Toward more comprehensive understanding of organizational influences on implementation: The Organization Theory for Implementation Science (OTIS) framework

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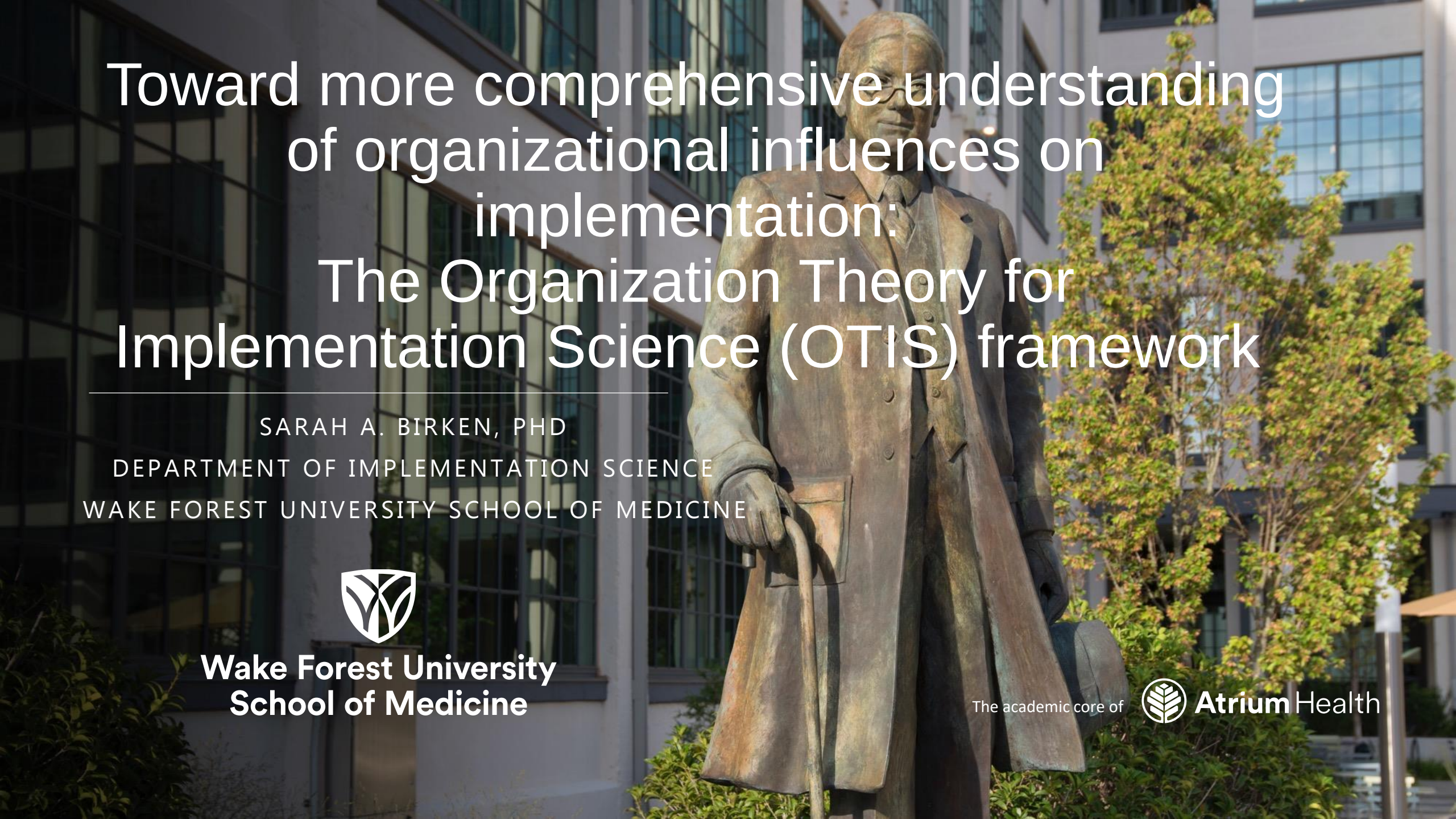

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The academic core of Atrium Health

