Arno Parolini, Wei Wu Tan, & Colleen Jeffreys

Research Design and Data Systems for Measuring Implementation Success in Real-World Contexts

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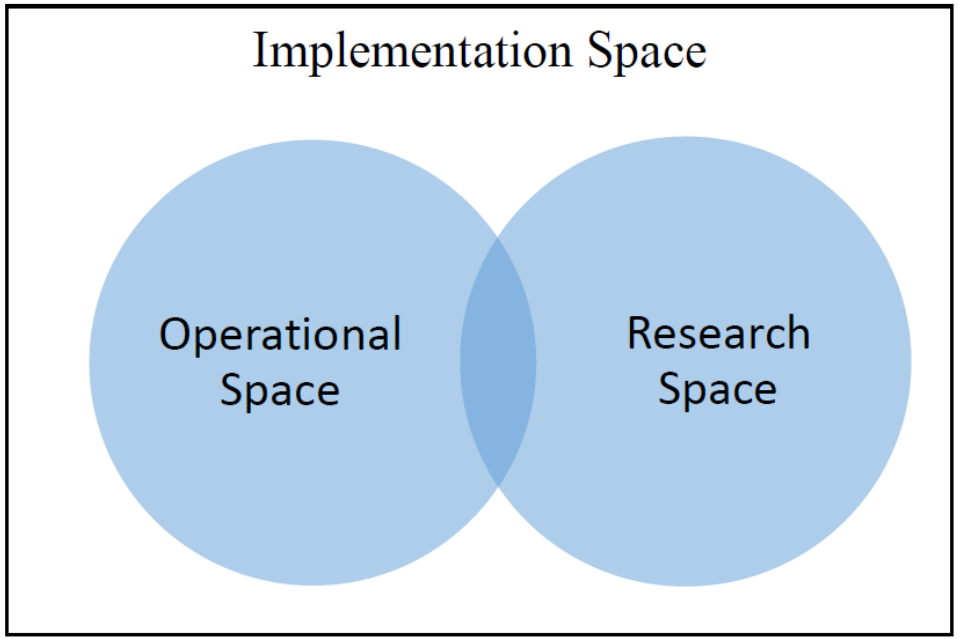
Implementation Science ➡ Implementation and Sustainment of EBPs in real world contexts

Ultimate goal ➡ Improve outcomes for clients through continuous optimisation of service provision

Direct relevance for practice which results in inseparability of implementation research and operational contexts (e.g. case management and business processes)



Source: Tan, Jeffreys & Parolini (2018)

This is particularly relevant considering large dynamic evidence-based systems of care

1. Scaling
2. Change at multiple levels of system
3. Multiple EBPs

(Chambers, 2012; Proctor, 2014)

Implementation success ➡ Intervention and Implementation effectiveness critical (Proctor et al., 2011)

Often occur at different levels in a complex dynamic system and influence each other!

Two major challenges for researchers and practitioners:

- How to measure and analyse implementation success across the system?
- How to collect data on implementation in a real world practice environment?

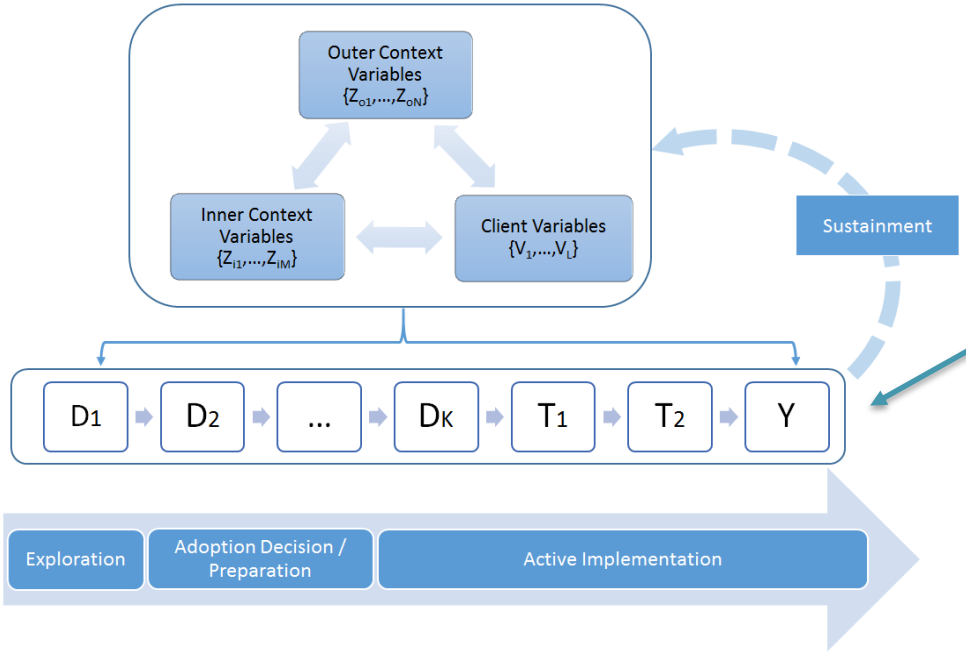
Two types of data collection systems:

