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RESEARCH ARTICLE

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R = MC^2 readiness building process: A practical approach to support implementation in local, state, and national settings

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Abstract

Effective implementation of evidence-based interventions is a persistent challenge across community settings. Organizational readiness - or, the motivation and collective capacity of an entity to adopt and sustain an innovation - is important to facilitate implementation. Drawing on the R = MC^2 readiness framework, we developed a *readiness building process* to tailor support for implementation. The process is composed of the following stages: assessment, feedback and prioritization, and strategize. In this article, we describe the application of the readiness building process through three case examples representing interventions at different ecological levels: local, state, and national. The case examples illuminate challenges and practical considerations for using the readiness building process, including the significance of on-going leadership engagement and collaboration between support system and delivery system staff. To further the research and practice of implementation readiness, we suggest examining the impact of readiness building on implementation outcomes and developing an empirically-informed repository of change management strategies matched to readiness constructs.

KEYWORDS
community improvement, implementation support, organizational readiness, practical implementation science, R = MC^2

1 | INTRODUCTION

Community progress rests, in part, upon the adoption of evidence-based interventions (EBIs) in organizations and community settings. However, barriers to implementation are numerous (Green & Aarons, 2011; Kneale et al., 2017; Peterson et al., 2007; Scaccia et al., 2015) and intervention uptake is unlikely in the absence of implementation readiness (By, 2007; Drzensky et al., 2012) and supports (Brownson et al., 2018; Rogers, 2003). Implementation science is the study of how to promote systematic use of research findings and evidence by health and human service providers and policymakers (Eccles & Mittman, 2006). The field of implementation science is characterized by two evolutions: the first focused on understanding barriers and facilitators to implementation; the second, current, evolution tests optimal strategies for implementation (Bauer et al., 2015; Powell et al., 2015). Aligned with calls for practical implementation science (i.e., the research and action of translating empirical findings from implementation science into user-friendly resources; Meyers et al., 2012), this article describes a systematic approach for supporting implementation that contributes to the second evolution of implementation science. Specifically, we describe how a collective of community psychology researchers and practitioners developed and applied a *readiness building process* for facilitating implementation efforts. We discuss the conceptual underpinnings of the readiness building process. We then illustrate its application through three case examples in settings representing different ecological levels: local, state, and national. Our objective is to translate an empirically-informed framework into a pragmatic, generalizable process that can support implementation efforts in diverse settings.

1.1 | Practical implementation science using R = MC^2

Organizational readiness is an entity's willingness (motivation) and ability (capacity) to implement an innovation (Scaccia et al., 2015; Weiner, 2009). An innovation is a program, policy, or practice that is new to an organization (Flaspohler et al., 2012). The readiness of a setting for implementation is considered a facilitator or hindrance to innovation success (By, 2007; Drzensky et al., 2012; Holt & Vardaman, 2013; Weiner, 2009). Half of all large-scale organizational transformation efforts fail to meet targeted outcomes due to inadequate implementation readiness (Kotter, 1996). Unsuccessful implementation efforts result in a loss of organizational resources (e.g., staff time and talent) and can diminish enthusiasm among organizational staff for future implementation initiatives.

To identify key readiness attributes, Scaccia and colleagues (2015) systematically reviewed the literature for determinants of successful implementation across disciplines. The result was a comprehensive, trans-disciplinary readiness framework of implementation determinants. This framework is comprised of 18 subcomponents nested within three primary components: **M**otivation, Innovation-Specific **C**apacities, and General **C**apacities (R = MC^2; Scaccia et al., 2015). Each component is associated with a set of measurable and actionable subcomponents (see Table 1 for component and subcomponent definitions). Consistent with the organizational readiness literature (Rafferty et al., 2013; Weiner, 2009), R = MC^2 reflects readiness as a multifaceted construct. As a determinant framework (Nilsen, 2015), R = MC^2 can be used with existing implementation heuristics. For example, the framework constructs align with the Consolidated Framework for Implementation Research (CFIR; e.g., relative advantage, culture, champion; Damschroder et al., 2009) and includes facets of Promoting Action on Research Implementation in Health Services (PARiHS; e.g., context, culture, leadership, and evaluation; Kitson et al., 2008).

TABLE 1 R = MC^2 readiness components and subcomponents

Readiness construct	Definitions
Motivation	*Degree to which the organization wants the new innovation to happen.*
Relative advantage	The innovation seems more useful than what we've done in the past.
Compatibility	The innovation fits with how we do things.
Simplicity	The innovation seems simple to use.
Ability to pilot	Degree to which the innovation can be tested and tried out.
Observability	Ability to see that the innovation is producing outcomes.
Priority	Importance of the innovation in relation to other things we do.
Innovation-specific capacity	*What we need to implement the innovation.*
Innovation-specific knowledge and skills	Sufficient abilities to implement the innovation.
Champion	A well-connected person who supports and models the use of the innovation.
Supportive climate	Necessary supports, processes, and resources to enable the use of the innovation.
Intra-organizational relationships	Relationships within our site that support the use of the innovation.
Interorganizational relationships	Relationships between our site and other organizations that support the use of the innovation.
General capacity	*The overall functioning of the organization.*
Culture	Norms and values of how we do things at our site.
Climate	The feeling of being part of this site.
Innovativeness	Openness to change in general.
Resource utilization	Ability to acquire and allocate resources including time, money, effort, and technology.
Leadership	Effectiveness of our leaders at multiple levels.
Internal operations	Effectiveness at communication and teamwork.
Staff capacities	Having enough of the right people to get things done.
Process capacities	Effectiveness to plan, implement, and evaluation.

Source: Scaccia et al. (2015).

There are several premises of the R = MC^2 framework: First, readiness is dynamic and fluctuates over time as setting characteristics evolve (e.g., staff capacity, availability of resources, and priority of the intervention) across stages of implementation (Domlyn & Wandersman, 2019). Regular readiness monitoring enables the identification of changes in implementation readiness (Domlyn et al., 2020; Rafferty et al., 2013). Second, readiness is a continuous construct. Rather than viewing an organization as "ready" or "not ready," the R = MC^2 approach assesses an organization's degree of readiness for implementation ranging from lower to higher levels of readiness (Scaccia et al., 2015; Scott et al., 2017). Lastly, readiness subcomponents can be improved through active supports (e.g., training, technical assistance, quality monitoring; Livet et al., 2020; Scaccia et al., 2018). Despite evidence that readiness building strategies can effectively improve implementation outcomes (Ober et al., 2017), systematic processes for building the readiness of a setting for implementation are underdeveloped.

