Executive Summary

March 2019

Scaling Access & Impact

Realizing the Power of EdTech

OMIDYAR NETWORK

Acknowledgments

This report was produced by Omidyar Network's Education initiative, whose mission is to unlock human potential through learning by catalyzing people, ideas, and systems – so every individual thrives and contributes in a changing and interdependent world. Omidyar Network's team included Eliza Erikson, Erin Simmons, Rebecca Hankin, and Eshanthi Ranasinghe.

This report was prepared by RTI International. The lead author was Sarah Pouezevara (RTI), and case study authors were RTI consultants Ignacio Jara Valdivia (Chile), Mike Michalec (China), Talitha Amalia (Indonesia), and Sybille Fleischmann (USA). Additional technical writing and analysis were contributed by Carmen Strigel, Kang Chang, and Luis Crouch.

The data underpinning this report come from interviews, surveys, site visits, and desk research by a team of researchers and EdTech practitioners at Omidyar Network and RTI International, drawing on local expertise in each of the case study countries. The team conducted more than 100 interviews with teachers, school principals, education administrators, policymakers, and EdTech experts and entrepreneurs throughout September–December 2018. A separately available country report for each case study country provides further detail on the findings and data sources for each country snapshot, in addition to the comprehensive descriptions found in the full global report.

To receive the detailed global and country reports, please email EdTech@omidyar.com.

About Omidyar Network

Omidyar Network is a philanthropic investment firm that invests in and helps scale innovative organizations to catalyze economic and social change. Established in 2004 by eBay founder Pierre Omidyar and his wife Pam, the organization has committed more than $1.3 billion to for-profit companies and nonprofit organizations across multiple initiatives, including: Digital Identity, Education, Emerging Tech, Financial Inclusion, Governance & Citizen Engagement, and Property Rights.

To learn more, visit **www.omidyar.com**, and follow on Twitter **@omidyarnetwork** #PositiveReturns.

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Realizing the Power of EdTech

There are 250 million learners around the world who have finished their schooling – yet aren't able to read or write well and lack the skills they will need to succeed in the 21st century. Additionally, around the globe are classrooms with tens of thousands of teachers struggling to close that educational gap – but lacking the access to tools and resources that will enable them to succeed.

The Brookings Institute described a 100-year gap,[1] the century it will take for the world's poor children to achieve educational parity with the wealthy at today's pace. Neither our world nor those learners can wait that long: We must find ways to close that gap quickly and efficiently, to allow all learners, educators, and educational systems to realize their full potential.

In pursuit of this goal, Omidyar Network's Education initiative began in 2009 to invest in education innovations with such "leapfrog" potential and in 2014, specifically focused some of our investments on interventions powered by technology. Omidyar Network has since invested more than US $150 million in promising global innovations in education across four continents.

Our efforts have been inspired by public, private, and social sector education leaders, including bold entrepreneurs, who are unleashing the human potential of a generation of learners through "Equitable EdTech." We have witnessed that Equitable EdTech models can bring students from several years behind to on grade level, while also supporting teachers and shifting the norm from teacher-centered instruction to student-centered learning. We are therefore hopeful that the power of technology, when thoughtfully employed, can serve as a great equalizer in delivering quality education.

By enabling ubiquitous access and personalization, Equitable EdTech can close the gap for students while also empowering teachers to be more effective, especially when there is lack of access to high-quality schools, high-quality teacher training, rigorous curriculum, or appropriate interventions. Additionally, recent evidence demonstrates that these models can be both highly impactful and cost-effective.[2]

Omidyar Network defines Equitable EdTech as the promise of technology to be a great equalizer in improving quality education for learners in need.

However, our experience has also taught us that **scaling and sustaining Equitable EdTech requires much more than eager learners and motivated educators**. It demands the alignment of multiple actors across sectors in local ecosystems. This report examines such ecosystems and how they combine the efforts of government and education leaders, investors and philanthropists, and innovators and entrepreneurs.

Our hope is that the country-system examples we examined, including Chile, China, Indonesia, and the United States, will inspire these actors to collaborate on creating the enabling conditions for equitable impact of technology at scale in their regions. We also hope that the ecosystem model presented in this report will spark debate as well as attract new partners. In that spirit, we invite your reflections, thoughts, and questions as part of an ongoing commitment to unlocking human potential for all through learning.

To join the conversation, email **EdTech@omidyar.com** and follow **#EquitableEdTech**.

Foundational Principles

1. Belief in **the importance of education equity** for all individuals and societies to thrive.
2. Evidence that **EdTech can have an impact** on learning outcomes.
3. Understanding that **technology is necessary but not sufficient**.
4. Hope, that **in an ideal market, only effective or relevant products go to scale**.
5. Recognition that **even good products can be implemented poorly**.
6. Appreciation that **teachers' choices matter**.
7. Experience to know that **scale does not guarantee sustainability**.
8. Awareness that **EdTech is not one-size-fits-all**.

EdTech at Scale: An Ecosystem Approach

Countries around the world are increasingly recognizing the need to improve student learning outcomes as well as the power of technology to support that goal. That recognition has driven education leaders to undertake a range of efforts to integrate EdTech into their education systems, schools, and classrooms.

While this is an important opportunity for EdTech to improve teaching and learning at scale, what is far more complex and critical is to ensure that EdTech can **advance equitable, high-quality education for all learners** regardless of where they live, how much their family earns, or where they study.

This report summarizes the findings of a study commissioned by Omidyar Network to evaluate what might be necessary to enable, scale, and sustain Equitable EdTech on a national basis. We examined initiatives in Chile, China, Indonesia, and the United States of America that helped to scale access and use of EdTech across a broad spectrum of students. We used those learnings to identify common themes and codify a model.

Specifically, we sought to:

- Identify the events, actions, and initiatives across public, private, and social sectors that have contributed to the equitable scaling of EdTech in these countries; and
- Inform a public policy and investing agenda by determining the highest-impact interventions that might contribute to EdTech scaling in other countries.

Based on these four common categories, we then developed a new model for Equitable EdTech scaling which is shown in the **EdTech Ecosystem Model (Exhibit 1)** and consists of 16 components within an EdTech ecosystem. A healthy ecosystem that is capable of delivering impact equitably and at scale will include most, if not all, of these elements.

