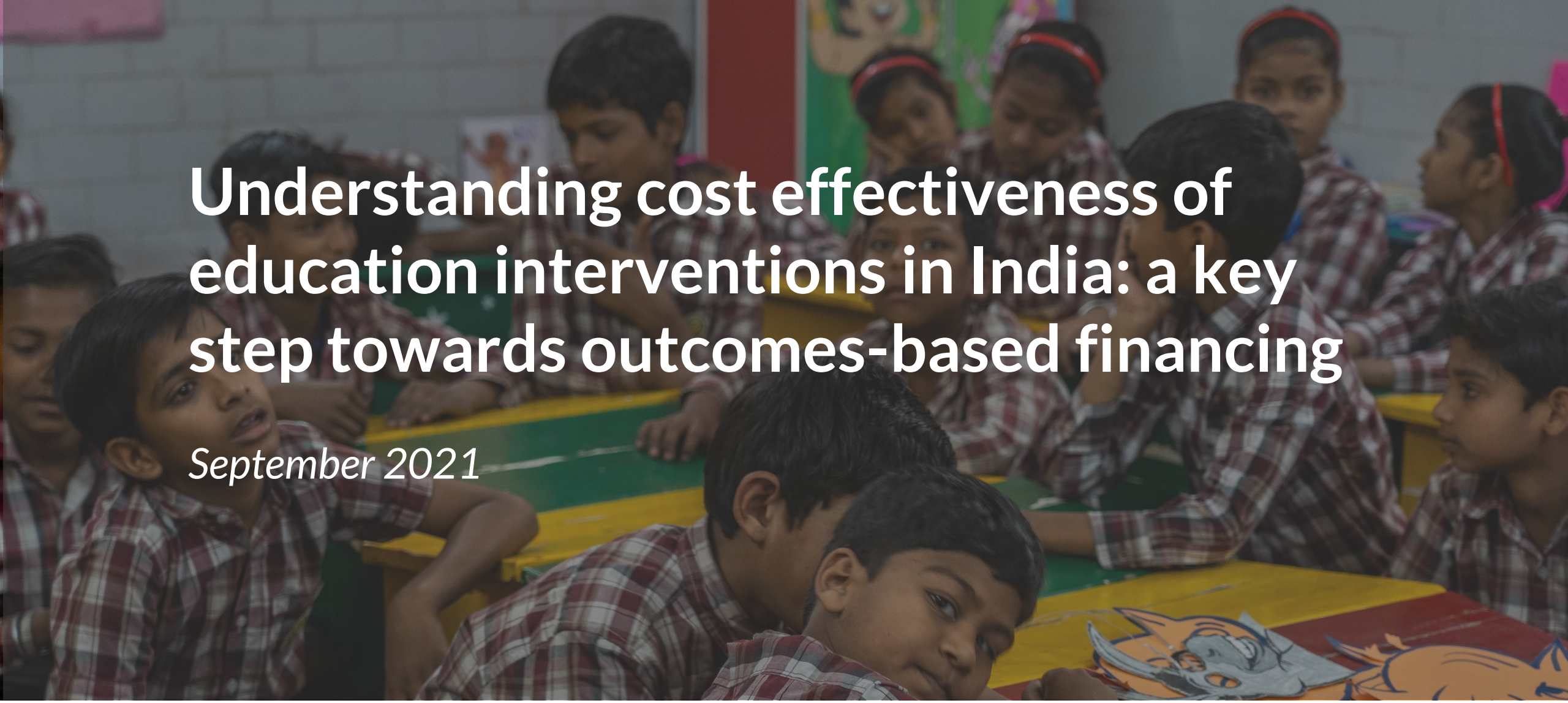

Understanding cost effectiveness of education interventions in India: a key step towards outcomes-based financing

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Dalberg

UBS Optimus Foundation | UBS

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As QEI DIB is coming to an end, we wanted to draw broader lessons for the outcomes-based financing ecosystem in education in India

1

Assess evidence for the case for outcomes-based financing

Why *outcomes-based financing? Are they worth the additional costs involved?*

2

Reduce negotiation costs by setting guidance on appropriate pricing

How much *should learning outcomes cost?*

3

Facilitate discovery of cost effective interventions for future investments

What *types of interventions to invest in?*

These answers can help scale outcomes-based financing

QEI DIB suggests that outcomes-based mechanisms can further help improve outcomes

