New Vision for Education
Unlocking the Potential of Technology

September, 2015
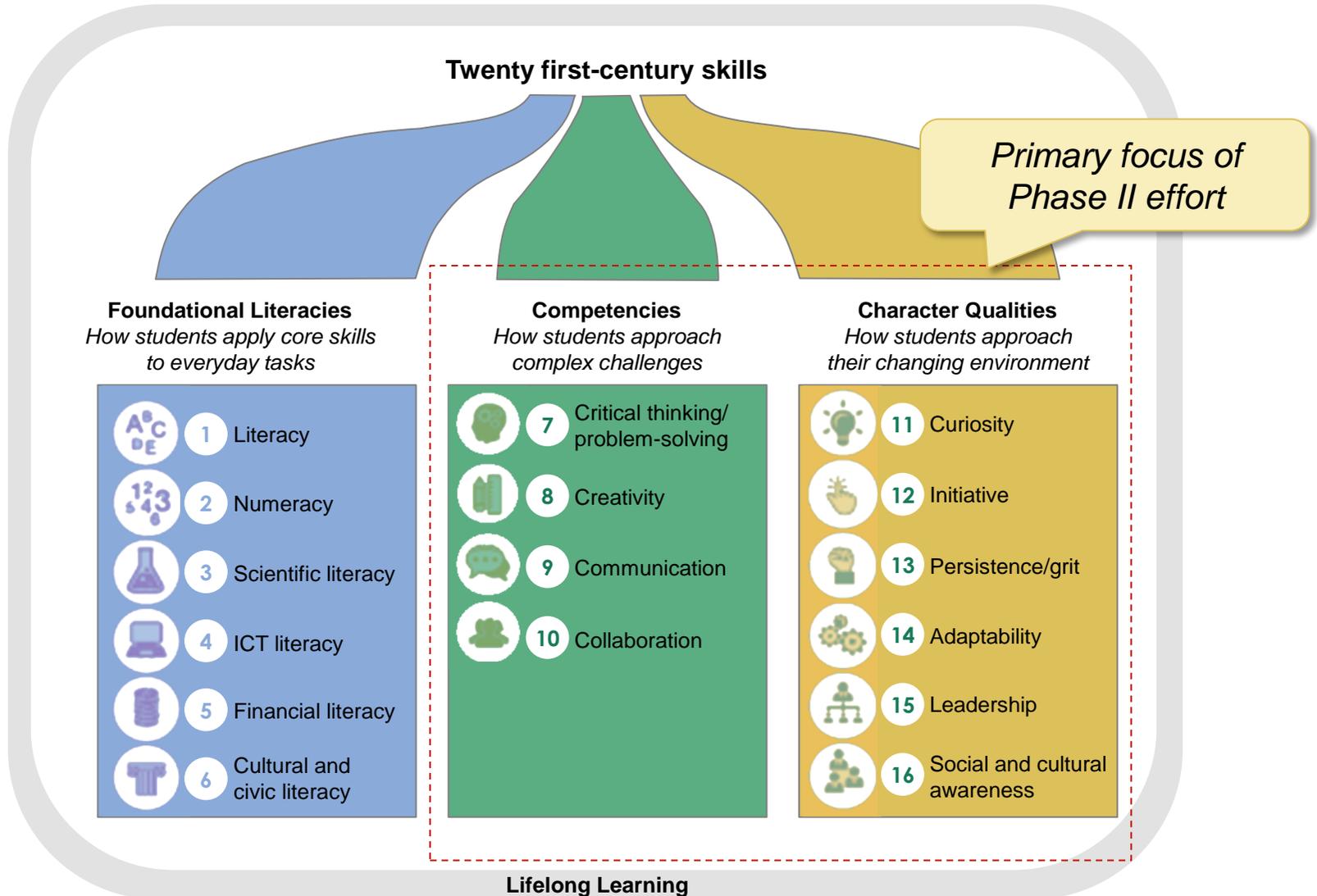
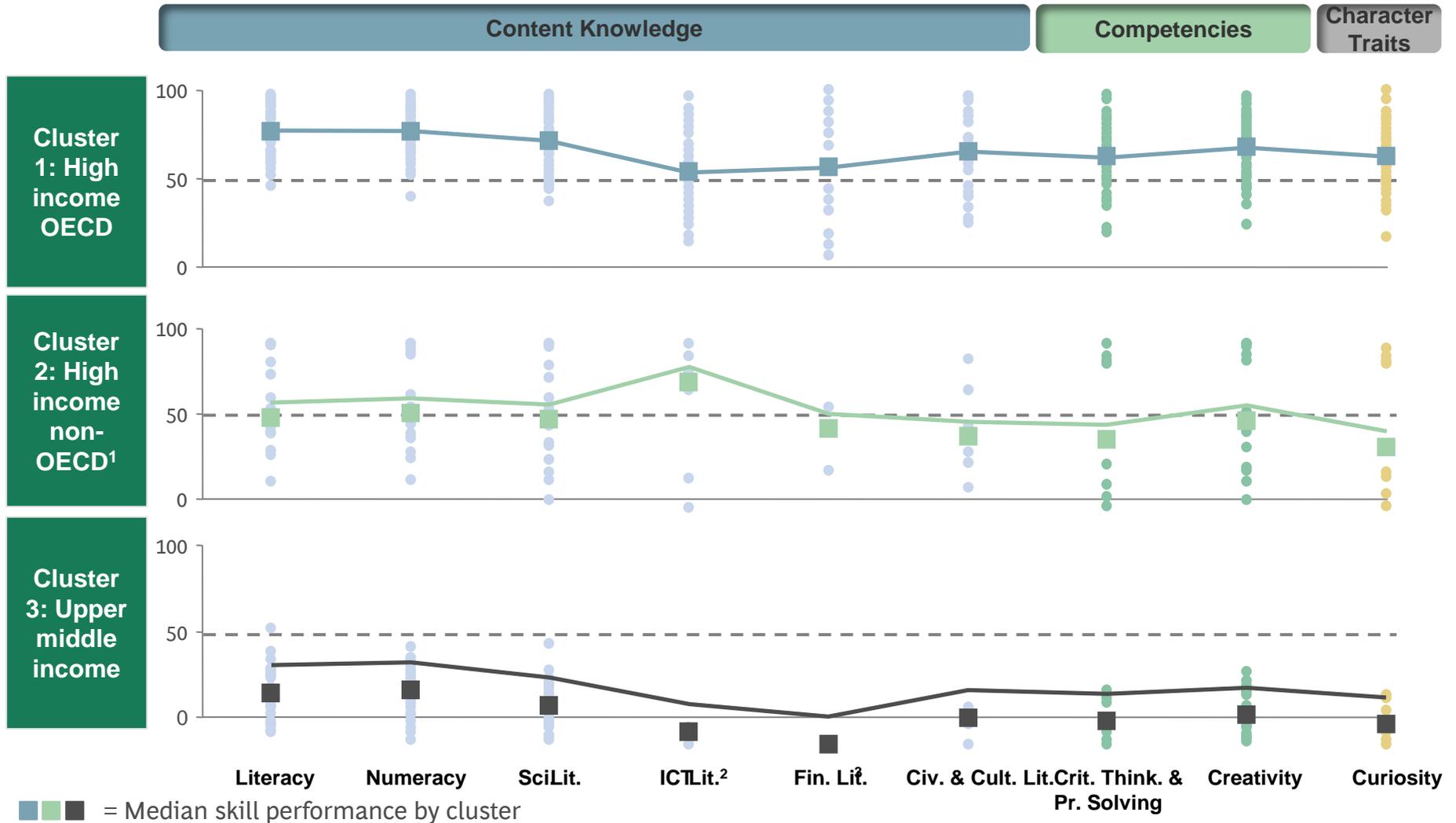THE BOSTON CONSULTING GROUP

