions

## Innovation <sup>a.</sup>

### Telephone- based Lifestyle Coaching

- Coaching to support lifestyle change for Veterans: 6 optional modules
- Up to 10 calls over 6 months
- Centralized Coaching Center

## Individuals

Who are the **individuals** most likely to **influence** or have **authority** over implementation? Who will **deliver** the Innovation?

**Inner** Setting Implementation Lead:

Program Coordinator

**Inner** Setting Leaders:

Primary Care/Medical Center Directors

**Outer** Setting Leaders:

National Prevention Office Leaders

**Outer** Setting Facilitators:

National Prevention Office Staff

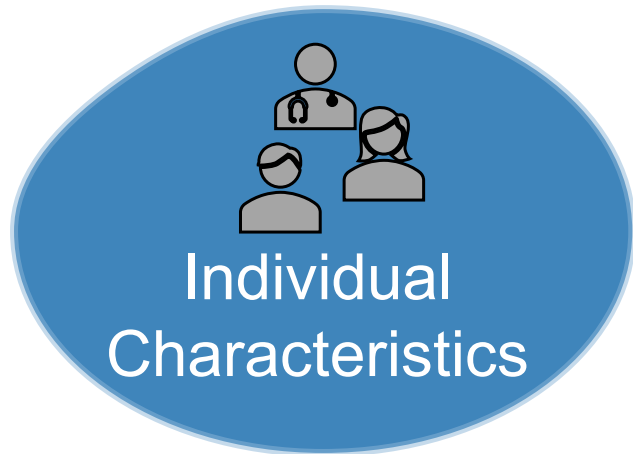
**Inner** Setting Deliverers:

Primary Care Providers

**Outer** Setting Deliverers:

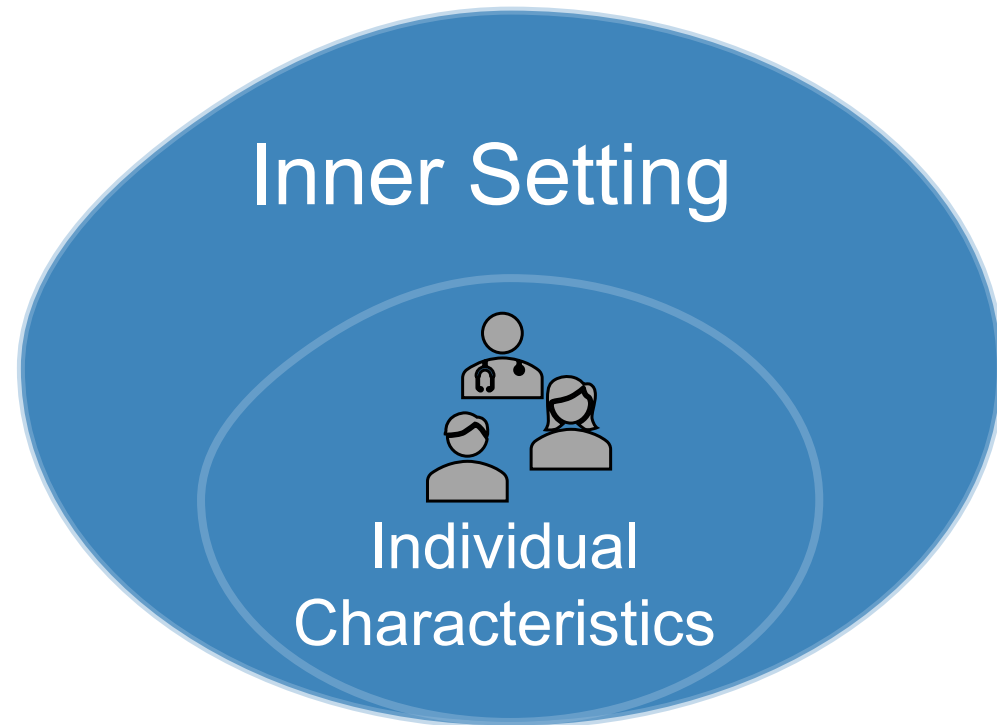
Centralized location for coaches delivered by vendor

# INDIVIDUAL CHARACTERISTICS DOMAIN



- Knowledge & Beliefs about the Intervention
- Self-efficacy
- Individual Stage of Change
- Individual Identification with Organization
- Other Personal Attributes