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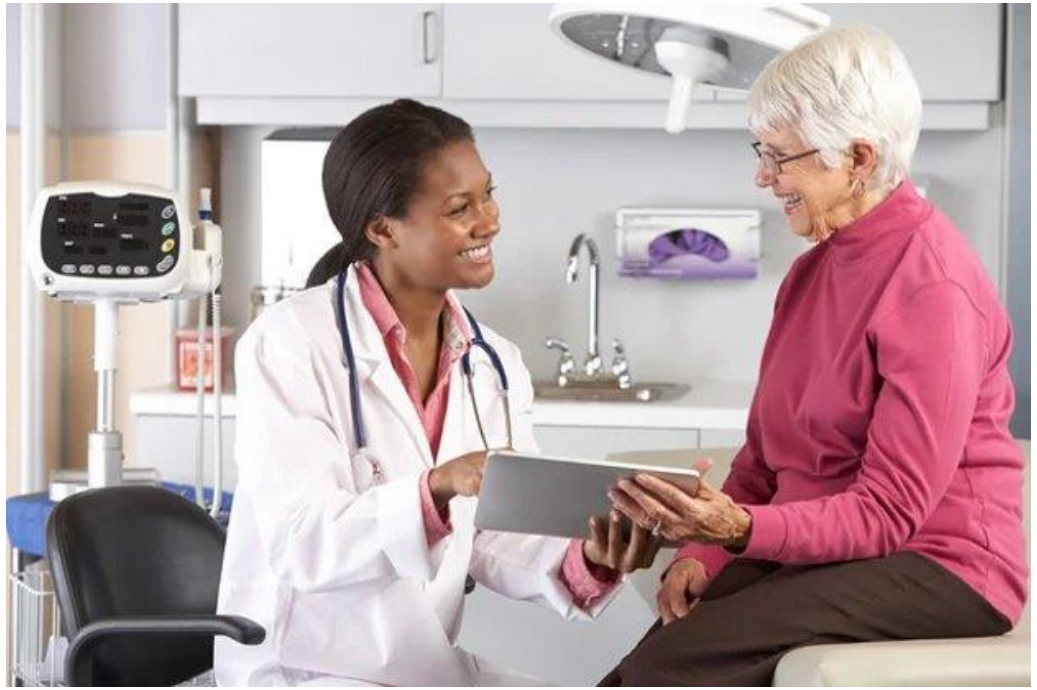
Typical implementation study: The problem