To address this gap, we developed a *readiness building process*. This process is conceptually grounded in the interactive systems framework for dissemination and implementation (ISF; Wandersman et al., 2008). The ISF is composed of three, interrelated systems central to moving research into real-world settings: (1) the *delivery system* comprises individuals and settings involved in the implementation of EBPs; (2) the *support system* parties build delivery system capacity for EBP implementation through technical assistance, training, and other strategies; and (3) individuals within the *synthesis and translation system* organizes summarize, and translate research literatures into practitioner-friendly formats. The ISF systems are nested in a broader context that reflects macrolevel influences: funding milieu, socio-political climate, policy, and existing research and theory. While the ISF outlines the relationships among three interrelated systems for dissemination and implementation, the mechanisms for bridging systems are less understood. The readiness building process was created to enhance the link between the support system and delivery system (see Figure 1).

Responding to growing interest in practical implementation science, in recent years the $R = MC^2$ readiness framework has been translated into a set of tools and processes for hands-on resources that support implementation and are grounded in implementation research. These tools and processes have been widely adapted for use with sector-spanning partners (e.g., Institute for Healthcare Improvement, U.S. Department of Defense, Eugene S. Farley, Jr. Health Policy Center, Satcher Health Leadership Institute; Wandersman Center, 2018); however, published literature on how to apply readiness to facilitate implementation is limited. Existing scholarly articles using $R = MC^2$ focus on discrete activities, such as needs assessment (Domlyn et al., 2020; Scott et al., 2017), implementation monitoring (Kingston et al., 2018), and retrospective examination of outcomes

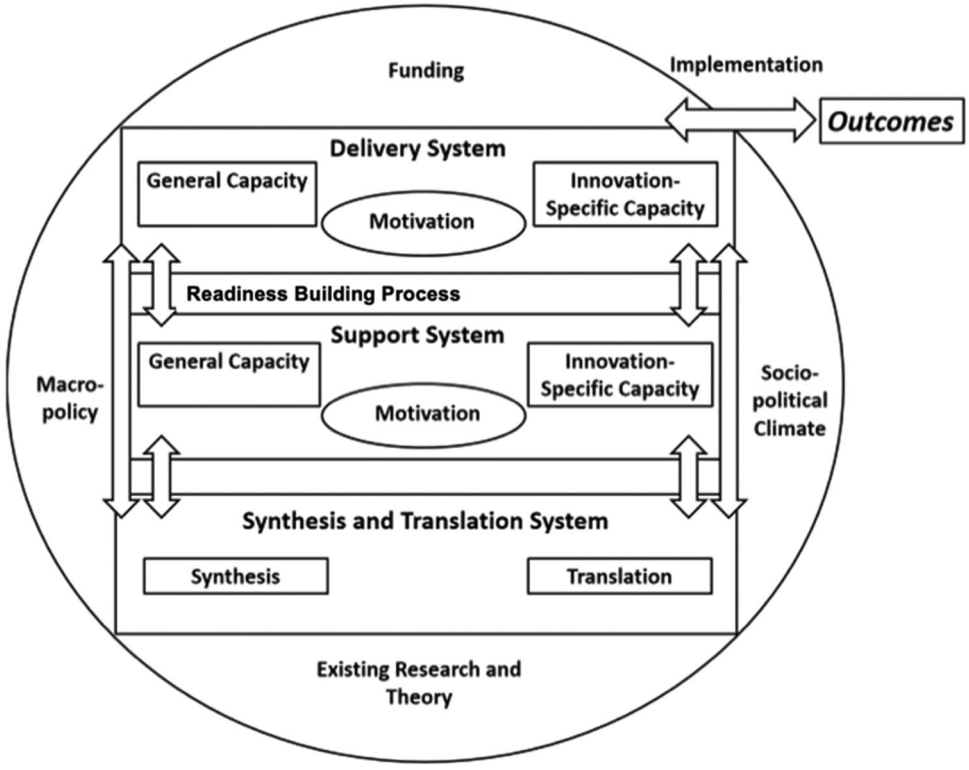

FIGURE 1 The Interactive Systems Framework for Dissemination and Implementation (ISF). The readiness building process is designed to bridge the activities of the ISF support system with the ISF delivery system. (Adapted from Wandersman et al., 2008)

(Domlyn & Coleman, 2019). Only one study reported on systematic use of R = MC^2 to measure and build readiness, which exclusively pertained to implementation in healthcare settings (Livet et al., 2020). The present study adds to the literature by describing the systematic application of R = MC^2 in diverse settings reflecting three ecological levels: local, state, and national. In this article, we aim to (1) outline a systematic process for building system readiness, (2) describe the who, what, when, and how of readiness building in three settings, and (3) illustrate how the readiness building process is adapted across contexts to fit stakeholder needs and resources.

2 | METHODS

2.1 | Procedure: The readiness building process

The readiness building process is a tailored approach aiming to increase the readiness of a system to engage in implementation efforts. The readiness building process leverages the transdisciplinary, evidence-informed R = MC^2 framework to present a flexible participatory inquiry model (Heron & Reason, 1997) in three stages, which follow initial engagement between R = MC^2 subject matter experts and project staff: (1) assessment, (2) feedback and prioritization, and (3) strategize (Figure 2). We developed the three-stage process by drawing from change management and implementation science literatures.

The *assessment* stage is designed to understand stakeholder readiness for implementing an innovation. This stage commences with a training about the selected innovation and implementation strategy to explicate the rationale, aims, and anticipated impact on the setting. The training objective is to ensure stakeholders have a clear understanding of the innovation and the readiness building process. Next, the Readiness Diagnostic Scale (RDS; previously called the Readiness Monitoring Tool [RMT]) is customized to the innovation and setting. The RDS is administered to stakeholders with deep knowledge of the context of the delivery system, sometimes with additional assessments gathered from those in support roles. These stakeholders include representative members in different organizational roles (e.g., leadership, administrative staff, and operational staff). Grounded in the R = MC^2 framework, the RDS measures organizational readiness using a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). The measure showed good reliability (Cronbach's α range of 0.73–0.95 for subcomponents; Scott et al., 2017) and preliminary evidence of criterion validity (Wandersman & Scaccia, 2017). Additional examination of the psychometric properties of the RDS are currently under investigation via an R01 study (Walker et al., 2020).