# INNER SETTING DOMAIN



# Guiding Questions

## Innovation

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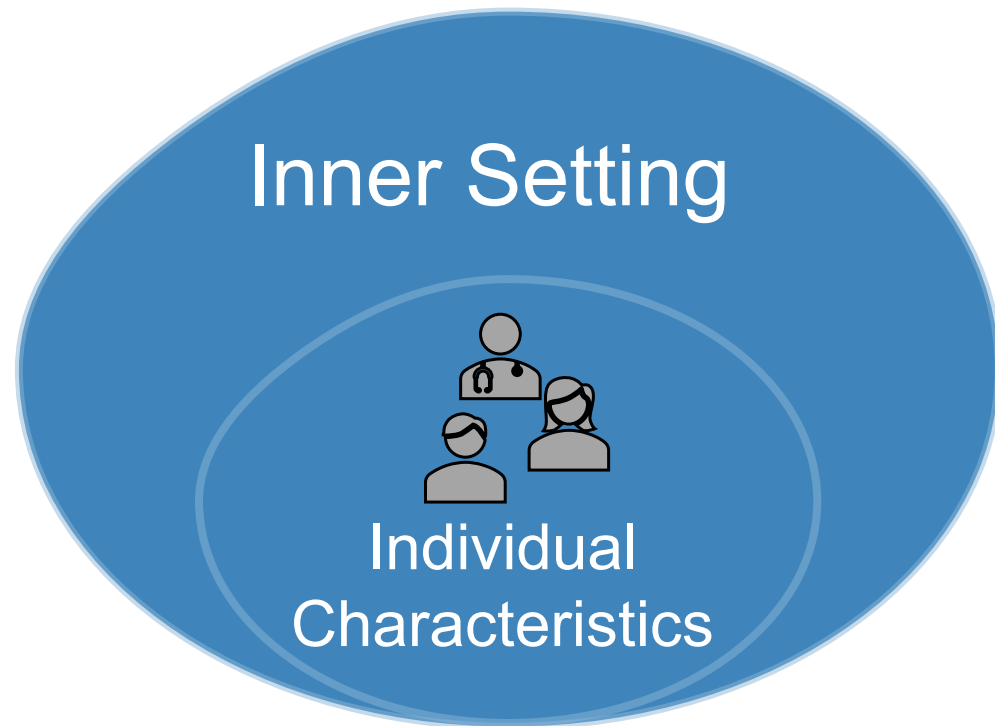
Centralized location for coaches delivered by vendor

## Inner Setting

**Where** will implementation occur? **Where** will the Innovation be delivered?

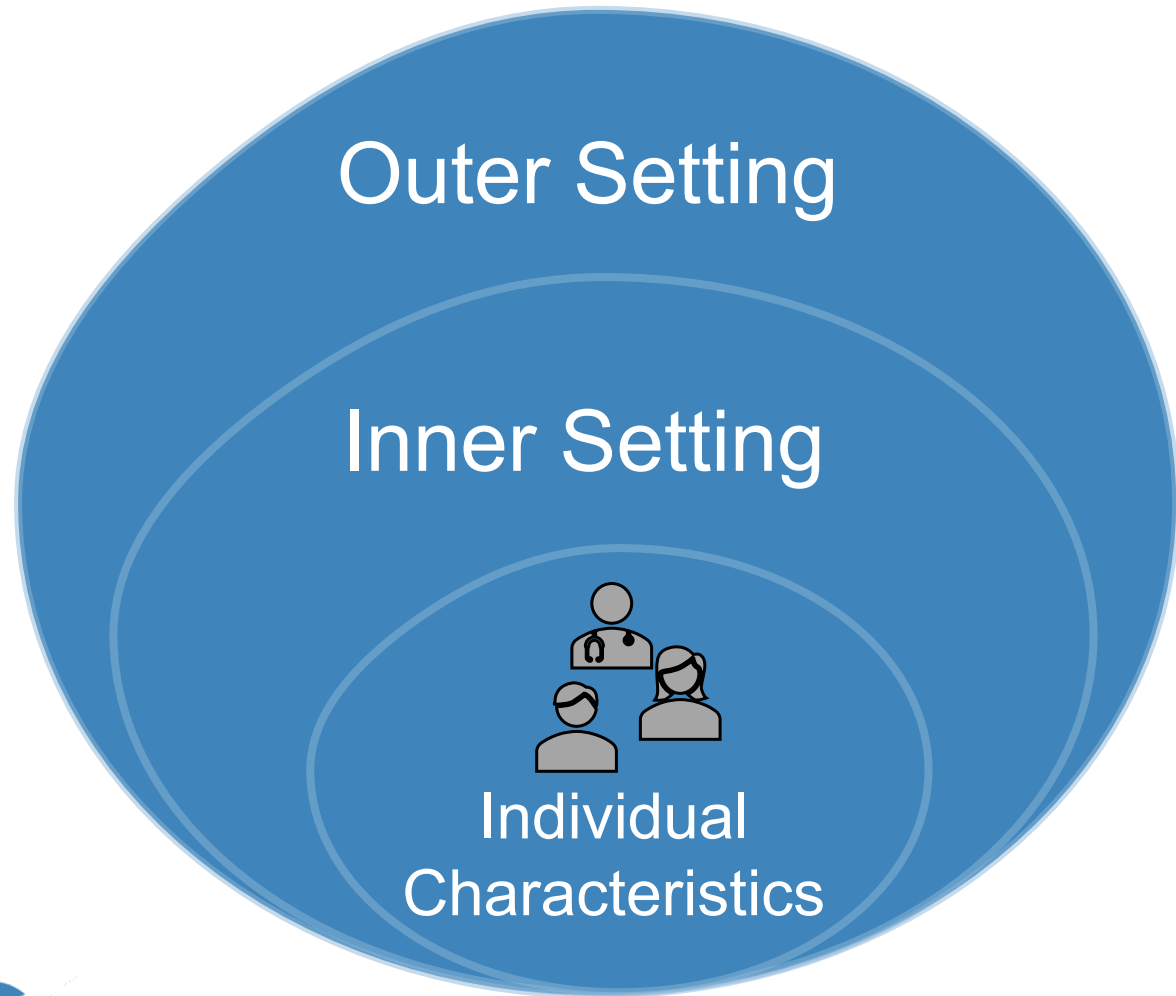
**Veterans Affairs Medical Centers**

# INNER SETTING DOMAIN



- Structural Characteristics
- Networks & Communications
- Culture
- Implementation Climate
  - Tension for Change
  - Compatibility 2 Items
  - Relative Priority
  - Organizational Incentives & Rewards
  - Goals & Feedback
  - Learning Climate
- Readiness for Implementation
  - Leadership Engagement 2 Items
  - Available Resources 2 Items
  - Access to Knowledge & Information