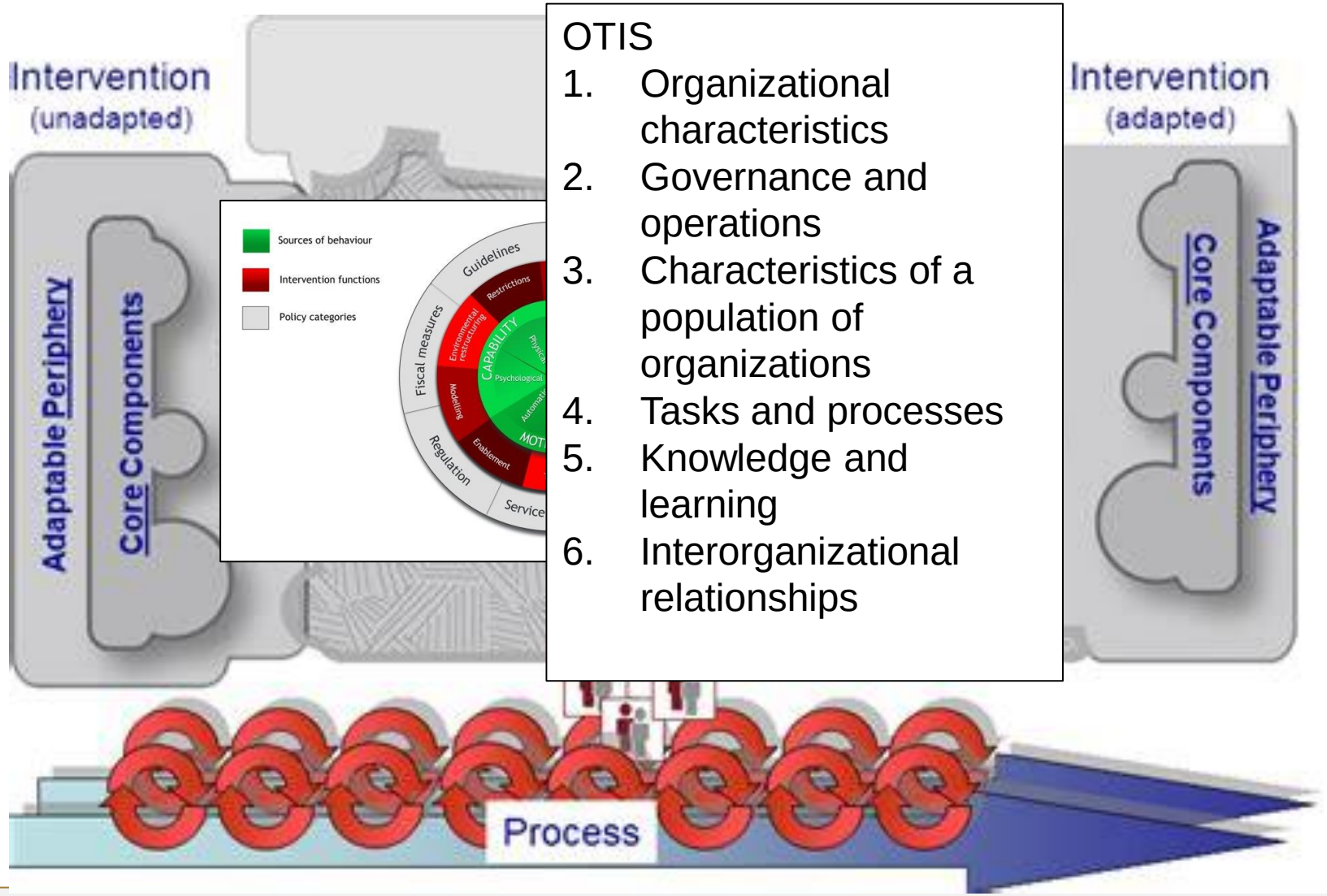


Breast cancer survivors often remain in oncology care – even years after treatment (Birken et al., 2019; Oeffinger et al., 2020)

Oncologists are overburdened, resulting in delayed appointments (Hamlyn et al., 2016)

Survivors are more likely to receive health maintenance services from primary care physicians (PCPs) (Burg et al., 2015; Weldon et al., 2020)

What causes this problem?



OTIS

1. Organizational characteristics
2. Governance and operations
3. Characteristics of a population of organizations
4. Tasks and processes
5. Knowledge and learning
6. Interorganizational relationships

What causes this problem?

Patients coming from all over (limited embeddedness with their local PCPs, specialists; linkages)

Cost of transactions with nurse navigators (low) vs. Surv APPs (low) vs. PCPs (high)
Dynamism and dependence (Atrium changes)

Competition (patients won't wait for first available; they'll go to competitors)

Governance structure (ops and clin are separate – what ops knows about numbers is invisible to clinicians)

Professionalization (taught clinical judgment is king)

Patient-provider relationship; provider emotions, competing task demands

More importantly, *why* and *how* do these things contribute to the problem?