By adopting an ecosystem model, we are able to transition from a product-oriented approach designed to solve an individual user's problem to a systems-oriented approach that seeks to "enable the potential that is inside the ecosystem."[3] As such, strategic investment in ecosystem drivers, rather than restricting investments to individual products or actors, can ignite both local innovation and the networks and conditions needed to scale them.

This study builds on previous education innovation literature, filling what we saw as an important and practical gap: describing what is necessary to scale and sustain EdTech to advance equitable, high-quality education.

Interested in reading further? We recommend:

- Existing guidelines that describe necessary conditions for the effective integration of technology in classrooms or government policy (e.g., ICT-in-Education Toolkit developed by infoDev, UNESCO, AED and Knowledge Enterprise).[4]
- Other ecosystem frameworks that describe EdTech innovations and entrepreneurship (e.g., Navitas Ventures' "Global EdTech Ecosystems 1.0: Connecting the World of Education Technology").[5]
- Other models that describe scaling and sustaining digital services, including in other sectors (e.g., Digital Impact Alliance's "Beyond Scale" guidelines).[6]
- Prior research that discusses the core ingredients of scaling education innovations (e.g., Brookings' "Millions Learning: Scaling Up Quality Education in Developing Countries").[7]

Guide to Using This Report

FOR GOVERNMENT STAKEHOLDERS. This ecosystem model describes an ideal state against which governments and ministries of education (MoEs) can review and assess the degree to which ecosystem components in their control have been optimized to support equitable and transformational changes that are sustainable over time.

FOR EDUCATION INNOVATORS. This ecosystem model emphasizes that through advocacy, capacity building, and transparent communication, education entrepreneurs and innovators can be active in generating demand for high-quality, affordable EdTech for all that is explicitly designed for all learners, especially those often neglected by the traditional system.

FOR PRIVATE AND PHILANTHROPIC CAPITAL. This ecosystem model provides perspective to highlight initiatives that, with their support, could unleash equitable access to EdTech.

ISABEL, EDUCATOR, CHILE

Isabel, a primary school teacher in Chile, was among the first cohort of educators to make use of computer labs when they first appeared at her school years ago. Today, she's excited that her municipality is testing tablet-based technology for students with behavioral difficulties. Isabel and her fellow teachers know that there are many educational technology resources available for both teachers and students, but they don't always have the time or skills to select them. Isabel is thankful for the role the government has played in enabling technology access.

XINYAN, LEARNER, CHINA

Xinyan, a student in rural China, is preparing for her high school finishing exam and looks forward to studying business in college. To help her studies, she takes advantage of many EdTech tools that are available. Her parents subscribed Xinyan to a mobile app that provides her with an engaging, adaptive platform for learning math and features connections to live tutors across China. At school, Xinyan learns physics, one day per week, from a virtual instructor in Beijing – an opportunity available only because of technology.

EXHIBIT 1

Four Categories of Scaling Equitable EdTech: EdTech Ecosystem Model

EDTECH SUPPLY AND BUSINESS MODELS. To support innovation and ensure equitable distribution of EdTech products and services, entrepreneurs (whether for-profit or nonprofit) need viable business models that produce consistent revenues, particularly in the early stages. These business models are sustained in a variety of ways—by consumer purchasing power, government procurement or grant programs, or private investment.

ENABLING INFRASTRUCTURE. There must be an information and communications technology backbone sufficient to support the distribution and use of EdTech. This includes basic electricity, telecommunications infrastructure, and broadband internet access as well as certain networked administrative platforms and EdTech hardware access inside and outside of schools.

EDUCATION POLICY AND STRATEGY. Scaling EdTech requires a clear vision and strategy that is articulated at the highest level of government and is backed both by durable legislation and equitable education financing. In addition, by setting standards for academic achievement, government incentivizes innovation at the school level, including with EdTech.

HUMAN CAPACITY. Technology alone can't solve the problem – a variety of stakeholders must collaborate to bring this vision to life. Key stakeholders include nongovernment coalitions, educators, and a range of transformational leaders at several levels of the system.

EXHIBIT 1

Four Categories of Scaling Equitable EdTech: EdTech Ecosystem Model

EDTECH SUPPLY AND BUSINESS MODELS

1.4 Mutually beneficial, cross-industry, public and private sector partnerships support access to, use of, and impact of EdTech products and services.

1.3 EdTech entrepreneurs have access to capital through appropriate business models, allowing them to survive and thrive.

1.2 There is an objective and simple way for users to select products that meet their needs.

1.1 Businesses have a cost-efficient marketing, sales, and distribution mechanism for reaching customers, whether business to government (B2G) or business to consumer (B2C).

4.4 There are multiple and varied ways of communicating product effectiveness, research, evaluation, and user experience.