50%

*higher learning outcomes for outcome-based funding compared to non-results settings for same interventions/ organizations, costs not higher**

Enhanced accountability

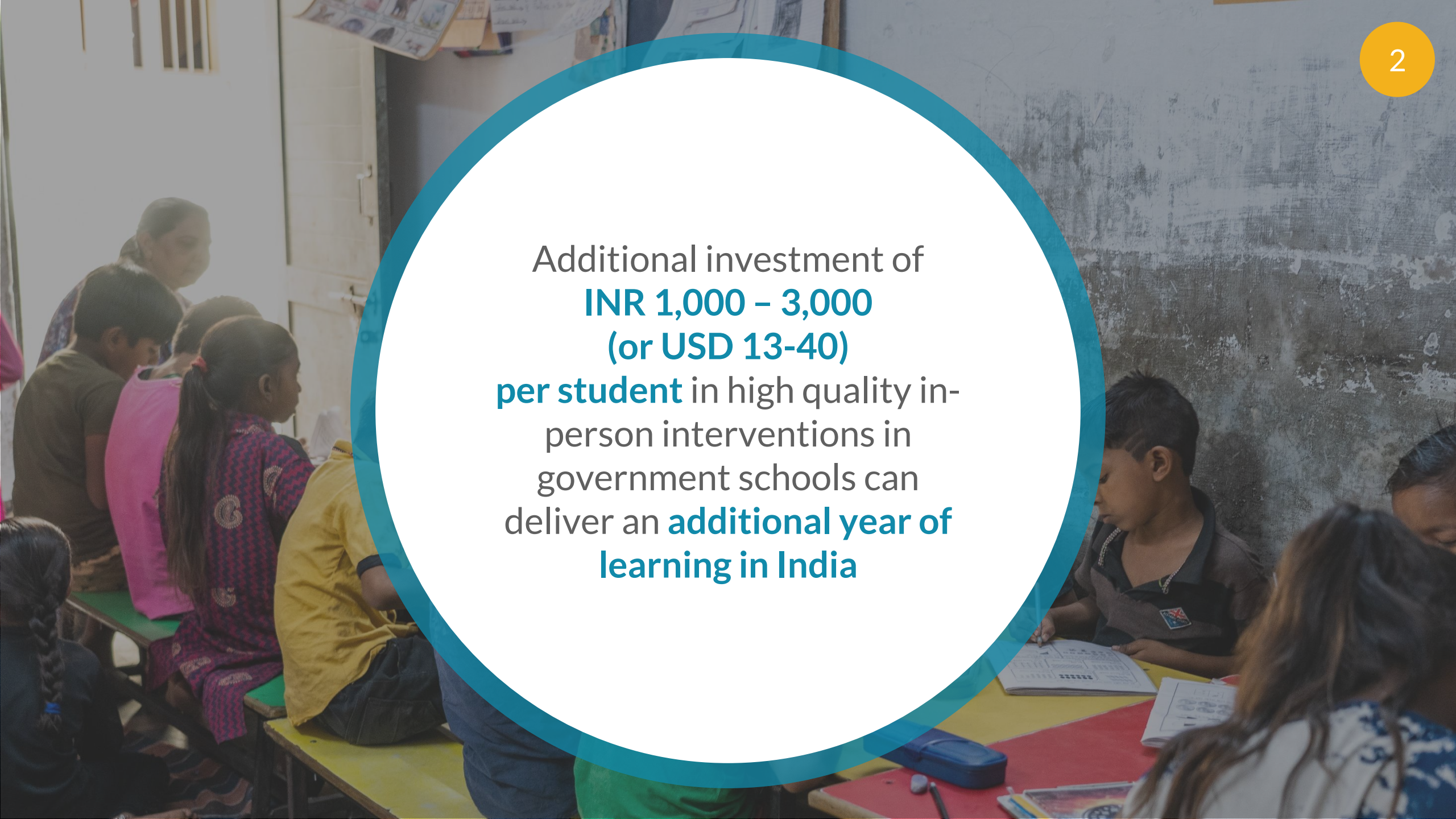
More flexibility & innovation

Emphasis on monitoring & evaluation

**Included all costs with financial value, including transaction/operational costs such as legal/contracting,, performance management and evaluations. While these costs were higher, the programmatic costs were somewhat lower as a result of multiple rounds of negotiations.*

