

# Integrating implementation science into clinical qualitative improvement initiatives

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# Agenda

- Implementation science
- Quality improvement
- Integrating implementation science to quality improvement

- Poll questions

# Implementation science

- “One of the most consistent findings from clinical and health services research is the failure to translate research into practice and policy.”
- “Implementation science is the scientific study of methods and strategies that facilitate the **uptake of evidence-based practice** and research into **regular use by practitioners and policymakers.**”

Grimshaw, J. M., Eccles, M. P., Lavis, J. N., Hill, S. J., & Squires, J. E. (2012). Knowledge translation of research findings. *Implementation science*, 7(1), 1-17.  
Eccles, M.P., Mittman, B.S. Welcome to *Implementation Science*. *Implementation Sci* 1, 1 (2006).





# Implementation science

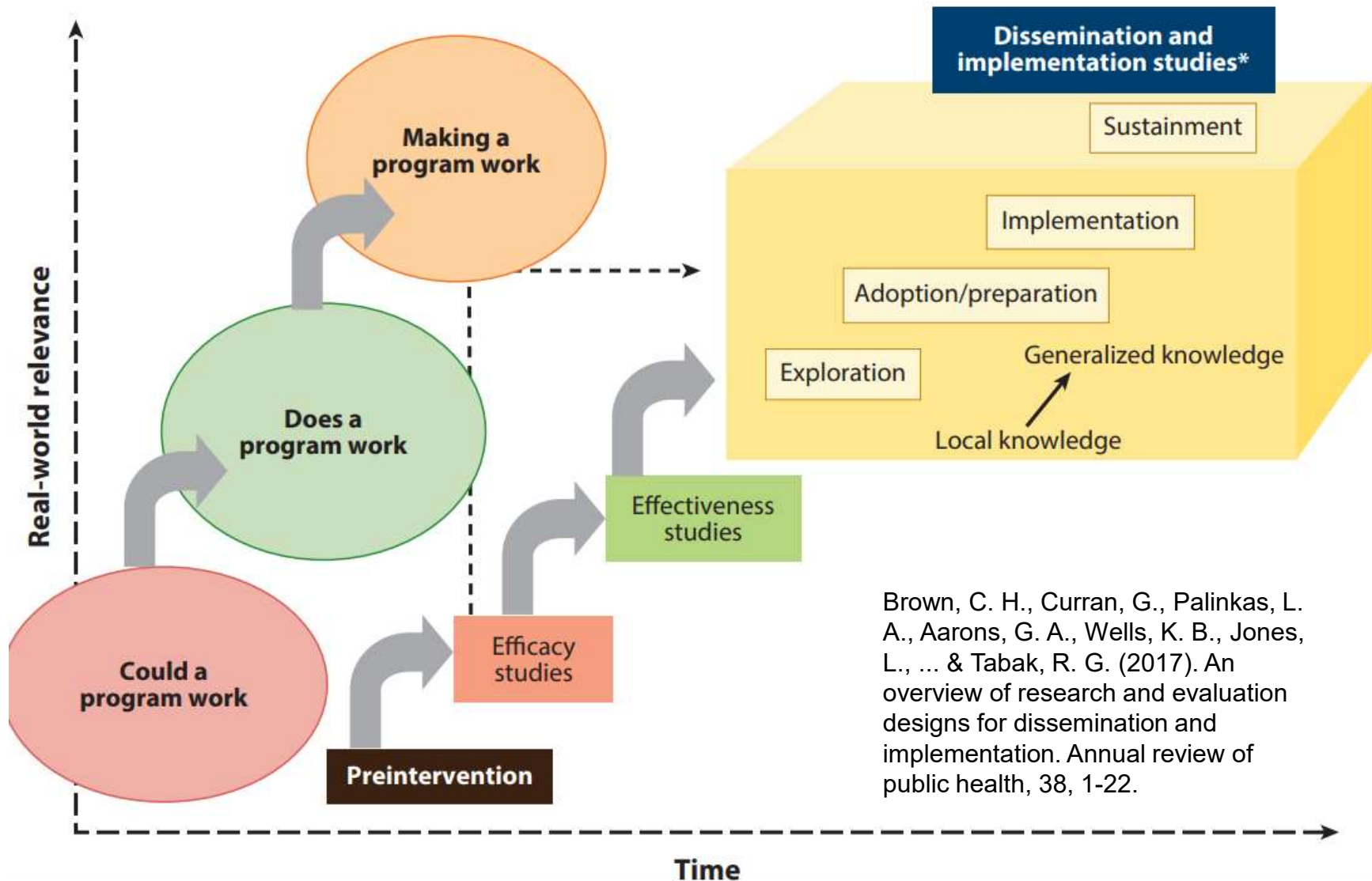
**Knowledge Transfer**  
Research Utilization **Research Use**  
**Knowledge Exchange** Implementation Science  
**Knowledge Translation**  
Knowledge Mobilization **Knowledge Uptake**  
**Dissemination and Diffusion**

# Implementation science

- The intervention/practice/innovation is **THE THING**
- Effectiveness research looks at **whether THE THING works**
- Implementation Science looks at how best to help people/places **DO THE THING**
- Implementation strategies are **the stuff we do to try to help people/places DO THE THING**
- Main implementation outcomes are **HOW MUCH and HOW WELL they DO THE THING**

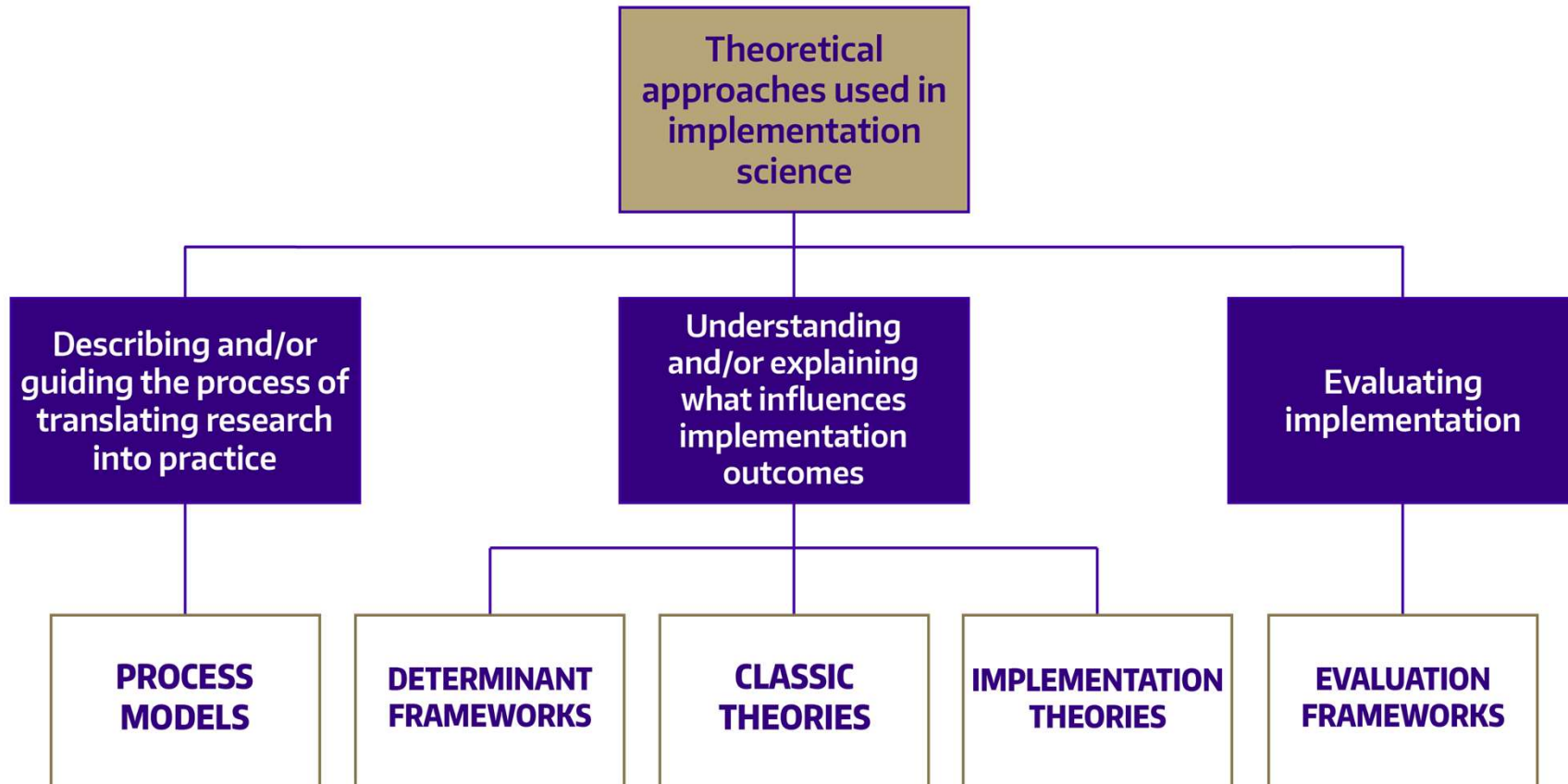
(Curran, 2020, Implementation Science Communications)

# Implementation science

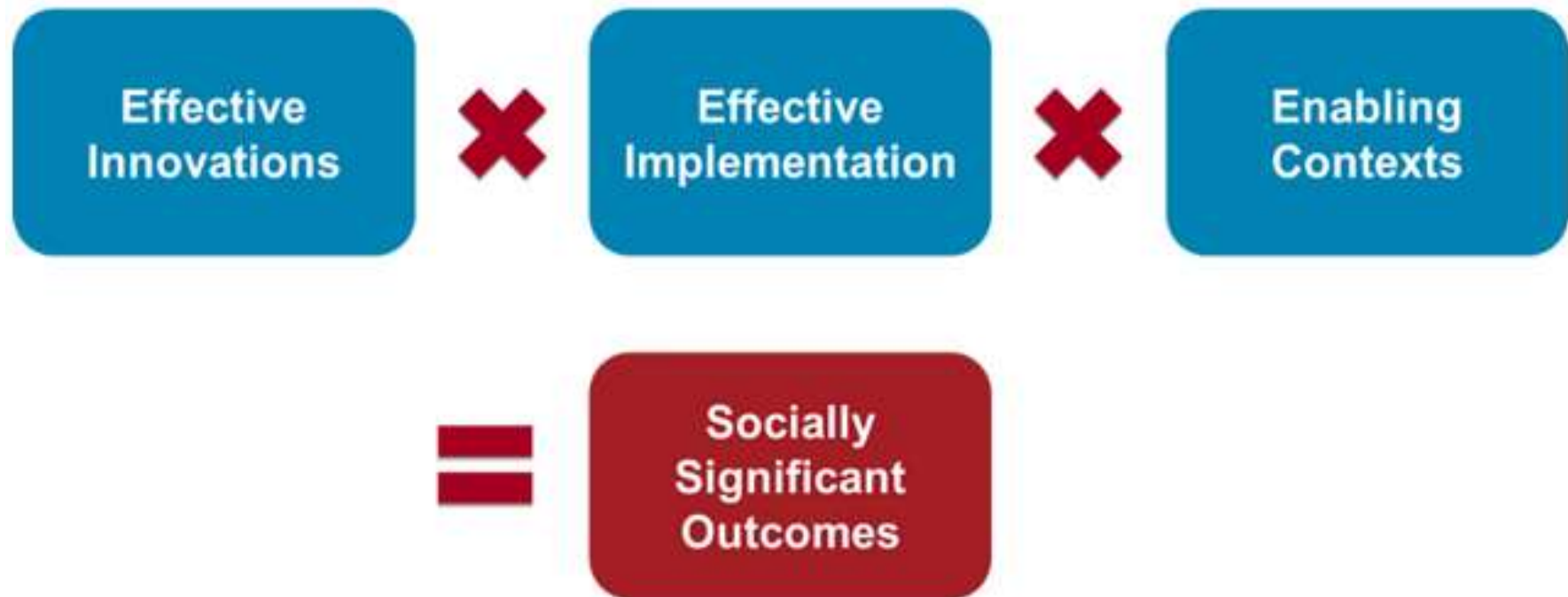


Brown, C. H., Curran, G., Palinkas, L. A., Aarons, G. A., Wells, K. B., Jones, L., ... & Tabak, R. G. (2017). An overview of research and evaluation designs for dissemination and implementation. *Annual review of public health*, 38, 1-22.