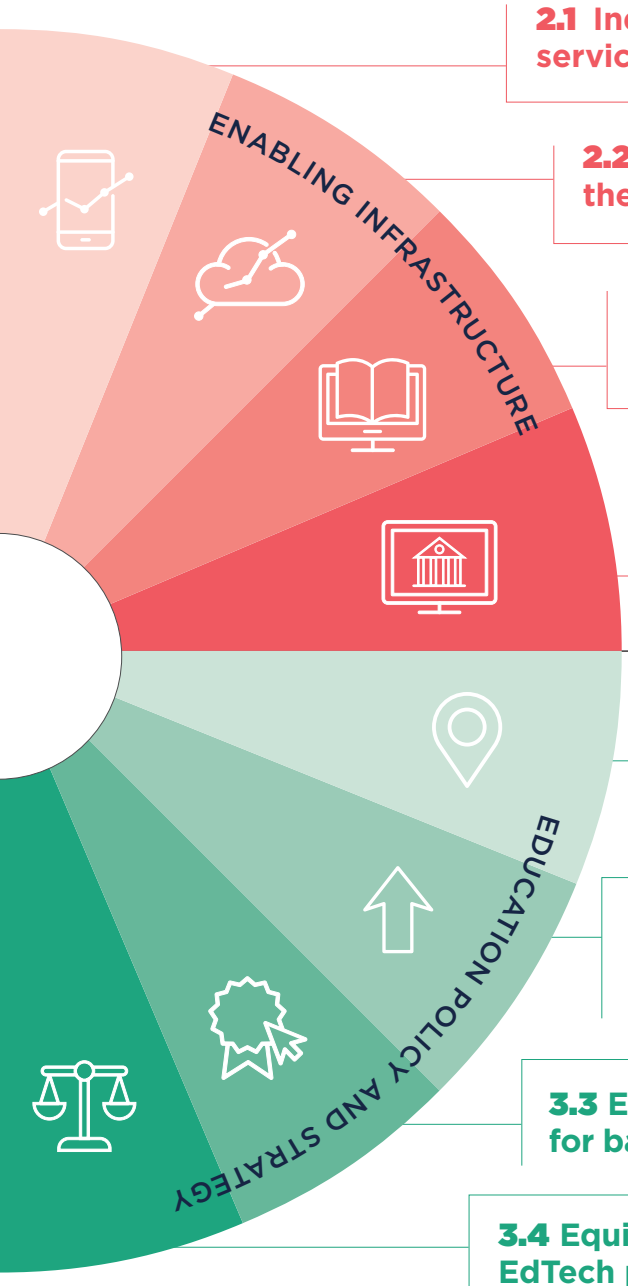
4.3 Nongovernment coalitions and advocacy groups support quality EdTech scale-up.

4.2 There are sufficient ongoing and equitable opportunities for stakeholder capacity building.

4.1 Local visionary leaders emerge to coalesce stakeholders around a bold common goal.

HUMAN CAPACITY

ENABLING INFRASTRUCTURE



2.1 Individuals are using personal devices and mobile services at home and in the community.

2.2 There is universal access to internet throughout the population through wireless, wired, or other means.

2.3 There are school-specific networking infrastructure initiatives for affordable, reliable school connectivity.

2.4 eGovernment (GovTech) initiatives connect schools through administrative platforms (i.e., EMIS, eProcurement) whose infrastructure can be harnessed for EdTech.

3.1 A clear vision and strategy for EdTech from the highest level of the education system serves as a collective roadmap.

3.2 Performance standards set high expectations that incentivize improved performance and legitimize EdTech content development.

3.3 Education curriculum and policy include expectations for basic technology literacy for all teachers and students.

3.4 Equitable opportunity sources of funding exist for EdTech purchases and implementation support.

EDUCATION POLICY AND STRATEGY

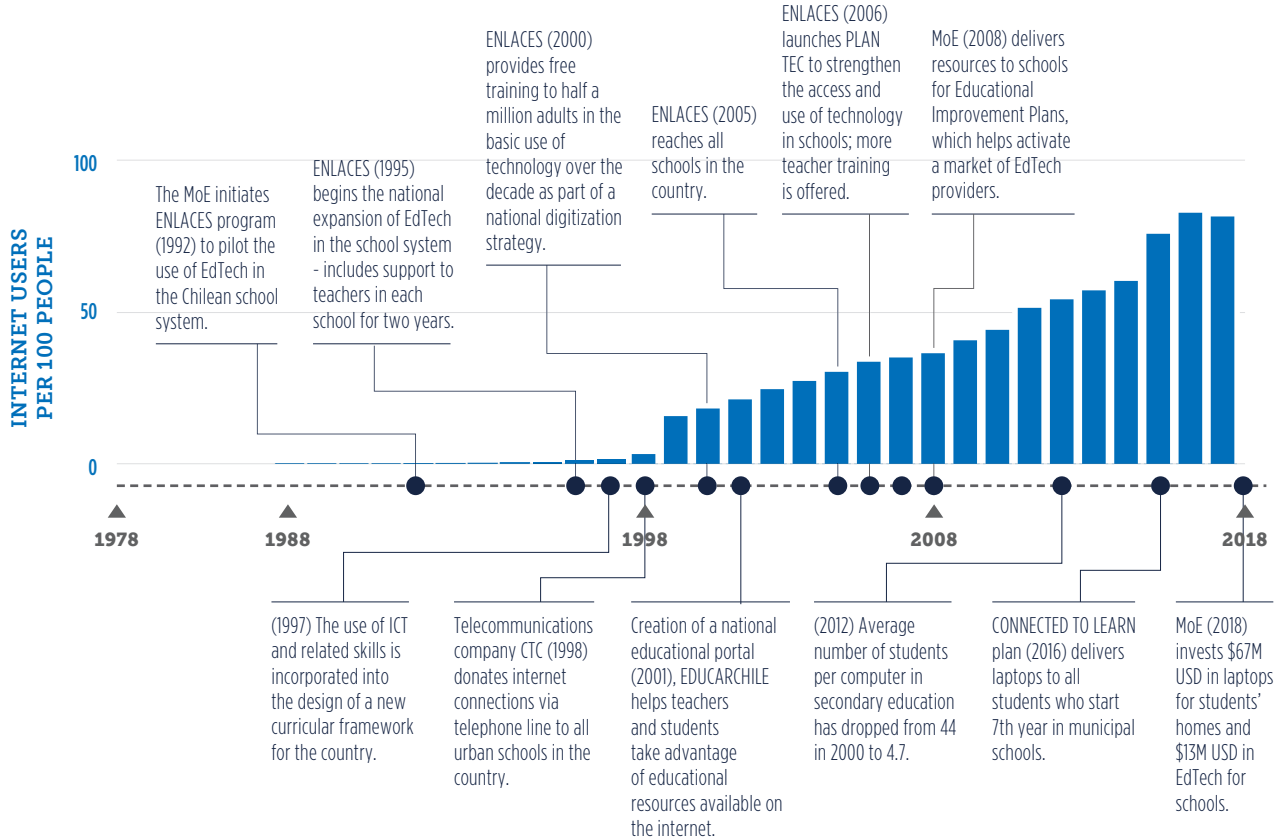
EXHIBIT 2

EdTech Country Snapshots

Chile

Twenty-five years of sustained policy at the Ministry of Education (MoE) in Chile has ensured school-based access to digital resources, predominantly in computer labs facilitated by teachers. More progressive innovations are emerging gradually, but the EdTech market is small, about US $50 million per year, similar to the annual ministry investment in textbooks for all children in all subjects. While government platforms exist for schools to procure EdTech, no objective source of product review and research currently helps schools make informed decisions, and equity in student learning impact remains elusive.

