Annexure III

Background Note: 1 (A)

Principles for Educational Technology Innovations at Scale
Metrics for Quality
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Key premise for the principles:
In technology innovation, scaling typically requires making the same technology available widely. On the other hand, in educational innovation, local socio-cultural context has huge role. Hence, in educational innovation, the scaling problem is not one of taking a generalized solution to all, but one of: (i) innovating a large number of varied local solutions and making them available to all, and (ii) empowering local adaptation and contextualization of these solutions, through technological facilitation and pedagogical training.

Principles:

1. **Metrics before implementation.**
   What do I mean: Define success metrics before starting project implementation, rather than along the way. Ensure that the metrics are: (i) appropriate for the problem, rather than something convenient to show with respect to the solution, (ii) specified at a detailed level, rather than in broad terms, and (iii) measurable in unambiguous terms.

   Why do I say this: The pressure to show 'success' is high in mega-budget projects. Under time constraints, this can lead to drawing the target around the arrow, i.e., claiming that whatever the solution has achieved was indeed the target, to declare success.

   How do we implement this: Require that projects demonstrate that they have done due diligence to: (i) Understanding the problem clearly from multiple perspectives, (ii) Studying prior solution approaches carefully, and (iii) Identifying meaningful success metrics. Educational Technology research literature has several well-defined metrics to choose from. Solution design should begin only after this is done.

2. **Participatory design before implementation.**
   What do I mean: Involve the concerned stakeholders at the solution design stage itself. Don't create a solution and thrust it upon them. They are not mere consumers of a foreign solution. They must have a say in identifying what solution may work for them, prioritizing its implementation steps, and its evaluation.

   Why do I say this: (i) Many good technology solutions fail because they are partially blind to stakeholder issues, some of which may need a non-technology component to the solution. (ii) Non-participatory design leads to adoption resistance, eventually defeating the solution.

   How do we implement this: Require that projects include stakeholder representatives as part of the project team. Require that projects have mechanisms for legitimate par-

ticipation of stakeholders in the solution design process. Educational Technology research literature has well-defined partnership models to choose from. Pilot solution implementation should begin only after this is done.

3. **Empower creation rather than consumption.**
   What do I mean: Build for contextualization rather than generalization. Allow for, nay demand, that stakeholders contextualize the solution for their local socio-cultural context. They are not mere passive consumers of a external solution.

   Why do I say this: For learning to be meaningful and effective, it has to be situated in local context. If we don't build mechanisms that make a remote college teacher/ student into producers - of something that is locally meaningful – then we are perpetuating the colonial mentality; The elite institutions as the colonizers and other institutions as the colonized.

   How do we implement this: Require that projects include mechanisms for non-participating stakeholders to contribute significantly, both in quantitative and qualitative terms.

4. **Evaluation and refinement before scale.**
   What do I mean: Do pilot implementations with the participating stakeholders, evaluate the solution with respect to the success metrics defined, and iteratively refine the solution till it meets the metrics. Then identify similar stakeholders elsewhere for scale.

   Why do I say this: (i) Given India's diversity, a one-size-fits-all solution is a recipe for failure. (ii) We need to evaluate solutions rigorously, using appropriate research methods, to identify what is working and what is not. (iii) Doing iterative refinement helps to ensure that the solution works for the participating stakeholders, if not for the population. (iv) Such evaluation and iteration may inform adapting/customizing the solution to different settings.

   How do we implement this: Require that projects budget for rigorous evaluation and include social scientists as part of the project team.

5. **Sustainability with scale.**
   What do I mean: Ensure that the participating stakeholders can sustain the solution on their own, while the project team moves on to scaling the solution to other similar stakeholders.

   Why do I say this: It is tempting to address scale early, since it often involves doing more of the same. However, if there is no transfer of ownership, i.e., stakeholders are unable to meaningfully utilize and evolve the solution locally, then the solution may collapse. Also, sustainability may require new components to be built into the solution, before doing scale.

   How do we implement this: Require that projects have a plan for sustainability. Perhaps require that sustainability be demonstrated in parallel with pilot attempts to scale. Educational Technology research literature has well-defined strategies to choose from.