# Implementation science



# Formula For Success

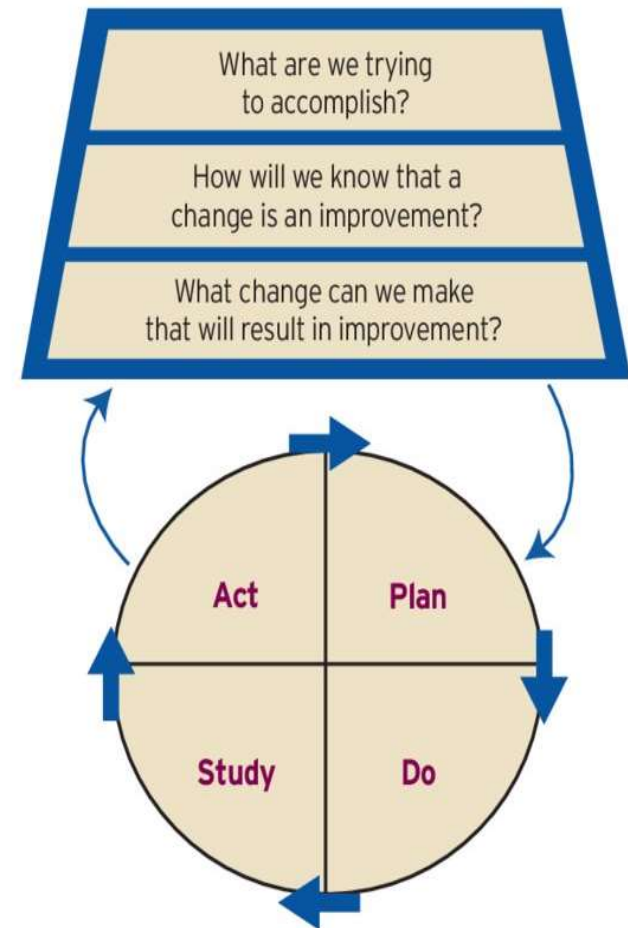


Any questions/thoughts  
on **implementation  
science?**

# Quality improvement

- Quality improvement : “a **continuous and ongoing effort** to achieve measurable improvements in the efficiency, effectiveness, performance, accountability, outcomes, and other indicators of quality in services or processes which achieve equity and improve the health of the community.”  
(The Center for Disease Control and Prevention)

- ✓ PDSA Cycle
- ✓ Lean
- ✓ Six-Sigma
- ✓ Experience-based co-design



The Model for Improvement

# Quality improvement

Six domains of quality as defined by the Institute of Medicine: **STEEEP**





# Quality improvement

## Promotion of improvement as a science

*Martin Marshall, Peter Pronovost, Mary Dixon-Woods*

The remarkable achievements of modern health care make the deficiencies associated with delivery of care all the more noticeable. Health care is a major source of avoidable harm,<sup>1,2</sup> and patients are routinely exposed to wide and inexplicable variations in the quality of care that they receive.<sup>3</sup> These variations are very difficult to address, despite good intentions, policy focus, ambitious improvement programmes, and investment of resources.<sup>4</sup> A major reason for this difficulty is that the urge to act can easily overwhelm the need for evidence to inform that action, to the extent that much quality improvement work is unscientific<sup>5</sup>—it is neither informed by high-quality evidence, nor is it subject to rigorous assessment to establish its effectiveness, costs, and risks. Ironically, this absence of a scientific approach might lead to outcomes that are exactly the opposite of what is intended by improvement efforts: resources can be wasted, energy and enthusiasm are dissipated, the

substantial reduction in rates of these infections.<sup>11</sup> These reductions were sustained over time and were associated with reduced mortality in participating intensive-care units compared with control units.<sup>12</sup> The results have been replicated in 22 additional US states. Follow-up work investigated the mechanisms through which the programme worked, and generated a theory of change that could inform, and be tested in, subsequent repetitions of the programme.<sup>13</sup>

Another example of a benefit of this broader way of thinking is the increase in identification and referral of victims of domestic violence. Domestic violence is often managed inadequately, despite the major health and social implications of unidentified and unmanaged abuse. In a cluster-randomised controlled trial in 51 primary care clinics in two UK cities (London and Bristol),<sup>14</sup> investigators tested a range of evidence-based interventions to increase rates of primary care identif-

*Lancet* 2013; 381: 419-21

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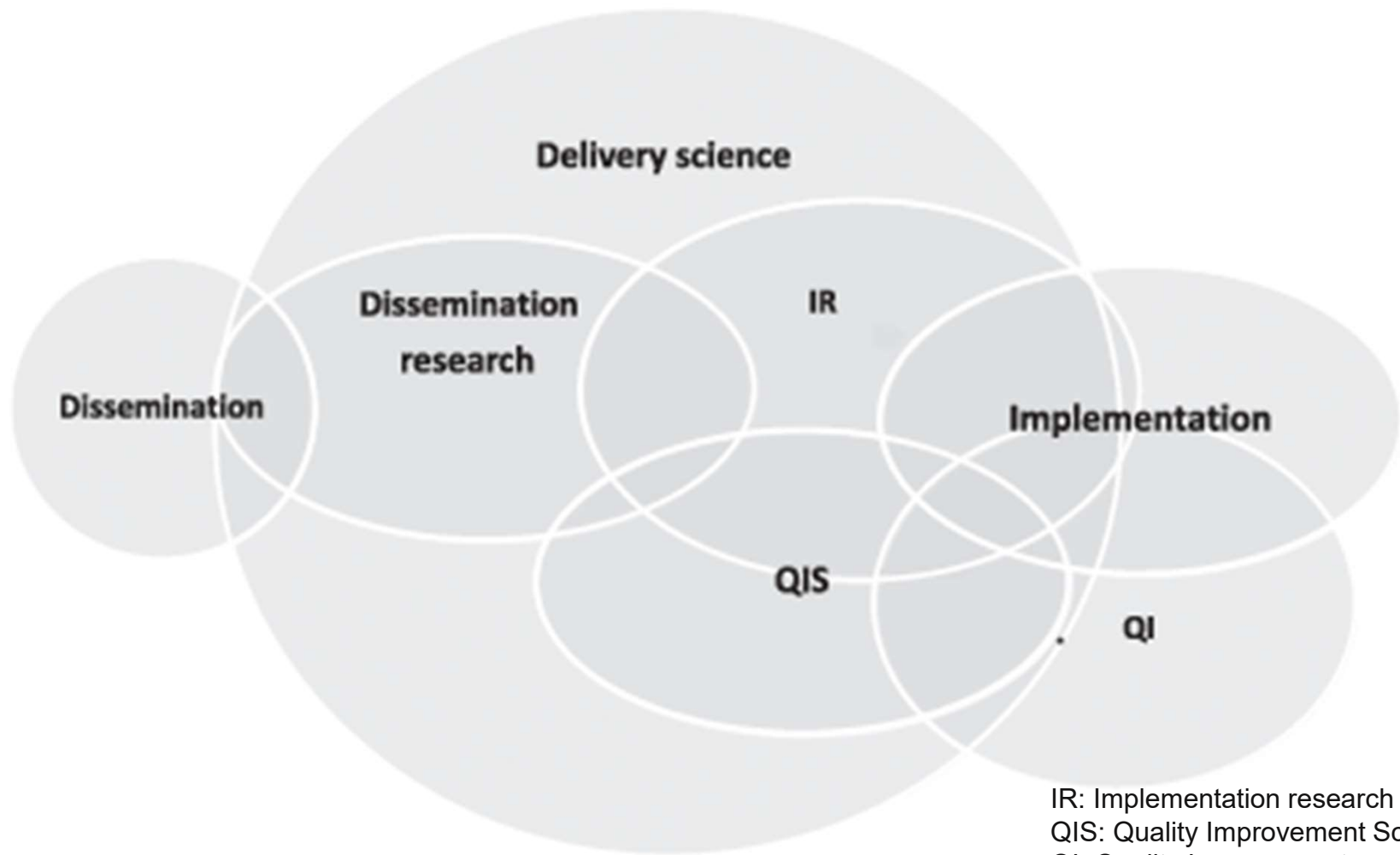
# Improvement science

- Improvement science is about finding out **how to improve and make changes in the most effective way**. It is about systematically examining the **methods and factors** that best work to facilitate quality improvement.
- The overriding goal is to ensure that quality improvement efforts are **based as much on evidence** as the best practices they seek to implement.
- A number of terms have been used to refer to improvement science concepts: the science of improvement, **implementation science**, translational research, quality improvement science, science of quality improvement, measurement for improvement and quality improvement methods.

# Implementation science & quality improvement (science)

Any thoughts on the connections between **implementation science** and **quality improvement (science)**?

# Implementation science & quality improvement (science)



IR: Implementation research  
QIS: Quality Improvement Science  
QI: Quality Improvement

# Implementation science VS improvement science

Aspect	Similarities	Differences
<b>Influences</b>	<p>Concern <b>practice change</b></p> <p>Acknowledge the relevance of <b>psychology</b> for understanding change mechanisms</p>	<p>Different <b>origins</b> and draw on mostly different sources of <b>knowledge</b>.</p> <p>Impl Sci: Medical sciences (and the evidence-based movement), behavioural sciences and social sciences</p> <p>Impr Sci: management and manufacturing fields, and topics and disciplines such as quality, measurement, management, leadership, strategy, and organisational learning</p>
<b>Ontology, Epistemology, methodology</b>	<p>Belong to the <b>positivist</b> tradition, with some interpretivist features</p> <p>Highly <b>applied</b> in nature, with aspirations to inform practice</p>	
<b>Problem identification</b>	<p>Both fields describe a <b>gap</b> or chasm between current and optimal care and/or service delivery</p>	<p>Impl Sci: the problem relates to <b>delays</b> in getting effective practices applied systematically in practice</p> <p>Impr Sci: the problem is related to the <b>efficiency, safety,</b> and/or <b>quality</b> of current practice</p>

# Implementation science VS improvement science

Aspect	Similarities	Differences
<b>Potential solutions</b>	Share multiple common <b>strategies</b> , although partially different terminology to describe them	<p>Impl Sci: implementation of <b>evidence-based practices</b> will reduce or eliminate the problem.</p> <p>Impr Sci: quality improvement follows from successful change in the health care <b>system</b> and its <b>processes</b>.</p> <p>The <b>scope of change</b> is broader in Impr Sci than in Impl Sci, because a QI initiative is not necessarily limited to application of scientifically supported evidence, but can also involve operations, service quality and efficiency</p>
<b>Analytical tools</b>	Use <b>analytical tools</b> to analyse problems and to identify possible solutions	<p>Impl Sci: the use of <b>theories, models and frameworks</b> as analytical tools</p> <p>Impr Sci: a range of <b>QI tools</b>, typically adapted for use in health care from the manufacturing industry and management</p>
<b>Knowledge production and use</b>	Produce knowledge that is both <b>applicable</b> for improved practice and sufficiently <b>generalizable</b> to contribute to scientific knowledge accumulation	<p>Health care practitioners and organizational developers are more likely to have QI and/or Impr Sci knowledge than Imp Sci knowledge</p> <p>Nilsen, P., Thor, J., Bender, M., Leeman, J., Andersson-Gäre, B., &amp; Sevdalis, N. (2022). Bridging the silos: a comparative analysis of implementation science and improvement science. <i>Frontiers in Health Services</i>, 1, 18.</p>