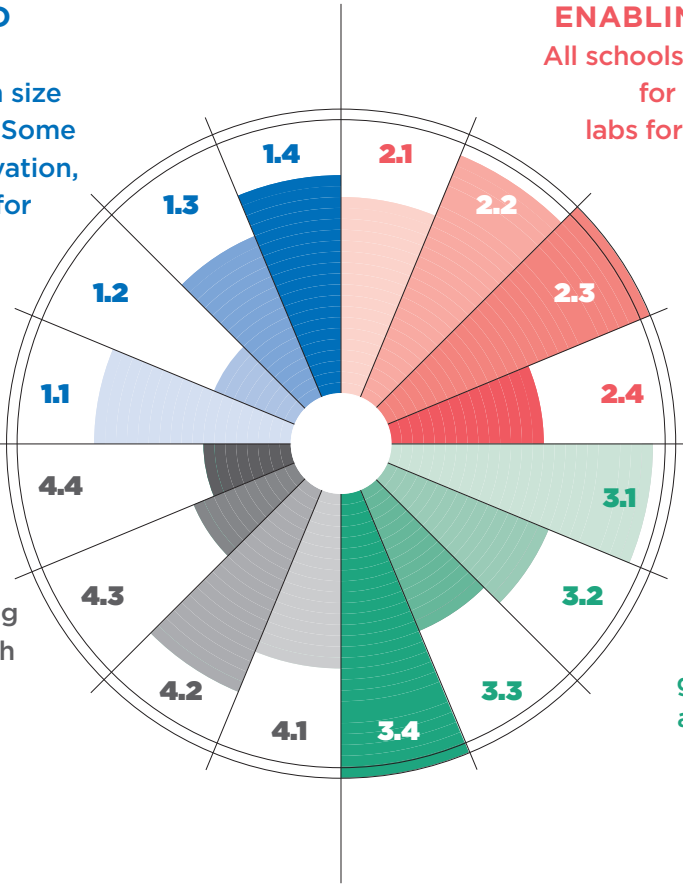
Timeline



Ecosystem Profile

EDTECH SUPPLY AND BUSINESS MODEL
EdTech market similar in size to the textbook market. Some efforts to incubate innovation, yet little private capital for new business ventures.

ENABLING INFRASTRUCTURE
All schools have digital infrastructure for learning, mostly computer labs for digital learning resources. Administrative platforms are widespread.



HUMAN CAPACITY
Although attention has been paid to developing teacher skills along with hardware connectivity, transformative pedagogical use remains limited.

EDUCATION POLICY AND STRATEGY
Growth of EdTech largely driven by central government, introduced in a gradual planned manner. Education standards and value placed on basic digital literacy.

Key Takeaways

INSPIRATION: EdTech can scale through programs that deliberately combine hardware with implementation support and teacher training.

REPLICATION: Sustainable, long-term, top-down vision implemented with university networks or partners who specialize in adaptive management, active learning, and knowledge sharing.

EXPLORATION: How to move more rapidly from technology literacy to EdTech for transformative, personalized learning.