There are many ways to improve outcomes focus

- Performance bonuses / penalties for implementors
- Performance incentive for school/program stakeholders
- Impact bonds
- Performance-based selection and multi-stage contracting



Additional investment of
INR 1,000 – 3,000
(or USD 13-40)
per student in high quality in-person interventions in government schools can deliver an **additional year of learning in India**

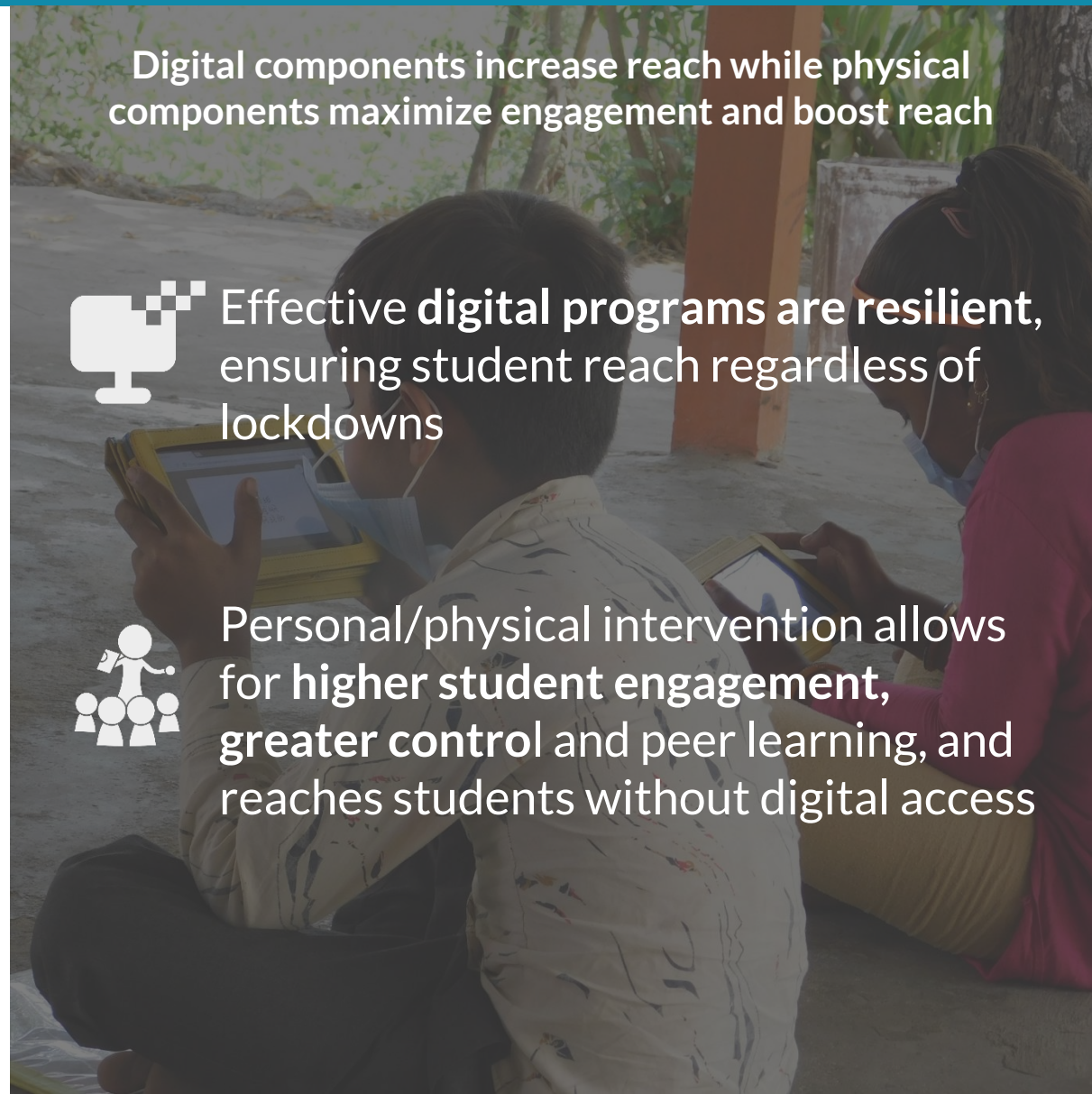
During school closures, deploy ‘phygital’ models to maximize learning gains

