Summary of Responses to the Request for Information on a Potential New Program, From Seedlings to Scale (S2S)

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In fiscal year (FY) 2023, Congress directed the Institute of Education Sciences (IES) to invest in quick-turnaround high-reward, scalable solutions intended to improve education outcomes for all learners in the Explanatory Statement accompanying the FY 2023 Consolidated Appropriations Act (P.L. 117–328). IES's Accelerate, Transform, and Scale (ATS) Initiative was established to fulfill this directive. The ATS Initiative supports education research and development (R&D) to create scalable solutions to improve education outcomes for all learners and eliminate persistent achievement and attainment gaps. Programs within the ATS Initiative are modeled on the advanced research projects agencies (ARPAs) found throughout the Federal government. ARPAs leverage insights from traditional/basic research to develop and scale breakthrough solutions in focused areas that research or industry do not traditionally support.

As part of this initiative, the IES's National Center for Education Research (NCER) released a request for information (RFI), seeking public input on a potential new program, From Seedlings to Scale (S2S). S2S is a new program within the ATS Initiative to invest in quick-turnaround high-reward scalable solutions intended to improve education outcomes for all students. In the RFI, IES outlined a three-phase investment strategy for S2S to support transformative ideas as they grow from seedlings to scalable solutions. As proposed, S2S would focus on high quality research, robust product development, and sustainability and scaling in the education marketplace. The RFI described four potential focus areas and four additional cross-cutting topics of interest. The RFI also detailed the proposed program design, modeled on the ARPAs found throughout the Federal government. The full text of the RFI is in **Appendix A**.

The request for public comment was published in the Federal Register on October 12, 2023. IES published a newsflash, posted about the RFI on social media platforms, and shared the RFI link with education research and development organizations and listservs on October 17, 2023. The deadline for comments was November 13, 2023. IES thanks all respondents for their thoughtful comments and is using these to inform the S2S program strategy.

The request for public comment asked for responses to the following questions:

(1) Are the focus areas and cross cutting topics described well suited to advanced development R&D?

(a) Are these areas already adequately covered by existing funding mechanisms? If not, why not?

(b) Are there other topics that you think would yield more promise for identifying and developing breakthrough solutions? If so, what do you find more compelling about that topic?

(2) To successfully develop products and ecosystems that make a major impact on learners' education outcomes, teams will need a variety of supports. IES may require support from private industry in areas such as providing consultation and coaching to teams, convening potential partners for research and scaling.

(a) What would an ideal team look like to maximize the likelihood of success? For example, what role would researchers, education agencies (at the state or local level), and private companies play in the team?

(b) How can we ensure community engagement and input?

(c) What kind of experience does your organization have with supporting ARPA-style R&D efforts, especially those related to the education sciences? What case studies can you share from your experience?

(d) Particularly in the areas of fair, open, and transparent research and data privacy and security, what kind of programing or resources would you recommend providing teams?

(3) With a focus on developing quick-turn around, high-reward and scalable solutions, what would you propose are the core activities and/or benchmarks for success for a project in each of the phases? What examples can you provide around past successes in social science domains or specifically related to education R&D?

(4) Could you provide any estimates of the costs, assets, and contributions required for a team to successfully complete each phase?

(5) As a part of this effort, IES may seek support in establishing a technical working group (TWG) to inform the activities that will guide research teams for the S2S competition. If we were to establish a TWG related to the S2S competition, what kind of expertise would you propose is essential to a TWG in this area? Are there specific organizations or individuals that you suggest be included in the TWG?

Methods for Processing and Summarizing Responses

Sixty-three comments were received within the comment period. After removing duplicates, condensing several partial submissions from one organization, and removing one submission that was not relevant to the questions posed in the RFI, there were 57 unique responses that are summarized in this document.

The majority of responses (51) came from organizations. Six responses came from individuals. The organization types reported by respondents were selected from a dropdown menu during submission. The information provided was incomplete and inconsistent, so IES staff recoded all responses based on information included in the submissions and knowledge of the individuals and organizations, supplemented with web searches to confirm coding. The recoded categories

allowed IES to better describe the population of respondents in the context of education R&D. The count of responses by recoded organization category are presented below in Table 1. A full list of respondents, definitions for the coded categories, and original organization types are provided in **Appendix B**.

Table 1. *Number of responses from type of organization*

Organization Category	N (57)
Advocacy Groups	16
EdTech Developers *(includes 1 individual)*	7
Research Organizations	7
Implementers	6
Academics *(includes 5 individuals)*	5
Anonymous	5
Research & Development Organizations	5
Facilitators	4
Local Education Agency	2

The process for summarizing responses involved several steps. First, one research center staff member screened the responses for relevance to the questions asked in the public letter, flagged duplicate letters, and organized the content from each letter by which question it addressed. Most, but not all, responses were organized by question and some included additional commentary that was relevant to the questions posed. Second, another staff member read through the responses and confirmed the initial assessment of relevance to the topic of the RFI. Duplicate letters and the one response that was not relevant to the topic were not used for the summary. Third, these same two staff separately read each response and identified themes based on the content of the responses. One of the two staff members assumed the lead in coding the themes in response to each question with each staff member taking a subset of questions, tallying the responses that addressed each theme, and summarizing the responses. Each staff member reviewed the coding and summary of the responses led by the other but did not independently code them.