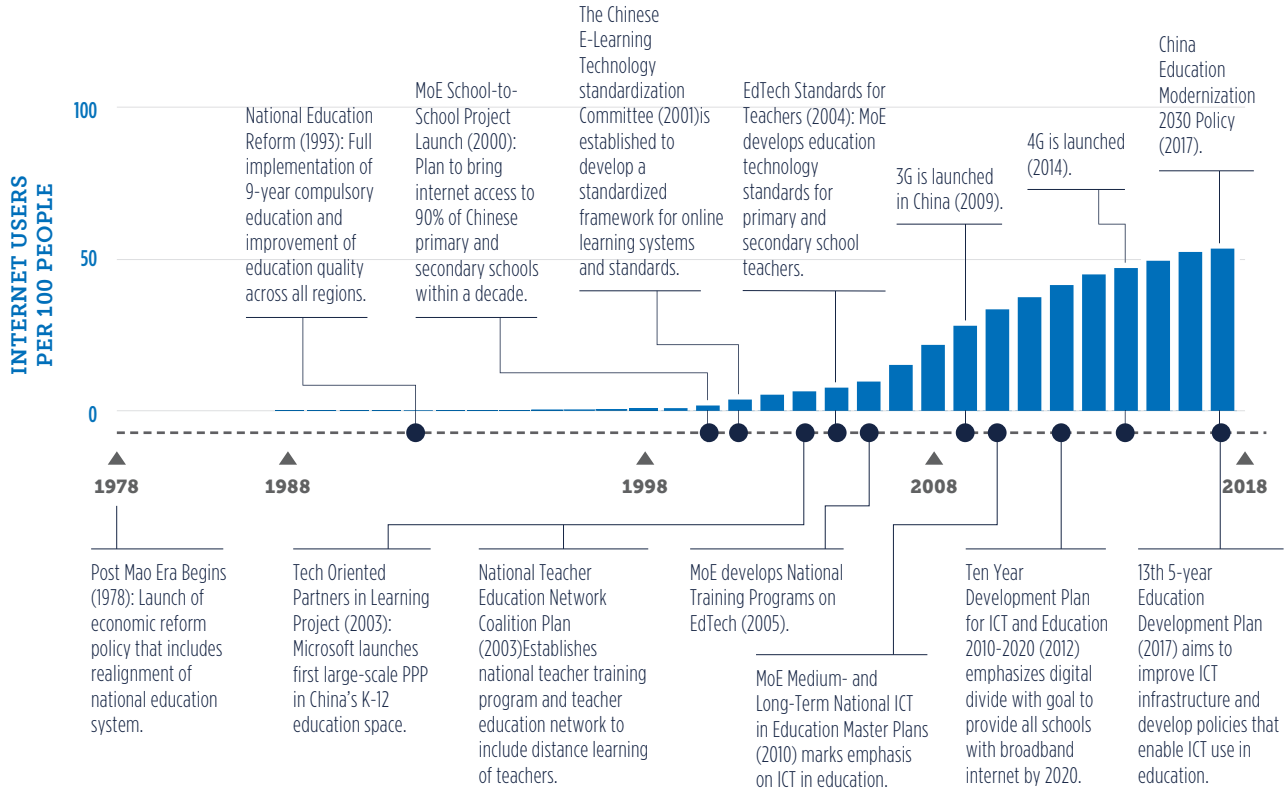
EXHIBIT 2

EdTech Country Snapshots

China

National policies continue to direct funding toward increasing access to technology infrastructure. Currently, issues of access and equity are a key focus of government initiatives. In the private sector, the afterschool tutoring and test prep market totals US $50 billion. China's increasingly affluent middle class is prioritizing education and is driven by the Gaokao university entrance exam. To date, private investment in the EdTech market in China surpassed US $4.4 billion, with most EdTech development occurring in Beijing and Shanghai. Business-to-government EdTech sales remain highly dependent on relationships with key school administrators. Overall, the market is expected to continue to mature, and sub-sector differentiation is anticipated to increase.

Timeline



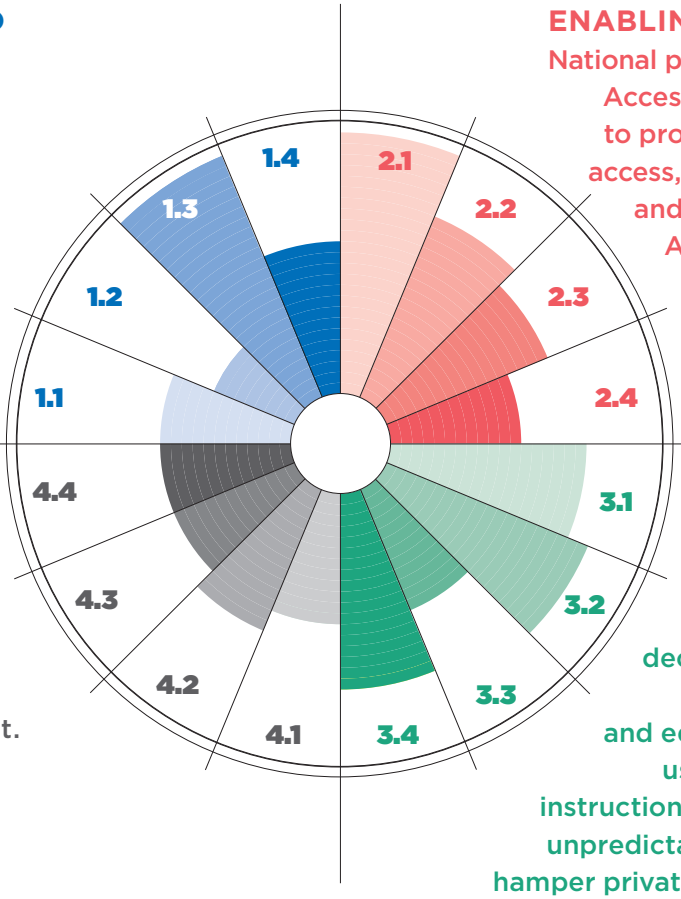
Ecosystem Profile

EDTECH SUPPLY AND BUSINESS MODEL

Private investment in EdTech is strong, surpassing $4.4 billion in 2018. Many parents are willing to spend a significant percentage of their income on supplemental education services.

ENABLING INFRASTRUCTURE

National programs—Three Universal Access and Two Platforms—aim to provide universal broadband access, online learning resources, and a site for education data. Advanced mobile payment infrastructure allows for the rapid adoption of mobile online learning services.



HUMAN CAPACITY

Several government initiatives are focused on teacher training, including the National Teacher Training Project. However, urban/rural inequities in teacher capabilities remain.

EDUCATION POLICY AND STRATEGY

Over the past two decades, the focus has been on education access and equity, including enhanced use of technology-enabled instruction. However, restrictive and unpredictable regulations will likely hamper private participation in EdTech.

Key Takeaways

INSPIRATION: There are business models for EdTech entrepreneurs that leverage widespread access to mobile internet and performance pressure generated by cultural values and academic standards.

REPLICATION: Virtual and blended models of instruction enable content and instruction to reach rural and traditionally underserved schools with equal access to quality content.

EXPLORATION: How to move beyond use of technology for test preparation and ensure that the power of EdTech is being leveraged for transformative learning.