In the *feedback and prioritization* stage, readiness assessment results are synthesized and presented to stakeholders in a report. Stimulus questions are included in the report to generate collective discussion about the data

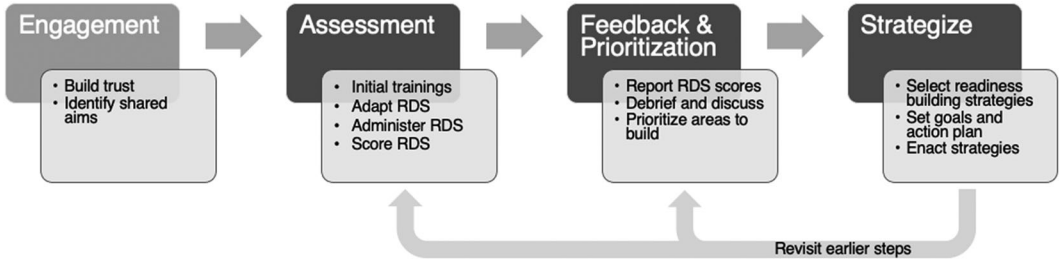

FIGURE 2 The readiness building process is a tailored approach inteded to increase system readiness for implementation efforts. It includes three stages (assessment, feedback and prioritization, and strategize), which follow the initial engagement of implementation site stakeholders. The process is iterative with previous stages revisited as needed

and next steps. Reports highlight readiness trends at the component, subcomponent, and item level by noting areas of higher and lower readiness. In the feedback stage, stakeholders determine priorities for readiness building. This entails selecting one or more subcomponent(s) as a focus for improvement. While selection is commonly based on areas of lower readiness, it is also informed by practical considerations based on stakeholder experience and knowledge (e.g., timing, feasibility, and importance of changing a particular subcomponent). Further, given the fluctuations of readiness over time, not all areas of readiness are equally important at each stage in the life cycle of an innovation (Domlyn & Wandersman, 2019).

Once the priority area(s) is selected, readiness improvement plans are created. The *strategize* stage includes selection of relevant improvement methods, planning, and execution. A range of strategies are available in implementation science, some enacted by the delivery system and others by the support system (Leeman et al., 2017). In this readiness building stage, strategies are customized to the readiness subcomponent(s) of interest and may include dissemination strategies to garner support for the initiative, implementation process strategies such as evaluation, or integration strategies affecting internal processes and individual-level motivations (Leeman et al., 2017). These options are not exhaustive because the full range of implementation strategies continues to grow (Powell et al., 2015; Powell et al., 2019) along with available change management strategies. As will be demonstrated in the forthcoming case examples, the support system often initiates the strategy selection process due to their intimate knowledge of support strategies, a notion consistent with the developing literature on strategy tailoring (Leeman et al., 2017).

In sum, the readiness building process begins with systematic assessment of an organization's readiness for implementation. Assessment results are interpreted and reported back to key stakeholders, who then prioritize and strategize how to build readiness. While three sequential stages are the general guideline for readiness building, the process may be iterative, and all stages of the readiness building process may be adapted to fit the context.

2.2 | Case examples at the local, state, and national levels

Three case examples were selected to illustrate the readiness building process. Describing multiple cases is valuable for understanding generalizable findings otherwise invisible in a single case (Stake, 1995). We use these cases to demonstrate contextual validity; or, the necessary adaptations for readiness building to be actionable across settings (Skinner, 2013). Cases were selected based on the following criteria: (1) use of a readiness building process in a real-world setting, (2) identifiable individuals or teams representing the ISF delivery system and support system, (3) project was implemented within one of three different ecological levels: local, state, and national. Cases included settings where implementation was still underway and where outcomes data is not yet available. This is because our focus is on demonstrating the readiness building process at varying system levels rather than on the impact of the readiness building process. Below, we describe each case according to context (location, organization type, population served), innovation type(s), reason for incorporating the readiness building process into implementation, length of engagement with readiness building, and attributes of the delivery system and support system.

2.2.1 | Case 1: Local-level healthcare

The Concordia Medication Management Accelerator (CMMA) was an 18-month initiative designed to facilitate delivery of medication optimization services in primary care settings in Wisconsin. The importance of implementation for achieving desired outcomes was recently embraced by pharmacy practice as a potential solution to medication misuse and abuse (Curran & Shoemaker, 2017; Livet et al., 2018). The full implementation process

included building readiness as one of its steps. The R = MC^2 framework was adopted because its implementers perceived it as comprehensive, pragmatic, and easy to use. In this project, the delivery system was an initial cohort of seven health systems/clinics (with embedded pharmacists) and two community pharmacies engaged in a team-based structured process for implementing one of several medication optimization services (e.g., Comprehensive Medication Management). Participating sites assembled teams before engaging in the readiness work. Each pharmacist-led team was composed of 4–10 members responsible for planning and implementing the selected service. Implementation support (including trainings, webinars, and coaching) was provided throughout the project by the Alliance for Integrated Medication Management (AIMM). The support system, responsible for assisting readiness building over a 9-month period, was composed of two AIMM coaches and the University of North Carolina Eshelman School of Pharmacy Center for Medication Optimization (CMO) research group.

2.2.2 | Case 2: State-level human services

A statewide teen pregnancy prevention organization in South Carolina undertook a 5-year project aimed at building and supporting the capacities of 11 youth-serving organizations (YSOs) to implement an evidence-based teen pregnancy prevention program. Representing the delivery system, these YSOs serve vulnerable youth involved in the Department of Juvenile Justice (DJJ) and Department of Social Services (DSS) systems and include organizations such as foster care homes for teens, adolescent residential treatment centers, and long-term juvenile commitment centers. DJJ and DSS state-level leadership teams were actively engaged throughout the project to ensure the adoption and sustainability of evidence-based programs at each YSO. These leadership teams conducted initial system assessments and met quarterly to discuss project progress. Each YSO developed an internal continuous quality improvement (CQI) team. YSO teams used the Getting To Outcomes (GTO; Chinman et al., 2004) framework to aid selection and implementation of an evidence-based teen pregnancy prevention program. YSO teams included YSO leaders, administrators, and program facilitators. The readiness building process was selected to facilitate YSO use of GTO because implementers perceived R = MC^2 as compatible with the GTO steps. The support system team included three R = MC^2/GTO experts and one capacity building coach directly assisting each YSO team. Over 15 months, the support team walked each YSO through GTO steps to identify, plan, implement, evaluate, and sustain an evidence-based teen pregnancy prevention program.

2.2.3 | Case 3: National level prevention

The Centers for Disease Control and Prevention's Office on Smoking and Health Program Services Branch (CDC-OSH) engaged in a year-long project to increase the motivation and capacity of OSH awardees. Awardees are U.S. state or territorial recipients of funding for tobacco control. CDC-OSH staff (support system) provide routine support for state health department awardees' (delivery system) administration of a tobacco use prevention initiative. A readiness consultation team consisted of two R = MC^2 researchers, two CDC-OSH technical assistance (TA) providers, and two members of CDC-OSH leadership. This team trained CDC-OSH staff to use the readiness building process to systematize their TA duties. The approach was deemed appropriate given the need for systematic TA (Katz & Wandersman, 2016) and call to use readiness constructs in federal agencies (Dymnicki et al., 2014). The consultation team formally presented the readiness building process to CDC-OSH staff twice; after each presentation, they used staff feedback to adapt the readiness building process. Ten CDC-OSH staff TA providers each selected one awardee (totaling nine states and one territory) to pilot readiness building for tobacco prevention. Prevention initiatives selected by awardees ranged from specific policies (e.g., Smokefree Air) to general change efforts (e.g., health systems transformation). Readiness building occurred over 10 months.