Overview of findings and learnings

1 **Most countries have significant performance gaps on 21st century skills; if left unaddressed, skill gaps will limit improvements in economic growth and productivity**

- 16 critical skills identified across foundational literacies, competencies, and character traits, but few skills measurable globally
- Addressing the gaps requires overcoming many unique local contextual factors (e.g., access, human capital, ICT infrastructure, etc.)

2 **Two types of ed tech resources & tools, *Instructional and Institutional*, positioned to address skills gaps, but have yet to realize full potential**

- Most ed tech resources and tools focused on developing foundational literacies, with fewer meaningfully targeting 21st century competencies and character qualities

3 **Only limited numbers of technology enabled K-12 school models -- at scale, with proven academic outcomes, focused on building 21st century skills**

- E.g., Bridge International (Kenya), Innova Schools (Peru), and Summit (US)

4 **To successfully scale and transfer these types of models across markets, early lessons include :**

- *Standardizing* operating models, *customizing* to the local context, *data system*s to drive fidelity of implementation, stable sources of *funding*

5 **We also anticipate continued technology evolution in the education space will help address skill gaps....**

- Examples include: Big data and AI, gamification and simulation, curated and tagged open source content,....

6 **But, multi-stakeholder approach and creation of a supportive ecosystem required to exploit full potential**

Students require 16 skills for the twenty first century

Foundational Literacies, Competencies, and Character Qualities

Twenty first-century skills

Primary focus of Phase II effort

Foundational Literacies
How students apply core skills to everyday tasks

1	Literacy
2	Numeracy
3	Scientific literacy
4	ICT literacy
5	Financial literacy
6	Cultural and civic literacy

Competencies
How students approach complex challenges

7	Critical thinking/problem-solving
8	Creativity
9	Communication
10	Collaboration

Character Qualities
How students approach their changing environment

11	Curiosity
12	Initiative
13	Persistence/grit
14	Adaptability
15	Leadership
16	Social and cultural awareness

Lifelong Learning

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Wide dispersion of performance between countries and across skills

= Median skill performance by cluster

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Technology is allowing for multiple innovations

Find creative solutions to fundamental challenges in many countries, such as a lack of well-trained teachers and broadly accessible technology infrastructure

Make education available to a broader audience at a much lower cost or provide higher quality instruction at the same price

Enable easier scaling up of promising models within local markets and the transfer of best practices across markets in ways that can be sustained over the long term

Gain insight into how and what students learn in real time by taking advantage of the greater variety, volume and velocity of data

Increase teacher productivity, freeing up valuable time from tasks such as grading and testing, which can be used for differentiated teaching of higher order skills

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Most instructional technologies are focused on developing foundational literacies

	Personalized and adaptive content and curricula	Open educational resources	Communication and collaboration tools	Interactive simulations and games
Character Qualities				• Games for change
Competencies				• Glass Lab • Games for change • Molecular Workbench • Explore Learning • Tynker
Foundational Literacies	• Knewton • Dreambox • Read180 • Khan Academy • Smart Sparrow	• Betterlesson • LearnZillion • Curriki Geometry • NetTrekker • Fishtree • Pearson • McGraw-Hill • Houghton Mifflin	• Google apps for education • OneNote • Facebook • Ponder	• Explore learning • Glass Lab • STMATH

Additional tools are strongly needed to develop competencies and character qualities

Note: Ilustrative sample of resources and tools featured
London Knowledge Lab 24Sept15 vf.pptx

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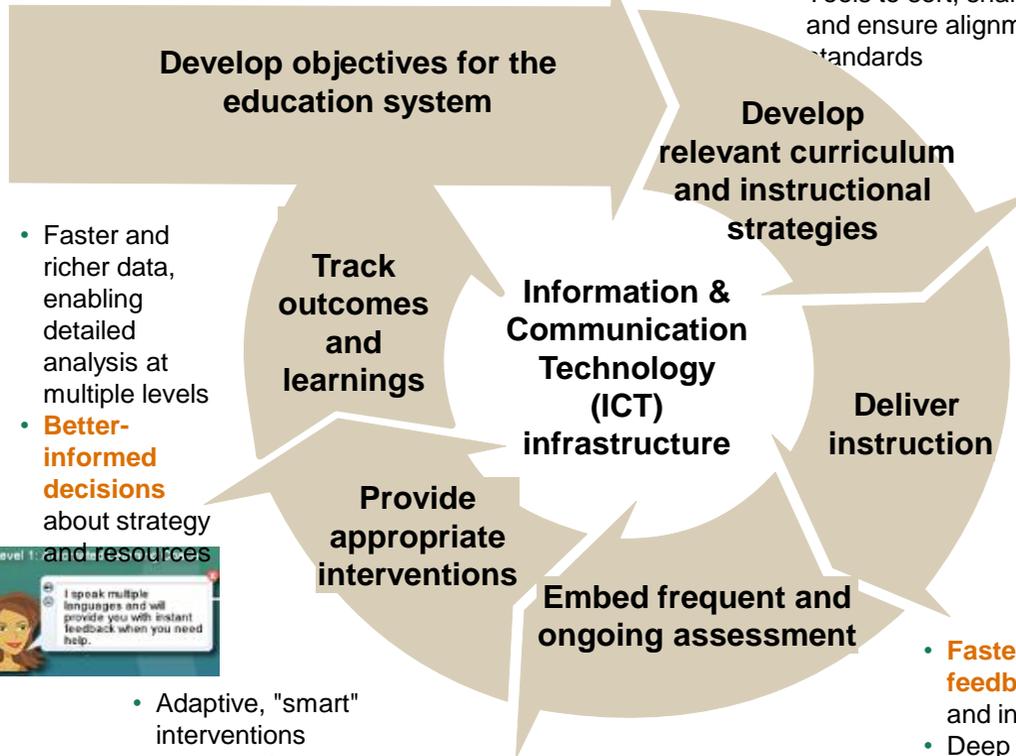
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Technology enables a closed loop instructional system