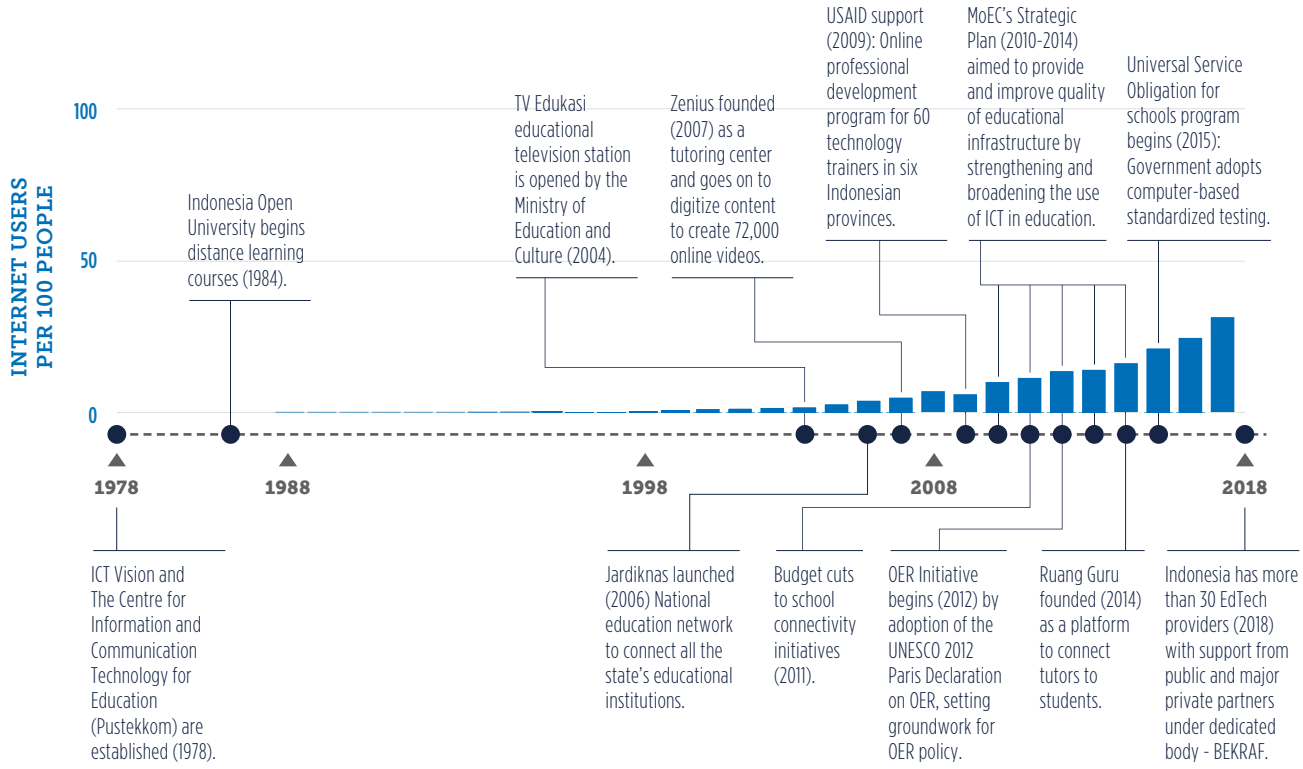
EXHIBIT 2

EdTech Country Snapshots

Indonesia

In Indonesia, EdTech is predominantly scaling through business-to-consumer mobile-phone based apps for extracurricular use. Three factors enable this rapid expansion: Investment in EdTech, increasingly widespread access to technological infrastructure (e.g., mobile phones and social media), and a policy-friendly EdTech environment. While EdTech in Indonesia has grown rapidly, the current challenge facing the country is improving quality education equitably across the country and closing the performance gap among schools. More independent research and evaluation is needed to determine the effects of EdTech on quality improvement.

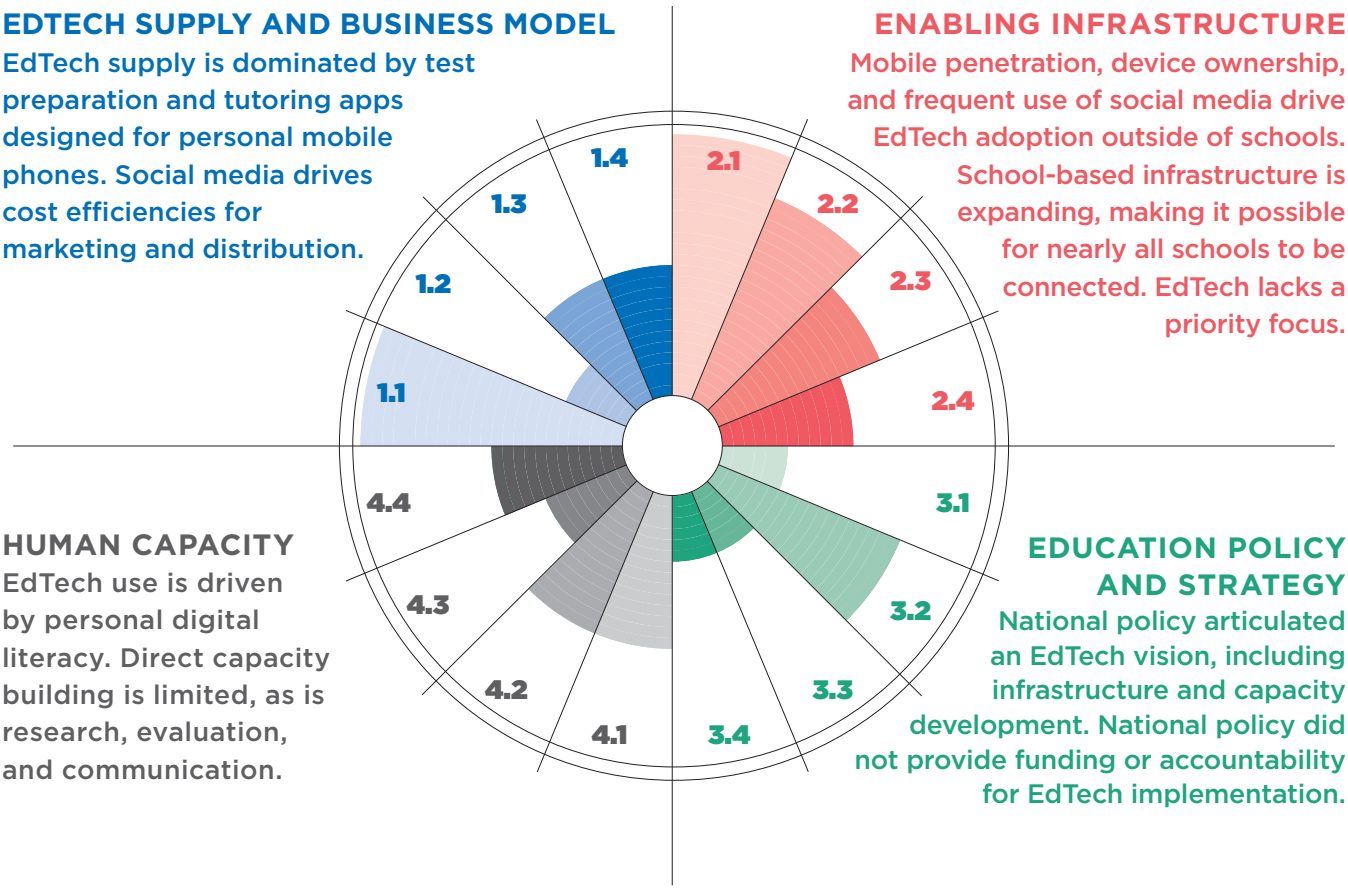
Timeline



Ecosystem Profile

EDTECH SUPPLY AND BUSINESS MODEL
EdTech supply is dominated by test preparation and tutoring apps designed for personal mobile phones. Social media drives cost efficiencies for marketing and distribution.

