



Designing a Process for Inclusive Innovation

A Radical Commitment to Equity

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About this Project

Through a planning grant from the Bill & Melinda Gates Foundation, Digital Promise set out to examine and develop processes for addressing grand challenges in education with scalable R&D, centered in a radical commitment to equity that includes engaging stakeholders to design for impact.

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Executive Summary

Under the current model of education research and development (R&D), solutions to the pressing challenges facing schools and districts across the country often fail to meet the needs of those who need them most: historically marginalized populations such as Black and Latinx students and students living in poverty. To address this problem, Digital Promise sought to understand the essential elements of equity-first R&D models and develop a prototype for education.

This paper starts from the premise that missing from existing education R&D is a **radical commitment to equity**. The paper presents **Inclusive Innovation**, a model that reimagines authority, decision-making, and risk in the context of education R&D and provides an overarching framework for authentically engaging underrepresented stakeholders at the earliest stages and shifting their roles to leaders, participants, and beneficiaries. The power of **Inclusive Innovation** is that it doesn't just invite underrepresented voices and perspectives into the innovation ecosystem; it places them at the center of it.

To develop the model, Digital Promise examined six existing R&D models in education and other fields that have resulted in positive outcomes for marginalized populations and synthesized lessons learned:

1. DARPA's Directed Development. Assembles interdisciplinary, diverse, and independent temporary teams (3-5 years) of top innovators in their fields to solve persistent problems or build new opportunities for which traditional approaches are inadequate

2. In-Q-Tel's Strategic Investments in Technologies. Works at the intersection of government, venture capital, and startups to provide a support infrastructure for leveraging products and companies to solve urgent national security problems

3. Tamarack Institute's Capacity Building for Grassroots Action. Brings together stakeholders and institutions to tackle major

community issues internationally in a collective impact and comprehensive multi-sector approach

4. PCORI's Deep Engagement Rubric. Developed in collaboration with patients and other stakeholders often from underrepresented communities, provides guidance and methods for engaging stakeholders throughout the phases of healthcare research

5. Research-Practice Partnerships (RPPs). Long-term collaborations between education researchers and practitioners to develop research-based solutions for improving school and district outcomes

6. Challenge Collaboratives. Engages education practitioners, researchers, developers, and key stakeholders in diverse contexts across geographies to work in teams to address shared problems of practice, facilitated by Digital Promise

Inspired by these models, **Inclusive Innovation** unfolds across five stages, each with its own goals, practices, tools for data collection and analysis, protocols, and guidance on roles community members, researchers, and developers might play. The stages are: Connect & Commit, Inquire & Investigate, Design & Develop, Implement & Iterate, and Sustain & Scale. The stages are not linear or unidirectional and the boundaries between them are porous. Four cross-cutting practices keep equity at the center of the process at all times: engagement, capacity building, reflection, and recognition.

In the paper, charts and tables offer at-a-glance and detailed descriptions of the process. An Appendix provides an example of how **Inclusive Innovation** might be applied to the challenge of literacy in the primary grades.

An important next step for the **Inclusive Innovation** model for education R&D is to test it in whole or in part to further refine and improve it.

Introduction

Across the country, schools and districts are grappling with urgent and growing challenges: responding to an increase in childhood trauma, supporting English language learners, providing better opportunities for students to be successful in mathematics, preparing students for a continuously changing world, and more. Many of these challenges disproportionately affect students experiencing poverty as well as Black and Latinx students. Solutions often fall short of benefitting historically marginalized students, suggesting that existing models of education research and development (R&D) fall short in solving problems for students most in need of novel approaches. Education practitioners, researchers, developers, and designers regularly work on these and similar challenges, but often in silos and without including the perspectives of people who are most vulnerable to them.

Addressing these challenges for all students requires a renewed focus and investment of time, funds, and expertise on rapidly identifying and advancing solutions that already exist as well as new breakthroughs. It also requires a systemic and systematic process for education stakeholders, including practitioners and community members, to be included in R&D from the earliest stages, each contributing their knowledge of content, pedagogy, and/or context to collaboratively develop innovative solutions that are more equitable and inclusive of marginalized populations.

This paper starts from the premise that a radical commitment to equity is the missing link in existing education R&D efforts and presents ***Inclusive Innovation***, a process of ensuring people closest to the challenge lead, participate in, and benefit from innovation.

The following essential questions guided this investigation:

How might we redesign education research and development to intentionally meet the needs of Black, Latinx, and high-poverty students? What processes and/or tools might support this advanced R&D approach to solve education's grand challenges?

Additional questions included:

- What are existing models of research and/or development in education and other fields that are effective and result in positive outcomes for marginalized populations?
- What difference does context make and in what circumstances in education R&D? How might context be best captured and understood?
- What principles should be applied to ensure advanced R&D meets the needs of marginalized populations?
- What role should researchers, practitioners, technologists, product developers, community members, and other stakeholders play as co-experts throughout an advanced R&D and implementation process?
- What protocols and/or tools might support design, implementation, testing, and iteration?
- What data infrastructure could support an advanced R&D effort?

Digital Promise sought to understand and share how centering R&D in a radical commitment to equity might reshape education R&D and redefine who should be involved and in what ways to design the highest impact solutions. Inclusive Innovation is the overarching framework presented in this paper.

Inclusive Innovation removes barriers to the participation of individuals, groups, and regions that are underrepresented in the education innovation ecosystem and creates and catalyzes equitable opportunities for individuals to successfully lead, participate in, and benefit from an innovation.

About Digital Promise

The Digital Promise mission is to spur innovation to improve the opportunity to learn for every person. The vision is that all people at every stage of their lives have access to learning experiences that help them acquire the knowledge and skills they need to thrive and continuously learn in an ever-changing world. When everyone has access, participates, and learns, we all benefit from a more engaged, informed, and just society.

Digital Promise is uniquely positioned as a catalyst for Inclusive Innovation, combining trust relationships within educator, researcher, and regional education communities with an ability to develop, map, and incubate solutions through methods that are inclusive, contextually aware, and equity-driven.

The organization's core competencies include galvanizing networks to action, blending research and practice towards solving challenges, developing effective communications, and supporting a "powerful learning" pedagogy and rich learning environments. (See Appendix C for more about Digital Promise.)

Inspiration From Existing Models

Effective methods and principles for advanced R&D can be found in models within education and adjacent fields. The team identified well-designed processes that have resulted in positive outcomes. Following are six models that inspired the Inclusive Innovation processes that are presented in this paper.

1

Solving Grand Challenges Through Directed Development: Department of Defense Advanced Research Projects Agency

The Defense Advanced Research Projects Agency (DARPA) allows the government to tap innovators at the top of their fields to apply the latest R&D thinking to solve big problems. Breakthrough research findings and promising innovations can be quickly accessed and then implemented by the Department of Defense. Many innovations resulting from DARPA investments have also been applied in other segments of society. These include the internet, Global Positioning Systems (GPS), translation technologies, and more.

Three core elements make up the DARPA model: ambitious goals, temporary project teams, and independence. DARPA's projects harness advances in STEM fields to solve persistent problems or build new opportunities. The problems DARPA addresses must be ambitious and challenging enough that traditional scientific approaches would be inadequate. An urgent need for a new application demands serious focus from interdisciplinary teams and inspires cutting-edge ideas. By bringing diverse experts together for short-term projects (averaging three to five years), DARPA encourages high-caliber talent to collaborate efficiently to drive results.

Finally, DARPA has autonomy in the selection and management of its projects, which enables the organization to act quickly and flexibly, taking on the high-risk, high-rewards problems that accomplished leaders are prepared to tackle.

Lessons learned from DARPA:

- A specific focus on "Pasteur's Quadrant" (bridging the gap between "basic" and "applied" research) deepens scientific understanding while considering the application or use of research.
- Flexibility in design and development optimizes creativity and applied research.
- Independence allows people at the top of their careers and best suited to working with others to solve the challenge by being provided with space and time to do their best work.
- Teams working on various parts of the challenge or from various perspectives serve the whole.

2

Strategic Investment in Technologies that Preserve National Security: In-Q-Tel

In-Q-Tel is a non-profit organization that provides a supporting infrastructure for leveraging products and companies to solve urgent intelligence and security problems. Working at the intersection of government, venture capital, and startups, In-Q-Tel addresses each challenge posed by its government agency partners by using a system-level framework for understanding the components of the challenge and identifying existing technologies that could lead to solutions. This deep understanding of the landscape enables them to find and invest in appropriate companies to address the challenge.

In-Q-Tel combines technical expertise to vet opportunities and potential solutions against the requirements of the challenge with investment expertise to evaluate business plans and the commercial potential of companies. After selecting one company or a combination of companies to invest in, In-Q-Tel manages the relationship between them and partner government agencies to facilitate efficient, successful, and sustainable solution development and procurement.

Lessons learned from In-Q-Tel:

- Working at the intersection of stakeholders provides In-Q-Tel with valuable connections and contacts at innovative organizations, as well as a systems-level view of the landscape of challenges and promising solutions.
- Their facilitated process, building on emerging products that can be modified, tested, and delivered for use within six to 36 months, leads to rapid solution development and valuable product enhancements.
- Partnering with venture capital to identify and invest in pioneering technology with potential for commercial success keeps the costs lower than paying for wholly new solutions.