- Building XXI century skills: critical thinking, collaboration, and synthesis

- Abundant **high-quality content**
- Timely, relevant, modular, multimedia
- Tools to sort, share, validate, and ensure alignment with standards

Develop objectives for the education system

Develop relevant curriculum and instructional strategies

Information & Communication Technology (ICT) infrastructure

Track outcomes and learnings

Deliver instruction

Provide appropriate interventions

Embed frequent and ongoing assessment

- Faster and richer data, enabling detailed analysis at multiple levels
- **Better-informed decisions** about strategy and resources

- Global reach, **personalized learning**
- Emergence of new, technology-enabled learning models: **blended learning, flipped classrooms**
- Multiple channels for interaction and collaboration

- Adaptive, "smart" interventions
- **Personalized approach**
- Automated and live

- **Faster and richer feedback** to students and instructors
- Deep insight into learning gaps, enabling **personalized approach**

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School networks – Bridge Int'l (Kenya) (I/II)

Example: Bridge International Academies in Kenya

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Example: Bridge International Academies in Kenya

Mission
- Provide a high-quality education to low-income families

Student outcomes tracked using assessment data

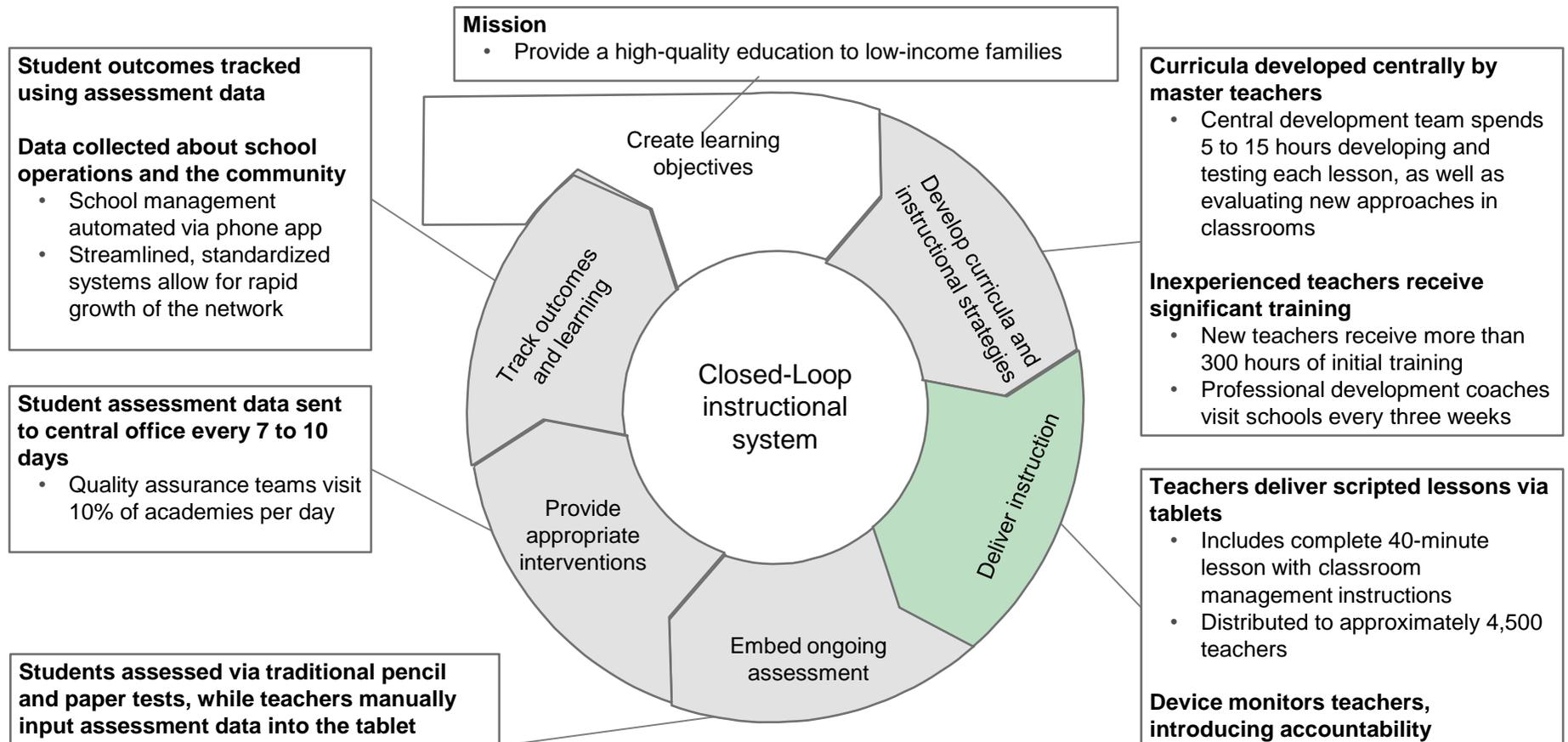**Data collected about school operations and the community**
- School management automated via phone app
- Streamlined, standardized systems allow for rapid growth of the network