ENABLING INFRASTRUCTURE
Mobile penetration, device ownership, and frequent use of social media drive EdTech adoption outside of schools. School-based infrastructure is expanding, making it possible for nearly all schools to be connected. EdTech lacks a priority focus.



HUMAN CAPACITY
EdTech use is driven by personal digital literacy. Direct capacity building is limited, as is research, evaluation, and communication.

EDUCATION POLICY AND STRATEGY
National policy articulated an EdTech vision, including infrastructure and capacity development. National policy did not provide funding or accountability for EdTech implementation.

Key Takeaways

INSPIRATION: Even in large countries with challenging geography, near universal access to the internet can be within reach of all learners.

REPLICATION: National agencies specializing in technology in education can be instrumental in creating and disseminating content across multiple channels.

EXPLORATION: How to harness the enthusiasm for mobile apps, social media, and EdTech outside of the classroom and channel it toward transformative use in schools.

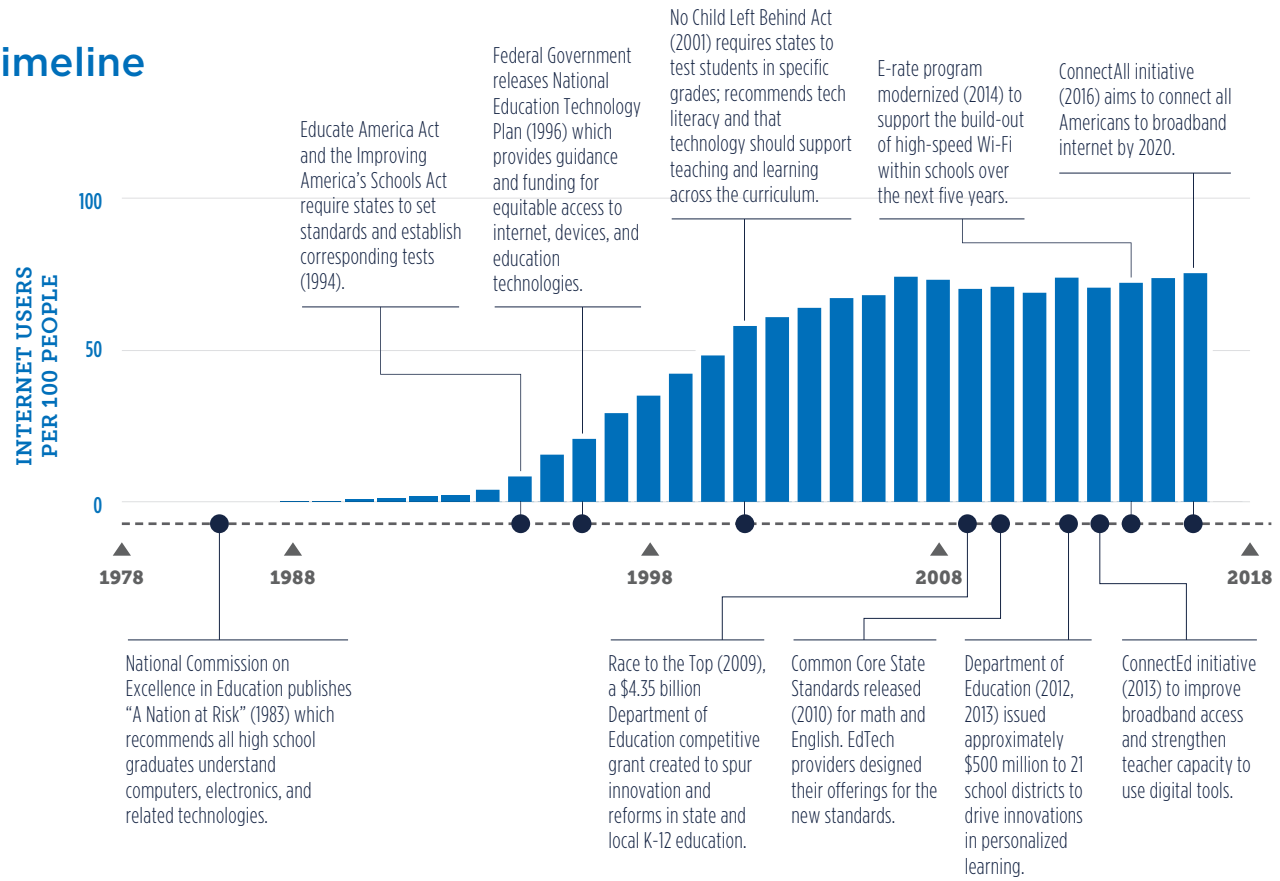
EXHIBIT 2

EdTech Country Snapshots

United States of America

More than 35 years of high-level policy initiatives backed by funding have resulted in large-scale access to EdTech infrastructure. Direct marketing by major US hardware manufacturers and software companies has accelerated the growth of one-to-one laptop programs and content adoption, but effectiveness varies greatly. Transformative and equitable impact is more apparent in virtual learning programs that leverage widespread internet access and bridge home and school learning. This includes teacher professional development and mentoring platforms, and open educational resources. The EdTech market is estimated to have reached over US $9 billion with products increasingly catering to students' individual needs.