# GLOBAL PATIENT SAFETY ACTION PLAN 2021–2030

## Guiding principles:

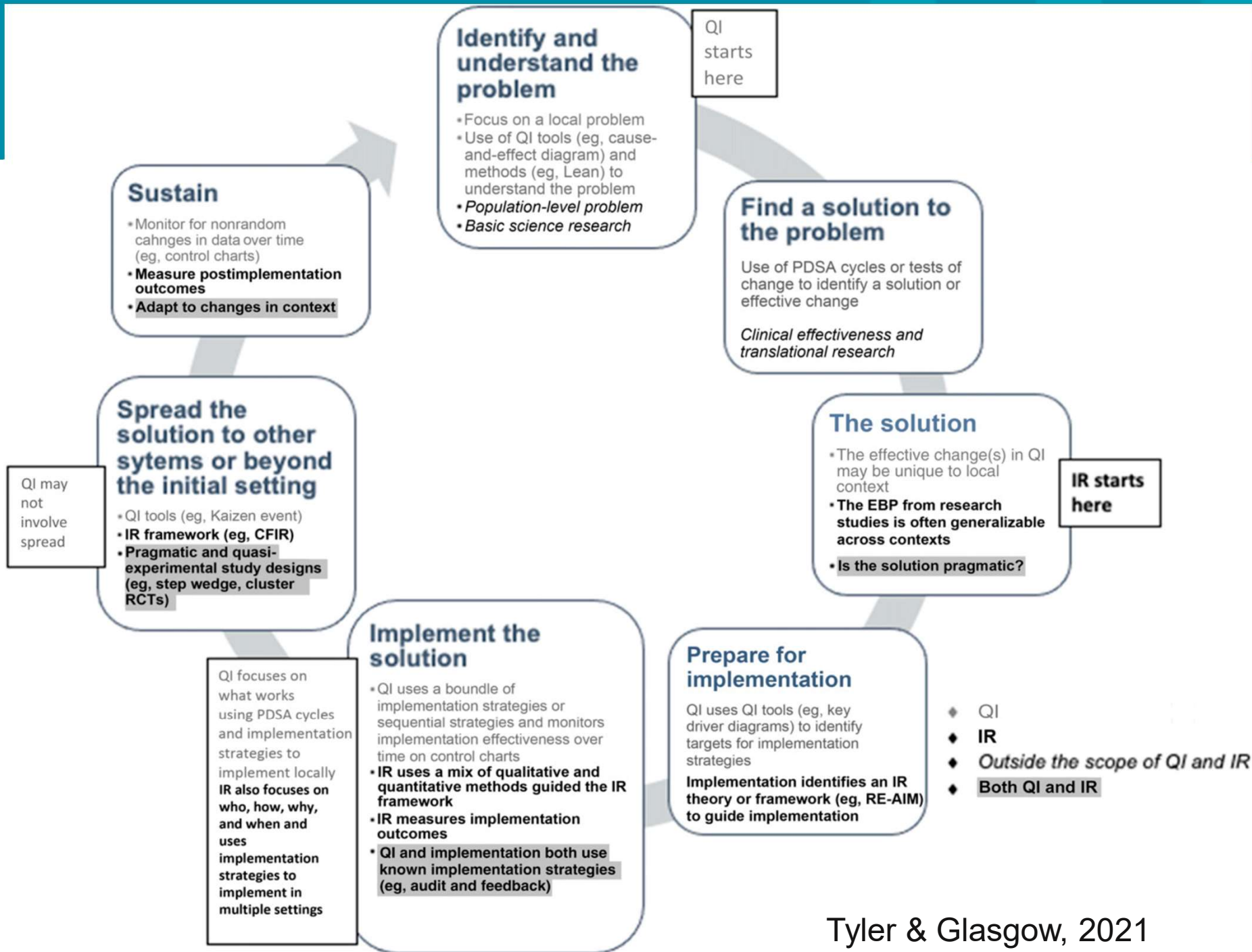
- Engage patients and families as partners in safe care
- Achieve results through collaborative working
- Analyse and share data to generate learning
- Translate evidence into actionable and measurable improvement
- Base policies and action on the nature of the care setting
- Use both scientific expertise and patient experience to improve safety
- Instill a safety culture in the design and delivery of health care

[Global Patient Safety Action Plan 2021-2030 \(who.int\)](https://www.who.int/patientsafety/2021-2030)

# Aligning Implementation Science with Improvement practice

- Three challenges:
  - (1) Use of different models, terminology, and methods,
  - (2) A focus on generalizable versus local knowledge, and
  - (3) Limited evidence in support of the effectiveness of improvement tools and methods.
- Aligning with improvement practice would benefit implementation science by:
  - (1) Strengthening research/practice **partnerships**,
  - (2) Fostering **local ownership** of implementation,
  - (3) Generating **practice-based evidence**,
  - (4) Developing **context-specific implementation strategies**, and
  - (5) Building practice-level capacity to implement interventions and **improve care**.





# Embedding implementation science to quality improvement

Plan

Do

Study

Action

1. Who needs to do what differently?

2. Using a theoretical framework, which barriers and facilitators need to be addressed?

3. Which intervention components could overcome the modifiable barriers and enhance the facilitators?

4. How to measure the behavior change?

**Evidence-based practice implementation**

*French et al., 2012, Implementation Science*

# Embedding implementation science to quality improvement

Plan

## 1. Who needs to do what differently?

Presseau et al. *Implementation Science* (2019) 14:102  
<https://doi.org/10.1186/s13012-019-0951-x>

Implementation Science

METHODOLOGY

Open Access

### Action, actor, context, target, time (AACTT): a framework for specifying behaviour



Justin Presseau<sup>1,2,3\*</sup>, Nicola McCleary<sup>1,2</sup>, Fabiana Lorencatto<sup>4</sup>, Andrea M. Patey<sup>1</sup>, Jeremy M. Grimshaw<sup>1,2,5</sup> and Jill J. Francis<sup>6</sup>

#### Abstract

**Background:** Designing implementation interventions to change the behaviour of healthcare providers and other professionals in the health system requires detailed specification of the behaviour(s) targeted for change to ensure alignment between intervention components and measured outcomes. Detailed behaviour specification can help to clarify evidence-practice gaps, clarify who needs to do what differently, identify modifiable barriers and enablers, design interventions to address these and ultimately provides an indicator of what to measure to evaluate an intervention's effect on behaviour change. An existing behaviour specification framework proposes four domains (Target, Action, Context, Time; TACT), but insufficiently clarifies who is performing the behaviour (i.e. the Actor). Specifying the Actor is especially important in healthcare settings characterised by multiple behaviours performed by multiple different people. We propose and describe an extension and re-ordering of TACT to enhance its utility to implementation intervention designers, practitioners and trialists: the Action, Actor, Context, Target, Time (AACTT) framework. We aim to demonstrate its application across key steps of implementation research and to provide tools for its use in practice to clarify the behaviours of stakeholders across multiple levels of the healthcare system.

**Methods and results:** We used French et al.'s four-step implementation process model to describe the potential applications of the AACTT framework for (a) clarifying who needs to do what differently, (b) identifying barriers and enablers, (c) selecting fit-for-purpose intervention strategies and components and (d) evaluating implementation interventions.

**Conclusions:** Describing and detailing behaviour using the AACTT framework may help to enhance measurement of theoretical constructs, inform development of topic guides and questionnaires, enhance the design of implementation interventions and clarify outcome measurement for evaluating implementation interventions.

**Keywords:** Behaviour, Framework, Behaviour specification, TACT, Behaviour change, Health professional behaviour

**A**ction (what observable behavior will be performed)

**A**ctor (who will be doing the action)

**C**ontext (where the action will be performed)

**T**arget (who will receive the action)

**T**ime (when the action will be performed)

# Embedding implementation science to quality improvement

Plan

## 1. Who needs to do what differently?

### Study to increase physician hand hygiene compliance

**A**ction (what observable behavior will be performed)  
*---Washing hand with soap/water or alcohol-based gel*

**A**ctor (who will be doing the action)  
*---Staff physicians and residents*

**C**ontext (where the action will be performed)  
*---Medical and surgical wards at the XXX Hospital*

**T**arget (who will receive the action)  
*---Patients*

**T**ime (when the action will be performed)  
*---Before and after patient contact*



## Action

Specify the *behaviours* that needs to change, in terms that can be observed or measured

## Actor

Specify each person/people that *do(es)* or *could do* each of the actions targeted

## Context

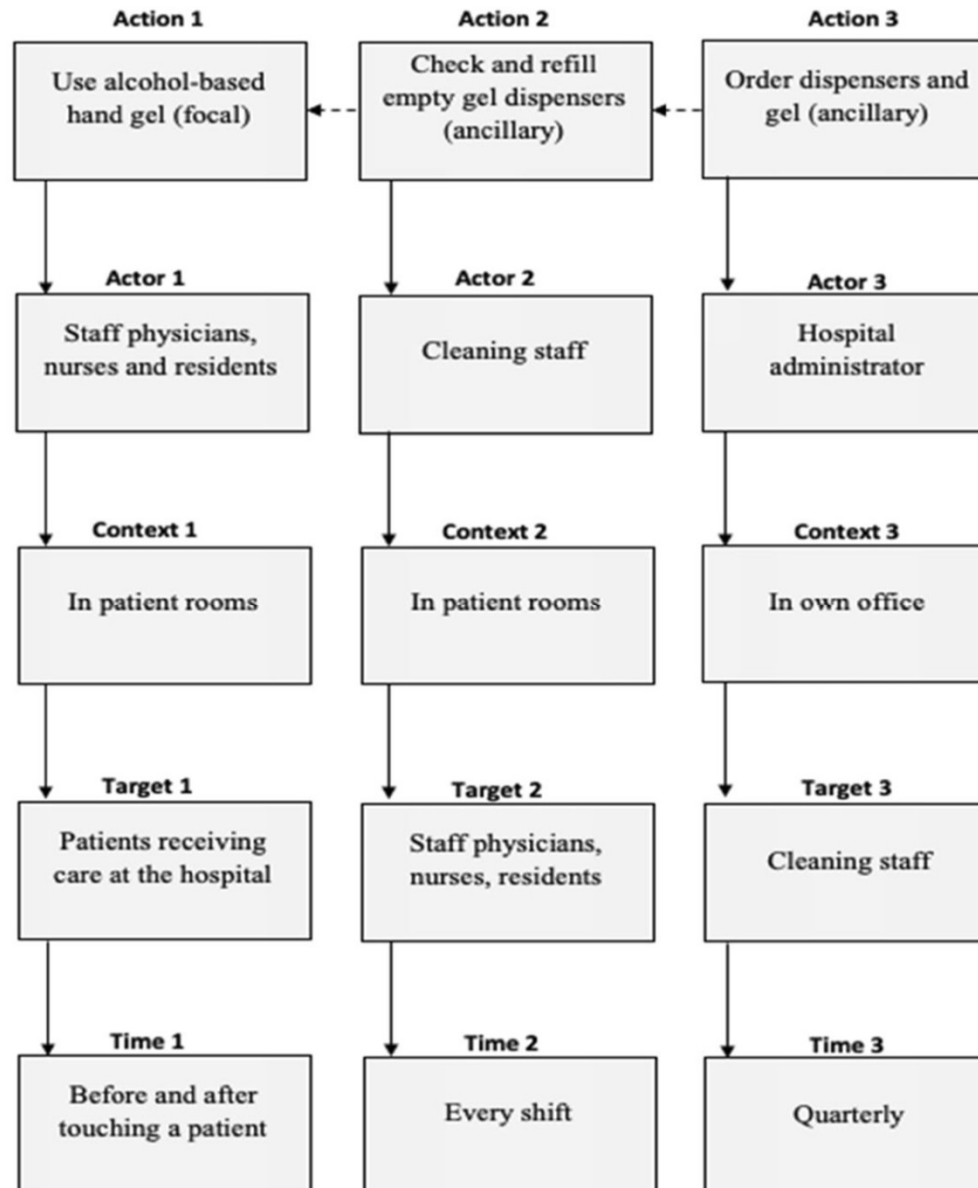
Specify the physical location, emotional context, or social setting *in which* the action is performed

## Target

Specify the person/people *with/for whom* the action is performed

## Time

Specify *when* the action is performed (the time/date/frequency)



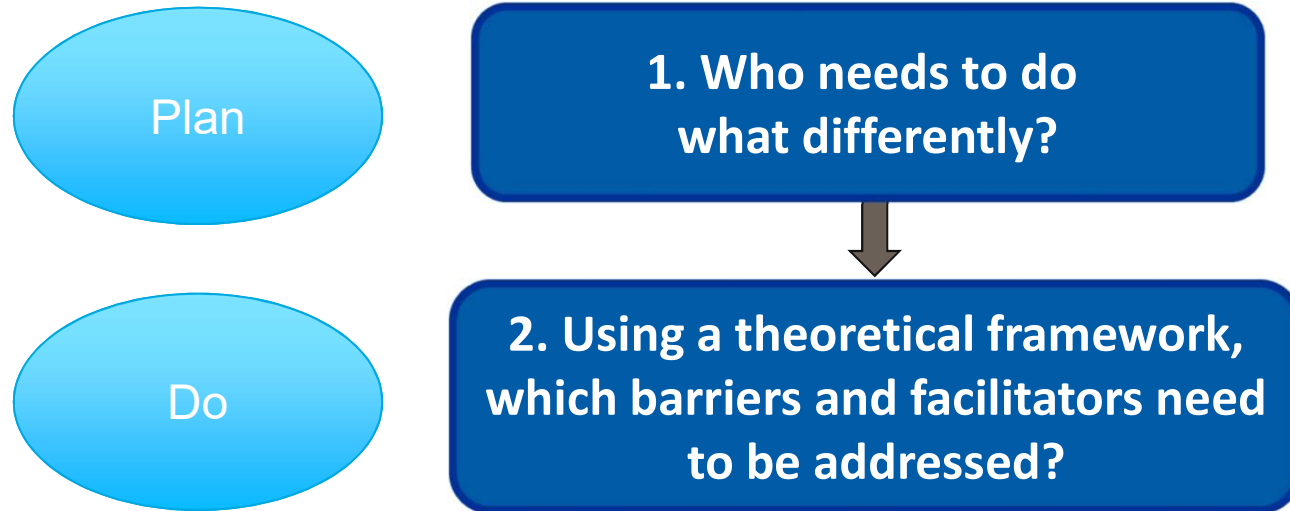
# Embedding implementation science to quality improvement