2.3 | Data collection and analysis

Data collection for this study varied by project. Data for Case 1 drew from document reviews, surveys, and site interviews (N = 8 sites) collected by the readiness team both during and after the 9-month readiness building phase. Two authors acted as project lead (Livet) and administrative support (Yannayon) to implement and evaluate the readiness building process for the CMMA initiative. Data for Case 2 drew from document review and site interviews (N = 11) conducted during project implementation by internal evaluators. Two authors were project lead (Talford) and evaluation support (Watson) and responsible for implementing the readiness building process with the YSOs and for data collection and analysis. Data for Case 3 drew from document review and awardee interviews (N = 7) conducted by the project support team in the last month of the project. It also included interviews with OSH-PSB staff and implementation support staff (N = 15) conducted by two external evaluators in the last month of the project. Two authors were project lead (Domlyn) and project coordinator (Kenworthy) and implemented readiness building activities in collaboration with federal partners and collected and synthesized data.

We analyzed data across the three case examples using a pattern-matching technique (Yin, 2009). This technique involves identifying the theory or predicted patterns of an event, collecting data along these predicted patterns, then analyzing whether actual events match predicted patterns. Here, the predicted pattern is the proposed activities of the readiness building process (Figure 2), which comprises the conceptual framework for pattern matching, with data from each case organized by these key activities (the unitizing of data for pattern matching). Organizing the case analysis in this way answers the questions 'In practice, does the support system follow the sequential steps of readiness building across system levels and contexts?' and 'What adaptations were made to the readiness building process by context?' Case authors reviewed project documents to answer key questions about the administration of, and adaptations made to, the readiness building process. For the *assessment* stage, this included RDS adaptations (e.g., item and wording changes), number of delivery system entities (e.g., organizations, sites, teams) completing the RDS, mode of administration (i.e., individual vs team-based), survey format (e.g., paper, web-based), and additional insights into the assessment process. In the *feedback and prioritization* stage, we examined how RDS results were summarized and communicated to the delivery system, the process for reviewing results and stakeholders involved, and method(s) used to prioritize readiness subcomponent(s) for further action. For the *strategize* stage, we noted who identified available strategies for readiness building, how strategies were selected, and categories included in written action plans. We synthesized lessons learned for applying readiness building process by identifying key barriers and facilitators.

3 | FINDINGS

In this section, we demonstrate readiness building in three settings: (1) a local-level healthcare intervention, (2) a state-level prevention initiative, and (3) a tobacco prevention effort with national reach. Each case example is described by readiness building stages, process adaptations made to fit the setting, and lessons learned. A summary of case example characteristics is provided in Table 2. We include a deidentified example for each case to further illustrate how readiness building stages were operationalized in the context of real-world settings. Each project embedded the readiness building process within a comprehensive system of planning, implementation, and evaluation. These details are beyond the scope of this article, however, additional information about each project is organized by standards of reporting implementation studies and can be obtained from the first author.

TABLE 2 Summary of Case Examples Reflecting Interventions at Three Ecological Levels

Level	Local	State	National
Setting	Health systems/clinics and community pharmacies in Wisconsin	Statewide teen pregnancy prevention campaign in South Carolina	CDC Office on Smoking and Health (CDC-OSH) supporting U.S. states and territories
Innovation	Medication optimization services, specific services varied by site.	Using GTO to implement an evidence-based teen pregnancy prevention program	Tobacco prevention initiatives, varied by site
Delivery system	Initial cohort of nine clinics and community pharmacies serving local communities; final cohort of eight sites, with one dropping out of the CMMA initiative	Eleven state-funded YSO	Ten U.S. state or territory recipients of funding for tobacco control ("awardees")
Support system	Readiness project team: Research group from UNC Eshelman School of Pharmacy, two AIMM coaches.	Support team: Three R = MC^2/ GTO experts and one coach assigned to each site.	TA providers: Ten CDC-OSH project officers.
Readiness building process adaptations	*Assessment*: RDS wording changed to fit innovation; added one item to Compatibility subcomponent. Each site completed online RDS collectively as a team. *Feedback and Prioritization*: Site-specific score reports, discussed with coaches. Prioritization tool used to determine areas for improvement. *Strategize*: Sites determined goals. Research team identified strategies. Site teams tailored strategies and decided on most relevant strategies. Site teams created action plans to build readiness over 4 months.	*Assessment*: Wording changed to fit innovation; Excluded three subcomponents (interorganizational relationships, ability to pilot, observability). Each YSO team member individually completed RDS online. Site coach later independently rated each site's readiness by subcomponent after feedback session. *Feedback and Prioritization:* Site-specific score reports, interpreted via support team semi-structured interview. Support team suggested priorities for each site based on three lowest scores across both RDS and coach ratings. *Strategize*: Sites determined strategies with support team's help. These were incorporated into capacity building plans executed over 10–12 months.	*Assessment*: Wording changed to fit innovation selected by each state/territory; added items and changed two subcomponent names to align with existing CDC materials. The program manager for each awardee and their CDC-OSH TA provider separately completed the RDS online. *Feedback and Prioritization*: Site-specific score reports, interpreted via conversation between awardee and their TA provider. Reconciled differences in scores and selected priorities collaboratively. *Strategize*: TA provider/awardee pairs selected from either a provided readiness-specific database or existing TA resources. Action plans were executed over 6 months.

Abbreviations: CDC-OSH, Centers for Disease Control and Prevention's Office on Smoking and Health Program; CMMA, Concordia Medication Management Accelerator; GTO, Getting To Outcomes; RDS, Readiness Diagnostic Scale; TA, technical assistance; YSO, youth-serving organizations.

3.1 | Case 1: Local-level healthcare

3.1.1 | Assessment

Two webinars introduced readiness building as part of the broader implementation process. These webinars were supplemented by additional conversations with teams at each site to further explain the readiness building approach. Following this initial orientation to readiness, each team was asked to complete an earlier version of the RDS (i.e., RMT). The CMO group adapted the RDS through wording changes such as revising assertions to opinions (e.g., "The innovation is better than other innovations considered" to "The team believes that the innovation is better than others considered") and adding one item to the Compatibility subcomponent to reflect whether the initiative fit the site's workflow. Eight of the nine sites completed the RDS as a team and recorded answers via an online survey. Team members at each site worked together on scoring items. In addition to rating the Likert-scale RDS items, they were also asked to list their top three readiness-related insights. This approach facilitated preliminary discussions and consensus building within each team.