The summary of the responses from these individuals and organizations is presented below by question asked in the IES RFI. Because some responses to a particular question included comments that touched on more than one theme, the sum of responses across themes may exceed the number of responses to the question. For example, if a question yielded 20 responses, 12 of those responses may have touched on two or more themes, resulting in a total number of responses represented in the summary that is greater than 20.

The summary describes the numbers of responses IES received to each question, as well as the major themes emerging from those responses (and the number of responses per theme). In defining themes, we anchored on the questions posed in the RFI and summarize respondents'

comments. The summary describes themes that were mentioned by at least two respondents and, thus, does not capture the full content of every response received.

Responses to Question 1:
Are the focus areas and cross cutting topics described well suited to advanced development R&D?

Thirty-two out of 57 responses commented directly on the focus areas. The comments were broadly supportive, and many offered refinements or cautions. Eight comments responded with general appreciation or agreement with all focus areas, with no specific call out to any of the four focus areas. Among the 24 comments that offered more detail, two themes that cross focus areas emerged: equity and broadening the focus. The themes that cross focus areas are presented below, followed by responses specific to each focus area.

Cross-cutting Themes Across All Focus Areas

Four comments suggested adding a more explicit focus on equity across all topics, with three recommending that it be a required element of the application. This may include a focus on supporting under-resourced schools, which was mentioned by six comments.

Two comments suggested widening the focus from these four focus areas to a set of broader high-impact outcomes (for example, teacher recruitment) to allow programs more flexibility.

Focus Area 1: Lifelong Learning for Future Jobs

Respondents were generally positive about this topic. Twenty-five out of 57 comments mentioned appreciation or agreement with Focus Area 1. Of those 25, 11 endorsed it positively with no further comment, and 14 endorsed the idea with an additional focus area or concern. No respondents commented negatively about this topic.

Of the 14 responses with an additional focus area or concerns, two themes emerged: the breadth of the focus area and the settings where this work takes place. Two comments noted that the focus area is very broad and could use additional definition to articulate the target outcomes, competencies, skills, or knowledge. Three commented that the enactment of work in this focus area will likely take place outside of traditional classrooms, and require connections and engagement with technology, workforce, and social and community organizations.

Focus Area 2: Tools for Neurodiverse Learners

Twenty-six out of 57 comments noted appreciation or agreement with Focus Area 2. Of the 26 that commented, 8 endorsed it positively with no further comment and 18 endorsed the idea with an additional focus area or concern.

These 18 responses affirmed the need to support neurodiverse learners and those with disabilities and see potential for innovative solutions. Two responses noted that neurodiversity could be interpreted in many ways and encouraged IES to provide a clear definition. Six comments recommended expanding the area to include other student needs, with two of these responses

highlighting dyslexia as a particular type of neurodiversity that needs attention. Two responses encouraged IES to adopt Targeted Universalism or Universal Design for Learning as an approach. Two comments recommended that NCER should coordinate with other federal agencies that fund work on this topic, including National Center for Special Education Research (NCSER) and the National Institutes of Health (NIH).

Focus Area 3: AI Tools for Teachers

Twenty-seven out of f57 comments noted appreciation or agreement with Focus Area 3. Of the 27 comment, 9 endorsed it positively with no further comment and 18 endorsed the idea with an additional focus area or concern.

Eight comments appreciated the human-in-the-loop nature of this focus area and affirmed the role of AI as a supplementary tool, such as to provide feedback or to lessen assessment burden. Three comments highlighted the potential of AI as a tool that could serve to reduce burden for teachers.

There was a call to safeguard against potential risks and for responsible use of AI, with some version of this call appearing in six comments.

Focus Area 4: SEL & Wellbeing Supports

Twenty-three out of 57 comments noted appreciation or agreement with Focus Area 4. Of the 23 comments, 12 endorsed it positively with no further comment, and 11 endorsed the idea with an additional focus area or concern.

Eight comments noted appreciation of this area's attention to educator and learner wellbeing and, of these, three recommended that IES widen the definition of wellbeing to include social connectedness, personal development, and self-discipline, personal growth and self-sustenance.

Two comments highlighted the importance of co-design with educators and learners in developing solutions under this topic.

(a) Are these areas already adequately covered by existing funding mechanisms? If not, why not?

Twenty-two submissions responded to the question, "Are these areas already adequately covered by existing funding mechanisms? If not, why not?". None of the 22 respondents stated that there was adequate existing funding. Six of the responses explicitly acknowledged existing funding streams that contribute to the education R&D space. However, seven comments noted that these funds are insufficient, are not coordinated (6 respondents), and that there are critical gaps in these funding streams (5 respondents). Among the six commenting on coordination, respondents noted that much of this work happens in silos and there are not clear hand-off points between project stages and funding streams. There is a need to "connect the dots" across programs. Five noted that the big picture, high-risk high-reward focus of the S2S program is what is needed to

ensure solutions are developed and scaled to market, in contrast to piecemeal grant deliverables that do not build into sustained solutions.