- Administrative databases
- Research data collection systems (e.g., surveys)

Implementation of a data system for measuring implementation success is itself an intervention in the implementation system!

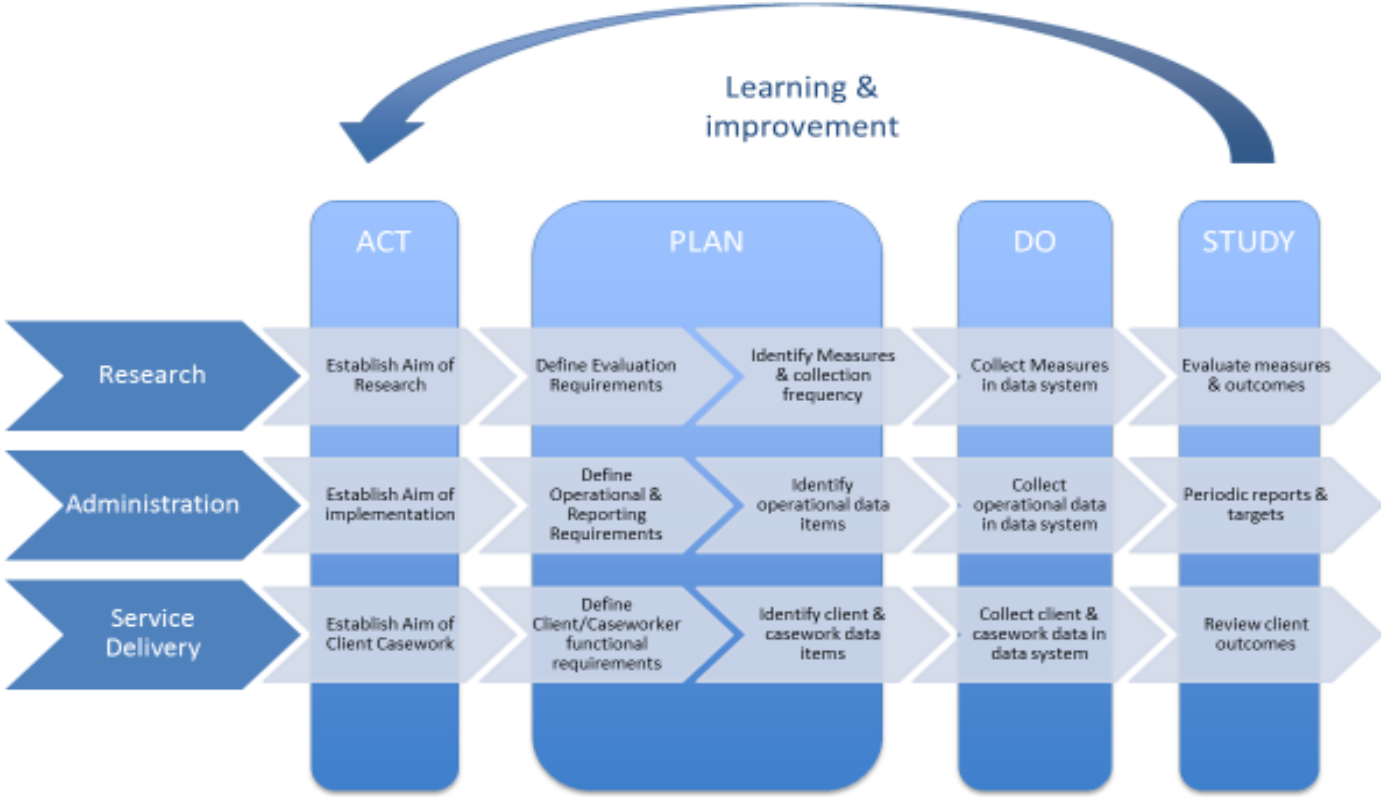
Flexible hybrid data systems that combine elements of both worlds and consider the complete implementation space