Assessment: Illustration of use

One of the eight healthcare settings, Journey Healthcare (a pseudonym) is a large integrated health organization that piloted a comprehensive medication adherence program in one of its embedded pharmacies. The comprehensive medication adherence program was composed of three services: comprehensive medication reviews, medication synchronization, and bubble packing (where medications are packaged into individual doses). Within a nine-member team, two pharmacy clinical coordinators completed the RDS by discussing each item based on the context of their site and arriving at an agreement. An insight emerged from the discussion that their initiative was not a priority for the larger organization.

3.1.2 | Feedback and prioritization

RDS results were summarized by the CMO group into site-specific reports highlighting readiness strengths and challenges. Reports were shared with each site and discussed during coaching calls. This collaborative process between coaches and healthcare teams deepened understanding of RDS scores by the CMO group. It also facilitated gaining common interpretations of the RDS items by members of each site team. Once discrepancies in understanding were resolved, teams identified their top readiness challenges using a grid prioritization tool. This tool facilitated selecting readiness priorities based on feasibility and impact levels (high or low).

Feedback and prioritization: Illustration of use

For Journey Healthcare, upon completing the RDS, the CMO group summarized results into a report. Overall, their readiness scores were relatively high (above 5 on a 7-point scale) except for Resource Utilization, Interorganizational Relationships, and Relative Advantage. Both readiness strengths and challenges were highlighted in their individualized report, along with their full survey results. Suggested readiness building strategies (e.g., use available resources to generate and showcase success to demonstrate value) were included in the report based on an item-by-item analysis of their results. The readiness results were shared during a conversation between Journey Healthcare members and their coaches, which led to the identification of Resource Utilization as their priority area. The team noted they had enough resources to continue with a pilot of their initiative, but there was not yet a plan for securing additional resources. Journey Healthcare members expressed the importance of being able to demonstrate successful pilot program outcomes to obtain leadership buy-in to prioritize, sustain, and scale their initiative.

3.1.3 | Strategize

With assistance from their coach, site teams developed actionable readiness goals based on their selected priorities. While site teams engaged in goal setting, the CMO group identified readiness building strategies for each site based on assessment results and utilized a prioritization tool to determine readiness areas of focus. At least one strategy was identified for survey items with a low score (below 3.5 on a 7-point scale), resulting in a strategy list for each site that was aligned with stated readiness building goals. This list was shared with the coaches, discussed with each team, and used as a foundation to build action plans. Action plans included priorities/goals, associated readiness building strategies, associated tasks, person(s) responsible for completing this task, due dates, and progress to date. To facilitate ownership and buy-in, strategies included in the action plan were ultimately decided by the site teams. The action plan served to guide strategy execution and monitor progress over a 4-month period.

Illustration of use

Journey Healthcare determined that, to boost the perceived priority of their comprehensive medication adherence program and subsequently obtain additional resources, they needed to demonstrate successful pilot results. The site team developed an action plan for improving Resource Utilization that focused on training staff to collect data, collecting pilot data, developing a business case for additional resources based on their pilot data, and obtaining feedback from leadership on the importance of their initiative. By the end of 4 months, Journey Healthcare had completed one of their four readiness building strategies. At the time of developing this article, members of Journey Healthcare are continuing to work the remaining readiness building strategies.

3.1.4 | Lessons learned

A number of lessons learned emerged from this project. First, framing readiness in a way that is relevant to the participating sites is critical to drive engagement and buy-in. One potential strategy identified by interviewees was tailoring the readiness building process based on the complexity of service implementation and timing of readiness building. Second, although successful integration of a new service is facilitated if multiple member-teams are involved, readiness building often becomes the responsibility of one or two core members. Having a motivated readiness building champion or lead at each site who is well-respected, execution-focused, and able to effectively navigate the organizational environment is critical to success. Third, readiness building should be an ongoing process. Of the 34 strategies identified across the eight sites, 68% were still in progress after 4 months. Competing priorities and lack of resources (e.g., time and staff turnover) were cited as major barriers to meeting readiness building milestones. For example, Journey Healthcare reported that perceived priority of their initiative among leadership was a barrier to the timely execution of their action plan, alongside lack of staff time and resources. Fourth, identification of readiness building strategies should be a highly collaborative process. Conversations with each team about their RDS results were necessary for accurate interpretation and contextualization of the data. Effective translation of RDS results into actionable strategies required item-level discussions. Relevant readiness building strategies were identified by combining perspectives from both members representing the support system (the CMO group and AIMM coaches) and the delivery system (site teams). Finally, the participating sites emphasized the value of having access to external readiness building supports. Some level of coaching was deemed critical to maintain accountability and provide the necessary support for sites involved in the process. In addition, the readiness tools were reported to help the sites carefully think through implementation decisions and organize their strategy for readiness building into feasible steps.

3.2 | Case 2: State-level human services

3.2.1 | Assessment

Each YSO team participated in a two day interactive training on GTO and the readiness building process. After the training, each YSO team member individually completed the RDS to assess implementation readiness for their selected evidence-based teen pregnancy prevention program. The support system team adapted the RDS by excluding three subcomponents (Interorganizational Relationships, Ability to Pilot, and Observability) deemed by stakeholders as less critical for assessing readiness in this innovation. The innovation specified in the RDS was customized to reference "any prevention program" and participants were instructed to respond based on the evidence-based program their site had selected. Scores were compiled to create an overall organizational readiness profile for two time points, before and after the intensive 15-month implementation process. Approximately 60 individuals completed the RDS across 11 sites using an online survey platform.

Illustration of use

Eight CQI team members within an evaluation center for detained youth— referred to here as the Guiding Light Center—completed the online RDS. Using a 7-point Likert scale from *strongly disagree* to *strongly agree*, each member independently rated their perceptions of the center's readiness for implementing an evidence-based teen pregnancy prevention program using GTO.

3.2.2 | Feedback and prioritization

The support team summarized RDS results into site-level reports delivered to each YSO. Reports indicated their site's average scores for each RDS item and $R = MC^2$ subcomponent. YSO teams then participated in semi-structured interviews ($N = 11$) with their support team. Interviews explored the CQI team's interpretation of their site's scores and perceived efforts needed to build readiness. Based on the information provided during the interviews, both the $R = MC^2$/GTO expert and coach then independently scored each participating YSO on the readiness subcomponents, which informed the selection of strategies in the next stage. According to support team documents, understanding the site-level readiness scores through both delivery-system and support system perceptions facilitated tailoring readiness building efforts to each YSO. Coaches and YSO sites often differed in their perception of site readiness, with coaches frequently rating sites lower. The differing perspectives between the support team and site teams were collaboratively reconciled through conversation. Readiness building focus areas, customized for each site, were determined and prioritized by the support team by identifying three subcomponents that were rated lower on both the site-level RDS reports and coach ratings. As part of prioritization, subcomponents were targeted for action if the coaches believed their lower scores would be more likely to impact high quality implementation.