# OUTER SETTING DOMAIN



# Guiding Questions

## Innovation

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## Individuals

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Centralized location for coaches delivered by vendor

## Inner Setting

### Veterans Affairs Medical Centers

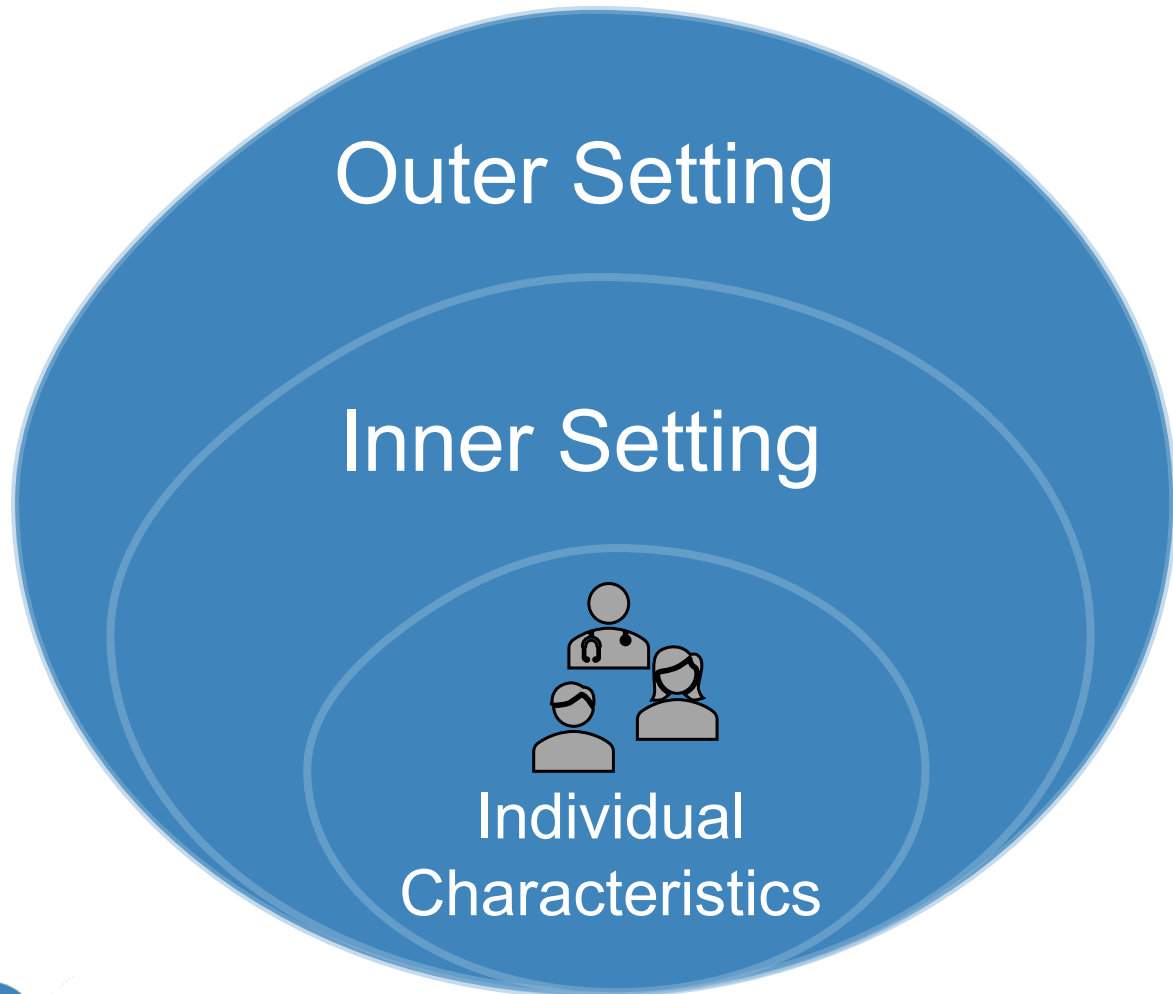
## Outer Setting

**Where** does the Outer Setting begin?

VHA Healthcare System

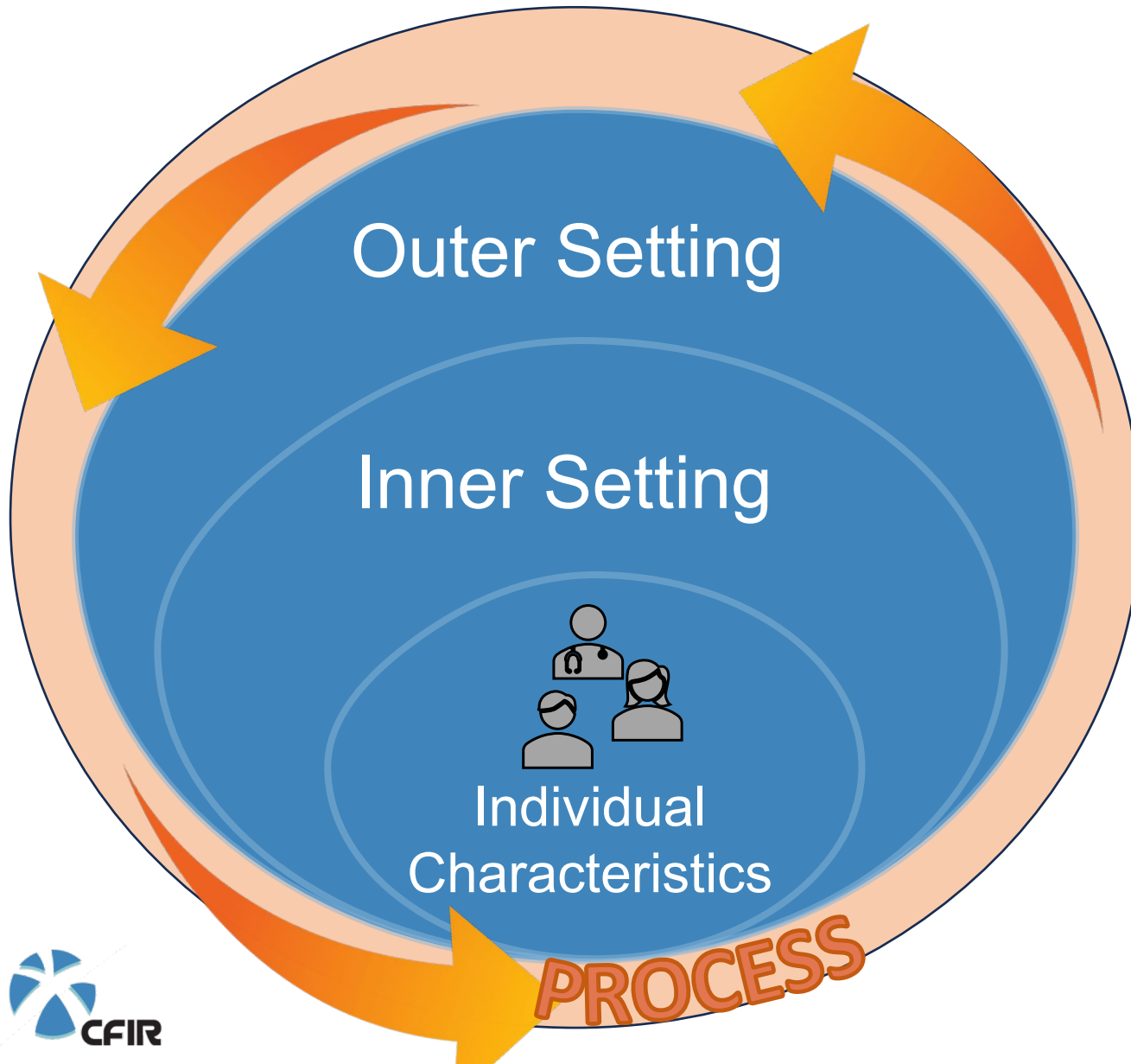


# OUTER SETTING DOMAIN



- Patient Needs & Resources
- Cosmopolitanism
- Peer Pressure
- External Policy & Incentives