Professionalization

Competition

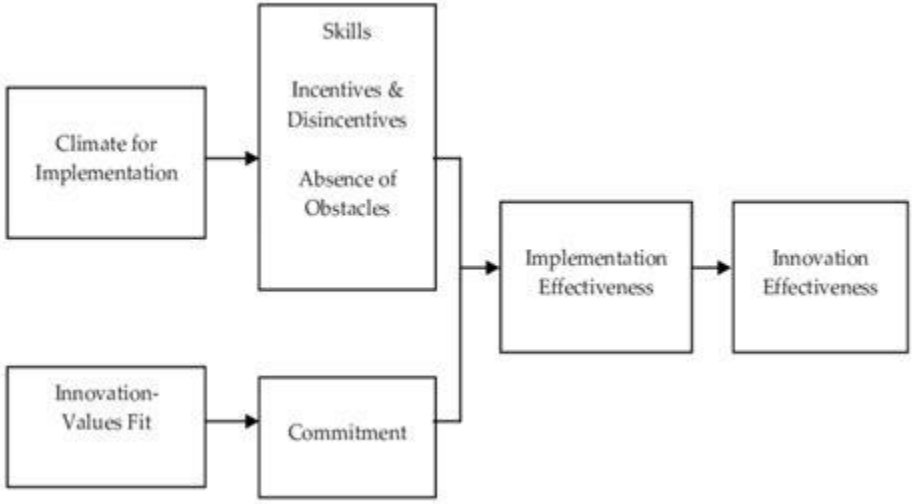
Cost of transactions

Patient factors

Implementation

Lewis, CC, et al. (2021)

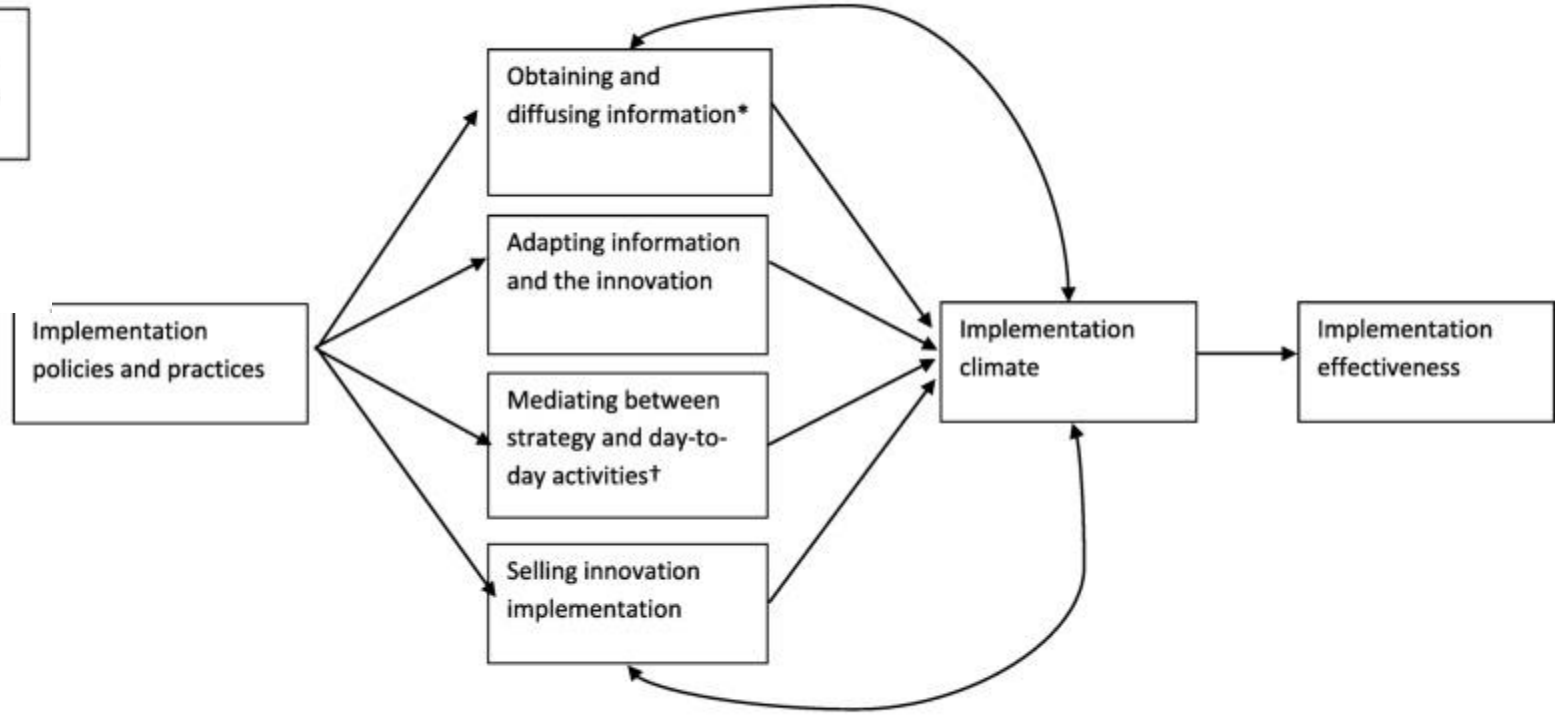
Theory



Klein & Sorra (1996)

Birken SA, et al. (2018)

Refined theory of middle managers' role in implementing innovations in healthcare organizations [20]



*Obtaining and diffusing information includes diffusing information internally and externally

†Mediating between strategy and day-to-day activities involves measuring performance and engaging in frontline activities

Organization Theories

Provide explanations for the complex interactions within and between organizations and their context (environment, surrounding policies, cultural norms).