Plan

1. Who needs to do what differently?

Key message:  
Use the **AACTT framework** to specify the behaviors and clarify responsibilities

# Embedding implementation science to quality improvement





# Embedding implementation science to quality improvement

Do

2. Using a theoretical framework, which barriers and facilitators need to be addressed?

Traditional approaches:

*'Hunches...Common sense'*

*'it worked elsewhere'*

*lack rationale...*

*'just educate'*

**ISLAGIATT  
principle**

**'I Seemed Like  
A Good Idea At  
The Time'**

*Prof. Martin Eccles, implementation researcher, UK*



# Commonly used frameworks for assessing barriers

## COM-B

Capability

Motivation

Opportunity

## Theoretical Domains Framework (TDF)

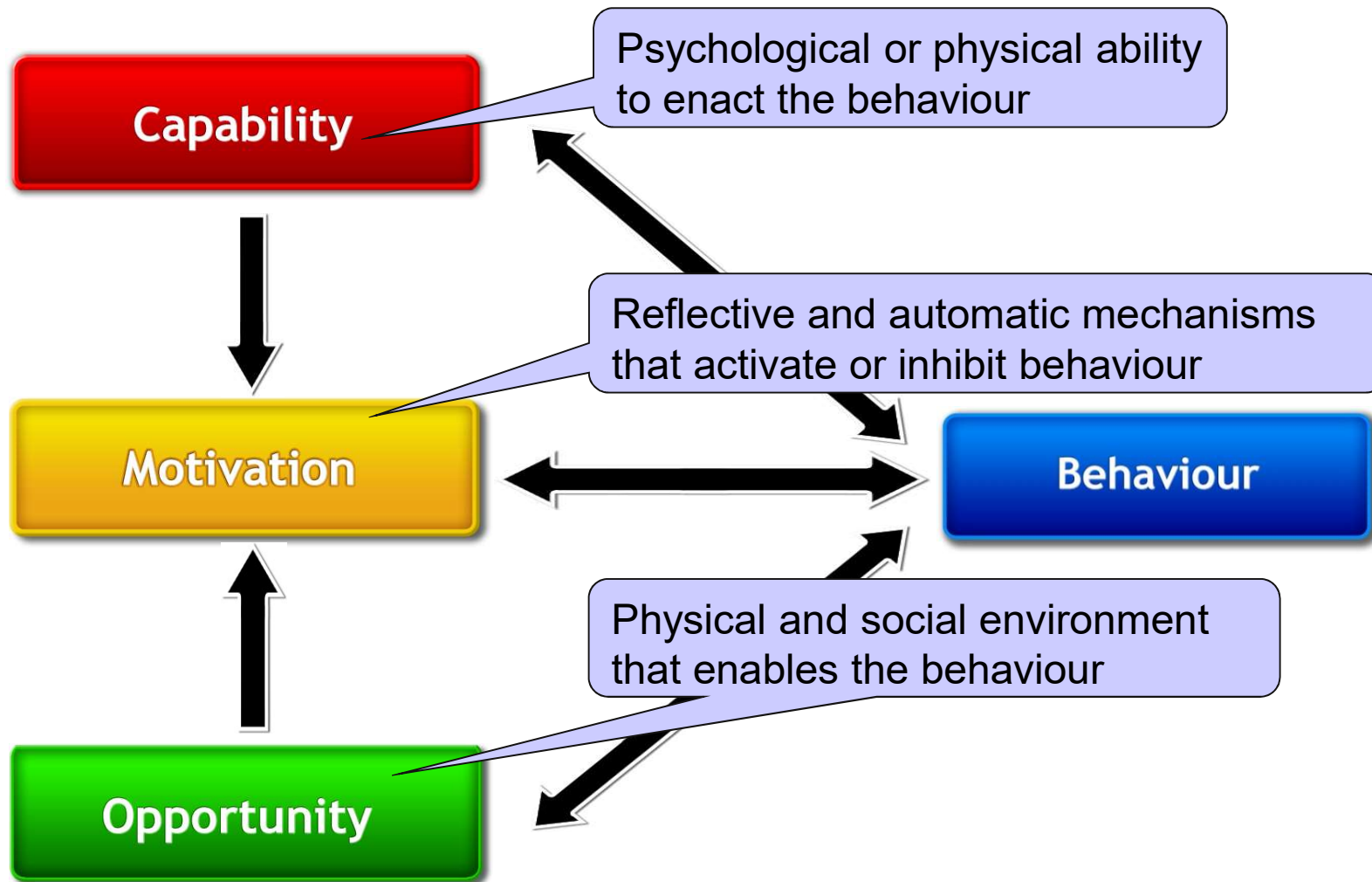


Michie, S., Atkins, L., & West, R. (2014). *The behaviour change wheel: A guide to designing interventions*. Silverback Publishing. [www.behaviourchangewheel.com](http://www.behaviourchangewheel.com)



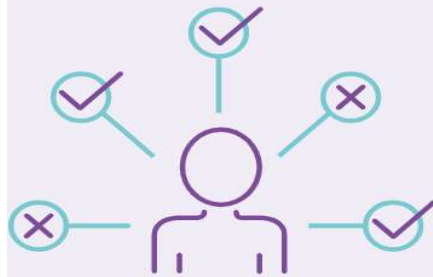
Figure adapted by The Center for Implementation

# COM-B



# COM-B

## Capability:



Capability refers to whether we have the knowledge, skills and abilities required to engage in a particular behaviour. **Its two components are:**

- Psychological Capability: our knowledge/ psychological strength, skills or stamina
- Physical Capability: our physical strength, skill or stamina

## Opportunity:



In the context of this model, opportunity refers to the external factors which make the execution of a particular behaviour possible. **Its two components are:**

- Physical Opportunity: opportunities provided by the environment, such as time, location and resource
- Social Opportunity: opportunities as a result of social factors, such as cultural norms and social cues

## Motivation:



Motivation refers to the internal processes which influence our decision making and behaviours. **Its two components are:**

- Reflective Motivation: reflective processes, such as making plans and evaluating things that have already happened
- Automatic Motivation: automatic processes, such as our desires, impulses and inhibitions

# COM-B

## 1. Capability:

- **Psychological Capability:** - How confident do you feel in your knowledge of proper hand hygiene practices?
- **Physical Capability:** - What resources or training would you find helpful in improving your hand hygiene practices?

## 2. Opportunity:

- **Physical Opportunity:** - Are there enough accessible hand hygiene stations in your work area?
- **Social Opportunity:** - How do your colleagues or supervisors influence your hand hygiene practices?

## 3. Motivation:

- **Reflective Motivation:** - What are your personal beliefs and attitudes toward the importance of hand hygiene?
- **Automatic Motivation:** - Are there any routine practices or habits that contribute to or hinder your hand hygiene behavior?



# Theoretical Domains Framework (TDF)

Domain	Definition	Sample Interview Question
Knowledge	An awareness of the existence of something	Do you know about x?
Skills	An ability or proficiency acquired through practice	Do you know how to do x?
Memory, attention and decision Processes	The ability to retain information, focus selectively on aspects of the environment and choose between two or more alternatives	Is x something you usually do?
Behavioural regulation	Anything aimed at managing or changing objectively observed or measured actions	Do you have systems that you could use for monitoring whether or not you have carried x?
Social/professional role and identity	A coherent set of behaviours and displayed personal qualities of an individual in a social or work setting	Is doing x compatible or in conflict with professional standards/identity?
Beliefs about capabilities	Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use	How difficult or easy is it for you to do x?
Optimism	The confidence that things will happen for the best or that desired goals will be attained	How confident are you that the problem of implementing x will be solved?
Beliefs about consequences	Acceptance of the truth, reality, or validity about outcomes of a behavior in a given situation	What do you think will happen if you do x?

# Theoretical Domains Framework (TDF)

Domain	Definition	Sample Interview Question
Intentions	A conscious decision to perform a behaviour or a resolve to act in a certain way	Have they made a decision to do x?
Goals	Mental representations of outcomes or end states that an individual wants to achieve	How much do they want to do x?
Reinforcement	Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus	Are there incentives to do x?
Emotion	A complex reaction pattern, involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personally significant matter or event	Does doing x evoke an emotional response?
Environmental context and resources	Any circumstance of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour	To what extent do physical or resource factors facilitate or hinder x?
Social influences	Those interpersonal processes that can cause individuals to change their thoughts, feelings, or behaviours	To what extent do social influences facilitate or hinder x?

# Consolidated Framework for Implementation Research (CFIR) 2.0

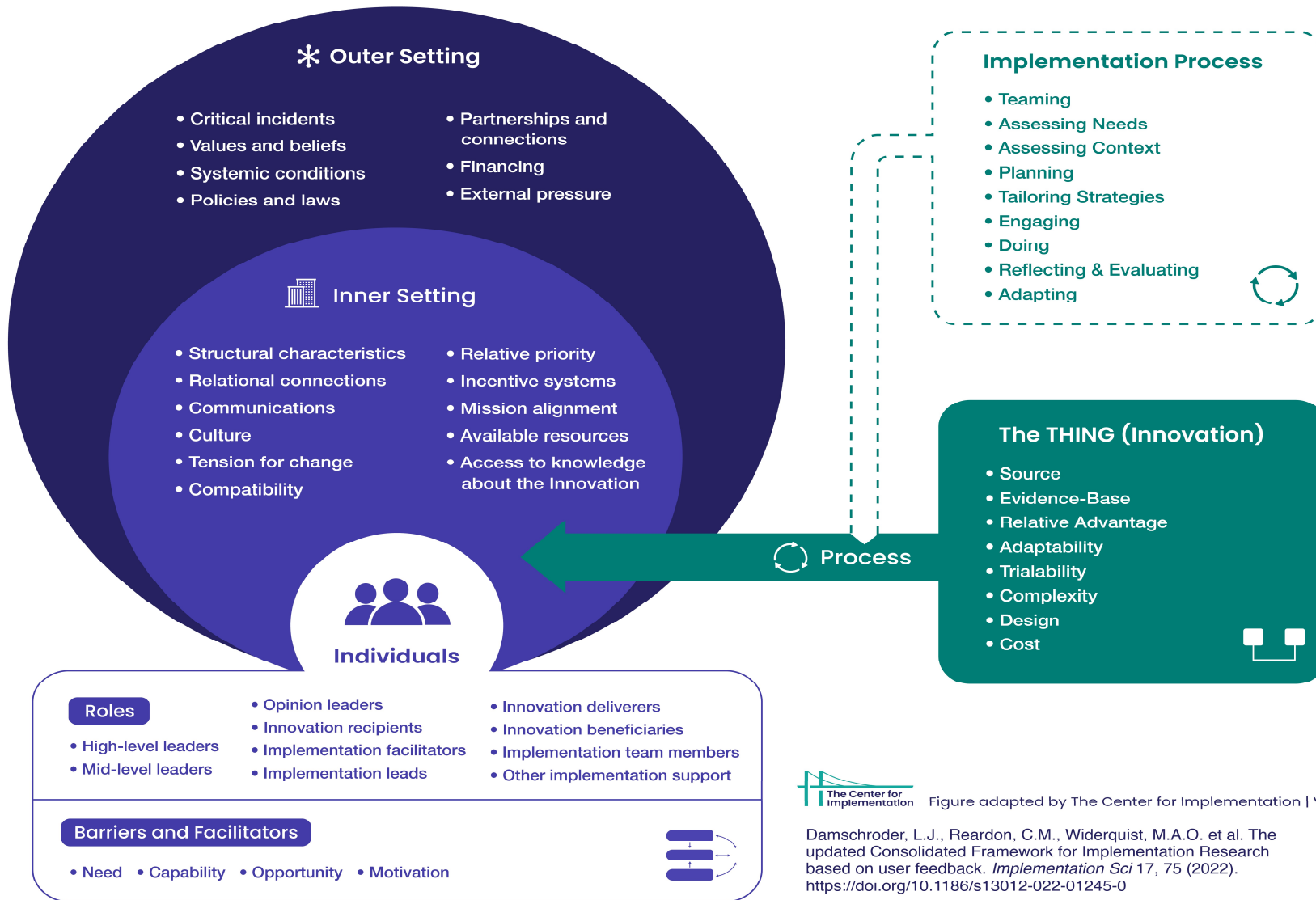
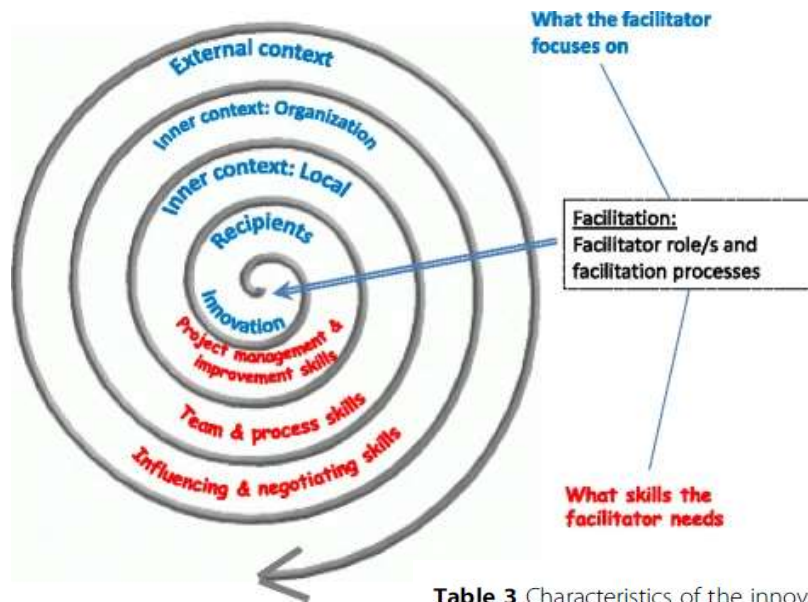