# PROCESS DOMAIN



# Guiding Questions

## Innovation

### Telephone- based Lifestyle Coaching

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## Inner Setting

### Veterans Affairs Medical Centers

## Outer Setting

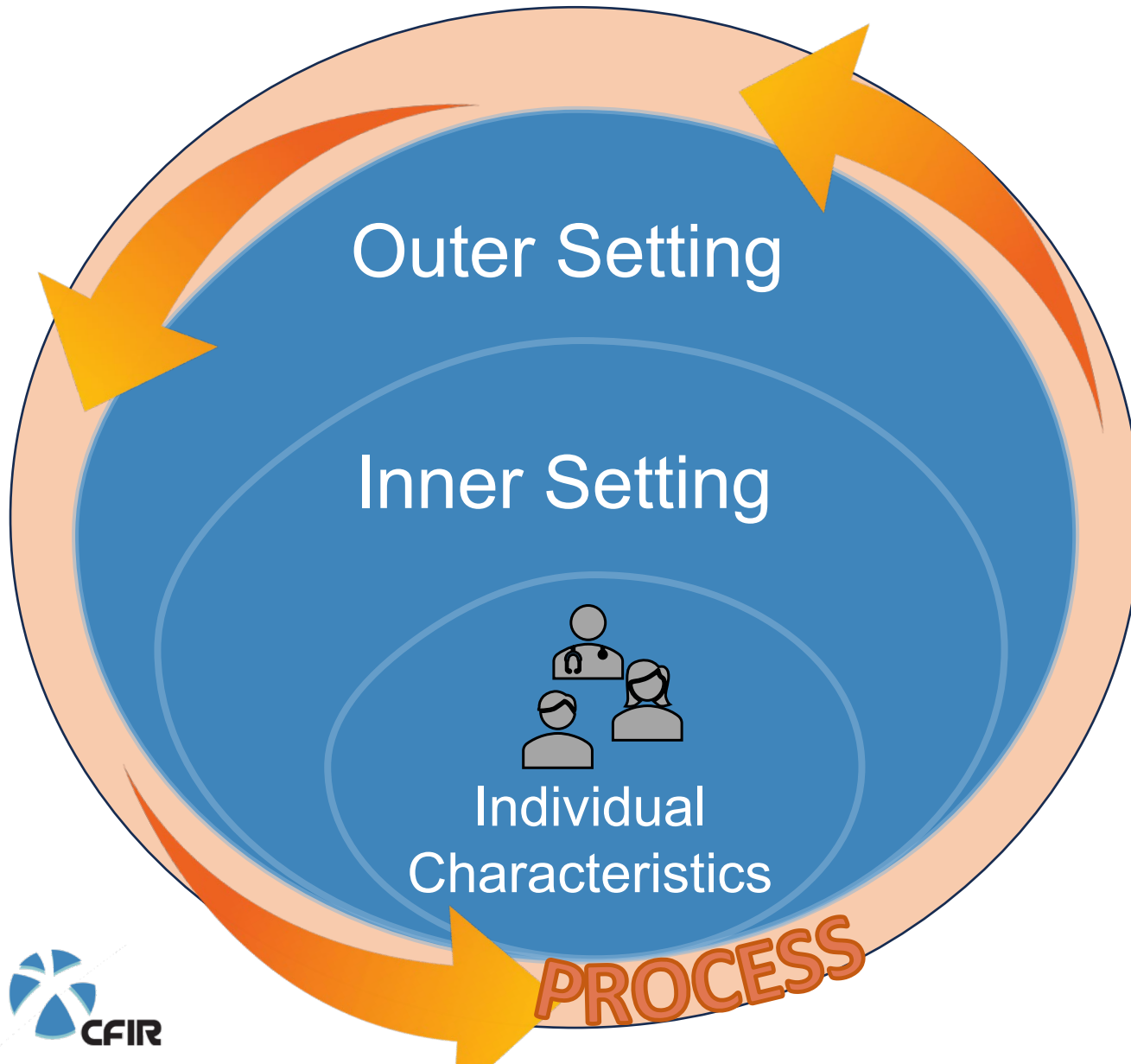
### VHA Healthcare System

## Process

To what extent do [**Roles**] do the necessary **actions** for sustained implementation?