3

Decreasing Poverty in Communities in Canada: Tamarack Institute

Tamarack Institute facilitates collaborative strategies with stakeholders and institutions to tackle major community issues in Canada and elsewhere. Enabling a national effort across Canada to reduce poverty, the Tamarack Institute brings together 70 regional partners representing almost 350 municipalities to follow a collective impact model and comprehensive multi-sector

approach. Tamarack focuses on the learning of individuals and institutions involved in the work and, through case studies of impact, tools, guides, and other resources, offers substantial and substantive capacity building for grassroots action. Importantly, each community effort includes direct participation of people living in poverty.

Most recently, Tamarack published Canada's first "poverty dashboard," a set of indicators measuring the country's progress in poverty reduction. Twelve indicators track progress on dignity (lifting families out of deep poverty to ensure the basic needs of housing, food, and health are met), opportunity and inclusion (including income distribution, youth engagement, literacy, and numeracy), and resilience and security (income security and protections against falling into poverty).

Tamarack's collective impact over 10 years has been significant, with a number of cities reporting a 10 percent reduction in poverty and an overall positive impact for 202,931 low-income Canadians. Their work is extending internationally with communities in the United

States and Australia joining the Tamarack Vibrant Communities Initiative.

Lessons learned from Tamarack Institute:

- Communities driving the process to find solutions that fit their contexts and meet their needs is powerful capacity building.
- Focusing on steady progress in addressing a grand challenge such as poverty (rather than reaching for an unrealistically ambitious goal such as eradicating poverty) sustains community motivation and involvement.
- Solutions arising from specific contexts are worth sharing and can scale, despite their contextualized roots.

4

Solving Health Care Challenges: Patient Centered Outcomes Research Institute

Established as part of the Affordable Care Act, the Patient Centered Outcomes Research Institute (PCORI) directly engages patients, caregivers, and other healthcare stakeholders in health research, methods, and infrastructure.

At PCORI, patients and stakeholders, often from underrepresented communities, serve as equitable partners to researchers, leveraging their lived experience and expertise to influence research to be more relevant and practical. They are involved throughout studies, from the planning stage through dissemination of results. They provide their input and guidance by participating on advisory committees and boards, contributing to data collection or evaluation, and serving as co-investigators.

PCORI collaborated with patients to develop an Engagement Rubric that provides guidance and methods for engaging stakeholder partners throughout the phases of healthcare

research, including real-world examples of successful engagement strategies. PCORI also developed a Compensation Framework that provides guidelines for fair compensation of patients, caregivers, and organizations who contribute their expertise and time to healthcare research efforts.

Lessons learned from PCORI:

- Deep engagement with the community is critical to solving health-related challenges.
- Engaging community members alongside researchers in solution development and dissemination leads to greater use of the resulting research-based solutions.
- Fairly compensating community stakeholders for their key expertise empowers and enables them to continue participating in research projects.

Research Practice Partnerships (RPPs) are long-term, mutually beneficial collaborations between researchers and practitioners that are intentionally organized to investigate pressing problems of practice and to develop research-based solutions for improving school and district outcomes. The work is carefully structured to connect appropriate partners and build trusting relationships among them. Partners jointly develop a research agenda so that findings will be relevant and actionable for the practitioner side, while moving the research field forward. RPPs provide schools and districts with relevant data and support to use research evidence to drive decision-making.

RPPs encompass region-specific research alliances and problem-aligned networked improvement communities. No matter the model, partners and stakeholders are engaged throughout the process of data collection, analysis, and solution testing, and all communications are carefully managed to eliminate surprises.

As a specific model of RPP, Networked Improvement Communities (NICs) bring together researcher-practitioner partnerships across different contexts or regions, all focused on a common problem of

practice. Essential elements of NICs include understanding the problem to develop a theory of practice improvement and following improvement science methods that are supported by measurement and data analysis infrastructure to track progress on common indicators. Beyond the work within local districts, NICs require management and support to convene participants, build culture and norms of learning from evidence, and communicate lessons within and outside of the NIC.

Lessons learned from RPPs and NICs:

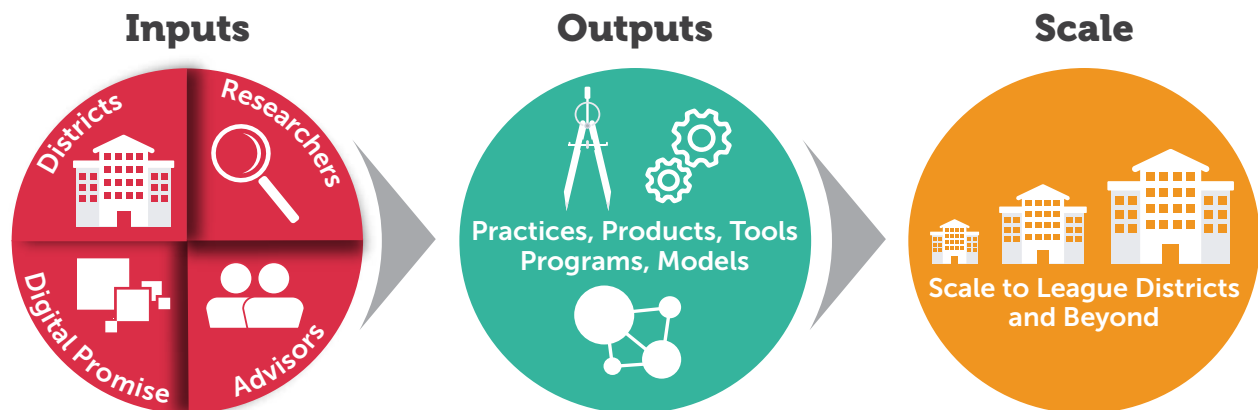
- While traditional research is seen as inaccessible, irrelevant, and untimely for practitioners looking to address problems of practice, RPPs can provide usable, relevant, and timely research through their collaborative nature.
- Rapid cycles of applied strategies or solutions, data collection, and analysis iteratively lead to improvement.
- Facilitation across networked sites supports learning across contexts.

6

Challenge Collaboratives

Challenge Collaboratives are a model facilitated by Digital Promise including members of the League of Innovative Schools (League). They are designed to engage education practitioners in partnership with researchers and key stakeholders working in teams across geographies to address a

shared problem of practice. Collaboratives focus on a priority challenge area identified by practitioners on the [Challenge Map](#)). The resulting co-designed solutions are beneficial to schools in the League and beyond.



Since April 2018, Digital Promise has launched five Challenge Collaboratives on topics ranging from implementing Next Generation Science Standards in middle school to tackling data interoperability in districts. Each of these projects has launched solutions — programs, practices, models, and/or tools — that address high-priority needs.

For example, the Real World Learning Challenge Collaborative brought together more than 100 educators and administrators from five school districts around the country, researchers from Digital Promise, and a cohort of designers, technologists, and curriculum writers to tackle the question: “How can we integrate authentic, life-relevant opportunities into the secondary learning experience?”

Over the course of 18 months, Digital Promise facilitated this cross-sector team in an end-to-end process from challenge

surfacing to solution design that resulted in the school and district stakeholders guiding the development of tools and research for teachers, administrators, and decision-makers in education.

The Real World Learning Challenge Collaborative is in the process of publishing:

- A **Roadmap**, providing turn-by-turn guidance for educators and industry partners as they collaborate on real world learning experiences for high school students.
- A **Builder**, supporting districts in building strategic frameworks and implementation plans for school- and district-wide real world learning.
- **Maturity matrix** and **self-assessment** tools for practitioners to identify the progress of their real world learning programs and key growth opportunities.

- **Case studies** that offer various perspectives of real world learning from districts around the country.
- Curated **resources, examples, and strategies** to support real world learning in multiple contexts.

By engaging stakeholders in diverse contexts across geographies, this Challenge Collaborative resulted in tools that span contexts and can be deployed at scale.

Lessons learned from the Real World Learning Challenge Collaborative:

- Focusing on a set of shared target outcomes builds consensus and buy-in.
- Prioritizing “edge cases” strengthens solutions by solving challenges in the most difficult conditions first.

- Potential for scale needs to be considered early in the design process but shouldn't outweigh the primacy of context-appropriate solutions.
- Entrepreneurs, developers, and communications experts are each critical to packaging outputs and spreading value.

Lessons and insights from each of these existing programs, including innovative and effective funding models, stakeholder roles, and research, design, and implementation processes, inspired this definition and approach to Inclusive Innovation in education.

Core Principles of Inclusive Innovation

Traditional R&D typically privileges the expertise and authority of those in power, and those making decisions tend to mitigate risks in their favor. Despite decades of investment in traditional education R&D, progress has failed those most in need of education innovation and new solutions. **Inclusive Innovation** reimagines dynamics of authority, decision-making, and risk, pursuing an equity-first process that achieves equity-first results. It is grounded in a **radical commitment to equity** as an essential element to achieving just outcomes in education.