(b) Are there other topics that you think would yield more promise for identifying and developing breakthrough solutions? If so, what do you find more compelling about that topic?

Thirty-three respondents included a comment proposing additional areas of focus. The additional topics that had more than one endorsement are presented in Table 2 below.

Table 2. *Topics suggested as additional areas of focus*

Topic	Number of mentions
Prioritize underserved communities	6
Artificial intelligence	5
Human centered and inclusive design	5
Teacher workforce development	5
Systems redesign	4
Civics and democratic thinking	3
Family-school partnerships	3
Infrastructure (research and technical, includes interoperability)	3
Out of school time	3
Adult education	2
R&D partnerships (with intermediaries and school leaders)	2
Personalized learning	2
Scientific thinking	2
Teacher instructional practice	2

Responses to Question 2:
To successfully develop products and ecosystems that make a major impact on learners' education outcomes, teams will need a variety of supports. IES may require support from private industry in areas such as providing consultation and coaching to teams, convening potential partners for research and scaling.
(a) What would an ideal team look like to maximize the likelihood of success? For example, what role would researchers, education agencies (at the state or local level), and private companies play in the team?

Thirty-six responses offered input on the composition of the ideal team. There was consensus that successful teams require expertise in development/product, science of learning and

substantive knowledge relevant to the topic, community/users, and (effectiveness) research, with 27 comments listing some combination of two or more of these types of expertise. Twenty-two commentors included local education agencies (LEAs) or districts as necessary partners but did not tend to describe them as part of the core project team. These comments noted the difficulty in successfully scaling evidence-based products, with seven comments referring to a need to understand end users and implementation and suggested that teams should include (or have access to) someone with experience and expertise scaling education products.

Ten comments mentioned the importance of expert facilitation and coordination when supporting complex projects with diverse partnerships. These ten comments highlighted the need to work across silos and to manage conflicting incentives and the need to develop shared language, expectations, and processes within teams. Eight comments recommended that IES engage a partner to manage the portfolio, providing logistical support to IES and capacity building and knowledge sharing for grantees.

(b) How can we ensure community engagement and input?
Thirty-two comments addressed community engagement and input. These comments focused on engaging the community early and often and highlighted the need for user testing and input across all phases. There was variation in how expansively commenters are thinking of community – some referred only to direct users (teachers and/or students) and some expanded to families, policymakers, and local employers. Six comments recommended including community-based organizations and local nonprofits as partners to help engage communities because they already have established relationships and trust.

Some comments offered more targeted advice. Ideas mentioned by two or more respondents are listed below:

- Include time and resources for developing relationships and building trust with relevant communities.
- Be precise about the definition of community and recognize that this will differ across focus areas and teams.
- Include community input in funding decisions.
- Require transparency and accountability, including project milestones, re: community engagement and input.
- Support capacity building for teams so they can effectively engage relevant communities.
- Encourage or require teams to work with intermediaries and community-based organizations (CBOs) that have established relationships in relevant communities.

(c) What kind of experience does your organization have with supporting ARPA-style R&D efforts, especially those related to the education sciences? What case studies can you share from your experience?
Sixteen comments offered information about work they deemed relevant. Only two organizations detailed familiarity and experience with ARPA projects, while the remainder (14) highlighted

NSF or foundation-funded R&D initiatives. In general, most organizations' experiences described align with activities supported under existing NCER grant programs.

(d) Particularly in the areas of fair, open, and transparent research and data privacy and security, what kind of programing or resources would you recommend providing teams?
Twenty-four responses addressed the need for programming or resources related to fair, open, and transparent research and data privacy and security. There was agreement among these 24 responses that teams will need support, with 22 responses recommending that IES support development of updated or expanded guidance. Of these, 10 recommended training and eight noted that further investment and funding is needed to support these efforts. Drawing from this set of responses, the following resources were recommended as supports for teams:

- Guidelines, standards, and training for:
    - Privacy, data governance, and data sharing agreements and processes (18 respondents)
    - Open science practices (9 respondents)
    - Methods and expectations for R&D that expand on the existing SEER standards (5 respondents)

- Support for developing and maintaining relationships within and across teams:
    - Conferences/convenings of grantees and partners to share expectations and learning (4 respondents)
    - Support for productive engagement with users and communities (3 respondents)
    - Support for recruitment of research sites and end users (2 respondents)

Commenters had mixed views on the desirability of transparency, with five responses explicitly noting a tension between transparency and data privacy. Six comments made the case that publicly funded research, tools, and data should be open. Three others highlighted the need to protect intellectual property (IP), noting that developers may be reluctant to participate if they must publicly disclose early failures or if they must make their products freely available. Four comments emphasized that the goal of a program like S2S is to move the field forward and therefore sharing what is learned about both what works and what does not is critical to the success of the program.