**Top-down support with goals and time-delimited milestones with mixed levels of necessary actions**

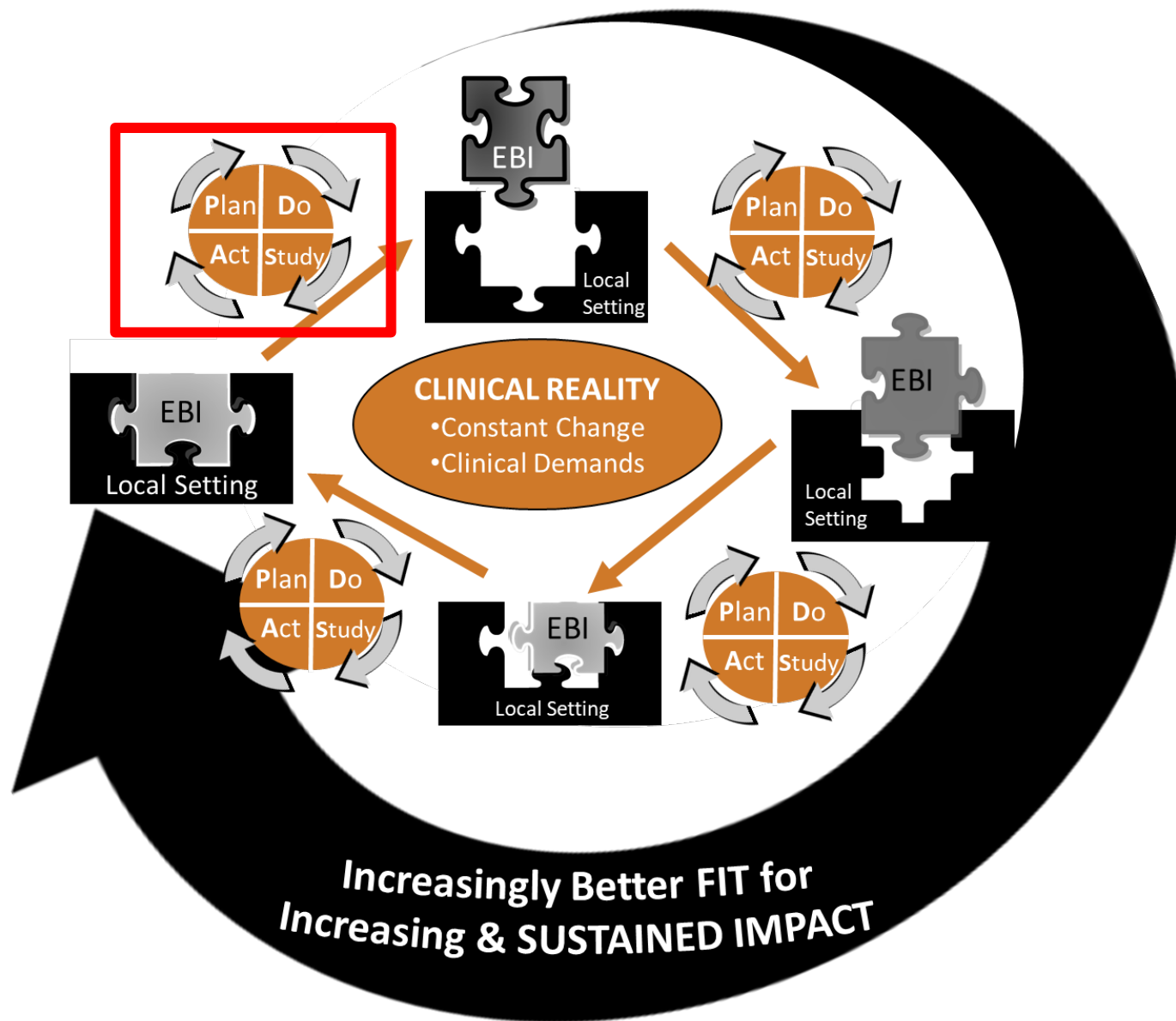
# PROCESS DOMAIN



- Planning
- Engaging
  - Opinion Leaders
  - Formally Appointed Internal Implementation Leaders
  - Champions
  - External Change Agents
  - Executing
- Reflecting & Evaluating

# **Set-up for pCAT Development**

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# Dynamic Sustainability Framework



# LEAP

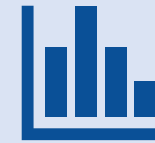
Learn. Engage. Act. Process.



Coaching



Virtual Learning and Collaboration