Despite nation-wide learning losses, QEI interventions combining physical and digital support helped achieve meaningful gains…

‘Phygital’ remote models can help achieve at least **1/3** of the learning achieved in a regular gov’t school setting (pre-COVID, without interventions)

SARD (an education NGO) increased reach by **15-20%** by complementing digital with in-community interventions

Digital components increase reach while physical components maximize engagement and boost reach



Effective **digital programs are resilient**, ensuring student reach regardless of lockdowns

Personal/physical intervention allows for **higher student engagement, greater control** and peer learning, and reaches students without digital access

As schools re-open, adopt remedial, TarL, and EdTech interventions can help students catch-up and accommodate varying learning levels

Remedial and TarL are among the most cost-effective interventions that can be easily adopted…

Only INR 1000-2000 cost per additional year of learning

Effective at delivering outcomes even in **low resource settings** as requires only basic human resources

…while EdTech can be powerful with the right resources

Adaptive EdTech effective in higher resource settings with required infra; only intervention to show evidence of effectiveness in secondary grades

Non-adaptive EdTech can be cost effective, particularly if implemented as a complement to high quality instruction and with supervision

As we look ahead, there is need to further bolster our evidence base to make the case for scaling outcomes-based financing

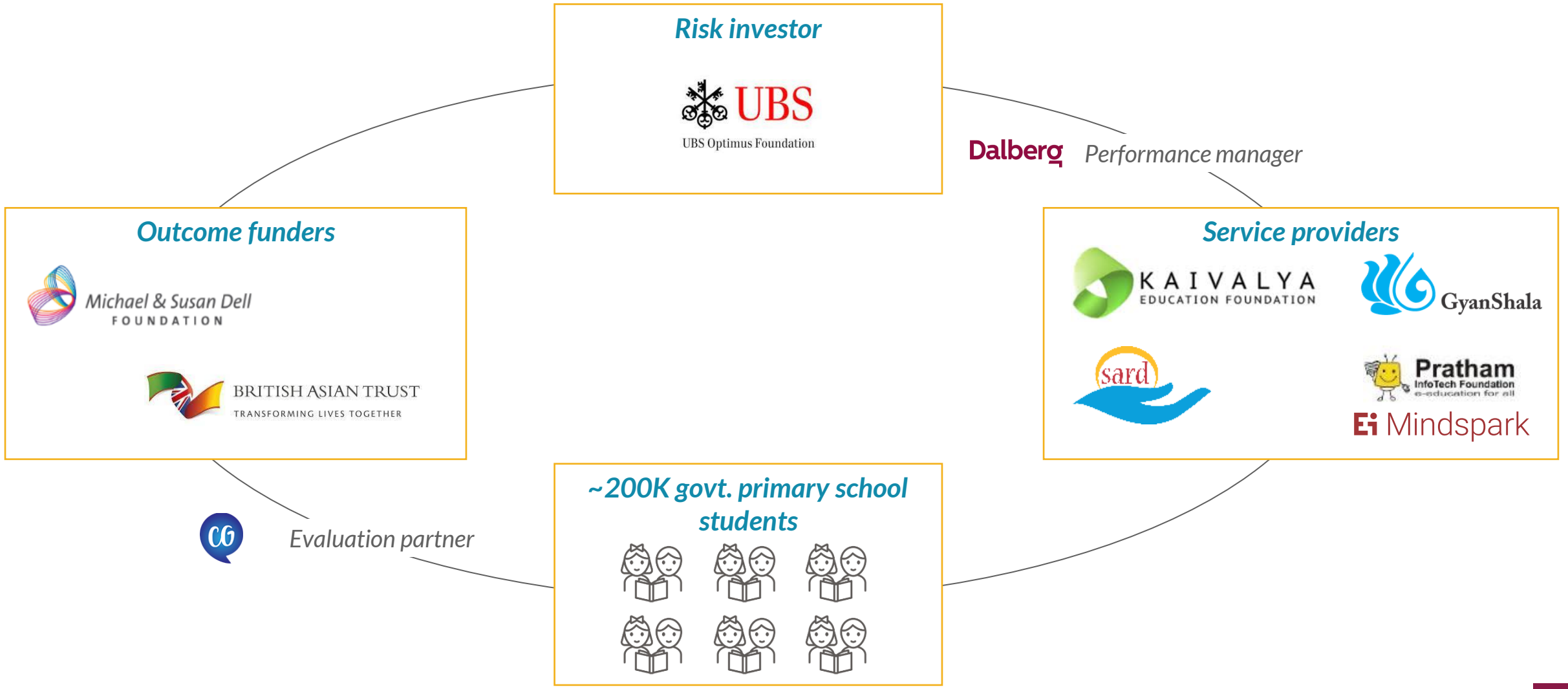
Build outcome-readiness of implementing organizations *(e.g., MEL capabilities, focus on precise execution and program planning etc.)*