Responses to Question 3:
With a focus on developing quick-turn around, high-reward and scalable solutions, what would you propose are the core activities and/or benchmarks for success for a project in each of the phases? What examples can you provide around past successes in social science domains or specifically related to education R&D?

Regarding the phased program design, comments were generally supportive and a few overarching themes emerged from the advice and cautions. Thirty submissions commented on the proposed phased program design directly. Two categories of concerns or cautions emerged from the comments: timeline and tensions between product development and evaluation.

Timeline. Ten comments explicitly mentioned timelines. Several supported the overarching 6-year timeline but noted that even within that timeline there are constraints on what can be measured. Five comments said one year is too little, suggesting that one year is insufficient to develop evidence of promise and proposing that 18 months or two years would be more appropriate. Based on the activities and benchmarks they suggest for this phase, these comments seemed to be interpreting evidence of promise to mean that the team must pilot the full prototype in year one and assess learning outcomes. In contrast, comments that interpret Phase One as being focused on idea validation and some initial feasibility testing note that one year is sufficient. Four said one year is sufficient under some assumptions (i.e., not building new hardware for the prototype), and one argued for a faster overall timeline. Two comments focused on the need for large-scale rethinking and reshaping of our education system and wonder whether the S2S timelines allow for development of solutions that aim for sustained change. Two others noted that the learning outcomes S2S hopes to impact may take a long time to develop and noted the importance of identifying and using short-term and intermediate outcomes that are known to be correlated with the ultimate outcomes. Two commenters shared concerns about the number of iterations that are possible during a school year, depending on the focus of the tool and what that implies about when it can be implemented or how long it would take to see changes in learning outcomes.

Tension between product development and evaluation. Six comments urged IES not to rush the evaluation of learning outcomes, noting that it can take time for these outcomes to change and that early evaluations of products that are not yet usable and useful may show poor outcomes because the product is not being used or used properly, not because the product is ineffective. Three comments suggested a need for a culture change in how the field views early failures, noting that performance early in development is not a strong signal about ultimate effectiveness and that achieving breakthroughs requires some risk taking. At the same time, three comments suggested linking explicitly to evidence standards articulated by ESSA or WWC and highlighted IES's critical role in supporting and incentivizing the development of strong evidence. Four comments suggested requiring teams in Phase One to prepare for evaluation of learning outcomes in Phases Two and Three by articulating the key learning outcomes that should be measured and planning relevant instrumentation to measure those outcomes into tool development.

Specific activities and milestones for each phase synthesized from the comments are detailed below.

Phase One:

Seventeen comments offered thoughts on Phase One activities and milestones. There was broad consensus on a set of activities designed to further develop the team and necessary partnerships, validate the problem and proposed solution with potential users, and develop a lightweight prototype for demo and iterative testing and refinement, with eight comments explicitly mentioning at least one of these activities and six mentioning two or more. A smaller number of comments (3) highlighted the importance of beginning to define a pathway to scale, including articulating an initial go to market strategy, identifying how districts would support and pay for the tool, and identifying future funding.

Seven comments noted specific outputs of Phase One that would signal readiness for Phase Two, which include evidence of user engagement, a prototype shared at demo day, a refined logic model or theory of change that incorporates existing evidence and user input, and a plan for Phase Two. The plan for Phase Two should include hypotheses to be tested about both product-market fit and the tool's effect on learning outcomes, and commitments from districts and other needed partners.

Phase Two:

Ten comments offered input on the desired activities and benchmarks for Phase Two. These comments clustered around three topics: iterative development, what should be required of research in this phase, and expansion of partnerships. Four of these ten comments highlighted the potential for cross-team learning and the importance of developing sales and investment partnerships.

There was clear consensus that this phase is about iterative learning and further development from an early prototype to a minimum viable product (MVP) to a refined product that is useful, usable, and used across settings, and has demonstrated some impact on learner outcomes, with seven of the ten comments referring to these activities. These commenters noted that this phase should include development of a minimum viable product (MVP) that aligns with the user needs confirmed in Phase One. During the two years of Phase Two, commenters expect teams to engage in cycles of feedback and product refinement, increasing the set of users over time to ensure that the product is useful and usable in diverse contexts.

Eight comments noted the importance of expanding partnerships with LEAs and other potential users during this phase. This includes deepening relationships and expanding adoption within partnerships established during Phase One and expanding the set of districts and schools that are providing user input and serving as sites for implementation and effectiveness research.

Commenters noted that this phase should provide initial evidence of promising impact, with comments suggesting that correlational evidence showing increased learning outcomes should be the minimum requirement for phase (and some explicitly aligning the level of evidence with

ESSA Tier 3). Three comments suggested that teams should be aiming for impact studies in this stage, with two specifying that they should be quasi-experimental or experimental studies. Four comments highlighted the importance of implementation studies to better understand how the tool is being used and what supports might be necessary to facilitate strong implementation at scale. Four commenters also noted that user testing should continue throughout this phase to facilitate refinement and establish that the product is useful, usable, and used in classrooms (or other settings, as appropriate for the specific tool).