Data

Week 1    ●    ●    ●    5    ●    ●    ●    10    ●    ●    ●    ●    ●    18    ●    ●    ●    ●    ●    26

Form a team

Develop a project charter

Test change and collect data

Execute change

6-months later:  
Interviews

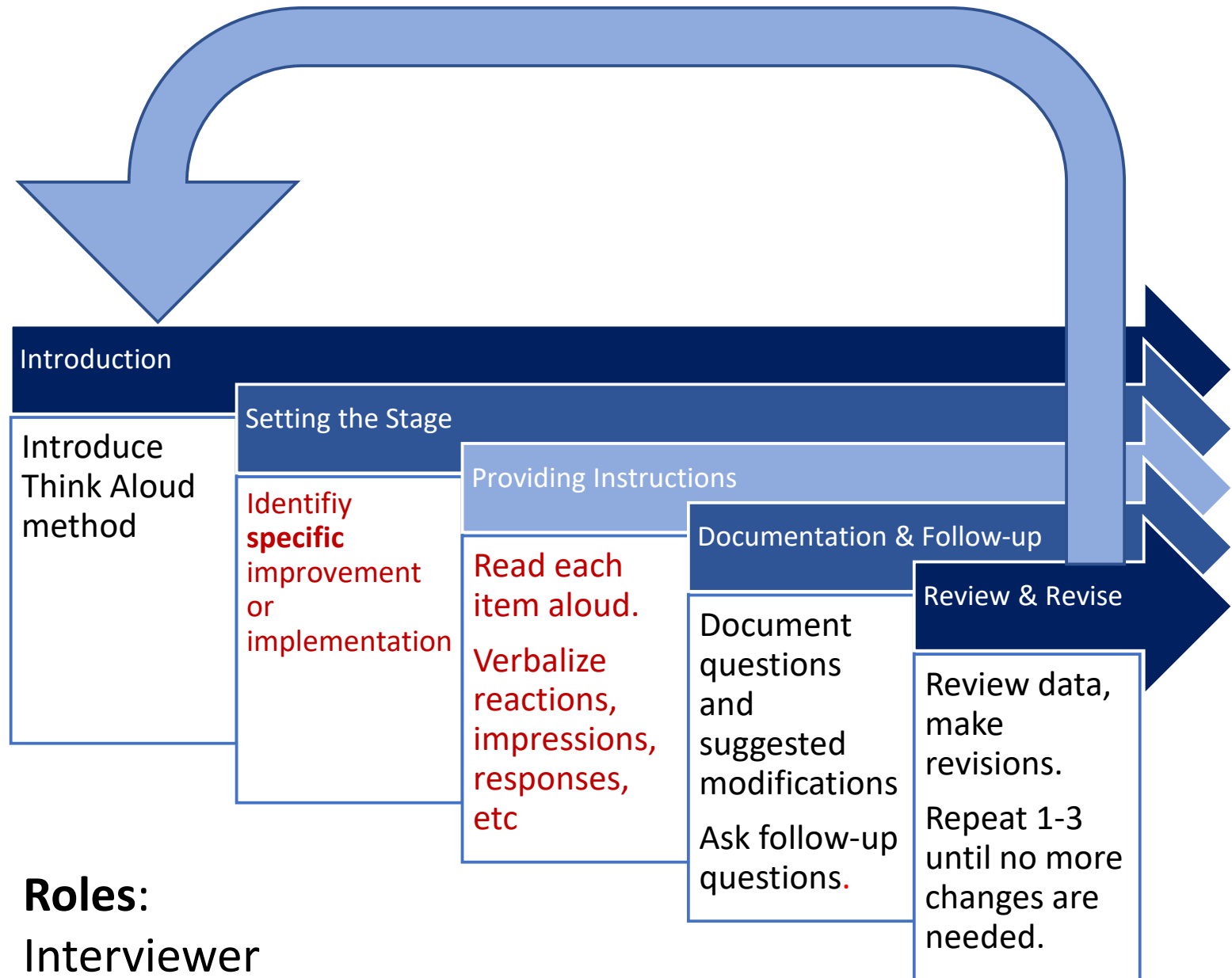


# METHODS





# Think-Aloud Interview Structure



**Roles:**  
Interviewer  
Participant

# Participants

- 38 invitations sent to members on 34 LEAP teams
  - N=27 (71%) interviews completed
- Changes made to pCAT based on the first 9 interviews
  - The next 18 interviews did not reveal additional changes