Collect cost data and disaggregated data *(e.g., by gender, rural/urban)* **to measure efficiency along with effectiveness**

Fund interventions and evaluations in areas where there are big gaps *(e.g., middle/senior grades, low-capacity states, rural areas)*

Annex

The Quality Education India (QEI) Development Impact Bond (DIB) has delivered outstanding results pre-COVID and has been instrumental in helping students through COVID



Building on our QEI DIB work, we studied 20+ programs to understand the costs to improve learning outcomes in India

Of 30+ programs, we assessed 23 with high quality evidence, which were across 6 intervention types:

Adaptive EdTech

Non-Adaptive EdTech

Remedial Education

School Leadership / Teacher Training

EdTech Enabled Teacher Training & Development

Teaching at the Right Level

Note: We looked at 11 intervention types through 30+ programs. Of these only 6 intervention types had high quality evidence data through 23 programs.

Summary of methodology to compute cost effectiveness

Quality bar for studies / assessments included

- Experimental or quasi-experimental studies with moderate to large sample sizes (500+), either conducted in the last 5 years (~70% of programs) or cited in reputable publications in recent years (~30%)
- Only interventions that showed some level of effectiveness on learning outcomes with statistical significance were included

Estimation method for intervention type cost effectiveness

Cost effectiveness of intervention type (INR per EYOS) = **Average across all programs under intervention type**

$$\frac{\text{Cost of program}^{1}\text{ per student (INR)}}{\text{Effect of program on learning outcomes per student (Equivalent Years of Schooling)}}$$

Overall cost of program, including overheads / indirect costs[2], and adjusted for inflation[3]

Difference between outcomes (available in standard deviations or specific evaluator scales (e.g., CGI)) of intervention groups and comparison groups, converted to EYOS[3]

Notes: 1. Programs where RCT-based evaluation data or quasi-experimental data (e.g. DIB) was available have been included; 2. Took the overall cost of intervention v/s direct programmatic costs as funders / governments will typically need to fund even the overheads of an organization, not just the program; for DIB programs, added a 30% cost for DIB overhead costs (including performance manager, investor returns, advocacy, legal cost etc.); 3. GDP deflator was used to inflate costs to 2019 prices; ~70% programs were recent and did not require inflation; 4. Effects measured in specific evaluator metrics were converted first into S.D.s, and all S.D.s were converted into EYOS using 1 EYOS = 0.6 S.D, determined based on expert interviews
Source: Evidence for Learning, Effect sizes in education: Bigger is better right?, 2020

High quality interventions[1] can deliver an additional year of learning for students in government schools for additional investment of INR 1,000 – INR 3,000 per student

Cost per incremental EYOS (INR)[2,3,4]	Intervention types	When do these interventions work	
1,000-2,000	Teaching at the Right Level	• *Useful when learning levels are diverse; can be effective at delivering outcomes even in low resource settings*	Suitable in low resource settings
	Remedial education	• *Useful to bridge learning gaps for students who are behind track but not for others*	
	Non-adaptive Edtech	• *Useful when implemented as a complement v/s substitute to high quality existing instruction[5], requires presence of supervisor to be effective*	
2,000-3,000	School leadership/teacher training	• *Enables reach to a large set of beneficiaries but requires quality trainers*	Suitable in high resource settings
	Adaptive EdTech	• *Useful when learning levels are diverse, effective even for middle grades; requires a unique device for every 1-2 students*	
?	Ed-tech enabled teacher training and development	• *Limited evidence so far (tried at small scale, little assessment information available), but promising early results*	