Multiple-Level Decision Juncture Model



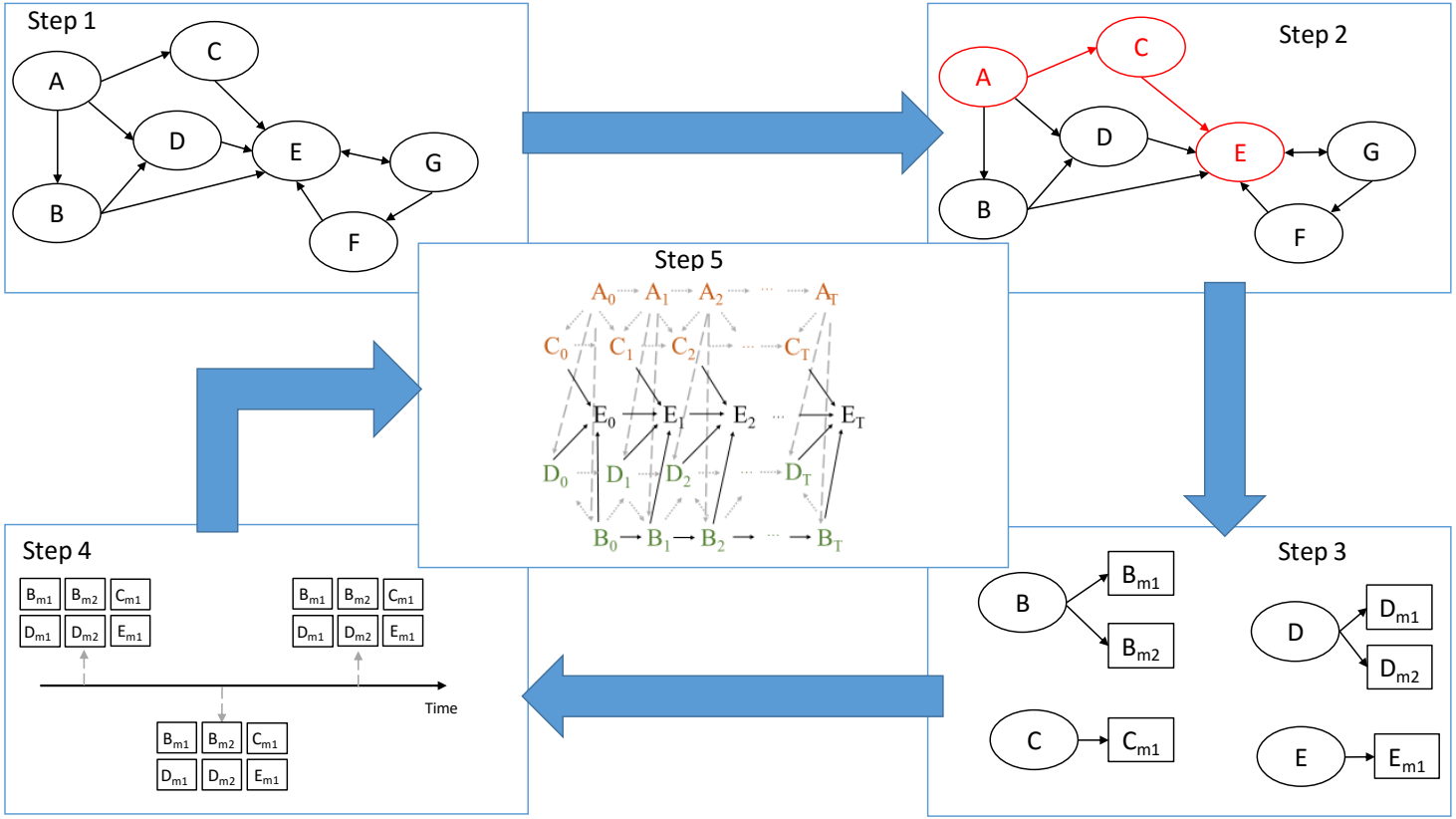
Each decision is formulated as a structural equation representing a causal relationship between the dependent variable and covariates.