# Modifications Based on Feedback

- Question Stem & Response Options

Improvement to consider (include the **specifics** of the implementation/improvement project here):

Indicate your agreement with this statement:

**1 – DISAGREE:** This means the item is a potential **barrier**

**2 – Neutral**

**3 – AGREE:** This means the item is a potential **facilitator**

This **barrier** will have...

This **facilitator** will have...

What is the likely effect of this barrier/facilitator on your ability to implement the improvement?

0 – Weak/no effect  
1 – Strong effect

0 – Weak/no effect  
1 – Strong effect

# Modifications to Item Wording

2009 CFIR Construct	pCAT Item
Available Resources	We have sufficient <b>space</b> to accommodate the change.
	We have sufficient <b>time</b> dedicated to make the change. (Available Resources) Update:
	We have <b>other needed resources</b> to make the change (staff, money, supplies, etc.). (Available Resources) Update:
Tension for Change	<b>People here</b> see the current situation as intolerable and that the change is needed.
Relative Advantage	<b>People here</b> see the advantage of implementing this change versus an alternative change.
Leadership Engagement	<b>Higher level leaders</b> are committed, involved, and accountable for the planned improvement.
	<b>Leaders I work with most closely</b> are committed, involved, and accountable for the planned improvement.

**pCAT MAPPED to UPDATED  
CFIR**

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# Consolidated Framework for Implementation Research

Damschroder et al. *Implementation Science* (2022) 17:7  
<https://doi.org/10.1186/s13012-021-01181-5>

Implementation Science



Damschroder et al. *Implementation Science* (2022) 17:75  
<https://doi.org/10.1186/s13012-022-01245-0>