Notes: 1. High quality interventions includes programs that have robust evidence from third party assessments and have been tried at scale. Further details on how these interventions can be made more effective can be found on page 12. 2. These overall price ranges do not include costs in outcome-based settings (e.g. impact bonds), since procurements are less common in these settings; 3. Incremental EYOS means additional EYOS attained above that of a control group; 4. Only 3 of 23 programs have costs over INR 3000, and on aggregate, costs of all intervention types are less than INR 3000; 5. In Gyanshala CAL program, of the two programs – one which complemented the public schooling system and one which replaced it, the complementary program showed significant impact on student learnings

Under remote learning contexts, there is need to prioritize teaching of math and advanced concepts

*3 of 4 QEI DIB programs observed **higher learning in Language v/s Math** during COVID-19*

*Students with **higher initial learning levels observed learning losses**, while those with lower initial learning levels gained*

- ✓ Math requires **more structured practice** than Language, which is difficult to do remotely
- ✓ **Lack of informal avenues** through which students can learn (e.g. parents), unlike in language
- ✓ Advanced concepts might **require different/ innovate approaches** to be better taught, retained, and practiced

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The study has implications for governments, funders, implementors and evaluators to ensure remote learning during COVID-19 and as students come back to school

Government

- As students come back to school after closures, prioritize **Teaching at the Right Level** (**TaRL**) & **Adaptive EdTech** interventions to cater to diverse learning levels, and prioritize **Remedial Education** to support students that have fallen behind.
- When considering edtech interventions, high quality **Non-adaptive EdTech** can be cost effective esp. if **includes teacher assistance.** In cases where **laptops/tablets are already available or learning levels are particularly diverse, Adaptive EdTech** can have high returns
- Implement **teacher training and school leadership training programs together as part of NEP priorities**, to improve cost effectiveness
- **Integrate outcomes-focus** into procurement – monitor impact on outcomes, not just completion of activities, and tie some level of funding to improvements in performance of students if possible. Consider providing performance incentives for students/teachers

Funders

(philanthropic, multi-/bi-lateral)

- When allocating funding, **target less than approximately INR 3000 per student per year of learning gains** (i.e., if intervention is ~INR 6000 per student, expect ~2 years of additional equivalent schooling gains for high quality interventions)
- Provide **funding for interventions and research** (e.g. through third party assessments) **in areas where there are big gaps** such as interventions on students in **middle and senior grades, low-capacity states, rural areas, students with disability, gender disaggregation**
- **Deploy outcome-based funding** and **support the 6 intervention types with proven cost effectiveness** in government school contexts

Implementors

- While designing interventions, **target less than approximately INR 3000 per student per year of learning gains**
- While designing interventions, consider **levers for further enhancing cost-effectiveness** (e.g., including teacher assistance for Non-adaptive Edtech, device sharing for Adaptive Edtech etc.)
- During school closures, ensure remote models have **both digital and in-community aspects** for better reach and engagement
- Prioritize both **adapting remote interventions to better teach math concepts,** as well as **focusing on refreshing math concepts** once schools re-open, due to potentially more learning losses in math compared to language
- Conduct more innovation **for improving learning levels of students with already high learning levels, esp. in remote settings**

Evaluators

- While assessing learning outcomes for interventions, **collect and analyse gender-disaggregated data** along with other demographics (e.g. students with disabilities) to understand differentiated impacts
- While assessing learning outcomes for interventions, **also collect cost data to measure efficiency along with effectiveness**

Note and sources: 1) National Initiative for Proficiency in Reading with Understanding and Numeracy; 2) PARAKH stands for Performance Assessment, Review, and Analysis of Knowledge for Holistic Development; 3) National Initiative for School Heads' and Teachers' Holistic Advancement; 4) Strengthening Teaching-Learning and Results for States. Press Bureau of India, 'Highlights of New Education Policy, 2020; MHRD, National Education Policy, 2020; Brookings, India's National Education Policy 2020: A reformist step forward?, 2020; Karthik Muralidharan, Abhijit Singh, India's new National Education Policy: Evidence and challenges, 2020

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