Overview

Social, technical, and organizational subsystems are interrelated parts of one system. Dynamics and mutual influences exist among the three subsystems, giving rise to the system.

Example Application to Implementation Science

McDonald, K. M., Su, G., Lisker, S., Patterson, E. S., & Sarkar, U. (2017). Implementation science for ambulatory care safety: a novel method to develop context-sensitive interventions to reduce quality gaps in monitoring high-risk patients. *Implementation Science, 12*(1), 79.

Westbrook, J. I., Braithwaite, J., Georgiou, A., Ampt, A., Creswick, N., Coiera, E., & Iedema, R. (2007). Multimethod evaluation of information and communication technologies in health in the context of wicked problems and sociotechnical theory. *Journal of the American Medical Informatics Association, 14*(6), 746-755.

Construct	Definition
External subsystems	Outside forces and influences on an organization (e.g., stakeholders; regulations)
Social subsystems	Attributes of people (i.e., skills, attitudes, concerns, expectation, and values); relationships among people; reward systems; and authority structure
Technical subsystems	Technologies, techniques, tasks performance, methods and work setting; features include data cleansing and migration, features and functionalities of application, adaptability and flexibility or new system, system benefits, usability, stability
Organizational subsystems	Infrastructure, leadership and management, resources, teamwork and communication, organizational readiness for change, organizational context
Interdependence	The interaction among social subsystems, technical subsystems, and organizational subsystems

Propositions

1. As subsystems are individually optimized and mutually aligned, organizational performance increases.
2. The successful adoption of new technology depends on optimizing and aligning subsystems.

Potential Relevance to Implementation Science

1. **Implementation** may be facilitated by optimizing individual subsystems:
    a. Organizational subsystems: Assess and augment…
        i. Readiness to implement the evidence-based practice (EBP) (e.g., through planning strategies)
        ii. Infrastructure to implement the EBP
        iii. Leadership and management for implementing the EBP (e.g., with champions)
        iv. Communication around the EBP (e.g., Plan-Do-Study-Act cycles; learning, evaluating, and sharing lessons learned)
    b. Social subsystems: Assess and augment…
        i. Stakeholder attributes and align stakeholder attributes with EBP (e.g., improving stakeholder skills through training and technical support for EBP use; increase expectations through requirements for EBP use)
        ii. Create opportunities for social groups to interact around the EBP (e.g., learning collaboratives)
    c. Technical subsystems: Assess and augment:
        i. Support for data cleansing and migration
        ii. Application features and functionality usability

iii. Integration with existing systems iv. Data security and confidentiality 2. **Implementation** may be facilitated by aligning subsystems using user-centered design
Criticisms and/or Bounds on the Theory
None identified
References
Type: Theory (grand, mid-range), perspective, model, etc.
• Grand theory

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