Describe and explain interactions and predict implementation outcomes based on contextual factors.

Have the potential to explain how policies, institutions, funding, and workforce dynamics affect implementation outcomes

Are largely inaccessible outside of organization science and often require significant training to apply with fidelity.

Objective

Increase implementation scientists' conceptualization of organizational influences on implementation by developing a framework comprised of organization theories relevant to implementation science

Methods: Overview

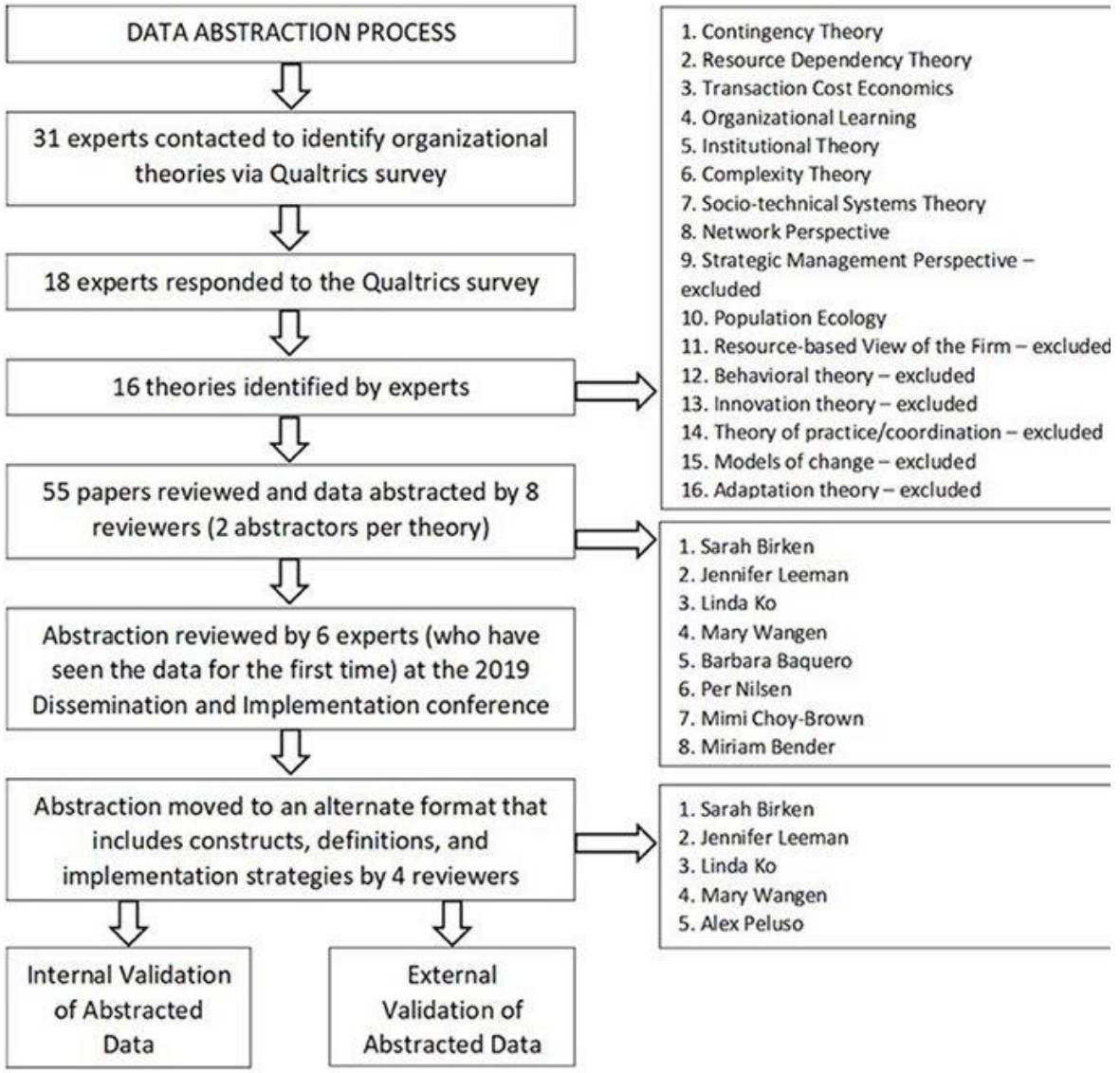
- PREVIOUS STUDIES
- CONCEPT MAPPING
- ITERATIVE CONSENSUS-BUILDING

Previous studies

Organizational theory for dissemination and implementation research (Birken et al., 2017)

Advancing the use of organization theory in implementation science (Leeman et al., 2019)

Increasing Access to Organization Theories for Implementation Science (Birken et al., 2022)



Organization Theories and Constructs

Complexity Theory
- Self-organization
- Uncertainty
- Interdependence
- Feedback loops
- Minimum specifications
- Sense making

Contingency Theory
- Task
- Task Environment
- Uncertainty in the task or task environment
- How a task/work is structured: Programmed versus un-programmed coordination (integration)
- Interdependence
- Differentiation

Institutional Theory
- Isomorphism
- Coercive pressures
- Mimetic pressures
- Normative pressures
- Professionalization

Transaction Cost Economics
- Asset specificity (of transactions)
- Uncertainty
- Frequency (of transactions)
- Transaction Costs
- Governance Structure

Network Perspective
- Social network
- Direct ties
- Indirect ties
- Patterns of relations
- Strength
- Centrality
- Cohesion
- Network density
- Constraint
- Embeddedness
- Flexibility

Organizational Learning
- Explicit knowledge
- Tacit knowledge
- Learning process
- Learning subprocesses
- Dominance of organization in field of competitors
- Complexity of an organization’s environment

Resource Dependency Theory
- Munificence
- Dynamism
- Competition
- Power
- Dependence