Three comments noted that a cost study is needed to establish that the product will be affordable to LEAs or other intended buyers, but commenters are split on whether this should take place in this phase or in Phase Three. Three other comments noted that teams should further develop understanding of the market and begin to establish marketing and pricing strategies.

Commenters did not suggest specific metrics in their comments on this phase, but the comments detailed above refer to benchmarks for success that include a refined, functioning solution; evidence that it is useful, usable, and used; and some evidence that it improves learner outcomes.

Phase Three

Nine commenters offered input on Phase Three, with seven framing Phase Three in terms of expanding use of the product and simultaneously developing stronger evidence of effectiveness, validating impact with larger groups of students and using more rigorous methods. Commenters agree that Phase Three research should focus on developing further evidence of efficacy, with four explicitly naming causal methods such as quasi-experimental and experimental designs. Two note that teams should pay particular attention to whether impacts are maintained as the product scales and is used with new groups of students and with less implementation support.

Three comments focused more on the business aspects, noting that teams should be refining their marketing and sales plans and establishing the support functions and services that will be required to support the product at scale.

Five comments mentioned continued engagement with districts and other partners to support scaling and strong implementation. A few comments highlighted the roles of other stakeholders, including teachers, who influence the adoption and successful use of tools at scale, noting that it will be important for teams in Phase Three to engage with these groups and build their understanding of and support for the tool. Several comments noted that intermediary organizations, both national and local, can play an important role in successful scaling.

Two commenters suggested specific success benchmarks, naming targets for expansion of the user base, results from feasibility, cost, and effectiveness studies, and use-oriented key performance indicators (KPIs) such as retention rates and a Net Promoter Score.

Responses to Question 4:
Could you provide any estimates of the costs, assets, and contributions required for a team to successfully complete each phase?

Eleven commenters provided cost estimates for Phase One and 10 for Phases two and three. As noted above in the summary of responses to question 3, respondents had very different views of the timeline and when activities would occur. For example, some respondents framed Phase One as including an evaluation of learning impacts for the solution where others viewed it as a design phase with only user testing. Recommendations for Phase One ranged from $300 thousand to $4 million, with a wide range from organizations with relevant experience. Phase Two recommendations ranged from $1 million to $10 million and Phase Three recommendations ranged from $2 million to $30 million. Two organizations advocated for additional funding for other program and implementation supports, with one highlighting the need for robust program management and technical assistance and the other noting a need for support for systems change and scaling.

Responses to Question 5:
As a part of this effort, IES may seek support in establishing a technical working group (TWG) to inform the activities that will guide research teams for the S2S competition. If we were to establish a TWG related to the S2S competition, what kind of expertise would you propose is essential to a TWG in this area? Are there specific organizations or individuals that you suggest be included in the TWG?

Thirty-one responses addressed this question and comments supported use of a TWG. In general, the expertise recommended for the TWG has strong overlap with the expertise recommended for teams, focusing on iterative development, education research, interdisciplinary communication and teamwork, and community and user representation. The need for boundary-spanning experience was noted by three commenters and three other commenters highlighted the importance of gathering a diverse team of experts.

Twelve comments mentioned scaling and commercialization as a particular focus and recommended prioritizing individuals and organizations that have successfully developed and scaled effective education products. Four comments noted that individuals who developed effective products but had challenges scaling them could bring important lessons.

Other expertise mentioned by comments included funders of similar programs, data privacy and cybersecurity, artificial intelligence (AI), community-based organizations/intermediaries, innovative and equity focused approaches to education.

Appendix A: Request for Information

https://www.federalregister.gov/documents/2023/10/12/2023-22482/request-for-information-on-potential-new-program-from-seedlings-to-scale-s2s

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DEPARTMENT OF EDUCATION

[Docket ID ED-2023-IES-0011]

Request for Information on potential new program, From Seedlings to Scale (S2S)

AGENCY: Institute of Education Sciences, Department of Education.

ACTION: Request for information.

SUMMARY: The National Center for Education Research (NCER), a center within the Institute of Education Sciences (IES), is seeking insight to guide its efforts to fund quick-turnaround high-reward, scalable solutions intended to improve education outcomes for all students.

DATES: We must receive your comments by November 13, 2023.

ADDRESSES: Comments must be submitted via the Federal eRulemaking Portal at regulations.gov. However, if you require an accommodation or cannot otherwise submit your comments via regulations.gov, please contact the program contact person listed under FOR FURTHER INFORMATION CONTACT. The Department will not accept comments submitted after the comment period. To ensure that the Department does not receive duplicate copies, please submit your comments only once. Additionally, please include the Docket ID at the top of your comments.

Federal eRulemaking Portal: Go to www.regulations.gov to submit your comments electronically. Information on using regulations.gov, including instructions for accessing agency documents, submitting comments, and viewing the docket, is available on the site under the "FAQ" tab.