Source: Parolini, Tan & Shlonsky (2017)

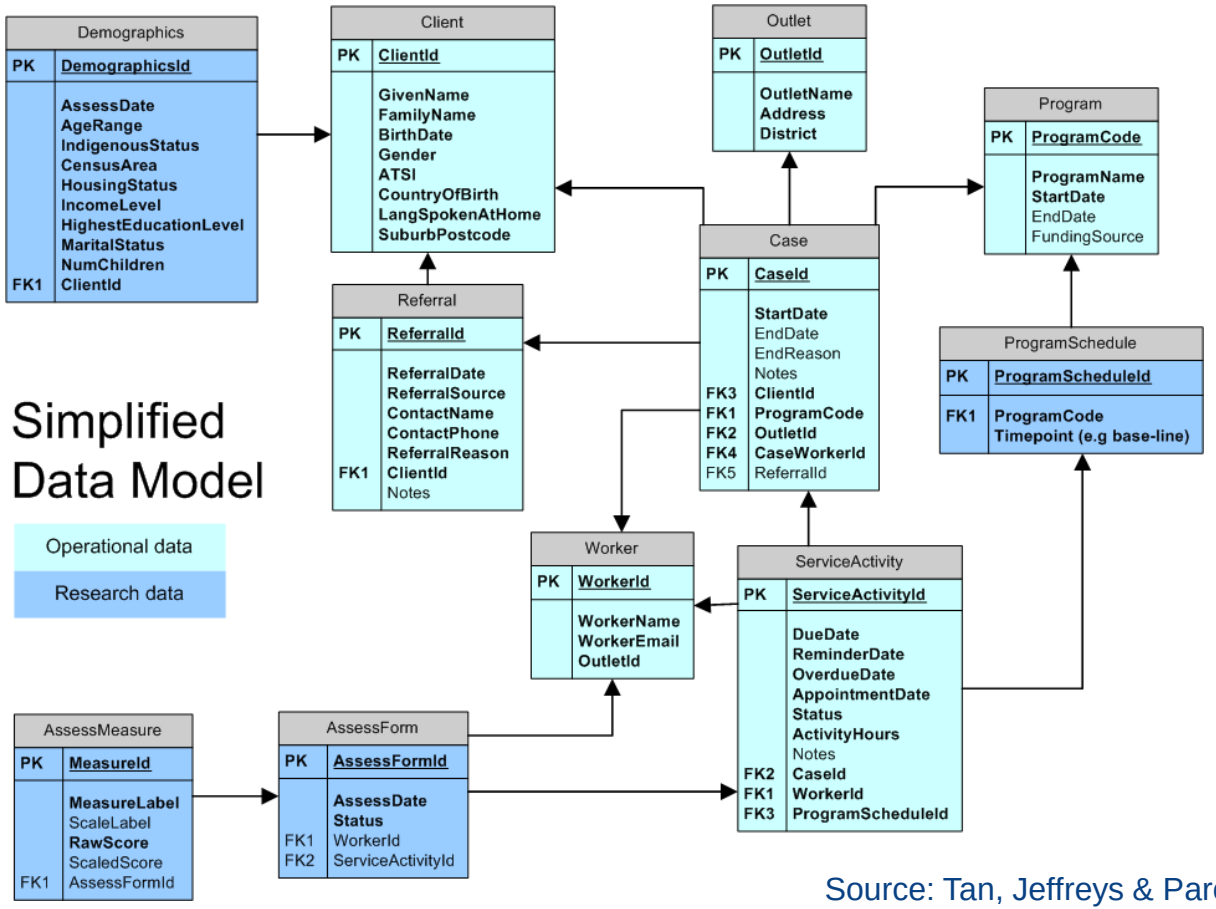


Source: Tan, Jeffreys & Parolini (in press)

Five steps of integrated research design for implementation research



Source: Tan, Jeffreys & Parolini (in press)



Source: Tan, Jeffreys & Parolini (in press)