Implementation Science

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RESEARCH

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Imple

Research and  
**Fostering  
practice  
science**

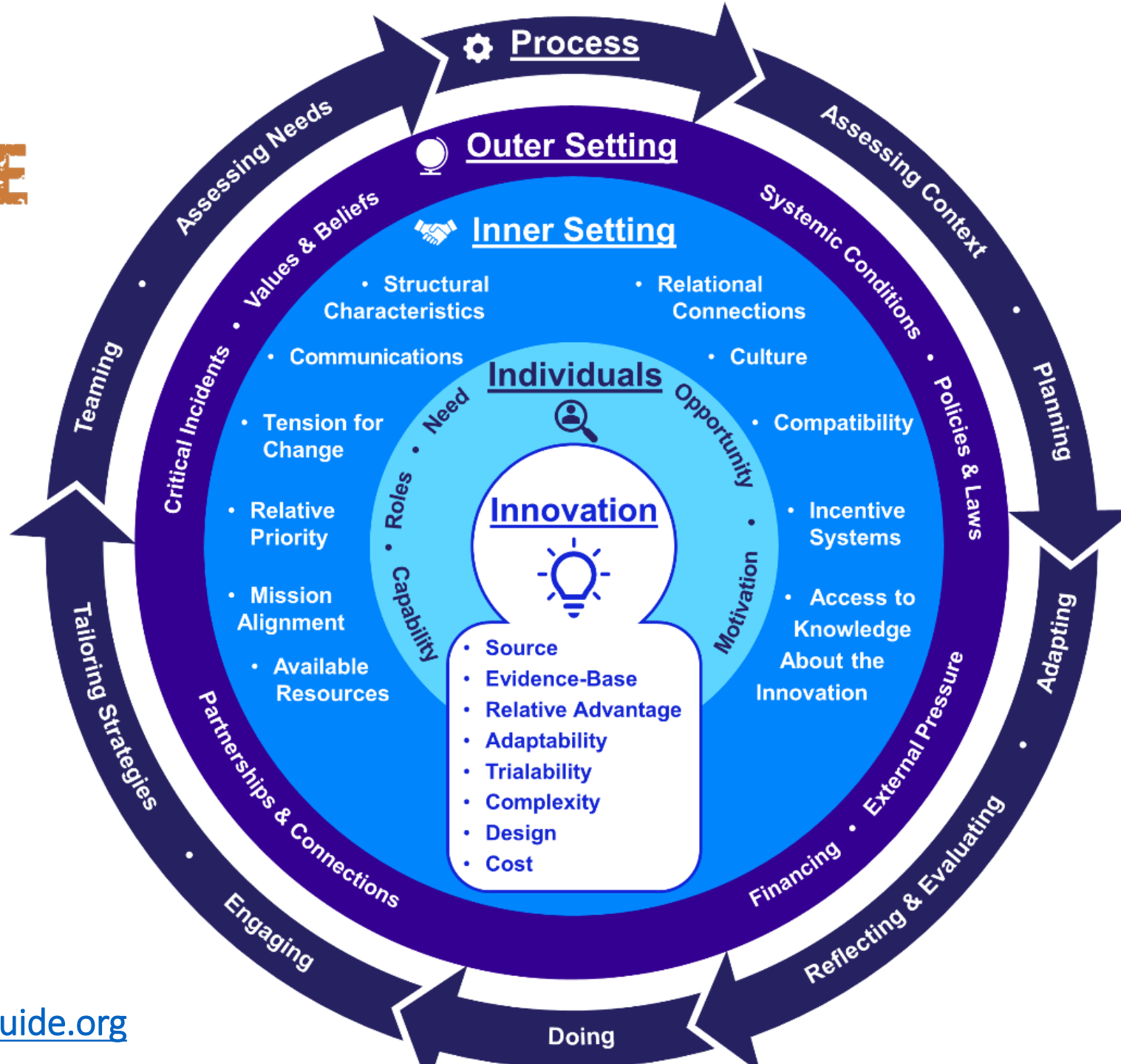
Laura J D  
Jeffery A

## The updated Consolidated Framework for Implementation Research based on user feedback



Laura J. Damschroder, Caitlin M. Reardon\* , Marilla A. Opra Widerquist and Julie Lowery

Alexander and Julie C. Lowery



<b>pCAT Question</b>	<b>2009 CFIR</b>	<b>Updated CFIR</b>
People here regularly seek to understand the needs of patients and make changes to better meet those needs.	Patient Needs & Resources	Culture: Recipient-Centeredness
I have open lines of communication with everyone needed to make the change.	Networks & Communications	Communications
I have access to data to help track changes in outcomes.	Reflecting & Evaluating	
The change is aligned with leadership goals.	Goals & Feedback	Mission Alignment
The change is aligned with clinician values.	Compatibility	Deliverer: Capability
The change is compatible with existing clinical processes.	Compatibility	
The structures and policies in place here enable us to make the change.	Structural Characteristics	SC: Work Infrastructure
We have sufficient space to accommodate the change.	Available Resources	AR: Space
We have sufficient time dedicated to make the change.	Available Resources	Deliverer: Opportunity
We have other needed resources to make the change (staff, money, supplies, etc.).	Available Resources	AR: Materials & Equipment, Funding
People here see the current situation as intolerable and that the change is needed.	Tension for Change	
People here see the advantage of implementing this change versus an alternative change.	Relative Advantage	
Higher level leaders are committed, involved, and accountable for the planned improvement.	Leadership Engagement	High-level Leaders: Motivation
Leaders I work with most closely are committed, involved, and accountable for the planned improvement.		Mid-level Leaders: Motivation

**Innovation**

**Individuals**

**Inner Setting**

**Outer Setting**

**Process**



# Pragmatism

Criteria	Rating <sup>a</sup>
Acceptability category	
Cost	4—Excellent: The measure is free and in the public domain
Easy category	
Uses accessible language	3—Good: The readability of the measure is between an 8th and 12th grade level
Assessor burden (training)	4—Excellent: The measure requires no training and/or has free automated administration
Assessor burden (interpretation)	3—Good: The measure includes a range of scores with value labels and cut-off scores, but scoring requires manual calculation and/or additional inspection of response patterns or subscales, and no instructions for handling missing data are provided
Length	3—Good: The measure has greater than 10 items but fewer than 50

These items only include PAPERS<sup>18</sup> items related to objective characteristics of measurement instruments. The PAPERS instrument also includes “stakeholder-facing” criteria based on user ratings (e.g., usefulness) that were not assessed

<sup>a</sup> Rating scale is – 1 to + 4

RESEARCH

Open Access



# Choosing implementation strategies to address contextual barriers: diversity in recommendations and future directions

Thomas J. Waltz<sup>1,2</sup>, Byron J. Powell<sup>3</sup>, María E. Fernández<sup>4</sup>, Brenton Abadie<sup>1</sup> and Laura J. Damschroder<sup>2\*</sup>

ERIC Implementation Strategy	Patient Needs & Resources	Networks & Communications	Goals & Feedback	Relative Priority	Compatibility	Available Resources	Tension for Change	Leadership Engagement	#Constructs Addressed
Conduct local consensus discussions	✓	✓		✓	✓		✓	✓	6
Conduct local needs assessment	✓			✓	✓		✓		4
Assess for readiness and identify barriers and facilitators	✓			✓	✓		✓		4
Identify and prepare champions					✓		✓	✓	3
Alter incentive/allowance structures				✓			✓	✓	3
Build a coalition		✓			✓				2
Capture and share local knowledge		✓				✓			2
Develop a formal implementation blueprint			✓					✓	2
Facilitate relay of clinical data to providers			✓				✓		2
Facilitation		✓			✓				2
Increase demand				✓				✓	2
Inform local opinion leaders		✓					✓		2
Involve patients/consumers and family members	✓						✓		2
Organize clinician implementation team meetings		✓	✓						2
Audit and Provide Feedback			✓						1
Obtain and use patients/consumers and family feedback	✓								1
Promote Network Weaving		✓							1
Access new funding						✓			1



# Limitations

- pCAT only assesses 10 CFIR constructs
- More development of tools to help use assessments for successful implementation
- Single-item assessment for each construct
- All respondents were within the VA

# Conclusions

- pCAT developed to be practical for use by practitioners or researchers
- Modifications are based on input from team members engaged in QI
- Free and available online



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