Privacy Note: The Department's policy is generally to make comments received from members of the public available for public viewing in their entirety on the Federal eRulemaking Portal at www.regulations.gov. Therefore, commenters should be careful to include in their comments only information that they wish to make publicly available. We encourage, but do not require, that each respondent include their name, title, institution or affiliation, and the name, title, mailing and email addresses, and telephone number of a contact person for the institution or affiliation, if any.

FOR FURTHER INFORMATION CONTACT: Erin Higgins, Education Research Analyst, National Center for Education Research, Institute of Education Sciences, U.S Department of Education, 400 Maryland Avenue, SW, Washington, DC 20202-7240. Telephone: (202)-987-1531. You may also email

your questions to erin.higgins@ed.gov, but as described above, comments must be submitted via the Federal eRulemaking Portal at regulations.gov.

If you are deaf, hard of hearing, or have a speech disability and wish to access telecommunications relay services, please dial 7-1-1.

SUPPLEMENTARY INFORMATION:

Background:

Our education system is tasked with helping Americans across their entire lifespan to successfully engage in civic activity and participate in an ever-evolving workforce, building the foundation for the Nation's future.

In the Explanatory Statement accompanying the fiscal year (FY) 2023 Consolidated Appropriations Act (P.L. 117-328), Congress directed IES to invest in quick-turnaround high-reward, scalable solutions intended to improve education outcomes for all students.[1] To fulfill this directive, IES's Accelerate, Transform, and Scale (ATS) initiative will support advanced education research and development (R&D) to create scalable solutions to improve education outcomes for all learners and eliminate persistent achievement and attainment gaps. Through this initiative, IES will invest in bold, innovative ideas that come from interdisciplinary, diverse teams that have the potential to make dramatic advances towards solving seemingly intractable problems and challenges in the education field.

ATS will pilot efforts modeled on the advanced research projects agencies (ARPAs) found throughout the Federal government. ARPAs leverage insights from traditional/basic research to develop and scale breakthrough solutions and capabilities in focused areas that research or industry does not traditionally support. Many domains of R&D are primed for breakthrough advances that can make inroads on long standing education goals, such as personalizing student and educator learning, dramatically increasing learners' motivation and engagement, transforming the implementation and usefulness of assessments, and supporting successful transitions from school to career and between careers.

To advance ARPA-style efforts in education, the ATS initiative will build on several existing IES investments, including the Leveraging Evidence to Accelerate Recovery Nationwide (LEARN) Research Network, the Small Business Innovation Research program, the Standards for Excellence in Educational Research (SEER) Research Network for Digital

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[1]United States Congress. Committee Print of the Committee on Appropriations, U.S. House of Representatives, on H.R. 2617/P.L. 117-328. 117th Congress, Second Session. Washington: US. Govt. Publishing Off. 2023.

Learning Platforms, prize challenges, and the Transformative Research in the Education Sciences research program. ATS will also support new activities that emphasize creating scalable, high impact solutions, such as going from idea to prototype and preparing existing tools, techniques, and products with evidence of effectiveness for scaling.

This RFI is focused on a proposed new program within ATS we are calling "From Seedlings to Scale" (S2S). IES is considering a three-phase investment strategy for S2S to support transformative ideas as they grow from seedlings to scalable solutions. As proposed, S2S would focus on high quality research, robust product development, and sustainability and scaling in the education marketplace. The performance goals below highlight how, at a high-level, each of those elements could be combined into a successful project.

Across the three proposed phases of funding, the Department envisions that successful performers would:
- Develop a full product or a broadly-applicable, new capability.
- Foster collaboration between product developers, researchers, and educators who are highly-skilled in their respective disciplines and across disciplines.
- Challenge what is currently possible by pursuing breakthroughs, not incremental improvements or "point solutions."
- Maintain an unwavering focus on improving learner outcomes, continuous improvement, and rigorously evaluating performance.
- Define from the beginning a credible path to significant impact and commercial success (including free and open-source pathways).
- Catalyze new areas of interest and investment.

Through the specific questions in the next section, IES is soliciting public comment on the two topics described below, Focus Areas and Program Design, to inform the development of the S2S program.

Topic One: Proposed S2S Focus Areas:
IES is currently considering four focus areas:
- Developing approaches that can be used to help learners build skills throughout their life spans to gain broadly applicable competencies and domain-specific skills in growing areas critical for international competitiveness in the jobs of the future.

- Creating tools and systems that can accurately identify and determine the unique needs of individual neurodiverse learners and propose a custom suite of instructional and technological supports to guide their learning.
- Creating next-generation tools for educators for feedback, recommendations, and supports that leverage artificial intelligence to augment teaching and planning. These efforts should support educators and coaches to reflect holistically on the elements of daily practice, including learning environment, instructional strategies, and student performance.
- Creating new techniques and approaches to help educators and learners implement strategies to support behavior and emotion regulation and to support learners' interactions with others in ways that build and maintain caring environments, strong relationships, and robust mental health.