Carrying out a radical commitment to equity means authentically **engaging practitioners and community members in R&D**. Inclusive Innovation requires infrastructure and processes that are designed not only to invite, but to prioritize, community voices and perspectives. Intentionally built partnerships and relationships with community organizations and constituents can provide direct touchpoints to Black, Latinx and high-poverty populations. Underscored at a workshop with nine community engagement partners as part of this planning process (see Appendix B), Inclusive Innovation recognizes the significance of community contexts in shaping the applicability and impact potential of any solution being developed to tackle complex educational challenges.

Inclusive Innovation also purposefully **builds local capacity for research and development**. Building local capacity requires balancing mutuality—reciprocal trust, investment, and benefit—and efficiency through approaches such as:

- Applying researcher-practitioner-developer engagement protocols that recognize and reward efficient collaboration.

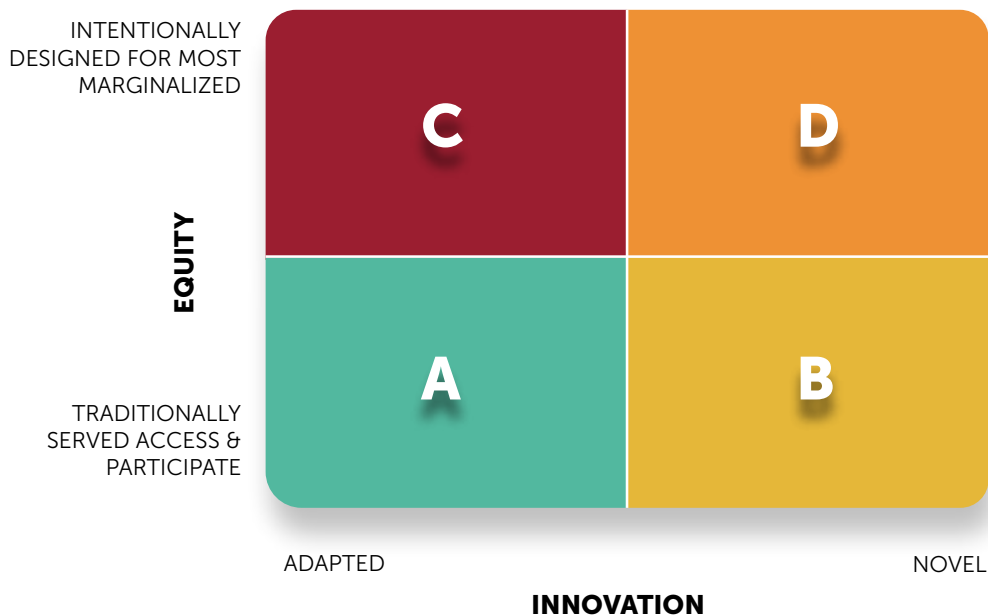
- Engaging an entrepreneur and developer community that reflects the makeup and ethos of the community and matching developers with practitioners and communities.
- Identifying clear milestones and protocols for regular check-ins to ensure ongoing mutual benefit, shared decision-making, and shared risk.
- Coaching stakeholders on R&D processes and practices that are transferable and replicable.
- Implementing agile, iterative research methods that feed a rapid prototyping and development process.
- Building in values-driven incentives that result in benefits to the communities, practitioners, and developers.

Authentic engagement and local capacity building mean that Inclusive Innovation **shifts marginalized individuals' roles to leaders, participants, and beneficiaries**. With their needs centered in the process:

- Innovation is defined as differentiated, novel, and radical solutions that are intentionally designed to meet the needs of marginalized groups.

- Solutions are co-designed and co-created with marginalized populations to address challenges as they see and experience them.
- Success is defined by marginalized populations having full access to, participating in, and benefiting from powerful learning outcomes, both among those involved in co-design and those to whom the innovation scales.

The following “two by two” is a useful tool for analyzing innovation and equity in a given project or proposed solution. The x-axis indicates whether the project is closer to being “adapted” from something existing, or closer to “radical,” i.e., significantly different and ready to scale. On the y-axis, the project is analyzed to determine who has access and whether access promotes equity or reinforces opportunity gaps. Inclusive Innovation seeks to move solution designs towards quadrants C and D.



Within education, RPPs and NICs are increasingly popular models for partnering with communities in research. They are related to and can augment Inclusive Innovation but also differ in key ways.

- Inclusive Innovation drives towards developing a solution(s)—tool, strategy, product, or service—with the goal of applicability and success in diverse contexts.
- Inclusive Innovation builds in multiple contexts to help understand the role of contextual factors specific to the problem being addressed and enhances the probability that the solution(s) developed can scale broadly.
- Inclusive Innovation places a greater emphasis on the value of context expertise and the role that community plays in leading problem definition, designing solution parameters, testing, and ultimately evaluating the success of the solution.
- By placing a primacy on co-experts from the community and investing in joint work among community stakeholders, researchers, and developers, the Inclusive Innovation process explicitly builds local community capacity to maximize engagement and sustained leadership.

The table below summarizes how the goals and process of Inclusive Innovation rest on the principles described above.

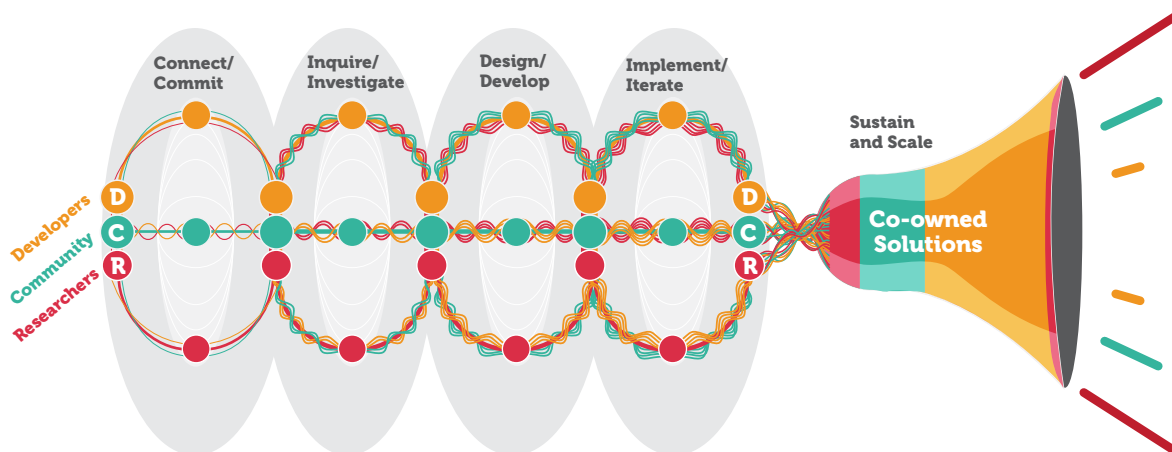
<i>What does Inclusive Innovation accomplish?</i>	<i>How does Inclusive Innovation accomplish it?</i>
<ul style="list-style-type: none">• Equitable solutions to major challenges.• Intentional scalability and sustainability of solutions.• Increased capacity of practitioners and community members to engage with research and evidence to investigate and address local challenges.• Increased understanding of nuance and impact of cultural context among researchers and developers.• Long-term, mutually beneficial partnerships across sectors (community members, practitioners, researchers, policymakers, developers).• Articulation of replicable and improving systems for solving challenges.	<ul style="list-style-type: none">• Engages cross-sector members in co-expert partnerships characterized by reciprocal capacity building.• Leverages a co-design process centered on assets, expertise, and needs of marginalized stakeholder groups, with ongoing mutuality checks to preserve the integrity of collaboration.• Connects communities to emerging solutions with strong potential for impact.• Focuses on contextual relevance of research methods and emerging solutions.• Builds upon a broad range of data that informs design and improvement.

Inclusive Innovation Process

In practice, the process of Inclusive Innovation moves iteratively across five stages, as shown in the following graphic and table. The graphic shows that community is the central strand on which the development and research work is anchored. Developers, researchers, and community are intertwined, yet at the same time each may play a lead role in a different aspect of the work at each stage, indicated by the community (green), developer (gold), and researcher (red) paths. During each stage, the three strands merge together for equity and mutuality checks before moving into the next stage.

The boundaries between these stages are porous and the stages are not linear or unidirectional. As each connection occurs, insights emerge and the braid becomes stronger. The practitioner-developer-researcher partnership may need to revisit a prior stage or may decide that a certain stage

requires more time to assure stakeholder buy-in and understanding. Ultimately, co-designed and co-owned solutions emerge from the Implement and Iterate stage for broader and persistent impact under the Sustain and Scale stage.



Inclusive Innovation

The following table defines the goals for each stage and shows the equity-first practices that form the foundation across all stages.