Illustration of use

At Guiding Light a summarized readiness report was shared and discussed with the CQI team at a site visit. The readiness subcomponents of Compatibility, Program Champion, and Process Capacities were identified in the report as the areas of higher readiness; Resource Utilization, Climate, and Innovativeness were the three lower areas of readiness. Additionally, a facilitated discussion was conducted by the support system team to understand the center's interpretation of their readiness scores and the background context for their ratings. Based on the discussion, the coaches independently rated the center for each readiness subcomponent. The largest discrepancy when comparing site-level ratings to the coaches' ratings was Program Champion. The center rated themselves as higher because of perceived high knowledge and skills among YSO staff. However, the discussion revealed a single

program champion had not been identified, so coaches subsequently rated them lower on this subcomponent. The CQI team determined that readiness building around General Capacities would be important to the ultimate success of the teen pregnancy prevention initiative as this component critically reflects the regular functioning of an organization. Thus, in addition to cultivating a Program Champion, the coaches also selected Innovativeness (a feature of General Capacity) as a readiness building priority area.

3.2.3 | Strategize

Based on support team expertise on which factors impact program implementation, combined with knowledge of local context, the support team and sites collaboratively strategized and developed readiness building action plans. YSO teams identified strategies to increase readiness on each subcomponent deemed a priority. Selection of strategies was a negotiation between YSO staff who had local expertise and the support team. The YSO-specific readiness building strategies were incorporated into tailored capacity building plans developed by the site's support team. Each capacity building plan was then reviewed and agreed upon by site teams. Action plans were executed over the course of 12 months.

Illustration of use

With the example of Guiding Light, the CQI team lead selected a program champion from within the center. The $R = MC^2/GTO$ coach then worked with the program champion to develop an action plan for promotion and advocacy of the teen pregnancy prevention program by identifying areas where knowledge and skills would need to be built. This action plan was based on a template provided to all sites and included tasks, timeline for completion, and person responsible. This plan was embedded into their coach's overall case plan for the site. In an effort to build organizational Innovativeness, the CQI team and coaches determined that additional GTO training would benefit staff by instilling skills necessary to adapt to change. This strategy was selected based on the coach's existing professional knowledge. Within the intervention timeline, Guiding Light completed these trainings and continued to train new staff for the next 3 years.

3.2.4 | Lessons learned

Working with local-serving YSOs that were funded by state-led government agencies introduced several challenges. Based on support team report and YSO site interviews, one key lesson learned was that engagement is an ongoing process. Keeping sites engaged in readiness building was sometimes difficult due to their competing priorities with everyday tasks associated with being a direct service organization. These competing priorities within the participating organizations resulted in uneven engagement throughout the process. Frequent staff turnover often resulted in difficulty engaging new employees in the process. Additionally, support team document review revealed that working across levels (with both state agencies and local service providers) resulted in slower decision-making processes due to the hierarchical chains of command. Support team members noted readiness building would benefit from engaging top-level leadership from the start and meeting with them regularly to create visibility and a sense of priority among leadership. At Guiding Light a second RDS administration revealed declines in Leadership, Priority, and Structure; the site interpreted these changes as resultant of state-level leadership restructuring which led the CQI team to perceive that leadership did not view teen pregnancy prevention as a priority. The CQI team was active and engaged throughout the course of the intensive capacity building process and did report increases in individuals' capacity, but interviews with staff indicated the team felt limited in sustaining the work due to the top-down structure that did not allow for decision-making by "front-line" staff.

The support team reported that one important element was creating site implementation teams which encouraged collaboration and task delegation. The support team reported that sites were successful using the readiness building process when the site team had good working relationships and a clear common goal. Coach engagement in the assessment stage provided expertise on areas likely to impact program implementation. The support team indicated collaborative selection of readiness building strategies helped create buy-in and a sense of responsibility within each YSO. According to YSO site interviews and document review, dedicated R = MC^2/GTO experts and coaches ensured that the process was informed by best practices.

3.3 | Case 3: National level prevention

3.3.1 | Assessment

Readiness assessment was completed after the CDC-OSH TA providers engaged in four trainings and awardees attended an orientation about readiness building. The consultation team customized the RDS for each awardee; innovation-specific items were edited to reference the specific tobacco prevention policy or program selected by each awardee. Additionally, readiness researchers worked closely and iteratively with CDC-OSH colleagues to ensure that the language of each item fit their context. Drawing from the Component Model of Infrastructure (CMI), an evidence-based guide for tobacco prevention and control program infrastructure (Centers for Disease Control and Prevention, 2017; Lavinghouze et al., 2014), several items were added to the RDS and some subcomponents were modified or added (e.g., "Planning and Engaged Data" subcomponent was added to General Capacity). One awardee representative (e.g., the program manager within the state's department of public health) and their TA provider separately completed the online RDS regarding perceptions of the state/territory's implementation readiness to capture variations between CDC-OSH external perceptions and the awardee's internal perceptions.

Illustration of use

Sothington is a state that elected to use the R = MC^2 process for engaging stakeholders to promote policy change for tobacco use prevention. The innovation of stakeholder engagement for policy change is an objective promoted by CDC-OSH; the Sothingon tobacco control program had already been introduced to this innovation by CDC staff. A local project coordinator from Sothington and the state's CDC-OSH TA provider completed the RDS, each rating their internal (local project coordinator) and external (TA provider) perspective on the state tobacco control program's readiness for engaging stakeholders. They each did so separately using an online platform which asked the respondent to rank each RDS item on a 7-point Likert scale.

3.3.2 | Feedback and prioritization

The consultation team collated RDS results in an individualized report for each state/territory to the TA provider. Reports included individual item and subcomponent scores for both the TA provider and the awardee program manager as well as discrepancies between their scores. Strengths and areas for improvement were noted based on higher and lower scores; no specific recommendations were provided for where to focus readiness building efforts. Suggestions for how to prioritize an action area were described in the report as a series of discussion questions, including "What is the most important area for your tobacco control program to work on?" and "Which areas does it make the most sense for you and your team to focus on in the short, medium, and long term?" TA providers and awardees collaboratively reviewed the RDS results and discussed their perceptions during a coaching call. This allowed them to resolve discrepancies in ratings and share pertinent information. They then used the RDS reports

as stimuli to collaboratively identify priority readiness areas. Priority areas were determined by considering the timing, feasibility, and availability of strategies for subcomponents that were rated low compared to the site's other scores.