We have also developed a list of potential cross-cutting areas that would be listed alongside the focus areas as "additional topics of interest." We do not anticipate that these additional topics would become requirements for potential performers; rather, they would be strongly recommended as areas to consider. The additional topics of interest include:

- Data modernization (including transferability, interoperability, and common measures).
- Human-centered design for education innovation.
- Open, fair, and transparent research.
- Data privacy and security.

IES is not currently soliciting examples of ideas for breakthrough solutions under these categories, but we plan to announce more efforts in this area soon after the initial priority areas are solidified.

Topic Two: Proposed S2S Program Design:

IES proposes to leverage a tiered investment model to spur R&D to accelerate the creation of tools, techniques, and products that can lead to breakthrough solutions for any stage of the education system: pre-K, K-12, postsecondary (including community colleges and technical training institutes), and adult education. We envision that this investment model will use a three-phase process to support developing transformative solutions. We offer a brief sketch of the proposed model below. Advancement from one stage to the next would not be automatic but would be contingent on performance and available funds. We anticipate that the timeline for completing all three phases would take an average of six years. However, it is possible that Phase ThreePhase Three awards focused on scaling may not

follow-on directly from a Phase TwoPhase Two award if IES chooses to structure this phase similar to the Department of Energy's ARPA (ARPA-E) SCALEUP program (https://arpa-e.energy.gov/technologies/scaleup), which was launched by ARPA-E to provide funding for projects to continue scaling.

For the **first phase** of funding, teams would have approximately one year to demonstrate that their proposed solution could meet four essential milestones: (1) serve a set of education providers, educator, or learner needs; (2) define and refine the key performance indicators (KPIs) for the solution; (3) create a prototype that can demonstrate elements of the core functionality at a "demo day"; and (4) conduct one or more successful studies providing evidence of the promise of the proposed solution for improving learner outcomes relative to traditional approaches, should the solution be fully developed.

Projects that demonstrate a compelling use case(s) and promising prototype would be able to move to the second phase. This stage would be approximately two years. The **second phase** would focus on rapid, iterative development to turn the prototype into a functional solution, answering key research questions about its design, establishing product-market fit, and gathering initial evidence of promise. In this second stage, awardees should also be looking for opportunities to forge strong external partnerships that can function together to improve learner outcomes.

The **third phase** of funding would last approximately three years. This stage would focus on leveraging strategic partnerships to support continuous improvement, expanding the user base, and independently and rigorously evaluating the impacts of the solutions that showed evidence of promise and strong product-market fit. In this stage, it would be critical to evaluate whether this new solution improves education outcomes and reduces persistent achievement and attainment gaps relative to existing solutions, and to determine cost, implementation ease, and other important measures that reflect both effectiveness and product-market fit. It is also possible that this phase may not follow directly from the previous two phases, allowing time to further develop the partnerships necessary for scaling.

This is a request for information only. This RFI is not a request for proposals (RFP), a request for applications (RFA), or a promise to issue an RFP or a notice inviting applications

(NIA). This RFI does not commit the Department to contract for any supply or service whatsoever. Further, we are not seeking proposals and will not accept unsolicited proposals that align to this potential program. The Department will not pay for any information or administrative costs that you may incur in responding to this RFI. The documents and information submitted in response to this RFI will not be returned.

Solicitation of Comments: To assist in refining the topic areas and program design for the S2S program, we invite comments in response to the questions below:

(1) Are the focus areas and cross cutting topics described well suited to advanced development R&D?

(a) Are these areas already adequately covered by existing funding mechanisms? If not, why not?

(b) Are there other topics that you think would yield more promise for identifying and developing breakthrough solutions? If so, what do you find more compelling about that topic?

(2) To successfully develop products and ecosystems that make a major impact on learners' education outcomes, teams will need a variety of supports. IES may require support from private industry in areas such as providing consultation and coaching to teams, convening potential partners for research and scaling.

(a) What would an ideal team look like to maximize the likelihood of success? For example, what role would researchers, education agencies (at the state or local level), and private companies play in the team?

(b) How can we ensure community engagement and input?

(c) What kind of experience does your organization have with supporting ARPA-style R&D efforts, especially those related to the education sciences? What case studies can you share from your experience?

(d) Particularly in the areas of fair, open, and transparent research and data privacy and security, what kind of programing or resources would you recommend providing teams?

(3) With a focus on developing quick-turn around, high-reward and scalable solutions, what would you propose are the core activities and/or benchmarks for success for a project in each of the phases? What examples can you provide around past successes in social science domains or specifically related to education R&D?

(4) Could you provide any estimates of the costs, assets, and contributions required for a team to successfully complete each phase?

(5) As a part of this effort, IES may seek support in establishing a technical working group (TWG) to inform the activities that will guide research teams for the S2S competition. If we were to establish a TWG related to the S2S competition, what kind of expertise would you propose

is essential to a TWG in this area? Are there specific organizations or individuals that you suggest be included in the TWG?

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Mark Schneider,
Director,
Institute of Education Sciences.