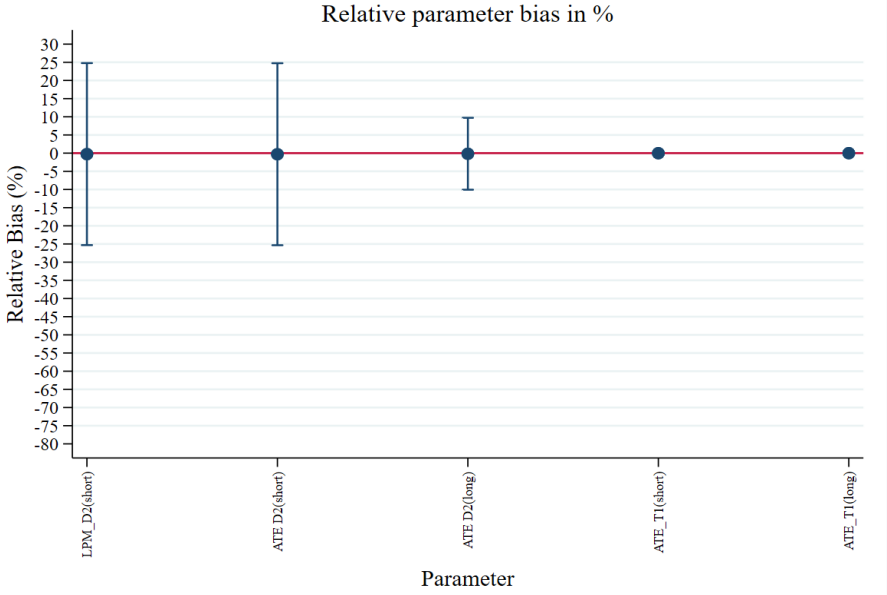
Importance of adding value to each stream with focus on CQI:

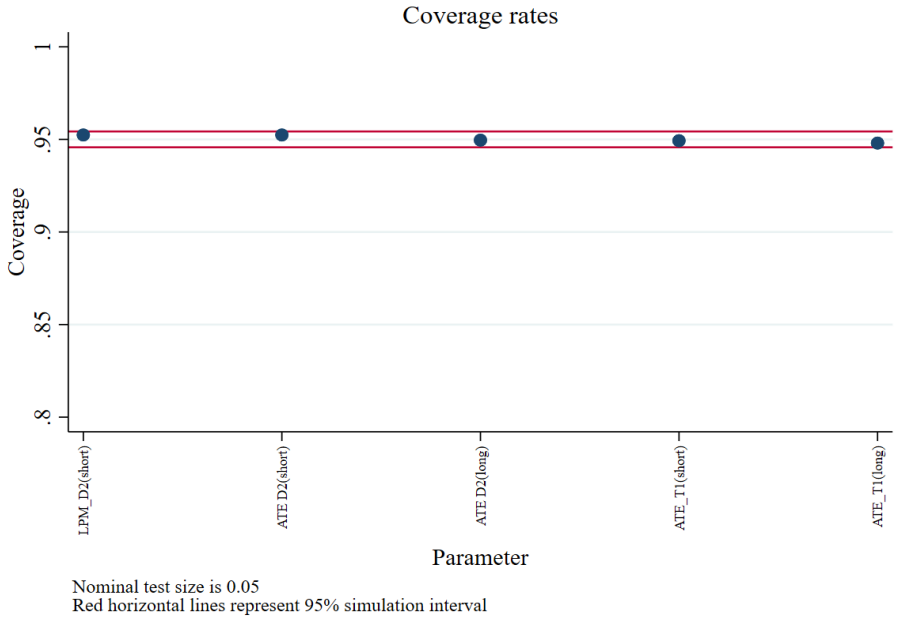
Align data collection with typical case workflows to assist day-to-day work (e.g., reminders for client appointments or assessments, drop-down lists)

Data dashboards to support management decisions

Improved data structures (e.g. longitudinal) to facilitate data analysis

Simulation exercise:





- Data is modelled based on results reported in studies (e.g. Ehrhart et al., 2016)
- Assumed linearity and separability in the latent index model
- N = 10,000 (N_O = 100, $N_{CW,O}$ = 20, $N_{CL,CW,O}$ = 5)
- 10,000 replications
- Software: Stata SE 14.2

Source: Parolini & Tan (2017)

An important aspect of continuous improvement is the establishment of ongoing value for stakeholders across the implementation space ➡ Co-design of theoretical models and data systems.

5-step approach ➡ sustainment portrayed as a quality improvement process where previous experiences provide feedback to the system between cycles of evaluation as a form of CQI.

Research focus is directly linked to the organisational focus through data quality and research translation ➡ each stream by itself is subject to implementation and consequently CQI

A systems perspective on implementation emphasises a multilevel dynamic CQI structure that has effects within and across streams.

Need to recognize that any project involving implementation should not be just about research, service delivery or administrative needs, but a synthesis of all three.

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