Illustration of use

In Sothington, the readiness report was provided to the CDC-OSH TA provider, who shared and discussed it with the project coordinator during a one hour call. The report identified higher readiness in Priority, Innovation-Specific Knowledge and Skills, and Culture and lower readiness in Simplicity, Responsive Plans and Planning (a project-specific subcomponent), and Planning and Engaged Data. Together, the pair identified that - to improve long-term relationships with key stakeholders in the state - policy change must seem feasible and actionable at the local level. They determined the tobacco control program in Sothington would benefit most from building the perceived Simplicity.

3.3.3 | Strategize

TA provider/awardee pairs created action plans detailing steps and strategies for improvements along with tasks and deadlines to assigned individuals at each state or territory. TA providers accessed a change management literature-derived database of readiness building strategies generated by the consultation team. The pairs also used their own practice-based knowledge and/or other evidence-based resources to determine promising strategies for improving selected areas of readiness. TA providers matched identified priority areas to strategies, co-developed the action plans with awardees, and monitored task completion on the action plans.

Illustration of use

In Sothington the TA provider/awardee pair reviewed the repository to identify areas related to Simplicity. One strategy chosen to increase Simplicity was creating a fishbone diagram (i.e., a way to organize information that breaks an issue down into its constituent parts). They identified one additional repository strategy (crystalizing; i.e., creating a committed group dedicated to achieving the project outcomes) and one from existing expertise (educating coordinators on innovation content). They used a supplied plan template to develop related action steps, note individual people responsible for each action item, and enter a target completion date for each item. At the time this article was developed, 83% of activities targeted to be done within the first three months were completed with plans to continue executing the remainder.

3.3.4 | Lessons learned

Interviews with support staff and TA providers revealed that flexibility in the readiness building process is critical. For example, deadlines for submission of readiness building action plans were extended due to conflicts with holidays and other priorities. TA providers reported that quality implementation required a longer timeline than prescribed and the readiness building process took longer than anticipated; for example, many extended their monthly hour calls by 30 minutes or more. In Sothington staff dedicated two hours beyond routine TA calls to report review and action planning. Action items were stalled due to bureaucratic delays such as needing a public health department letter of support before sharing their fishbone diagram with others. TA providers described collaboration and extensive discussion with awardees around developing readiness building strategies. They reported that this targeted TA provided more structure to their work and fostered better communication; interviews with awardees corroborated that they felt a stronger relationship with their TA provider as a result of readiness building discussions. Sothington's TA provider noted that building readiness was a time-consuming process, but

that "local level coordinators are very excited to be involved, always thinking of next steps, willing to take deep dives to figure out lessons learned and what can be done differently." The consultation team reported that collaborative co-design facilitated RDS fit for the context of CDC-OSH; tools for readiness building were feasible for staff and timelines were modified to fit the OSH work schedule. Support staff reported that the readiness building process empowered TA providers and awardees to create plans relevant for their priorities and context. They also perceived having both TA providers and awardee representatives complete the RDS ensured parties were clear on strengths and weaknesses of the context and had critical conversations around areas for improvement.

4 | DISCUSSION

We translated a comprehensive organizational readiness framework ($R = MC^2$; Scaccia et al., 2015) into a systematic process for building implementation readiness in diverse settings. The operationalization of readiness building into three stages (assessment, feedback and prioritization, strategize) aligns with calls to develop and test practical strategies for supporting implementation in real-world settings. This article contributes to implementation research and practice by (i) presenting a practical approach that bridges activities of the ISF support system and the delivery system, and (ii) illustrating how the readiness building process can be applied in local, state, and national-level interventions. A structured description of how the readiness building process is used in diverse settings is critical to identify and understand common promising and best practices and challenges associated with the process.

Returning to the analytic questions, support system users followed the sequential structure across all three cases. This is significant given the disparate challenges faced within different sectors and system levels. Results indicate that the readiness building process is feasibly followed across different settings provided the support system and delivery system actors are identified for each project. However, per the second analytic question, there were many adaptations made to each step to ensure fit (Table 2). Comparing usage patterns across the three cases reveals important similarities and distinctions in each readiness building stage. In the *assessment* stage, all three cases used initial trainings to orient project stakeholders to the readiness building process; however, the training in some cases included other project-relevant topics (e.g., Getting To Outcomes, Medication optimization services). The RDS survey was adapted in all three case examples to suit the setting and innovation. These adaptations included customization of wording, items, and subcomponents. There was also variation in whether the RDS was completed individually or jointly. In Case 1, members of the delivery system completed the RDS as a team, independently of the support system; this approach coheres with the administration method utilized by Kingston et al. (2018) and Scott et al. (2017). Cases 2 and 3 employed a participatory inquiry approach, whereby internal (delivery system) and external (support system) perspectives were elicited and emergent discrepancies collaboratively discussed. Across all cases in the *feedback and prioritization* stage, the support system teams drafted site-specific RDS reports and held stakeholder discussions to reflect on readiness trends, and to identify priority areas for readiness building. In all cases, trends at the readiness subcomponent level were examined by stakeholders; however, in Cases 1 and 3, the RDS item-level results were also of interest. Specifically, item-level trends were used to inform strategy selection in Case 1 and to determine priorities in Case 3. A prioritization worksheet was used by stakeholders in Cases 1 and 3 to establish readiness building priorities. When *strategizing*, stakeholders in Cases 1 and 3 indicated strategy selection was based on consensus-driven conversations between the delivery system and support system. In Case 2 the support team suggested strategies, but did so after discussions with the delivery system. All three cases utilized action planning documents to operationalize readiness building strategies and to set goals and deadlines. Progress during the strategize stage was routinely monitored by support system and delivery system staff to ensure accountability and to make adjustments for implementation.