Appendix B: Detail on Respondents

Table B.1 reports organization name and category for each respondent as indicated on their submission. Forty respondents included a category, and 17 did not. The majority of comments were submitted by organizations, with 5 anonymous responses and 6 submitted by individuals. To facilitate categorization of responses by organizations with similar roles in the R&D ecosystem and to represent respondents who did not report a category, IES staff recategorized all responses into Recoded Categories, defined in Table B2. To complete this recategorization, staff members used information provided in the submission, researched respondents online if the submission provided insufficient detail, coded organizations into categories, and resolved any discrepancies through discussion and agreement.

Table B.1: *List of Respondents*

Organization Name	Category (from submission)	Recoded Category (from synthesizers)
Accelerate		R&D Org
Advanced Education Research and Development Fund (AERDF)		R&D Org
Afterschool STEM Hub	Other	Advocacy
Alliance for Learning Innovation	Association/Organization	Advocacy
America Forward	National Advocacy Organization	Advocacy
American Educational Research Association	Association/Organization	Advocacy
American Institutes for Research		Research Org
Anonymous	Association/Organization	Anonymous
Anonymous	Association/Organization	Anonymous
Anonymous	Other	Anonymous
Anonymous	Other	Anonymous
Anonymous	Other	Anonymous
Benetech		EdTech Developer
Boys & Girls Clubs of America	Community Organization	Advocacy
CAST	Association/Organization	Advocacy

Center for Development of Interest in Learning (CDOIL Inc.)	Student	R&D Org
Center for Research Use in Education		Research Org
Coalition on Adult Basic Education (COABE)	Minority-Serving Institutions	Advocacy
Committee for Children		EdTech Developer
Common Group		Facilitator
CWISTED LLC	Business	Implementer
Data Quality Campaign	National Advocacy Organization	Advocacy
DataKind	Other	EdTech Developer
Education Leaders of Color	National Advocacy Organization	Advocacy
Electronic Privacy Information Center (EPIC)		Advocacy
Every Hour Counts	Association/Organization	Advocacy
IEEE Industry Connections Industry Consortium on Learning Engineering (ICICLE)	Other	Advocacy
Individual: Goldstein, Michael		EdTech Developer
Individual: Metz, Emlen; Berkeley, CA	Academic/Think Tank	Academic
Individual: Parmar, Rene; Pelham, NY	Institution of Higher Education	Academic
Individual: Ranganathan, Aditya; Boston, MA	Education Consultant	Academic
Individual: Washburn, Jocelyn; Lawrence, KS	Academic/Think Tank	Academic
Individual: Zucker, Tricia; Houston, TX		Academic
Knowledge Alliance		Advocacy
KnowledgeWorks		Implementer + Advocacy
Leanlab Education	Private elementary/secondary school	R&D org
LEARN Coalition	Federal Agency	Advocacy
LearnerStudio		Facilitator
Learning Policy Institute		Research Org

Luminary Labs		Facilitator
Mathematica	Federal Agency	Research Org
National Center for Learning Disabilities	National Advocacy Organization	Advocacy
New Classrooms Innovation Partners	Association/Organization	Implementer
New Leaders	Other	Implementer
Panorama Education	Business	EdTech Developer
Pleasant View Elementary School District	Public elementary/secondary school	Local Education Agency
RAND	Academic/Think Tank	Research Org
Reading Futures	Business	Implementer
SERP Institute		R&D Org
Software and Information Industry Association (SIIA)	Association/Organization	Advocacy
SRI International	Association/Organization	Research Org
TalkingPoints	Association/Organization	EdTech Developer
Thinking Habitats LLC	Business	EdTech Developer
TNTP	Education Consultant	Implementer + Advocacy
Toolbox Dialogue Initiative Center	Academic/Think Tank	Facilitator
WestEd		Research Org
Wildflower Schools	Association/Organization	Local Education Agency

Table B.2: *Definitions for Recoded Organization Categories*

Coded Category	N (57)	Definition
Academics	5	Researcher(s) at an academic intuition. All submissions were individual researchers.
Advocacy Groups	16	Organization focused on a cause, putting effort towards communicating and driving positive change for that cause. This cause may be representing a profession, or the cause may be supporting a particular type of learning, learner, or context.
Anonymous	5	No information provided
EdTech Developers	7	Organization focused on the development of learning solutions and technologies for use and sale. Typically focused on one solution.
Facilitators	4	The focus of the organization is supporting other teams in R&D work. They are managers and boundary spanners but are not the organizations owning the projects.
Implementers	6	Organization focused on bringing new learning solutions to practice and scale. Some focus on training, some on systems change, some have a narrower mandate than others (for example, Reading Futures), some may focus on edtech implementation. *Two of these orgs are also classified as Advocacy in Table B.1. For this table, they appear only in the count for Implementers and only contribute once to the Total N of 57.*
Local Education Agency	2	Local Education Agency, representing a group of schools.
Research & Development Orgs	5	Organizations that may fund and support multiple development and scale endeavors.
Research Orgs	7	Organizations that conduct research projects, typically on behalf of clients or grantors. This category includes public, private, and non-profit organizations.