Figure adapted by The Center for Implementation | V2024.01

Damschroder, L.J., Reardon, C.M., Widerquist, M.A.O. et al. The updated Consolidated Framework for Implementation Research based on user feedback. *Implementation Sci* 17, 75 (2022). <https://doi.org/10.1186/s13012-022-01245-0>



# i-PARIHS Framework



$$SI = Fac^n (I + R + C)$$

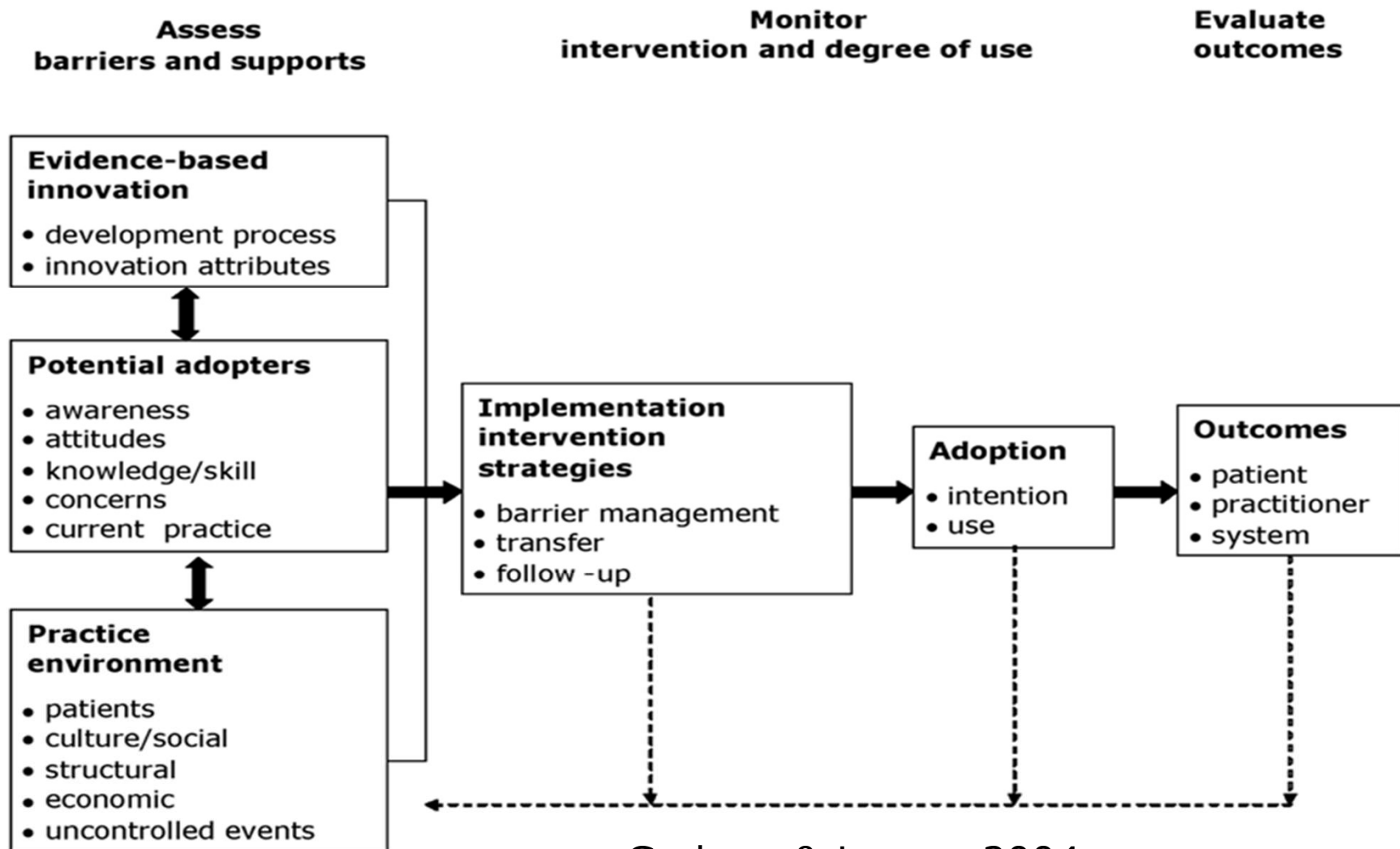
- SI = successful implementation
- Fac<sup>n</sup> = facilitation
- I = innovation
- R = recipients
- C = context

**Table 3** Characteristics of the innovation, recipients and context to be considered within the i-PARIHS framework

Innovation	Recipients	Context
Underlying knowledge sources	Motivation	Local level:
Clarity	Values and beliefs	Formal and informal leadership support
Degree of fit with existing practice and values (compatibility or contestability)	Goals	Culture
Usability	Skills and knowledge	Past experience of innovation and change
Relative advantage	Time, resources, support	Mechanisms for embedding change
Trialability	Local opinion leaders	Evaluation and feedback processes
Observable results	Collaboration and teamwork	Learning environment
	Existing networks	Organisational level:
	Power and authority	Organisational priorities
	Presence of boundaries	Senior leadership and management support
		Culture
		Structure and systems
		History of innovation and change
		Absorptive capacity
		Learning networks
		External health system level:
		Policy drivers and priorities
		Incentives and mandates
		Regulatory frameworks
		Environmental (in)stability
		Inter-organisational networks and relationships



# Ottawa Model of Research Use (OMRU)



Graham & Logan, 2004

# Embedding implementation science to quality improvement

Do

2. Using a theoretical framework, which barriers and facilitators need to be addressed?

Key message:  
use **existing frameworks (e.g.: COM-B; TDF; CFIR; i-PARIHS; OMRU)** to assess barriers

# Embedding implementation science to quality improvement

Plan

Do

1. Who needs to do what differently?

2. Using a theoretical framework, which barriers and facilitators need to be addressed?

3. Which intervention components could overcome the modifiable barriers and enhance the facilitators?

# Embedding implementation science to quality improvement

Do

## 3. Which intervention components could overcome the modifiable barriers and enhance the facilitators?

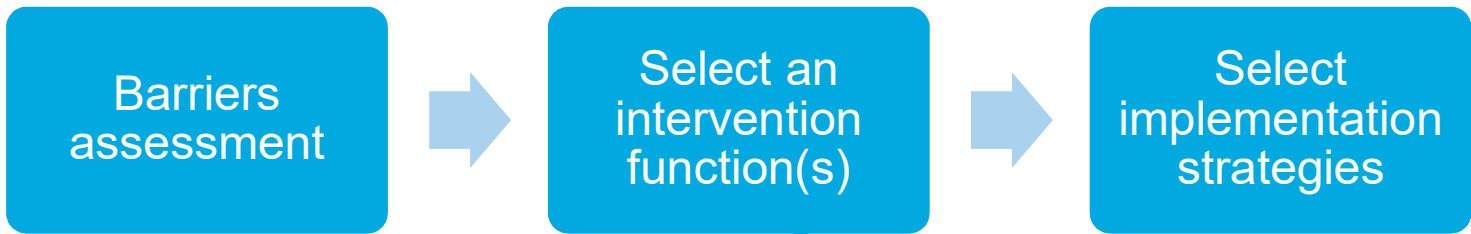
- Most complex and challenging part
- No magic bullets
- Choice of implementation strategies should be based upon:
  - 'Diagnostic' assessment of barriers
  - Understanding of mechanism of action
  - Empirical evidence about effects
  - Engage stakeholders
  - Available resources
  - Practicalities, logistics etc.

# Embedding implementation science to quality improvement

Do

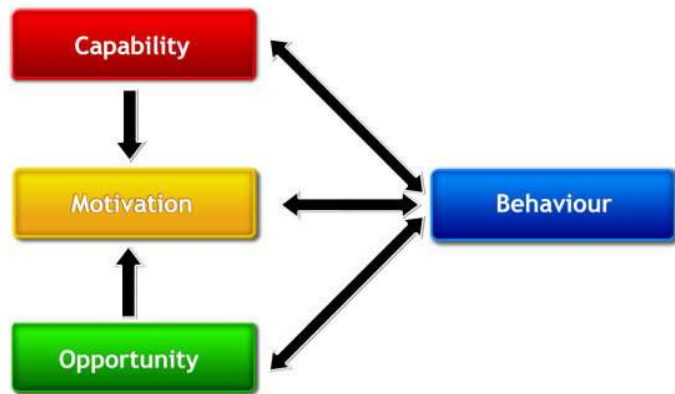
**3. Which intervention components could overcome the modifiable barriers and enhance the facilitators?**

- **Three step approach**

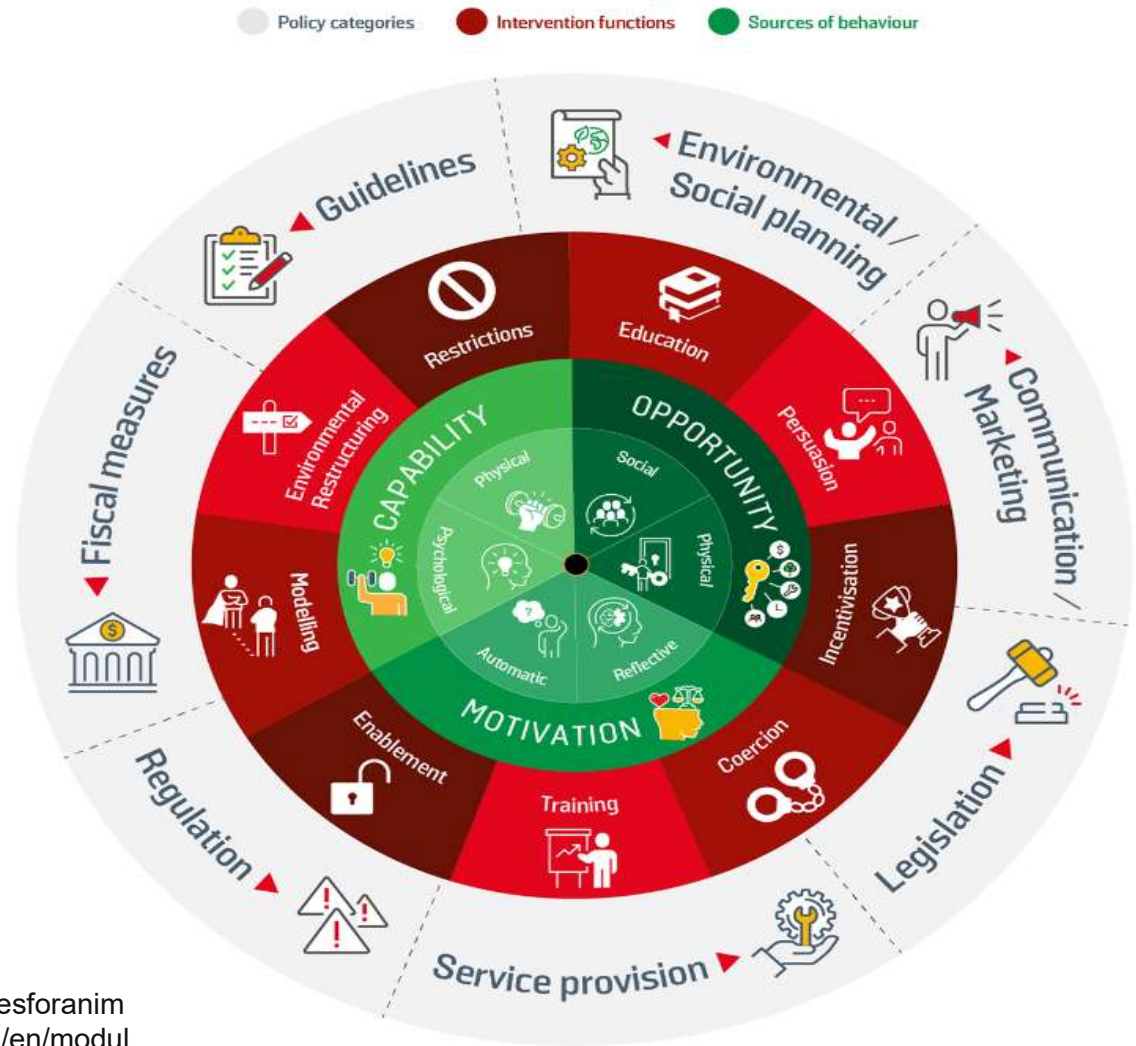


The underlying function a change strategy would serve – you can think of this as the “purpose” of the change strategy