	Connect & Commit	Inquire & Investigate	Design & Develop	Implement & Iterate	Sustain & Scale
Goal	Build relationships, trust, and a shared commitment to tackling a challenge.	Deeply investigate the challenge from multiple perspectives and arrive at target outcomes for addressing and measuring progress against the challenge.	Create one or more prototype solutions that can be tested for the target outcomes.	Implement one or more prototypes, tracking multiple progress indicators and target outcomes to iterate and improve.	Implement refined solution(s) in multiple contexts, improving local implementations and gathering knowledge for scaling.
Equity-first Practices	Engagement				
	Capacity Building				
	Reflection				
	Recognition				

Four cross-cutting practices keep equity at the center of the process:

- **Engagement.** Effective collaboration is built on trusting, mutually beneficial relationships. Deeply engaging each group of stakeholders throughout the R&D process is foundational to creating a context in which innovations can take root – a necessary condition for understanding challenges and creating high-value solutions.
- **Capacity Building.** Community members are valued as true co-experts. Their lived experience is honored and their expert knowledge about their own community, and the contextual factors that shape complex education challenges, are recognized. Their capacity to lead and engage in education R&D can be developed through resources, training, mentorships, and more. Simultaneously, the capacity of researchers and developers is deepened in a reciprocal

fashion as they understand the social, cultural, and historical dynamics that shape the experiences of community members.

- **Reflection.** Regular check-ins support all collaborators in a process of shared meaning-making, alignment to project goals, and continuous improvement. Recurring facilitated mutuality checks, ensures that the assets, expertise, and needs of marginalized communities do not get exploited or re-marginalized by dominant pressures during the collaboration.
- **Recognition.** Addressing major challenges in education demands energy, imagination, and a broad coalition of engaged supporters. Recurring opportunities to recognize and celebrate progress keeps partnerships healthy, sustains energy, and creates onramps to broaden participation.

Protocols

Embedded within the Inclusive Innovation phases are tools for data collection and analysis, as well as protocols and guidance on roles that community members, researchers, and developers might play. The table below lists examples (not an exhaustive list) of replicable protocols and procedures that can be used in each Inclusive Innovation process stage (see Appendix A). Each protocol can be adapted for specific challenges and contexts, and new ones created as determined by context and expertise.

Phase	Sample Protocols/Procedures
Connect and Commit	<ul style="list-style-type: none"> • Building relationships and trust among participants <ul style="list-style-type: none"> ◦ <i>Via listening tours, team building experiences, and shared observations</i> • Identifying high-priority needs and reaching shared articulation of key challenges <ul style="list-style-type: none"> ◦ <i>Via challenge surfacing protocols and empathy interviews</i> • Reaching a shared understanding of the relevance of the challenge, including evidence of urgency <ul style="list-style-type: none"> ◦ <i>Via repeat-backs, stack-ranking, stakeholder maps, and context dossiers</i> • Reaching shared commitment to addressing the challenge <ul style="list-style-type: none"> ◦ <i>Via consensus building and contextual understanding</i>
Inquire and Investigate	<ul style="list-style-type: none"> • Generating and analyzing data, including first-person stories and experiences <ul style="list-style-type: none"> ◦ <i>Via interviews and focus groups</i> • Understanding existing research and assets relevant to the challenge <ul style="list-style-type: none"> ◦ <i>Via literature reviews and gap analyses</i> ◦ <i>Via landscape scans and market scans</i> • Reaching a common set of target outcomes <ul style="list-style-type: none"> ◦ <i>Via iterative problem definition and visioning workshops</i> ◦ <i>Via consensus building</i>
Design and Develop	<ul style="list-style-type: none"> • Co-creating prototype concepts that meet target outcomes <ul style="list-style-type: none"> ◦ <i>Via design thinking workshops, visioning exercises, and user-generated narratives</i> • Conducting rapid cycle tests of low-risk prototypes <ul style="list-style-type: none"> ◦ <i>Via user experience testing and facilitated data collection</i> • Directing development through context-specific feedback <ul style="list-style-type: none"> ◦ <i>Via ethnographic research, user-led implementation testing, stack-ranking, and co-design of use cases</i> • Matchmaking community needs with existing solutions and/or developers working on aligned products <ul style="list-style-type: none"> ◦ <i>Via network weaving applications (e.g., Kumu)</i>

Phase	Sample Protocols/Procedures
Implement and Iterate	<ul style="list-style-type: none"> • Efficacy and effectiveness studies • Co-designing implementation models that reach optimal participation rates <ul style="list-style-type: none"> ◦ <i>Via implementation planning templates</i> • Researching factors that affect implementation <ul style="list-style-type: none"> ◦ <i>Via community-led data interpretation</i> • Researching impact on target outcomes, including any outcomes requiring new data collection systems <ul style="list-style-type: none"> ◦ <i>Via qualitative and quantitative impact studies</i> • Iterating on the prototypes to better achieve target outcomes <ul style="list-style-type: none"> ◦ <i>Via user experience research logs, focus groups, and observations</i> ◦ <i>Via interim tracking of progress indicators and community-driven interpretation</i>
Sustain and Scale	<ul style="list-style-type: none"> • Spreading effective implementations and best practices across communities <ul style="list-style-type: none"> ◦ <i>Via convenings, publications, and facilitated communities of practice</i> • Accelerating broader adoption of solution(s) in matching contexts <ul style="list-style-type: none"> ◦ <i>Via advocacy and communications campaigns</i> • Researching effectiveness of solution(s) on target outcomes in more diverse contexts <ul style="list-style-type: none"> ◦ <i>Via rigorous research designs including qualitative and quantitative data on implementation factors</i> • Researching effectiveness of scaling practices <ul style="list-style-type: none"> ◦ <i>Via effectiveness studies, analysis of local adaptations, and collaborations among stakeholder groups across communities</i>

In addition to these sample protocols and procedures, several relevant tools are publicly available from organizations including PCORI, Tamarack Institute, WT Grant Foundation, IDEO, and others (see Appendix D for examples).

People and Roles

To place community needs and equity at the center of the Inclusive Innovation process, the stakeholders involved (broadly defined to include students, parents, teachers, school and district leaders, community-based organizations, local industry/business partners, and others) and their roles and responsibilities will necessarily depend on the context and the substantive aspects of the challenge the partnership undertakes.

In general, key groups include:

- Backbone organization or facilitators who help convene the partners, maintain mutuality checks, keep the spotlight on equity, broker external resources and additional partners as needed, and

leverage networks to scale solutions.

- Community leaders who have legitimacy with their community, are experts of their local contexts, and commit to being co-leaders of the process.

- Community stakeholders who want to stay informed and provide input but may not have the time or desire to take on a more prominent or time-consuming role.
- Researchers who help build community research skills, support the process with information from external research, develop data collection instruments, facilitate community-led interpretation of the data, and lead implementation research.
- Researchers engaged for specific tasks such as user-experience research or efficacy and effectiveness studies.

- Designers and developers who have existing tools that can be adapted to meet the community’s needs or can develop a new prototype based on the community’s specifications.

The Inclusive Innovation process entails differences in incentive structures, decision-making power, definition of expertise, and the expertise needed. Below is a list of examples of changes to traditional roles and investments to consider that enable partners to engage in Inclusive Innovation. This list should be added to and refined based on further experience.

Role	Typical Challenges in Engaging in R&D Today	Potential Investments and Changes in Roles
Students/Families Other Community Stakeholders	<ul style="list-style-type: none"> • Contextual knowledge not perceived as expertise • Often left out or included as afterthought • Lack of experience/familiarity with R&D process 	<ul style="list-style-type: none"> • Pay for time • Build skills as needed to engage in R&D • Provide transportation and/or child care
Practitioners School and District Administrators	<ul style="list-style-type: none"> • Already have full-time jobs • Contextual knowledge not perceived as expertise • Knowledge of instruction and students not valued equally with researchers’ expertise • Lack of experience/familiarity with R&D process 	<ul style="list-style-type: none"> • Buy out time • Build skills as needed to engage in R&D • Provide recognition of contributions through micro-credentials
Conveners and Intermediaries	<ul style="list-style-type: none"> • External to the community • Superficial understanding of community and problems in context • Budget and time constraints prioritize efficiency 	<ul style="list-style-type: none"> • Build skills to engage with marginalized populations consistently and persistently (not just dropping in) • Build protocols, skills, and facilitation processes that ensure equal voice and participation of marginalized populations • Spend time in communities to experience the problem in context • Design new sources of data as needed • Continuously improve the processes for Inclusive Innovation

Role	Typical Challenges in Engaging in R&D Today	Potential Investments and Changes in Roles
Developers	<ul style="list-style-type: none"> • External to the community • Superficial understanding of community and problems in context • Need for financial returns prioritize volume/designing for the masses (not for the marginalized) and efficiency, resulting in underspecified design and rush to market 	<ul style="list-style-type: none"> • Build skills to engage with marginalized populations • Experience the problem in context • Build values of, and skills for, co-design, including organizational tolerance for slower development • Prototype first and test for meeting the needs of the marginalized • Continuously improve product/solution based on close observation and data • Provide transportation and/or child care
Researchers	<ul style="list-style-type: none"> • External to the community • Superficial understanding of community and problems in context • Greater priority on formal research to guide future research, rather than practitioner-driven needs • Research paradigms emphasizing generalizability and reliability overlooking the role of context; non-usable results for educators who must judge whether findings apply to their particular contexts • Outcomes that are straightforward and inexpensive to collect across many sites narrowly measure student achievement; broader outcomes are more costly to develop and collect • Budget and time constraints prioritize efficiency 	<ul style="list-style-type: none"> • Build skills to engage with marginalized populations • Experience the problem in context • Transform research agenda, data collection, analysis, and interpretation processes to place community in equal partnership • Design new measures and identify new data sources as needed to reflect progress indicators and outcomes directly relevant to the problem • Careful documentation and understanding of contextual factors that will affect outcomes interpretation and scaling strategies • Change time and efficiency expectations • Provide recognition of contributions through micro-credentials
Funders	<ul style="list-style-type: none"> • Desire for impact shapes decisions about time horizons, measurable outcomes, participant/site selection and more 	<ul style="list-style-type: none"> • Adjust processes to fund inclusive innovation programs without requiring stated 'deliverable' in advance of funding • Ceding control of defining process, participants, and outcomes • Slowing down pace expectations

Enabling an Implementation-to-Scale Pathway

In addition to an agile, iterative pilot and implementation approach, a pathway for scale requires that solutions be designed within multiple contexts to enable a deeper understanding of how context characteristics and requirements affect implementation.