- Adaptability
- Demand for resources acquisition

Population Ecology
- Competition
- Niche/niche width
- Institutional linkages
- Spatial variation
- Technology cycles
- Selection pressure
- Isomorphism
- Community interdependence
- Stability
- Population density
- Internal arrangements
- Resource acquisition
- Prior failures
- Inertia
- Structure
- Specialization
- Age
- Size
- Excess capacity (or slack resources)

Sociotechnical Theory
- External subsystems
- Social subsystems
- Technical subsystems
- Organizational subsystems
- Interdependence

Card sorting of constructs

FREQUENCY (OF TRANSACTIONS) - How often a transaction occurs
[3]

ORGANIZATIONAL SUBSYSTEMS - Infrastructure, leadership and management, resources, teamwork and communication, organizational readiness for change, organizational context
[7]

UNCERTAINTY - The extent to which changes to the wider environment may influence transactions and the future actions of transacting parties are unknown
[4]

INTERDEPENDENCE - The interaction among social subsystems, technical subsystems, and organizational subsystems
[6]

Concept mapping with constructs

Concept Mapping

- **Sample:** 25 scholars at with expertise in implementation and organization science
- **Data collection:** Concept Systems Global MAX™ online concept mapping
- **Analysis:** multidimensional scaling and hierarchical cluster analysis

Consensus-Building

- **Sample:** CPCRN OTIS workgroup members
- **Setting:** CPCRN Annual Meeting and regular workgroup meetings
- **Procedure:** provide feedback on concept mapping results (7-10 clusters); lead investigator revised clusters based on extensive knowledge of organization theory; CPCRN OTIS workgroup members reviewed until reaching consensus

Results: OTIS Domains

1. Organizational characteristics
2. Governance and operations
3. Characteristics of a population of organizations
4. Tasks and processes
5. Knowledge and learning
6. Interorganizational relationships

Domain 1: Organizational Characteristics

Features of an organization that predispose it to governance, operations, interorganizational relationships, etc.