# Barrier assessment → intervention function → implementation strategies


















## Behaviour change wheel



# Barrier assessment → intervention function → implementation strategies

Intervention Function	Definition
Education	Increasing knowledge or understanding
Persuasion	Using communication to induce positive or negative feelings or stimulate action
Incentivization	Creating expectation of reward
Enablement	Increasing means/reducing barriers to increase capability or opportunity
Training	Imparting skills
Coercion	Creating expectation of punishment or cost
Restriction	Using rules to reduce the opportunity to engage in the target behavior (or increase the opportunity to engage in competing behaviors)
Environmental Restructuring	Changing the physical or social context
Modelling	Providing an example for people to aspire to or imitate

# Barrier assessment → intervention function → implementation strategies

COMB – Intervention Functions										
	 Education	 Persuasion	 Incentivisation	 Coercion	 Training	 Restriction	 Environmental restructuring	 Modelling	 Enablement	
 Physical capability					✓					✓
 Psychological capability	✓				✓					✓
 Physical opportunity					✓	✓	✓			✓
 Social opportunity						✓	✓	✓		✓
 Automatic motivation		✓	✓	✓	✓		✓	✓		✓
 Reflective motivation	✓	✓	✓	✓						✓



# Barrier assessment → intervention function → implementation strategies

TDF Domain	Intervention Function								
	Coercion	Education	Enablement	Environmental restructuring	Incentivisation	Modelling	Persuasion	Restriction	Training
Knowledge		X	X						X
Cognitive & interpersonal skills		X	X						X
Physical skills			X						X
Memory, attention and decision processes		X	X						X
Behavioural regulation		X	X						X
Social/professional role	X	X	X	X	X	X	X		
Identity	X	X	X	X	X	X	X		
Beliefs about capabilities	X	X			X		X		
Optimism	X	X	X	X	X	X	X		
Intentions	X	X			X		X		
Goals	X	X			X		X		
Beliefs about consequences	X	X			X		X		
Reinforcement	X		X	X	X	X	X		
Emotion	X		X	X	X	X	X		
Environmental context and resources			X	X				X	
Social influences			X	X				X	
<i>Total selected:</i>									

# Barrier assessment → intervention function → implementation strategies

## The Behavior Change Technique Taxonomy (v1) of 93 Hierarchically Clustered Techniques: Building an International Consensus for the Reporting of Behavior Change Interventions

Susan Michie, DPhil, CPsychol • Michelle Richardson, PhD • Marie Johnston, PhD, CPsychol • Charles Abraham, DPhil, CPsychol • Jill Francis, PhD, CPsychol • Wendy Hardeman, PhD • Martin P. Eccles, MD • James Cane, PhD • Caroline E. Wood, PhD

Published online: 20 March 2013

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### Abstract

*Background* CONSORT guidelines call for precise reporting of behavior change interventions: we need rigorous methods of characterizing active content of interventions with precision and specificity.

*Objectives* The objective of this study is to develop an extensive, consensually agreed hierarchically structured taxonomy of techniques [behavior change techniques (BCTs)] used in behavior change interventions.

*Methods* In a Delphi-type exercise, 14 experts rated labels and definitions of 124 BCTs from six published classification systems. Another 18 experts grouped BCTs

according to similarity of active ingredients in an open-sort task. Inter-rater agreement amongst six researchers coding 85 intervention descriptions by BCTs was assessed.

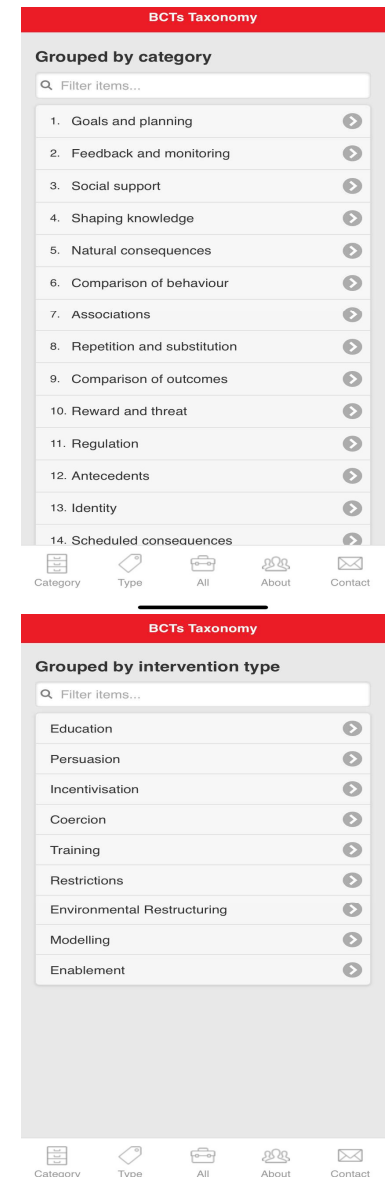
*Results* This resulted in 93 BCTs clustered into 16 groups. Of the 26 BCTs occurring at least five times, 23 had adjusted kappas of 0.60 or above.

*Conclusions* “BCT taxonomy v1,” an extensive taxonomy of 93 consensually agreed, distinct BCTs, offers a step change as a method for specifying interventions, but we anticipate further development and evaluation based on international, interdisciplinary consensus.

# Barrier assessment → intervention function → implementation strategies

- Some online tools (if you use TDF/COM-B to assess barriers)
  - Search in Google: StrategEase tool
    - <https://thecenterforimplementation.com/strategie-tool>
    - StrategEase Tool Worksheets
  - Search in Google: Theory and Techniques Tool
    - <https://theoryandtechniquetool.humanbehaviourchange.org/tool>
  - Search in APP store: BCT Taxonomy
    - BCT means: Behavior Change Techniques

You can still refer to these tools if you are using other frameworks to assess barriers



# Developing implementation strategies



Barriers  
assessment



Select an  
intervention  
function(s)



Select  
implementation  
strategies

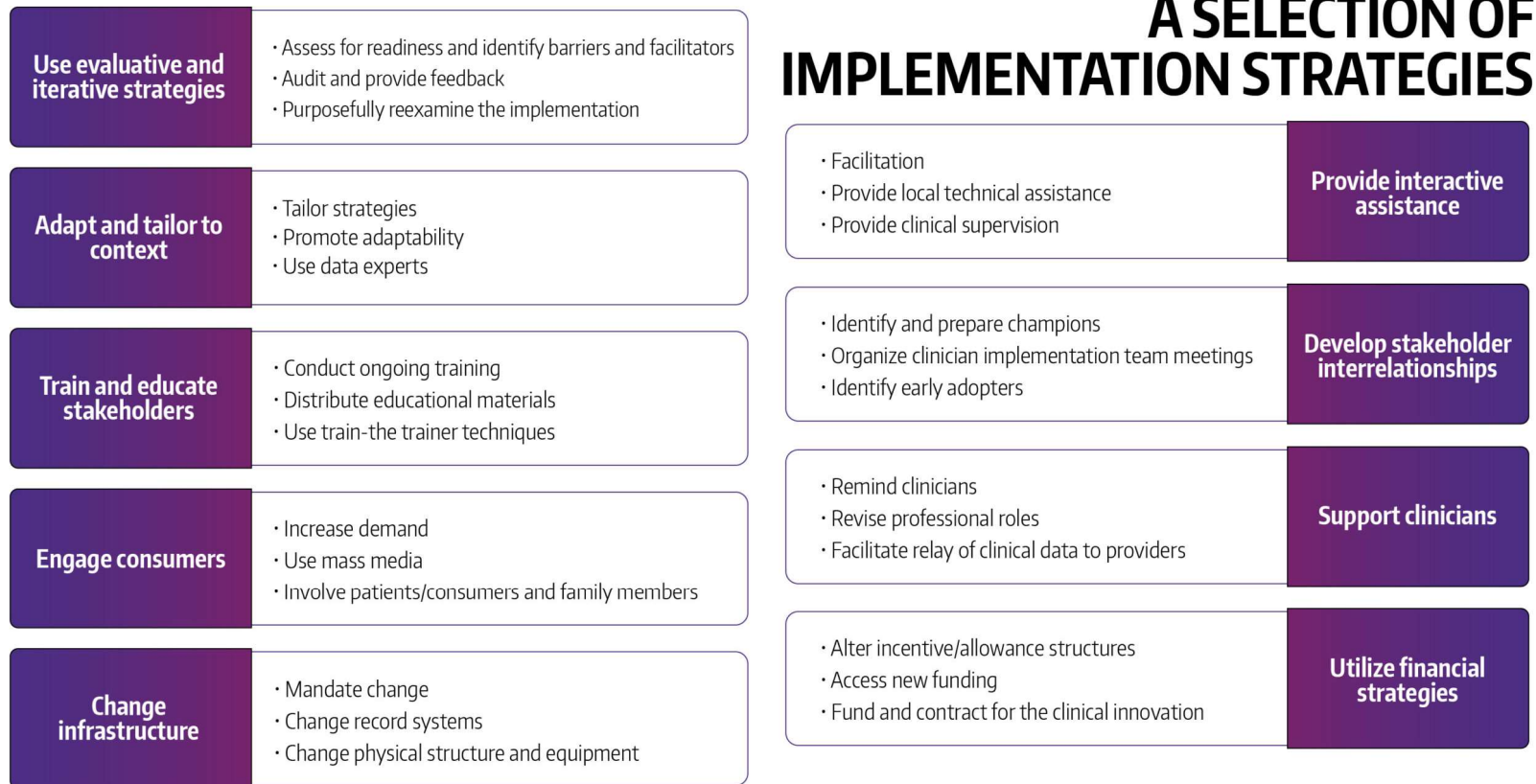
Implementation  
scientists are  
here to help 😊

Developing implementation strategies from a **behavioral science** perspective has been popular and well-studied. **BUT** it is not the only way! There're also critics.



# Developing implementation strategies

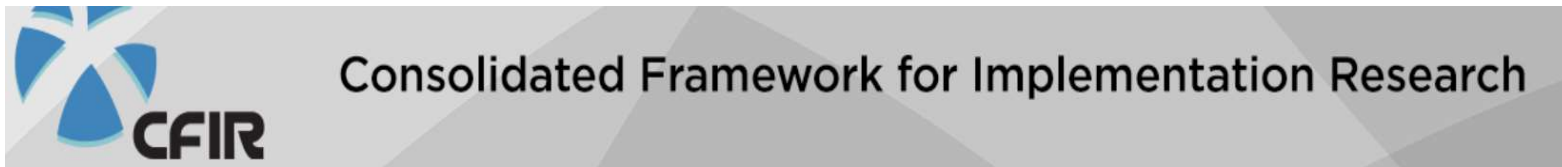
- Some tools (if you use CFIR to assess barriers)



## Expert Recommendations for Implementing Change (ERIC) Taxonomy

# Developing implementation strategies

- Some tools (if you use CFIR to assess barriers)



## Tools

This page provides a list of tools, templates, and a research.