One approach to managing multiple contexts is creating a three-tiered system that classifies participating entities on a continuum from core to pilot to replication, indicating their readiness for involvement. This approach supports participation at each organization's level of interest, need, and capacity.

- **Core.** Entities that are interested in participating at the R&D ground-level – who want to conceptualize, create, and be the first to test and refine a solution. The core entities are co-leaders and co-

experts, and have decision-making power in the process.

- **Pilot.** Entities that are interested in contributing expert case studies, data, and research feedback to the process – and who want to test the “alpha” that emerges from the R&D process within their respective contexts.
- **Replication.** Entities that are interested in serving as “beta” test sites for the solution that is production-ready – and who want to provide feedback to iterate on the solution in the spirit of continuous improvement.

The three-tiered implementation model is effective in supporting development, rapid-cycle iteration, and testing in environments that reflect multiple contexts that provide a pathway to scale.

Supporting Data Infrastructure

To complement the tiered model, rapid-cycle testing requires an infrastructure (processes and tools) to facilitate efficiencies in piloting and data analytics, illustrated in three examples from Digital Promise's portfolio:

- **Edtech Pilot Framework.** Since 2011, Digital Promise has been researching edtech product piloting, procurement, and implementation practices with consideration of both the supply and demand side of the equation. The Edtech Pilot Framework is a resource that guides educators and product developers through an eight-step evidence gathering process designed to support decision making. The Framework offers free online tools, resources, and videos that support best practices in the field for conducting successful edtech pilots. It is designed to be used with or without researcher

support. Educators are invited to share their findings on the [Pilot Study Briefs](#) website.

- **TeamSpace.** A cloud-based analytics workspace being developed at Digital Promise helps educational organizations securely and collaboratively analyze complex data from one or more digital sources. Using TeamSpace, researchers work with schools and technology companies to answer questions that arise from the frontlines of practice. Partners refine their goals, analyze relevant data, and co-develop tangible changes that can be tested. As educational data continues to expand in terms of volume and variety, researchers, practitioners, and technology companies benefit from tools and processes to support exploratory data analysis and develop new measures of learning. TeamSpace aims to support

partnership-driven improvements, an important aspect of Inclusive Innovation.

- **Dynamic Learning Project.** Digital Promise has developed a process to regularly provide schools and districts with actionable data by helping them track teacher and student progress with impactful technology use. Using a Qualtrics platform, data collection

happens continuously through “snapshot” pre/post surveys administered by the schools themselves. At the end of each eight-week cycle, schools and districts have access to their data, which has been analyzed and visualized for their use. This process can be adapted to support data collection and reporting for continuous improvement in many topic areas.

Conclusion and Next Steps

The Inclusive Innovation model is distinguished from traditional R&D in that it results in solutions that have been informed and developed by co-experts, including community stakeholders, developers, and researchers. Co-design of solutions ensures they are contextually and culturally relevant. Additionally, Inclusive Innovation solutions are designed for eventual scale. The process stages presented above provide a roadmap for mutual partnership and embedding an awareness of community context so that solutions produced through this process are successful and can be implemented in similar contexts with confidence.

In addition to the values described above, Inclusive Innovation leads to:

- **Improved efficiency.** Though the cost and time to market for solutions may not decrease, solutions resulting from a co-design process with communities will have a higher probability of being sharable, applicable, and sustainable over the long term. Additionally, the process of community engagement prepares for trialing increasing reliability of the results.
- **Improved engagement and capacity building.** Through this model, stakeholders' access to and engagement with research and evidence will vastly increase. Capacity building not only of community members, but also of researchers and developers, is a core tenet of the Inclusive Innovation process.
- **Improved clarity and relevance of evidence of solutions' impact.** Evidence resulting from this model is accessible, reflects community contexts, and is aligned with interests and needs of target populations.

While the Inclusive Innovation process presented in this paper is grounded in experience from established efforts in adjacent fields, opportunities to test the process in whole or in part in education would result in a refined approach and improved protocols and routines. In addition, a community of practice convened to share lessons and resources and promote investments that would stimulate increased community-centered R&D activities with a radical commitment to equity.

Appendix A

Illustrative Example: Literacy in the Primary Grades

The following example illustrates the Inclusive Innovation process by examining how it might unfold in the context of a challenge pertaining to literacy in the primary grades. For each stage, we provide a description, example activities, and key outputs, along with a call-out that highlights how the equity-first approach of Inclusive Innovation is distinct from traditional R&D.

Connect & Commit	
<p>Participants begin with shared values and emerge with a shared commitment. In this case, community members, researchers, and developers build trusting relationships through a common purpose and arrive at a mutual investment in addressing the challenge of early literacy. For example, partners may identify the challenge of helping marginalized students read on grade level in early elementary grades to prevent widening achievement gaps that result when students cannot access grade-appropriate content across subject areas as they progress to upper elementary and middle school.</p>	
Activities	<ul style="list-style-type: none"> • Building relationships and trust among participants <ul style="list-style-type: none"> ◦ <i>Via listening tours</i> • Identifying high-priority needs and reaching shared articulation of key challenges <ul style="list-style-type: none"> ◦ <i>Via challenge-surfacing protocols and empathy interviews</i> • Reaching a shared understanding of the relevance of the challenge, including evidence of urgency <ul style="list-style-type: none"> ◦ <i>Via repeat-backs, stack-ranking, stakeholder maps, and context dossiers</i> • Reaching shared commitment to addressing the challenge <ul style="list-style-type: none"> ◦ <i>Via consensus building and contextual understanding</i>
Outputs	<ul style="list-style-type: none"> • Shared commitment to address an identified challenge (e.g., through a shared understanding of the percentage of students in the community who are reading on grade level by third grade) • Shared language to describe the identified challenge • Stakeholder maps and context dossiers describing the communities' key assets, leaders, practices, data, and history (e.g., public library activities, afterschool and community organizations serving children and having relationships with families with young children, in addition to primary grade teachers and healthcare organizations)
Equity-first Principles	<ul style="list-style-type: none"> • Capacity Building trains community members to (co-)facilitate challenge surfacing activities (e.g., in sharing the message and facts around the importance of early literacy) <ul style="list-style-type: none"> ◦ <i>Listening tours and challenge-surfacing exercises that are (co-)facilitated by community members deliver authentic, contextually meaningful outputs</i> • Engaging community members with a range of perspectives, including staff from school buildings and central offices, afterschool programs, and community-based organizations, as well as parent networks and students <ul style="list-style-type: none"> ◦ <i>A broad coalition of participants sharpens the focus on high-value needs and positions the project for effective implementation and long-term sustainability</i> • Reaching shared commitment to addressing the challenge <ul style="list-style-type: none"> ◦ <i>Via consensus building and contextual understanding</i>

Inquire & Investigate

All participants take on the role of investigator, asking and answering questions to understand the challenge deeply from multiple perspectives. In this stage, collaborators gather data from a broad range of sources (e.g., existing data, such as administrative data, as well as new data from a survey, focus group, or observations) with an emphasis on lived experience garnered through differentiated participant roles. For example, researchers can support large dataset analyses and community members may take the lead in interpreting the data. In concluding this phase, participants agree on target outcomes that will set the bar for subsequent prototypes. In the example of literacy, collaborators may agree on the goal that all students will be reading on grade level by the end of third grade. Based on their investigation and the research on the importance of pre-kindergarten experiences, the partners may also have a goal that all entering kindergartners will meet kindergarten readiness indicators for literacy. Existing tools such as kindergarten readiness assessments can be adopted or adapted, or new methods of measurement may need to be developed.