Student assessment data sent to central office every 7 to 10 days
- Quality assurance teams visit 10% of academies per day

Students assessed via traditional pencil and paper tests, while teachers manually input assessment data into the tablet

Closed-Loop instructional system

- Create learning objectives
- Develop curricula and instructional strategies
- Deliver instruction
- Embed ongoing assessment
- Provide appropriate interventions
- Track outcomes and learning

Curricula developed centrally by master teachers
- Central development team spends 5 to 15 hours developing and testing each lesson, as well as evaluating new approaches in classrooms

Inexperienced teachers receive significant training
- New teachers receive more than 300 hours of initial training
- Professional development coaches visit schools every three weeks

Teachers deliver scripted lessons via tablets
- Includes complete 40-minute lesson with classroom management instructions
- Distributed to approximately 4,500 teachers

Device monitors teachers, introducing accountability

Level of educational technology deployment: ■ High ■ Med ■ Low □ N/A

Early learnings to successfully scale and transfer models across markets

Standardize with focus on highest leverage points

Necessary to standardize key features of instructional and operating models to protect against local variability

- Well-defined instructional models mitigate teacher quality risks

- Standardized operational systems require less school leadership development

Customize model to local context

Success requires adapting content to new context
- In addition to language translation, content must "culturally translated"
- Content must be re-aligned for local standards and student needs

Significant adaptations may be required due to local ICT infrastructure levels
- E.g., pre-loaded "hotspots" for schools without connectivity

Teacher training may need to be intensified based on availability of skilled teachers

Utilize data to drive fidelity of implementation

Robust data systems can ensure fidelity of implementation as well as enable intervention

Investment in tools and systems to analyze fit between model and new environments
- Conduct extensive home surveys, GPS tagging each (Bridge Int'l)

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Calls for action: multi-stakeholder approach required to prepare students for 21st century

Policy makers

- Assess & re-align educational systems & standards to 21st century skills
- Create environment supporting innovation, both from schools & ed-tech players

Educators

- Develop and promote teacher tech expertise
- Evaluate technology for effective adoption throughout the closed-loop given unique country contexts

Private Sector & Ed-tech Providers

- Develop products to fill gaps in 21st century skill measurement & instruction

Funds & Alliances

- Invest in innovation incubators for ed-tech products and solutions in developing world
- Provide resourcing and advice to pilot tech-enabled models for competencies and character traits development

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