- [Interview Guide Tool](#)
- [CFIR-ERIC Strategy Matching Tool](#)
- [CFIR Tools/ Templates](#)
- [Additional Resources](#)

Strategies for facilitating the delivery of cluster randomized trials in hospitals: A study informed by the **CFIR-ERIC matching tool**

A Weir, J Presseau, S Kitto, I Colman... - Clinical Trials, 2021 - journals.sagepub.com  
... **CFIR-ERIC matching tool** was created and made available as an Excel download online at [www.cfirguide.org](http://www.cfirguide.org). This **tool** ... table with the **CFIR** construct **matched** to the **ERIC** strategies with ...  
☆ Save Cite Cited by 13 Related articles All 4 versions

Identification of implementation strategies using the **CFIR-ERIC matching tool** to mitigate barriers in a primary care model for older veterans

MH Shin, ARL Montano, OL Adjognon... - The ..., 2023 - academic.oup.com  
... the **CFIR-ERIC Matching Tool** as a way to link these two key resources to help users understand which **ERIC** implementation strategies will best address which **CFIR** barriers. The ...  
☆ Save Cite Cited by 4 Related articles All 7 versions

[HTML] Comparing the **CFIR-ERIC matching tool** recommendations to real-world strategy effectiveness data: a mixed-methods study in the Veterans Health ...

V Yakovchenko, C Lamorte, MJ Chinman... - Implementation ..., 2023 - Springer  
... We also used the **CFIR-ERIC Matching Tool** in a reverse or backward manner to identify which barriers were being addressed by the strategies that were used in FY18 and FY19. For ...  
☆ Save Cite All 10 versions

[HTML] **Matching** barriers and facilitators to implementation strategies: recommendations for community settings

LE Balis, B Houghtaling - Implementation Science Communications, 2023 - Springer  
... First, we document the process of using the **CFIR-ERIC match tool** to select implementation strategies to increase uptake of nutrition and physical activity policy, systems, and ...  
☆ Save Cite All 9 versions

# Developing implementation strategies

- Other resources for consideration

Implementation strategy	Magnitude of effect (median absolute improvement of care)	Source
Printed educational material (n=45)	2.0% (IQR 0% to +11.0%)	Gigure et al. 2012
Educational meetings (n=81)	6.0% (IQR +1.8% to +15.3%)	Forsetlund et al. 2009
Education outreach (n=69)	5.6% (IQR +3.0% to +9.0%)	O'Brien et al. 2007
Local opinion leaders (n=18)	12.0% (IQR +6.0% to +14.5%)	Flodgren et al. 2011
Audit and feedback (n=82)	4.3% (IQR +0.5% to +16%)	Ivers et al. 2012
Reminders (n=32)	11.2% (IQR +6.5% to +19.6%)	Arditi et al. 2012



# Developing implementation strategies

- **The APEASE criteria**
  - Affordability
  - Practicability
  - Effectiveness and cost-effectiveness
  - Acceptability
  - Side-effects/safety
  - Equality

# Embedding implementation science to quality improvement

Plan

Do

1. Who needs to do what differently?

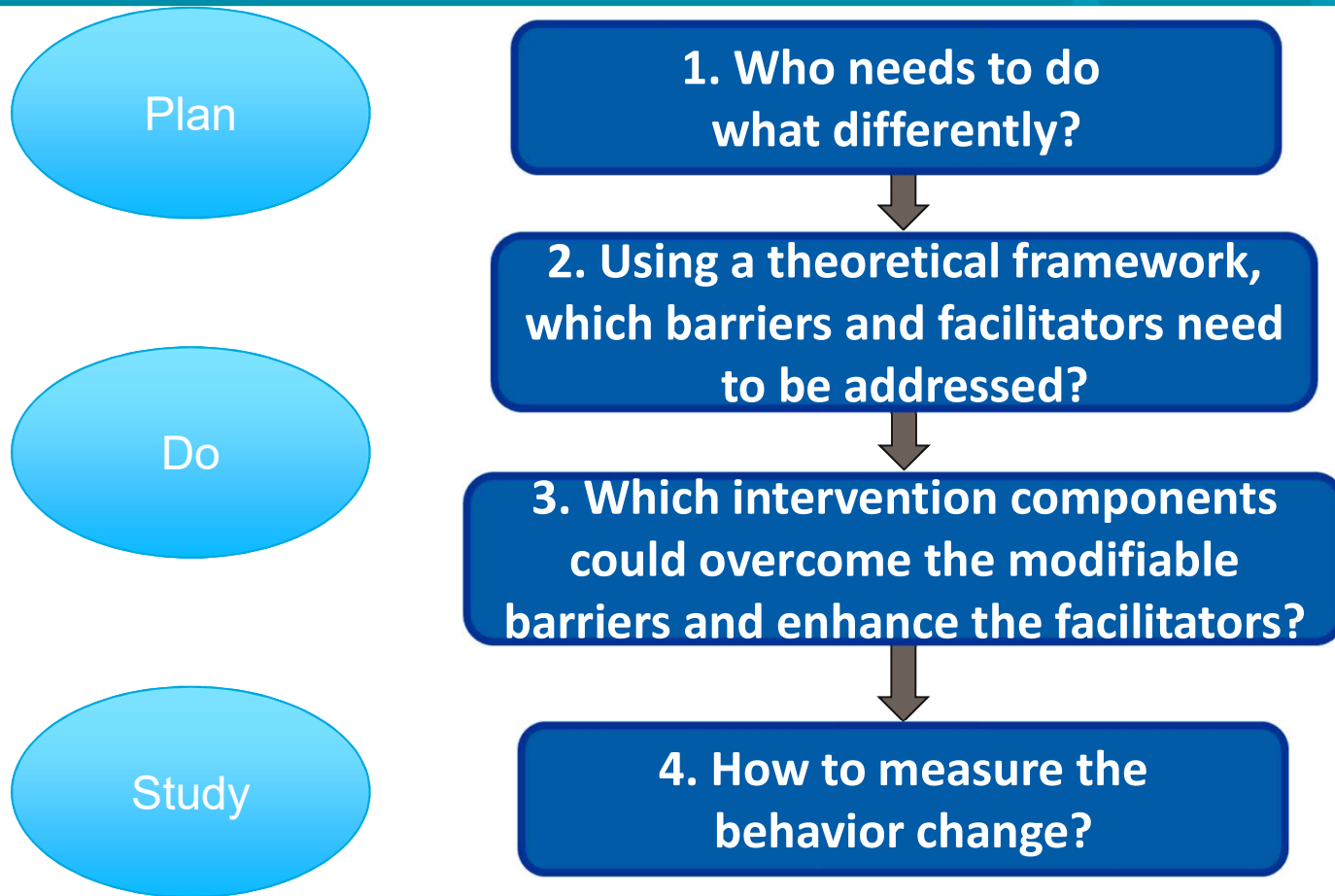
2. Using a theoretical framework, which barriers and facilitators need to be addressed?

3. Which intervention components could overcome the modifiable barriers and enhance the facilitators?

Key message: refer to existing techniques/tools to **co-develop** your implementation strategies

ench et al., 2012, Implementation Science

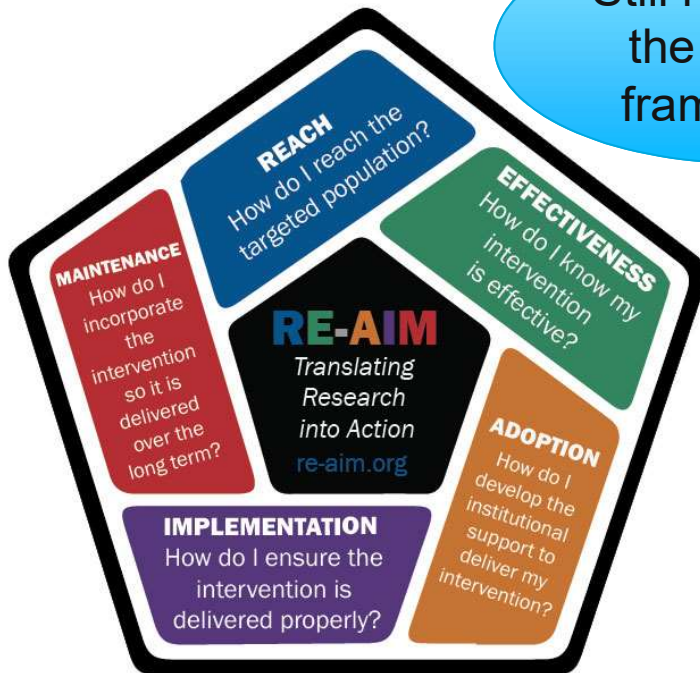
# Embedding implementation science to quality improvement



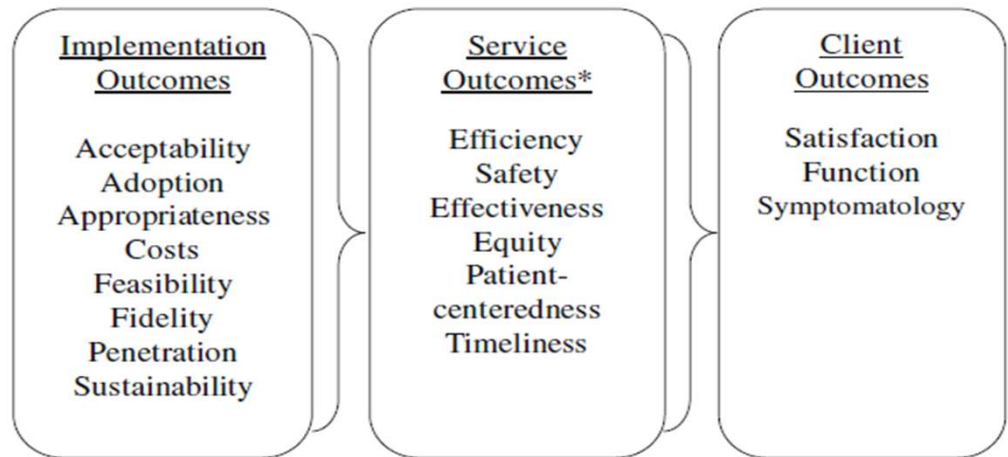
# Evaluate outcomes

## Did people change their behaviors?

Still remember the AACTT framework?