<p>Activities</p>	<ul style="list-style-type: none"> • Generating and analyzing data, including first-person stories and experiences <ul style="list-style-type: none"> ◦ <i>Via interviews and focus groups that focus on the factors, environments, and causes of the challenge, and how it plays out in context</i> • Understanding existing research and assets relevant to the challenge <ul style="list-style-type: none"> ◦ <i>Via literature reviews and gap analyses that synthesize research findings</i> ◦ <i>Via landscape scans and market scans that identify people and organizations addressing the challenge</i> • Reaching a common set of target outcomes <ul style="list-style-type: none"> ◦ <i>Via iterative problem definition and visioning workshops</i> ◦ <i>Via consensus building to ratify common outcomes and progress indicators</i>
<p>Outputs</p>	<ul style="list-style-type: none"> • Collection of existing and new research relevant to the challenge (e.g., the importance of a vocabulary-rich environment and what that looks like in classrooms and at home for emerging readers) • Deeper articulation of ways that the challenge appears in specific contexts (e.g., to what extent is student engagement in learning to read affected by match or mismatch of cultural content or characters in the stories they read or that are read to them?) • Target outcomes for prototype solutions (e.g., reading on grade level by third grade, fostering a child’s love of reading as reported by students, independently reading one “just right” book weekly)
<p>Equity-first Differentiators</p>	<ul style="list-style-type: none"> • Mutuality checks as part of a reflection protocol ensure that contextual understanding and target goals are equally held and valued by all participants <ul style="list-style-type: none"> ◦ <i>Sustaining a mutually beneficial value proposition among stakeholders bolsters high commitment, high quality, and an outcomes-focused process</i> • Deep engagement with all stakeholders surfaces perspectives that are historically underrepresented (e.g., what are bridges that students might need to switch between colloquial or non-standard English and formal written language? How to best engage a child’s multiple caregivers [siblings, relatives, babysitters, non-parent guardians] in supporting literacy development?) <ul style="list-style-type: none"> ◦ <i>Because students also learn outside of school, engagement includes a broad range of collaborators: for example, after school program leaders and childcare providers (including parents, grandparents, etc.) can contribute important perspectives and experiences on an early literacy challenge</i> • Reaching shared commitment to addressing the challenge <ul style="list-style-type: none"> ◦ <i>Via consensus building and contextual understanding</i>

Design & Develop

Community members, researchers, and developers each play a role in creating and testing prototypes that address the target outcomes; each “strand” of stakeholders in the braided R&D model contributes to design and development, creating a culture of innovation, iteration, and problem-solving. For example, community members may create a campaign and develop resources for family literacy nights in neighborhood schools or libraries to build parents’ capacity to support literacy in the home. Developers may create a corresponding app with teacher-facing features that incorporate culturally responsive pedagogies for classroom use and parent-facing features that provide “anywhere, anytime” literacy games that support letter-sound correspondence or fluency, or provide read-alouds with culturally relevant, age-appropriate stories. Both concepts could be collaboratively designed, developed, and tested, with community members informing the design of the app and developers supporting tools that can be used for family literacy programs. When braiding together the design and development of these two concepts, each would be strengthened, as would the partnership overall. By the end of this stage, one or more prototype solutions is ready to be implemented and tested in a new context.

<p>Activities</p>	<ul style="list-style-type: none"> • Co-creating prototype concepts that meet target outcomes <ul style="list-style-type: none"> ◦ <i>Via design thinking workshops, visioning exercises, and user-generated narratives</i> • Conducting rapid cycle tests of low-risk prototypes <ul style="list-style-type: none"> ◦ <i>Community members may implement and test prototypes that they designed in addition to prototypes designed by developers</i> • Directing development through context-specific feedback <ul style="list-style-type: none"> ◦ <i>Via ethnographic user research, user-led implementation testing, stack-ranking, and co-design of use cases</i> • Matchmaking community needs with existing solutions and/or developers working on aligned products <ul style="list-style-type: none"> ◦ <i>Via network weaving applications (e.g., Kumu) designed to make purposeful connections between network members</i>
<p>Outputs</p>	<ul style="list-style-type: none"> • One or more prototype solutions that address the challenge in alignment with the target outcomes • Improved set of progress indicators (e.g., percentage of community attending 80% of family literacy events and reporting trying literacy strategies at home at least once a week, teachers intentionally varying read-aloud choices to reflect race, ethnicity, cultures, and interests of students)
<p>Equity-first Differentiators</p>	<ul style="list-style-type: none"> • Capacity building closes the gaps in understanding between stakeholders (e.g., family members, by participating in family literacy events, see a crucial role for themselves in supporting their children’s reading skills and habits, and teachers, by receiving family and teacher use data from the app, see family and community members as assets and resources in the fight to achieve reading proficiency among the most marginalized) <ul style="list-style-type: none"> ◦ <i>Empowering community members to develop and test prototypes that address their own challenges results in novel solutions and a culture of improvement</i> • Recognizing small victories fuels multiple cycles of iteration <ul style="list-style-type: none"> ◦ <i>Seeing the value of participation in R&D, and celebrating progress and learnings, helps to support mutually beneficial partnerships over time</i>

Implement & Iterate

With one or more prototypes that have been collaboratively designed, developed, and piloted in small, low-risk contexts, the project team implements the prototype in new settings that match the intended contexts. This stage achieves two key goals: improving the prototype through iteration and developing an implementation model that defines likely conditions under which the solution(s) work and why (which will be tested in the next stage). All participants play a role in reaching these goals. In the example of the family literacy program, community members help identify the contexts and conditions most likely to attract parents (e.g., varying times of day to maximize attendance of those with irregular work hours, holding events in safe, neutral places in the community where parents who may not be highly educated feel welcome, providing food and childcare). In the case of the teacher and family app, community members help identify the schools and classrooms of priority students for implementation, provide guiding feedback to developers to iteratively improve the app, help interpret target outcomes collected by practitioners and/or researchers, and hypothesize the reasons the app may be making a difference or potential barriers to its effectiveness.

Activities

- Co-designing implementation models that reach optimal participation rates (e.g., identifying teachers who serve the most marginalized students and including them in implementation planning to address their anticipated concerns)
 - *Community members and researchers hypothesize the factors that have the greatest influence on whether the solution is effective and help define the important contexts for implementation (e.g., grade levels, types of students, range of teacher experience)*
- Researching factors that affect implementation (e.g., what are families' typical constraints in using literacy strategies at home with their young child? Are the priority students—the most marginalized, those farthest below grade level, struggling English learners—participating at expected rates? Why or why not?)
 - *A range of quantitative and qualitative research methods could apply; however, important criteria for determining an appropriate approach include minimal/reasonable burden on community, recognizing and compensating for community time and expertise, community-led interpretation of data on the conditions under which the prototypes are successful and those under which they are not designed in addition to prototypes designed by developers*
- Researching impact on target outcomes, including any outcomes requiring new data collection systems, such as tracking students' independent reading levels, their book choices, completion, and response to reflection prompts
 - *A range of quantitative and qualitative research methods could apply, with the rigor of impact studies increasing after the solution shows promise on progress indicators and target outcomes in narrow settings*
 - *A research design that integrates analysis of qualitative and quantitative implementation factors with target outcomes is essential to understanding who benefits from the solution and under what conditions*
- Iterating on the prototypes to better achieve target outcomes
 - *Through user experience research via logs, focus groups, and/or observations*
 - *Interim tracking of progress indicators and community-driven interpretation*

Implement & Iterate (continued)

Outputs	<ul style="list-style-type: none">• Improvements to the prototype(s)• Implementation model that incorporates contextual factors
Equity-first Differentiators	<ul style="list-style-type: none">• Shared reflection practices ensure that new insights lead to useful adjustments (e.g., transparency with developers repeating back the community's feedback, detailing changes that respond to specific feedback, and explaining why some feedback might not have led directly to a change in the teacher and parent app)<ul style="list-style-type: none">◦ <i>Evolving the prototype and the implementation model effectively requires that collaborators arrive at such changes through shared understanding</i>• Engagement helps the team increase impact and mitigate risk (e.g., home literacy games are provided in a variety of formats that support parents who might not be comfortable with their own level of literacy)<ul style="list-style-type: none">◦ <i>Implementing the prototype in a setting of deep engagement minimizes risk by building upon sustained relationships and knowledge that the solution design was predicated on community needs and guidance</i>◦ <i>Deep engagement also increases the potential for impact since the solution is more tightly coupled with community-defined needs, and community knowledge of contexts is integral to the implementation plan</i>

Sustain & Scale

Sustaining the solutions in the original sites involved in development and implementation must be intentional—the project team needs to plan for continued resources and continued monitoring of changing needs and an evolving environment. For example, maintaining the community-driven family literacy program will require continued recruiting and outreach to new families and renewing and expanding the cadre of community members leading the events. Similarly, modifications and improvement to app features requires continued commitment and partnership between the community, researchers, and developers. Stakeholders may also want to scale up to new sites and contexts as appropriate in their own community, beyond those involved in the Develop and Implement phases. Scaling up also includes moving beyond the communities involved—scaling up regionally or nationally to contexts that may differ from those involved in development. Community members may become advocates for the solution, for example, articulating the contexts in which they have found success, the data demonstrating improvement, and their interpretations of why they were successful. Community members may also share their expertise in leading an Inclusive Innovation process. Researchers, developers, and other stakeholders may facilitate spread through existing and new networks.