4.1 | Insights and implications for practice

Six insights about the use of the readiness building process emerged from generalizable lessons across the three cases. First, although project stakeholders completed all readiness building stages, each stage was tailored based on the needs of the delivery system and the availability of support system resources. For instance, Cases 1 and 3 noted the importance of co-designing tools (e.g., the RDS, prioritization worksheets) and appropriately adjusted the implementation timeline to allow more time for a co-design process. Second, the readiness building process can be woven into existing implementation activities. With the aid of support system staff, stakeholders in Cases 2 and 3 embedded readiness building within their implementation plan, rather than applying it as a separate process. Despite the strengths of the $R = MC^2$ framework for guiding readiness building, implementation is a complex process that requires a comprehensive capacity-building strategy. Before engaging in readiness building we suggest considering what is being implemented and the appropriateness of the innovation to the setting. Without a comprehensive process of program selection, implementation, and evaluation, we believe the likelihood of achieving outcomes is reduced, regardless of readiness considerations. Third, akin to the reality that successful and sustainable implementation initiatives require time, the readiness building process is time intensive. The time-intensiveness of readiness building process activities was cited as a challenge for stakeholders in Cases 1 and 3, but not in Case 2. This is perhaps because Case 2 staff allocated a year for the strategy execution process compared to 4 months and 6 months for Cases 1 and 3, respectively. This practice-based insight suggests utility to careful temporal planning before using the readiness building process, and that full implementation of the strategizing stage in less than a 6-month period may be more stressful on staff. Interviews with project stakeholders across the cases revealed two hindrances to readiness building: staff turnover and bureaucratic delays. These organizational changes are common barriers to implementation (Green & Aarons, 2011; Hailemariam et al., 2019; Kneale et al., 2017), and reinforce the value of complementing the readiness building process with a flexible timeline. Fourth, stakeholders across the three cases identified collaboration between support system and delivery system staff as central to an effective readiness building process. Joint conversations and co-design were helpful for contextualizing results and strengthening stakeholders' confidence in the process. This insight is consistent with studies stressing the need for active (i.e., interactive, rather than passive) approaches to capacity building (Brownson et al., 2018; Forman et al., 2009; Wandersman et al., 2012) and suggestions that inter-organizational collaboration is important for implementation success (Palinkas et al., 2014). Stemming from values of empowerment and collaboration, the readiness building process emphasizes the collaborative relationship between inter-organizational stakeholders, specifically the delivery system and the support system. Fifth, ongoing engagement, particularly of delivery system leadership, is necessary for quality use of the readiness building process. In fact, we cannot overemphasize the importance of ongoing engagement among delivery system staff. For readiness building, Livet et al. (2020) indicate that engagement involves convening implementation teams and conducting initial trainings, which are activities common to the earliest stages of implementation (Metz et al., 2015). In the original readiness building process (Figure 2), we also viewed engagement as a precursor to the readiness building process. However, synthesis of the case example findings suggest that engagement may best be conceptualized in phases (e.g., initial engagement, ongoing engagement, post-engagement). We found that, in addition to *initial* engagement, *ongoing* engagement of project staff across the stages of the readiness building process is critical. Methods and guiding principles for maintaining and strengthening relationships between ISF support system and delivery system staff are needed. Recent literature suggests there is conceptual synergy between $R = MC^2$ and relational coordination, a method for enhancing relationship links between organizations (Hajjar et al., 2020). Systematically embedding relational coordination methods into the readiness building process may aid ongoing stakeholder engagement. Finally, the role of the support system staff described in this article is akin to TA, which is an individualized, hands-on approach to capacity building in organizations and communities (Katz & Wandersman, 2016). The field of implementation support is limited by a lack of TA providers using systematic processes to guide the provision of TA (Katz & Wandersman, 2016). This readiness building process may be particularly valuable to TA providers—a predominant type of support system actor—seeking to use a pragmatic, systematic process for supporting the implementation of evidence-based practices.

4.2 | Conceptual implications

Grounded in change management literature, the readiness building process conceptually deviates from traditional "hard system" methodologies where problems are linearly identified, quantified, and mitigated. Systems thinking broadly recognizes the inherent complexity of a setting and its interacting agents (Peters, 2014). While many systems thinking tools require diagramming causal loops or creating interactive system maps (Peters, 2014), the readiness building process is designed to foster simple systems thinking through conversation with key stakeholders. The *assessment* stage illuminates pertinent implementation challenges, the *feedback and prioritization* stage facilitates dialogue among delivery system staff - and between delivery and support system staff - to reconcile perspectives from their differing vantage points. After reaching consensus, to *strategize* the stakeholders must operationalize their assumptions about critical areas for readiness building into plans that test viable interventions in the real world. As shown in the feedback loop of readiness building (Figure 2), the process is then revisited to reassess the readiness of a setting and to subsequently recalibrate priorities and pertinent strategies. This is congruent with general systems thinking, where data and methods are revisited to shift with evolving system needs (Peters, 2014). While the readiness building process is described in stages, it is best aligned with "soft systems" methodologies where observers attend to the complexity of not only the context, but also the process by which they explore problems and feasible changes (Checkland, 2000). Therefore, determining priority areas for readiness building is not as simple as selecting the lowest RDS score. Soft systems thinking requires stakeholders to reconcile viewpoints of different actors, identify how problems are woven into interdependent structures and feedback loops, and appreciate that goals evolve (Checkland, 2000). Congruent with soft systems thinking, readiness building is a process of inquiry that seeks to maintain relationships through collective appreciation of the setting gathered via collaborative assessment, feedback, prioritization, and strategizing.

5 | LIMITATIONS

The aim of this paper was to describe applications of a readiness building process through case examples. The reporting of outcomes is beyond the scope of this paper. Future research of the readiness building process' impact on outcomes in diverse settings would meaningfully advance implementation research and practice. However, an intermediary step is to ensure enacted strategies are optimally matched to readiness subcomponents. The practice of implementation strategy selection is currently constrained by the absence of research matching strategies to implementation determinants (Waltz et al., 2019). To further implementation research, future iterations of the readiness building process would benefit from first developing a repository of evidence-based and evidence-informed strategies, matched to $R = MC^2$ subcomponents, and then expanding the *strategize* stage to use a robust strategy selection approach such as intervention mapping (Fernandez et al., 2019). While this article shows the applicability of the readiness building process in different contexts, the generalizability of the insights may be limited by the sample size and recruitment approach. As case illustrations of the readiness building process become available, we expect a corollary emergence of best practices. Finally, while our examples showed TA providers initiating the process, a systematic process of readiness building may be more resource-intensive than usual TA and is infeasible for every project.

6 | CONCLUSION

The translation of implementation research into implementation practice is essential for improving outcomes. Grounded in the evidence-informed $R = MC^2$ framework, the readiness building process is a tailored approach that bridges activities of the ISF support system and delivery system. The staged process of assessment, feedback and

prioritization, and strategizing provides a systematic structure to develop implementation readiness that can be integrated with existing implementation efforts. Our case examples illustrate the generalizability of the readiness building process across diverse settings involving local, state, and national-level interventions. Implementation research and practice can be advanced by matching change management strategies to readiness constructs and investigating the impact of readiness building on implementation outcomes.

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DATA AVAILABILITY STATEMENT

The data for Case 1 that support the findings of this study are available from the corresponding author upon reasonable request. Data for Cases 2 and 3 are available with the permission from Fact Forward and the Centers for Disease Control, respectively.

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SUPPORTING INFORMATION

Additional Supporting Information may be found online in the supporting information tab for this article.

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