Constructs relate to change dynamics, orientation to operations, and dominance within a population.

CONSTRUCTS	SOURCE THEORY
AGE	Population Ecology
INERTIA	Population Ecology
PRIOR FAILURES	Population Ecology
PROFESSIONALIZATION	Population Ecology
SIZE	Population Ecology
STRUCTURE	Institutional Theory

Domain 2: Governance and Operations

The explicit or implicit rules and operating procedures that govern an organization

Constructs include approaches to operating and structures that characterize organizations' operations.

CONSTRUCTS	SOURCE THEORY
ADAPTABILITY	Resource Dependency Theory
FEEDBACK LOOPS	Complexity Theory
GOVERNANCE STRUCTURE	Transaction Cost Economics
INTERNAL ARRANGEMENTS	Population Ecology
ORGANIZATIONAL SUB SYSTEMS	Sociotechnical Theory
SOCIAL SUBSYSTEMS	Sociotechnical Theory
SPECIALIZATION	Population Ecology

Domain 3: Tasks and Processes

The work that organizations pursue and the conditions that influence approaches to accomplishing work

Constructs refer to features of the processes used to accomplish tasks and features of the environment in which tasks are accomplished.

CONSTRUCTS	SOURCE THEORY
ASSET SPECIFICITY (OF TRANSACTIONS)	Transaction Cost Economics
DEMAND FOR RESOURCES ACQUISITION	Resource Dependency Theory
DEPENDENCE	Resource Dependency Theory
DIFFERENTIATION	Contingency Theory
EXCESS CAPACITY (OR SLACK RESOURCES)	Population Ecology
FREQUENCY (OF TRANSACTIONS)	Transaction Cost Economics
MINIMUM SPECIFICATIONS	Complexity Theory
PROGRAM COORDINATION TASK STRUCTURE	Contingency Theory
RESOURCE ACQUISITION	Population Ecology
TASK	Contingency Theory
TASK ENVIRONMENT	Contingency Theory
TECHNICAL SUBSYSTEMS	Sociotechnical Theory
TECHNOLOGY CYCLES	Population Ecology
TRANSACTION COSTS	Transaction Cost Economics
UNCERTAINTY IN THE TASK OR TASK ENVIRONMENT	Contingency Theory
UNPROGRAMMED COORDINATION TASK STRUCTURE	Contingency Theory

Domain 4: Knowledge and Learning

The information available to organizations in pursuing goals and the processes used to acquire information

Constructs relate to characteristics of knowledge and approaches to acquiring knowledge.

CONSTRUCTS	SOURCE THEORY
EXPLICIT KNOWLEDGE	Organizational Learning
LEARNING PROCESS	Organizational Learning
LEARNING SUBPROCESSES	Organizational Learning
SENSE MAKING	Complexity Theory
TACIT KNOWLEDGE	Organizational Learning

Domain 5: Characteristics of a Population of Organizations

The collective features of the group of organizations in the referent organization's environment

Constructs relate to change within the population, competition variation within the population, and availability of resources.

Construct	Source Theory
COMPETITION	Resource Dependency Theory
COMPETITION	Population Ecology
COMPLEXITY OF AN ORGANIZATION'S ENVIRONMENT	Organization Learning
CONSTRAINT	Network Perspective
DYNAMISM	Resource Dependency Theory
EXTERNAL SUBSYSTEMS	Sociotechnical Theory
ISOMORPHISM	Institutional Theory
ISOMORPHISM	Population Ecology
MUNIFICENCE	Resource Dependency Theory
NICHE/NICHE WIDTH	Population Ecology
POPULATION DENSITY	Population Ecology
SELECTION PRESSURE	Population Ecology
SPATIAL VARIATION	Population Ecology
STABILITY	Population Ecology
UNCERTAINTY	Complexity Theory
UNCERTAINTY	Transaction Cost Economics

Domain 6: Interorganizational Relationships

Characteristics of the interactions that organizations have with other institutions

Constructs characterize organizations' dependence on other institutions and the pressure that organizations exert on each other.