<p>Activities</p>	<ul style="list-style-type: none"> • Spreading effective implementations and best practices across communities (e.g., participating in case study write-ups, videos, blogs, and other communication vehicles to spread the need and buy-in for community-driven family literacy programs and lessons learned in maintaining a focus on the most marginalized students) <ul style="list-style-type: none"> ◦ <i>Via convenings and facilitated communities of practice</i> • Accelerating broader adoption of solution in matching contexts <ul style="list-style-type: none"> ◦ <i>Via advocacy movements and communications campaigns</i> • Researching effectiveness of solution on target outcomes in more diverse contexts <ul style="list-style-type: none"> ◦ <i>Via more rigorous research designs and integrating qualitative and quantitative data on implementation factors to target outcomes data to deepen understanding</i> • Researching effectiveness of scaling practices <ul style="list-style-type: none"> ◦ <i>Via collaboration among local community stakeholders, researchers, and developers to support learning across communities and contexts, understand local adaptations to the solution, and inform iterations/improvements to the solution</i>
<p>Outputs</p>	<ul style="list-style-type: none"> • Solution that has successfully reached target outcomes at larger scale • Data on target outcomes across multiple contexts (magnitude and variation) • Tools for local implementation in settings not involved in development • Research insights on effective scaling
<p>Equity-first Differentiators</p>	<ul style="list-style-type: none"> • Capacity building can yield new groups of advocates to reach larger scale (e.g., leaders and members from the original co-design community are featured presenters on building a community-led family literacy program) <ul style="list-style-type: none"> ◦ <i>Supporting community members in taking on lead roles to sustain and spread the solution can unlock a new set of leaders who have both the legitimacy of firsthand experience and the authority of leadership</i> • Recognizing success deepens investment in spurring growth and spread <ul style="list-style-type: none"> ◦ <i>Taking time to celebrate successful outcomes helps bolster existing implementations and create proof points for new implementations</i>

Appendix B

Planning Grant Activities

To achieve the goal of developing a process for a scalable, inclusive, equity-centered R&D process, the first step was to convene over a dozen team members from across Digital Promise — including staff who lead work in research, networks, communications, and learning experience design — for four full-day design sessions. We engaged an external consultant for facilitation and feedback.

The team examined existing projects and models using advanced research and development approaches and community engagement practices, including some that we were already employing or were familiar with (e.g., Research-Practice Partnerships) and some external models that were new to us (e.g., PCORI's patient engagement approach). For each model, we explored the goal and purpose, elements of the process, stakeholder roles, and key measures and tools employed. We analyzed cases in which the models worked effectively, as well as the limitations for each. Throughout the planning grant, the team collected and shared relevant articles and websites and tools for ideas to synthesize (see below for references and an annotated list of tools).

Additionally, members of the project team consulted individually with advisors who have expertise in R&D, education networks, community and school district engagement, and entrepreneurship to gather perspectives on challenges and opportunities in the field. The advisors' insights rounded out knowledge on the gaps to address related to research, development, and community engagement in education, and guided us towards best practices and models that show promise for scaling. We spoke with advisors currently or formerly affiliated with the following organizations, including:

- Compton Unified School District
- DARPA
- In-Q-Tel
- National Network of Education Research Practice Partnerships
- Sitka School District
- Socorro Independent School District
- Regional ACEs (adverse childhood experiences) Connection Network
- CommonLit
- ReadWorks
- Speak Agent

Gathering and analyzing this information in the context of Digital Promise's core competencies, led us to see that the radical commitment to equity is the missing link in existing R&D efforts. We realized that incorporating the expertise of those who work directly with diverse communities was an essential next step. We convened community engagement experts from around the country for a full-day workshop. The agenda included sessions to collaboratively identify educational inequities, unpack the current landscape of R&D in communities, and think through new possibilities for co-development of powerful solutions with community stakeholders. Workshop attendees agreed that learning and designing alongside representatives from diverse settings and backgrounds was valuable.

Expert representatives from the following organizations attended the workshop:

- Beacon House
- Community Engagement Partners
- Connecticut Parents Union
- ExCITe Center, Drexel University
- Highlander Institute
- San Diego County Office of Education
- Jacobs Institute for Innovation in Education, University of San Diego
- The Social Engineering Project

Finally, we synthesized learnings from this workshop and the larger investigation into a proposed Inclusive Innovation model, including a process and guiding principles.

Appendix C

About Digital Promise

At Digital Promise, the mission is to spur innovation to improve the opportunity to learn for each learner. The vision is that each and every person at every stage of their lives have access to learning experiences that help them acquire the knowledge and skills they need to thrive and continuously learn in an ever-changing world. Because when everyone has access and everyone participates and everyone learns, we all benefit from a more engaged, informed, and just society.

Digital Promise is uniquely positioned as a catalyst in this environment. Close relationships with educator and researcher communities combines with the ability to develop and map solutions and enable implementations via methods that are inclusive, contextually aware, and equity-driven.

Core competencies include galvanizing networks to action, blending research and practice, developing effective communications, supporting a “powerful learning” pedagogy and environment, and centering the work in equity.

Networks

Digital Promise convenes networks of geographically diverse schools, districts, and organizations with a common commitment to education equity and capacity for innovation. Connecting stakeholders from many contexts around shared goals enables network members to collaborate and move efficiently from vision to reality. By bringing together a broad spectrum of perspectives and experiences in education, Digital Promise facilitates the cross-pollination of ideas and catalyzes promising solutions.

- Digital Promise’s flagship network, the League of Innovative Schools (League), includes 114 forward-thinking K-12 school district superintendents working together to design and scale innovative learning opportunities that advance equity and excellence for every student.
- The Verizon Innovative Learning Schools (VILS) network, representing over 152 middle schools serving low-income students, provides 1:1 mobile devices, online connectivity on and off campus, professional development, and technical support to create an environment that prepares students for college and the jobs of the future.
- The Education Innovation Clusters (EdClusters) include over 25 local communities of practice that bring together educators, entrepreneurs, funders, researchers, and other community stakeholders (families, local government, non-profits) to support innovative teaching and learning in their region.

Verizon Innovative Learning Schools

States	23 states + DC
Districts	46
Schools	152
Educators	8,936
Students	181,428
Free and Reduced-Price Lunch Students	84%
Black or Latinx Students	73%

League of Innovative Schools

States	34
Districts	114
Schools	3,880
Students	3,037,478
Free and Reduced-Price Lunch Students	50.3%
Black or Latinx Students	50.4%

Education Innovation Clusters

Regions	24
States	20
Organizations	44

With broad reach and deep community representation, these networks are positioned to design, improve, implement, and disseminate breakthrough learning practices and tools.

Research

The Digital Promise team investigates how people learn and the systems that support learning and applies research to improve learning opportunities. We partner with educators to study and design new learning approaches, resources, and policies. We design and manage evaluation and research studies small and large, utilizing qualitative, quantitative, and mixed-methods approaches. Recent and ongoing work includes projects that:

- support educators to pilot edtech tools designed to improve reading comprehension in English learners;
- facilitate a research-practice partnership to design, study, and improve 12 school districts' computational thinking pathways; and
- conduct scale-up implementation research on an early literacy tool in hundreds of schools across the country.

Digital Promise has over 20 researchers on staff with specific expertise in the learning sciences, math and STEM education, early learning, teacher professional development and coaching, learner variability, learning and data analytics, and more. We are committed to conducting applied research that supports practitioners to strengthen teaching and learning within school systems, specifically to improve equity for students from historically marginalized populations.

Communications

The Digital Promise team strives to communicate relevant research findings in accessible ways so that education stakeholders understand the implications and are inspired to put research-based strategies into practice in their daily work. This research synthesis and storytelling takes a variety of inventive formats, including multimedia case studies, actionable and animated videos, and interactive data visualizations. Through innovative communications products – including the [Research Map](#), the [Challenge Map](#), the [Learner Variability Navigator](#) and League district [Innovation Portfolios](#) – we leverage the expertise and unique voices of researchers and practitioners to provide insights for education stakeholders working to improve learning outcomes. We seek to elevate the work of researchers of color in order to include their voice and work at the table.

Additionally, nothing inspires, mobilizes, and builds capacity for change like stories, so we continually document the progress of partner districts, schools, educators, and students toward transforming teaching and learning and

expanding opportunity. We share these stories through blog posts, social media channels, and traditional media so others can learn from these experiences.

Diversity, Equity, and Inclusion (DEI)

At Digital Promise, advancing DEI efforts has been underway in phases over the past three years. The work began with an effort to understand perspectives and engage the full team in a series of dialogues (“conversation cafes”) to define core values through an equity lens. A DEI mission and a set of seven principles (and corresponding “How” statements) were developed. The principles are:

- We are champions for equity and strive to embed equity into every aspect of our work.
- We design with a focus on those who have been marginalized.
- We recruit school and district partners who are improving support for students from marginalized populations.
- We embrace a range of backgrounds and experiences on the Digital Promise team.
- We identify and value opportunities for shared leadership.
- We set clear goals and metrics and are committed to continuous improvement.
- We support variable pathways to professional learning and development.

Following the conversation cafes and definitions work, each team discussed and defined a Bold Step designed to align work with one or more principles. At the same time, an internal stakeholder group of “Equity Partners,” members of which join each other’s team conversations as critical friends to provide feedback on Bold Steps and progress, was created.