Glasgow et al. 1998



\*IOM Standards of Care

Proctor et al. 2011

# Evaluate outcomes

## Sustainability

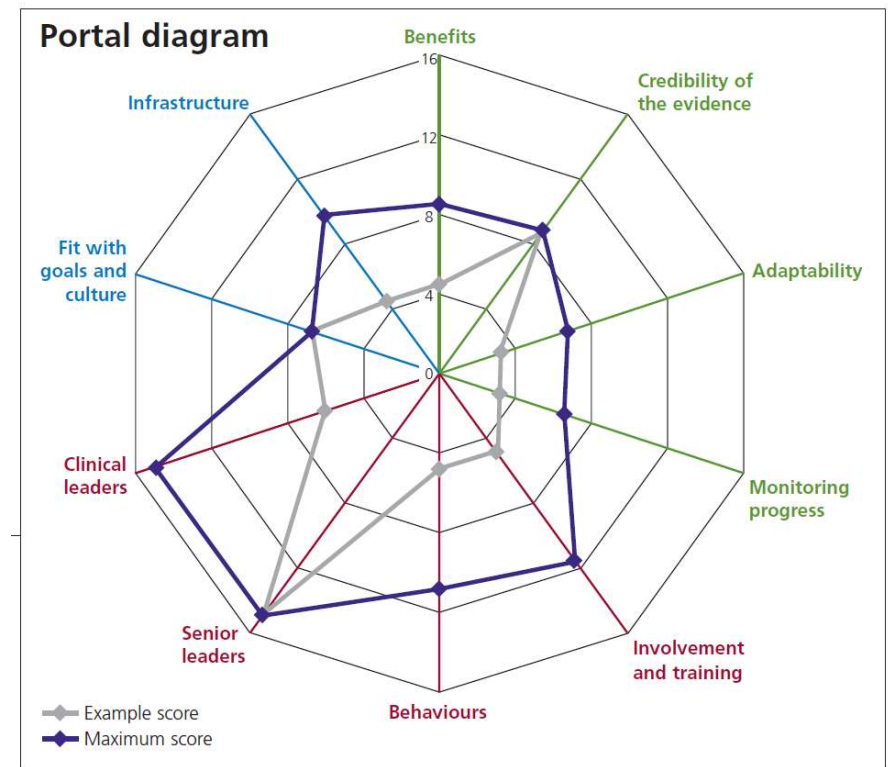
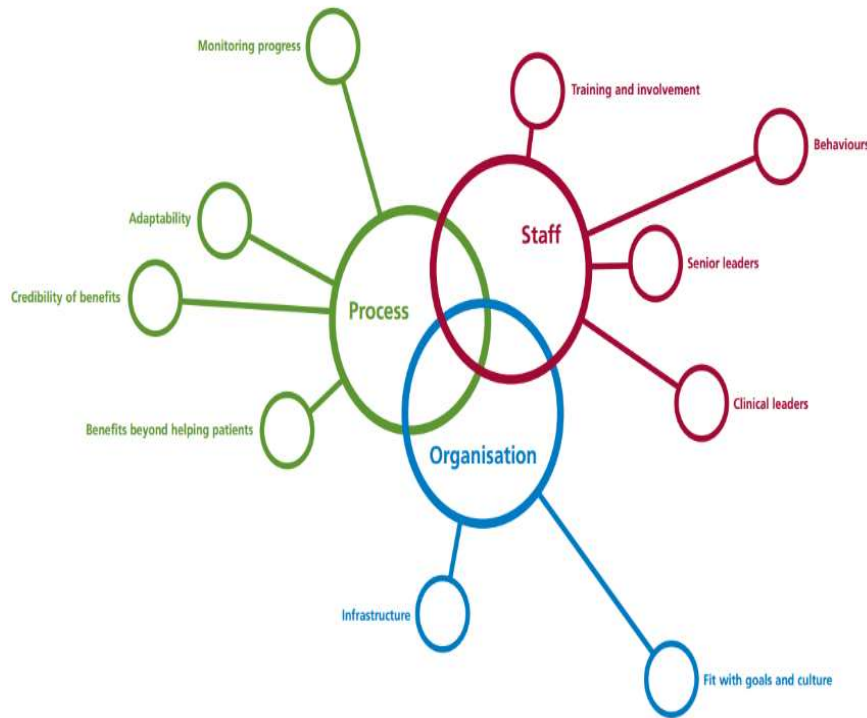
- “One of the most significant translational research problems of our time” (Proctor et al., 2015)
- Up to 70% of all organizational change fails to survive (Daft & Noe, 2000. Beer & Nohria, 2001)

Think about sustainability at the very beginning of the QI project. Always ask:

- Is our QI initiative able to sustain?
- How can we do to ensure sustainability?

# Evaluate outcomes

- Sustainability assessment tool



# Evaluate outcomes

- Sustainability assessment tool

Moullin et al. *Implementation Science* (2021) 16:86  
<https://doi.org/10.1186/s13012-021-01152-w>

Implementation Science

RESEARCH

Open Access

## Provider REport of Sustainment Scale (PRESS): development and validation of a brief measure of inner context sustainment



Joanna C. Moullin<sup>1,2</sup>, Marisa Sklar<sup>2,3,4</sup>, Mark G. Ehrhart<sup>5</sup>, Amy Green<sup>2,6</sup> and Gregory A. Aarons<sup>2,3,4\*</sup>

### Table 2 Provider REport of Sustainment Scale (PRESS)

*The following questions ask about [EBP] in your [setting]. Please indicate the extent to which you agree with the following items*

1. Staff use [EBP] as much as possible when appropriate
2. Staff continue to use [EBP] throughout changing circumstances
3. [EBP] is a routine part of our practice

Anchors 0 = not at all, 1 = to a slight extent, 2 = to a moderate extent, 3 = to a great extent, and 4 = to a very great extent



# Embedding implementation science to quality improvement

Plan

Do

Study

1. Who needs to do what differently?

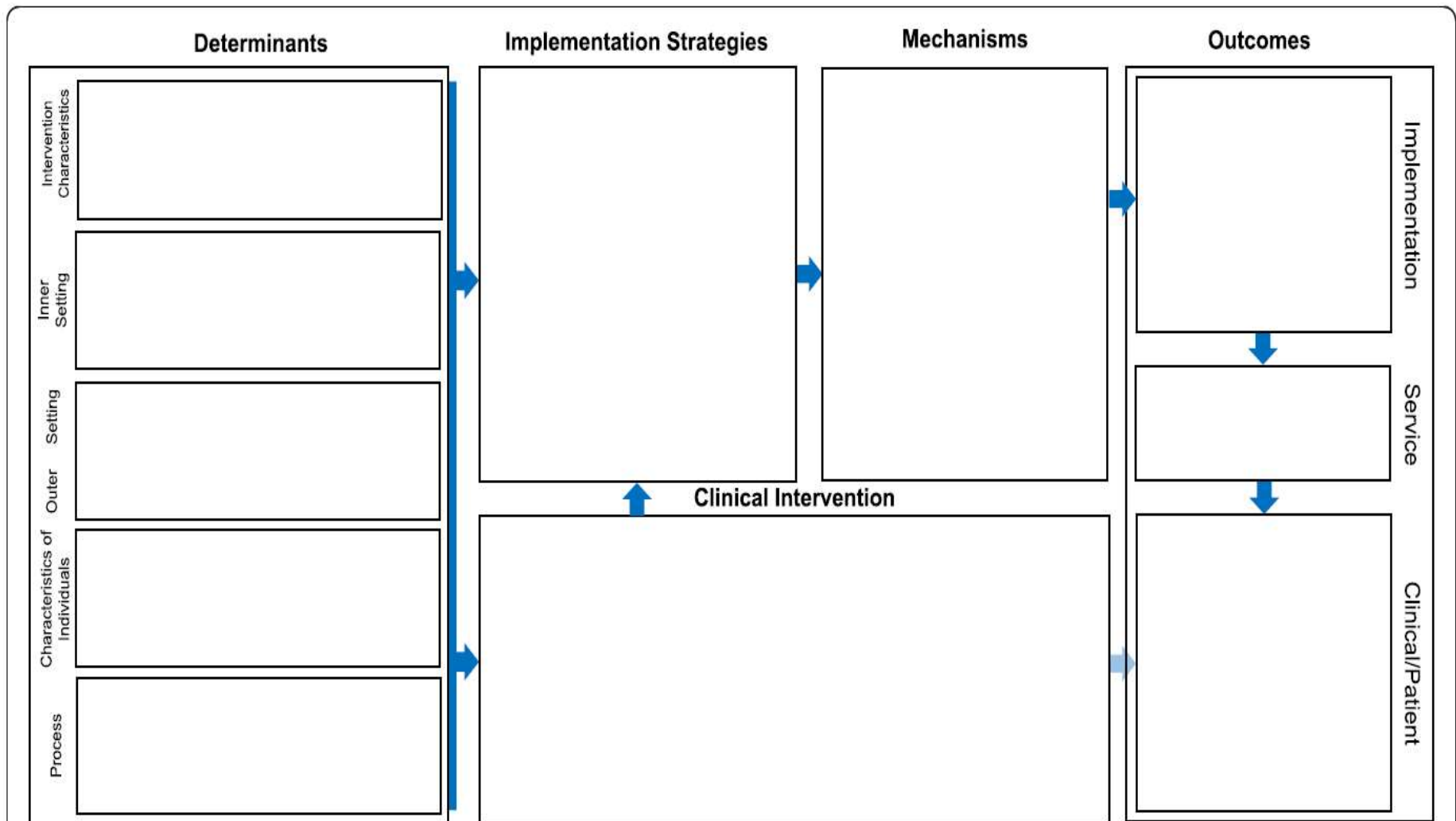
2. Using a theoretical framework, which barriers and facilitators need to be addressed?

3. Which intervention components could overcome the modifiable barriers and enhance the facilitators?

4. How to measure the behavior change?

Key message: use tools from ImpSci for outcome evaluation

# Implementation Research Logic Model



**Fig. 2** Implementation Research Logic Model (IRLM) Standard Form with Intervention. *Notes.* Domain names in the determinants section were drawn from the Consolidated Framework for Implementation Research. The format of the outcomes column is from Proctor et al. 2011

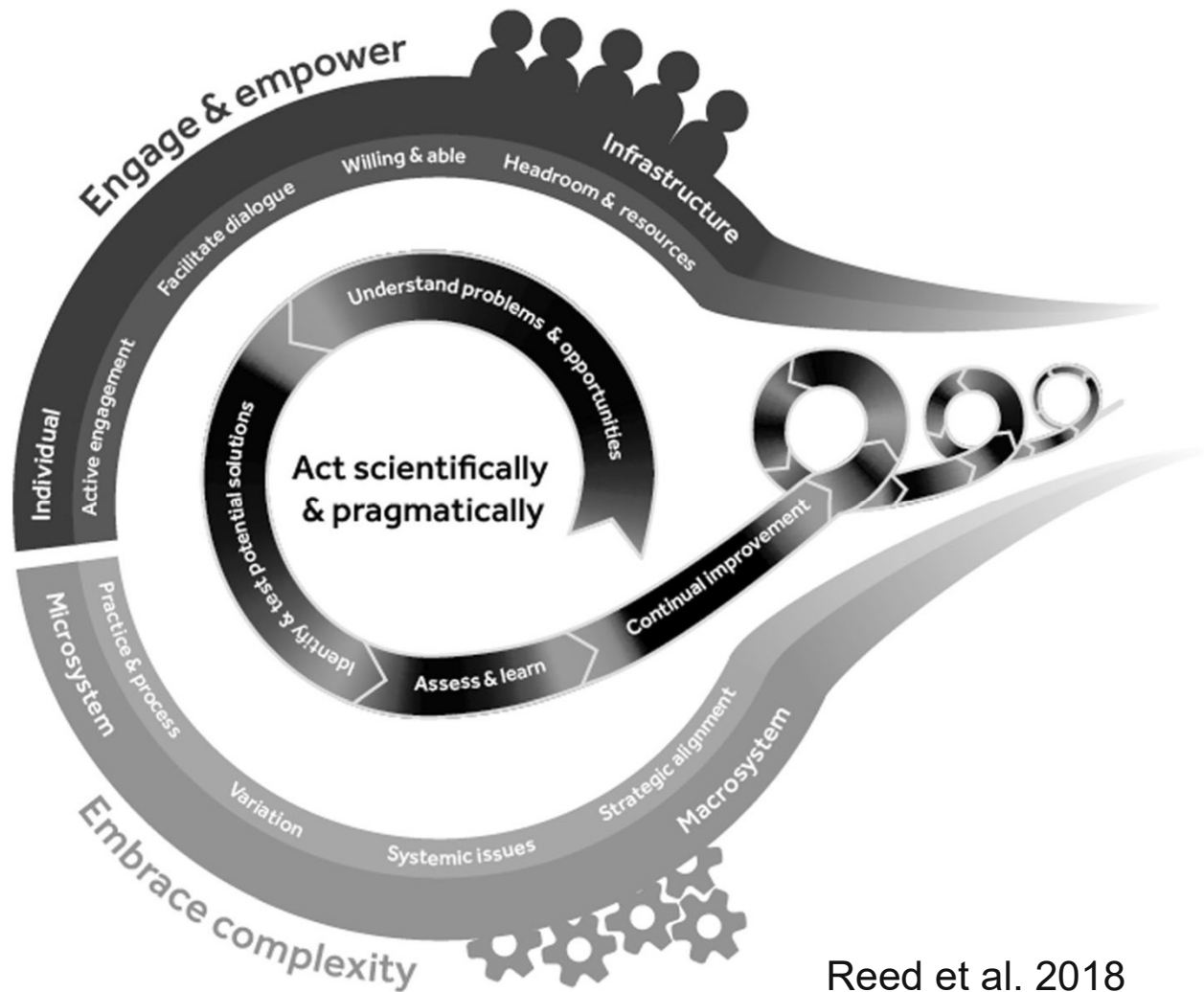
# Complexity Science Lens

**“Every intervention, from the simplest to the most complex, has an effect on the overall system, and the overall system has an effect on every intervention”**

World Health Organization (2009). System Thinking for Health Systems Strengthening

Dream big. Start small.

Small change can make big impact.



Reed et al. 2018

## Additional resources

Centre for Implementation Research, Ottawa Hospital Research Institute

[Past Events & Presentations – Centre for Implementation Research \(ohri.ca\)](https://www.ohri.ca)

[Practicing Knowledge Translation Workbook](#)

Fahim, C., Courvoisier, M., Somani, N., et al. (2023). *Creation of a theoretically rooted workbook to support implementers in the practice of knowledge translation*. Implementation Science Communications, 4(1), 99. (Additional file 3)

[The Center for Implementation](#)

**Thank you**