Constructs	Source Theory
CENTRALITY	Network Perspective
COERCIVE PRESSURES	Institutional Theory
COHESION	Network Perspective
COMMUNITY INTERDEPENDENCE	Population Ecology
DIRECT TIES	Network Perspective
DOMINANCE OF ORGANIZATION IN FIELD OF COMPETITORS	Organizational Learning
EMBEDDEDNESS	Network Perspective
FLEXIBILITY	Network Perspective
INDIRECT TIES	Network Perspective
INSTITUTIONAL LINKAGES	Population Ecology
INTERDEPENDENCE	Complexity Theory
INTERDEPENDENCE	Contingency Theory
INTERDEPENDENCE	Sociotechnical Theory
MIMETIC PRESSURES	Institutional Theory
NETWORK DENSITY	Network Perspective
NORMATIVE PRESSURES	Institutional Theory
PATTERNS OF RELATIONS	Network Perspective
POWER	Resource Dependency Theory
SOCIAL NETWORK	Network Perspective
STRENGTH	Network Perspective

Discussion

OTIS is intended to help with…

- Considering **diverse organizational influences on implementation**—no more “organizational factors”!
- **Identifying theories that explain mechanisms** underlying relationships between OTIS constructs and implementation
- **Selecting strategies**
- Empirically **testing hypothesized relationships** between theory-derived strategies and implementation.

Determinants ⟶ **Strategies**

Patients coming from all over: **Contract with community organizations to deliver survivorship care**

Cost of transactions: **Increase transaction frequency with a smaller group of providers (i.e., improve economies of scale)**

Dynamism and dependence: **Adopt promising Atrium interventions**

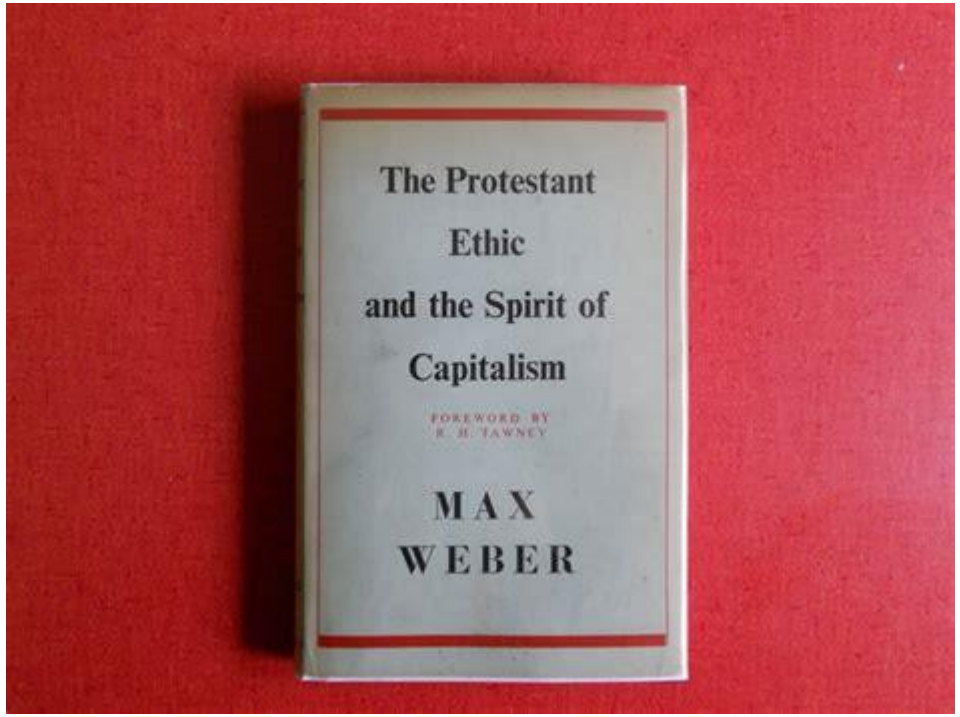
Competition: **Adapt to provide a unique service to increase competitiveness**

Governance structure: **Integrate clinic and ops**

Professionalization: **Advocate for professional standards to encourage transitions**

Future studies

Bureaucracy “should only lie on the shoulders of the saint like a light cloak, which can be thrown aside at any moment.”



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Thank you!

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