Appendix D

Tools that Support the Inclusive Innovation Process

Tool	Source	Description
From Tokenism to Partnership	Community Engagement Partners	Framework and strategies to facilitate effective community empowerment and engagement
Human Centered Design Toolkit (Version 2.0)	IDEO	Toolkit, including specific methods, best practices and worksheets, on why and how human-centered design can impact the social sector
Inclusive Innovation Policy Toolkit	Organisation for Economic Co-operation and Development	Toolkit with case studies to aid policy makers to design and implement effective innovation policies for inclusive growth
PCORI Engagement Rubric	Patient-Centered Outcomes Research Institute	Tool to provide guidance on engaging and incorporating input from patient and community stakeholders throughout the entire research process
Tool Planning Your Backbone Support	Tamarack Institute	Tool to assess and develop collective impact initiative's backbone support infrastructure
Guide Foundations for Developing a Common Agenda	Tamarack Institute	Guide that describes the process, milestones, and resources for developing a community-wide common agenda
Empathy Map	Tamarack Institute	Tool to consider the perspectives of stakeholders impacted by the project and factors that affect their experiences
Index of Community Engagement Techniques	Tamarack Institute	Guide organized by engagement levels of: inform, consult, involve, collaborate, and empower
Stakeholder Engagement Wheel	Tamarack Institute	Tool to gauge stakeholders' desired level of involvement in ongoing work
Shared Measurement: The Why is Clear, the How Continues to Develop	Tamarack Institute	Guide that describes five measurement challenges critical to evaluating and managing a collective impact effort
Building the Capacity to Innovate: A Guide for Non-Profits	The Bridgespan Group & The Rockefeller Foundation	Guide including an overarching framework, definitions, learning modules, and planning exercises to help nonprofits close the gap between their aspirations and current capacity to innovate
Equity Rationale: Why You Need One, and How To Get Started	The Management Center	Tool, including examples, for organizations to answer the question: Why are equity and inclusion critical to achieving your mission?

References

- Attygalle, L. (2017). The Context Experts. Retrieved from: <https://www.tamarackcommunity.ca/hubfs/Resources/Publications/The%20Context%20Experts.pdf?hsCtaTracking=56bc3396-2e91-49d8-8efc-95fa20b82878%7Cbddea62d-6f5b-4aa4-8b0d-292bbd5c5b9b>
- Banga, M. & Vossough, S. (2016) Participatory Design Research and Educational Justice: Studying Learning and Relations Within Social Change Making, *Cognition and Instruction*, 34:3, 173-193, doi: 10.1080/07370008.2016.1181879. Retrieved from: <https://www.sesp.northwestern.edu/docs/publications/48915198574f2c63dae3d.pdf>
- Bill & Melinda Gates Foundation. (2019). Networks for School Improvement: Year One. Retrieved from: <http://k12education.gatesfoundation.org/index.php?pdf-file=1&filename=wp-content/uploads/2019/07/NSI-Year-One-Report.pdf>
- Brooks, D. (2019, April 4). Winning the War on Poverty. Retrieved from: https://www.nytimes.com/2019/04/04/opinion/canada-poverty-record.html?fbclid=IwAR02E0c9MBKWrlGLFkqgcGTLGatmmeNib4k9vZLG9_QvCIX0Z-vXv8AKTLuM
- Cabaj, M. and Weaver, L. (2016). Collective Impact 3.0: An Evolving Framework for Community Change. Tamarack Institute. Retrieved from: https://cdn2.hubspot.net/hubfs/316071/Events/Multi-Day%20Events/Community%20Change%20Institute%20-%20CCI/2016%20CCI%20Toronto/CCI_Publications/Collective%20Impact%203.0%20Liz%20Weaver%20Mark%20Cabaj%20Paper.pdf
- Cheuy, S. (n.d.) Community innovation imperative. Tamarack Institute. Retrieved from: https://cdn2.hubspot.net/hubfs/316071/Resources/Publications/Community%20Innovation%20Imperative.pdf?__hssc=163327267.33.1567210098272&__hstc=163327267.ccaef1a037e62fb4c46e5e3fea17be4f.1560200039026.1565229875540.1567210098272.7&__hsfp=3380446714&hsCtaTracking=02757eb3-3863-42b7-8c4b-1b8259ecbb9d%7C3560c6d6-8dfe-4fe0-9b0b-fedd39ecc7ef
- Cheuy, S. (2018.) Community Engagement: A Foundation Practice of Community Change. Tamarack Institute. Retrieved from: <https://www.tamarackcommunity.ca/hubfs/Resources/Publications/2018%20CCF%20Paper%20Community%20Engagement%20A%20Foundational%20Practice%20of%20Community%20Change%20Sylvia%20Cheuy.pdf?hsCtaTracking=6090685a-d9f0-42b2-b9ac-86382319288d%7Cd30b0984-f156-4c05-b65e-9b002ab3e8b7>
- Dugan, R. E. & Gabriel, K., J. (2013, October). "Special Forces" Innovation: How DARPA Attacks Problems. *Harvard Business Review*. Retrieved from: <https://hbr.org/2013/10/special-forces-innovation-how-darpa-attacks-problems>
- FSGImpact. (2019, May 27). Collective Impact Practitioner Insights: Paul Born & Liz Weaver, Tamarack Institute [Video file]. Retrieved from: <https://www.youtube.com/watch?v=FrD5SopqWdY>
- Hussain, S., Sanders, E. B.-N., & Steinert, M. (2012). Participatory design with marginalized people in developing countries: Challenges and opportunities experienced in a field study in Cambodia. *International Journal of Design*, 6(2), 91-109. Retrieved from: <http://www.maketools.com/articles-papers/Hussain%20Sanders%20Steinert2012.pdf>

- Ishimaru, A.M., Bang, M., Valladares, M.R., Nolan, C.M., Tavares, H., Rajendran, A., Chang, K. (2019). Recasting Families and Communities as Co-Designers of Education in Tumultuous Times. Boulder, CO: National Education Policy Center. Retrieved September 5, 2019 from: <http://nepc.colorado.edu/publication/family-leadership>
- Ivan, D. (n.d.) Community-Based Entrepreneurship Development. Retrieved from: https://icma.org/sites/default/files/5090_.pdf
- McCloskey DJ, Aguilar-Gaxiola S, Michener JL, et al. Principles of Community Engagement. 2nd. Bethesda, Maryland: NIH; 2011. NIH Publication No. 11-7782. Retrieved from: https://www.atsdr.cdc.gov/communityengagement/pdf/PCE_Report_508_FINAL.pdf
- Mohammed, S. (2016, November 17). ARPA-Ed: What would it take? [Blog post]. Retrieved from: <https://www.brookings.edu/blog/brown-center-chalkboard/2016/11/17/arpa-ed-what-would-it-take/>
- National Network of Education Research Practice Partnerships. (n.d.). Research-Practice Partnership Basics. Retrieved from: http://nnerpp.rice.edu/kc_basics/
- New Schools Venture Fund. (2017). Summit 2017: Achieving Breakthroughs with R&D. [PowerPoint slides]. Retrieved September 5, 2019, from: <https://www.newschools.org/wp-content/uploads/2017/05/NSVF-Edu-RD-Session-Slides.pdf>
- Parwez, S. (2017). Community-based entrepreneurship: evidences from a retail case study. Journal of Innovation and Entrepreneurship. 6. doi: 10.1186/s13731-017-0074-z. Retrieved from: https://www.researchgate.net/publication/318421056_Community-based_entrepreneurship_evidences_from_a_retail_case_study
- Penuel, W. R., Allen, A., Coburn, C.E. & Farrell, C. (2015) Conceptualizing Research–Practice Partnerships as Joint Work at Boundaries, Journal of Education for Students Placed at Risk (JESPAR), 20:1-2, 182-197, DOI: 10.1080/10824669.2014.988334
- Shorters, T. (2019, June). You Can't Lift People Up by Putting Them Down: How to Talk About Tough Issues of Race, Poverty, and More. Chronicle of Philanthropy. Retrieved from: <https://www.philanthropy.com/article/You-Can-t-Lift-People-Up/246559/>
- Weaver, L. (n.d.) Turf, Trust, Co-Creation, and Collective Impact. Tamarack Institute. Retrieved from: https://cdn2.hubspot.net/hubfs/316071/Resources/Publications/Turf%20Trust%20and%20Co-Creation%20Paper.pdf?__hssc=163327267.8.1567210098272&__hstc=163327267.ccaef1a037e62fb4c46e5e3fea17be4f.1560200039026.1565229875540.1567210098272.7&__hsfp=3380446714&hsCtaTracking=c4cebccf-fac9-4c7e-abbe-ea8a918973cd%7C25837c5e-a4c9-48ed-82aa-8f6eac417b6
- William & Flora Hewlett Foundation. (2019). Communicating a Shared Vision for Students and Education [White paper]. Retrieved September 5, 2019, from the William & Flora Hewlett Foundation: <https://hewlett.org/wp-content/uploads/2019/01/Education-Message-Manual.pdf>
- Tamarack Institute. (2015). Community Engagement: An Overview. Retrieved from: https://cdn2.hubspot.net/hubfs/316071/Resources/Article/Tamarack_Articles_CE_An_Overview.pdf