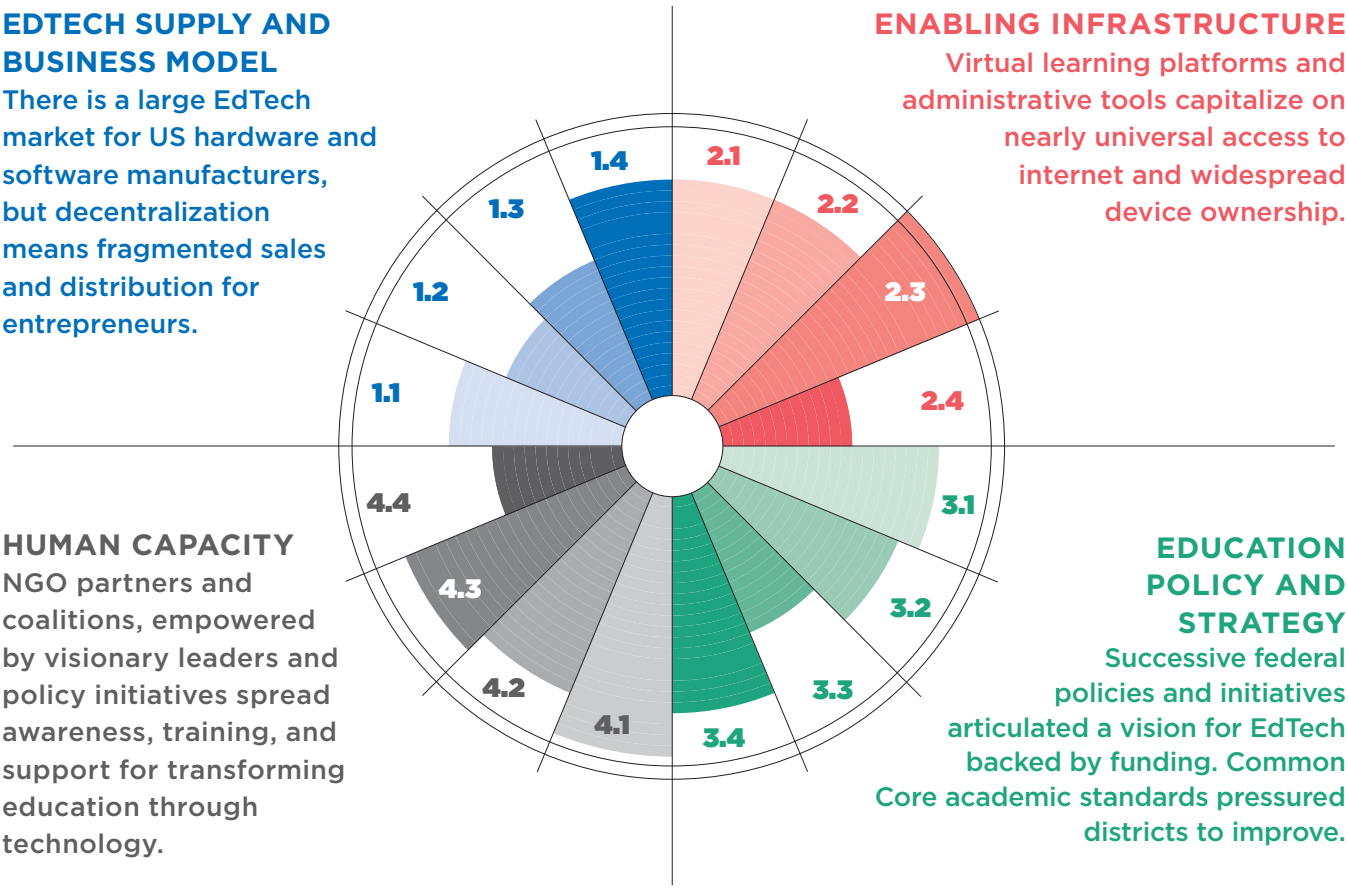
Timeline



Ecosystem Profile

EDTECH SUPPLY AND BUSINESS MODEL
There is a large EdTech market for US hardware and software manufacturers, but decentralization means fragmented sales and distribution for entrepreneurs.

ENABLING INFRASTRUCTURE
Virtual learning platforms and administrative tools capitalize on nearly universal access to internet and widespread device ownership.



HUMAN CAPACITY
NGO partners and coalitions, empowered by visionary leaders and policy initiatives spread awareness, training, and support for transforming education through technology.

EDUCATION POLICY AND STRATEGY
Successive federal policies and initiatives articulated a vision for EdTech backed by funding. Common Core academic standards pressured districts to improve.

Key Takeaways

INSPIRATION: A government strategy that is put into law, backed by funding, and supported by multisectoral commissions, can be a powerful roadmap for collective action.

REPLICATION: Advocacy organizations, coalitions, and nonprofit organizations participating alongside educators and school administration can help to carry out an EdTech vision.

EXPLORATION: How to measure the impact of EdTech at scale, other than using standardized tests or isolated pilots.

Ecosystem in Action: Applying the Model Across Countries

There is no "one-size-fits-all" approach to scaling EdTech, but rather several routes that can lead to meaningful access and effective use. One of the exciting strengths of this model is that it applies across very different country experiences and journeys to scale EdTech in an equitable manner. This variety we hope will enable many countries and stakeholders to find relevant and practical recommendations that they can pursue.

Exhibit 2 presents findings for each of the case study countries, including country-specific EdTech-scaling ecosystem profiles. We also show a timeline of the important policies and initiatives that drove EdTech scaling against the backdrop of each country's expanding internet access. Finally, for each country, we highlight an inspiring practice, a replicable practice, and a practice to explore further.

As shown in the country snapshots (**Exhibit 2**), Chile and the USA each have a long history of access to EdTech, largely via school-based computer labs and classroom devices and provision of basic technology skills to teachers and students. In contrast, China and Indonesia rely heavily on more recent advancements in mobile technology and affordable mobile data, allowing them to create access at home and promote the large-scale use of EdTech for learning and test preparation. Each of the four countries has reached significant scale in access to hardware and products, positioning educators and learners to realize the promise of effective use and impact at scale.

However, in cases where EdTech reached scale as a result of one-size-fits-all, direct-to-consumer products, we found that learners were not exposed to the truly transformative effects that are, in turn, aligned with strong pedagogy and curriculum. The distinction between simple access to products and opportunities for their transformative use is addressed in the next section on Ecosystem Change.

The four case study countries – Chile, China, Indonesia, and the USA – represent vastly different population sizes, education system characteristics, and economic indicators. **Exhibit 4** provides an overview of relevant case study country demographics and indicators.

Methodology

The four case studies vary in terms of the types of EdTech that scaled successfully along with the key drivers in the ecosystem. We weighted each factor of the system relative to the degree to which it was influential in the equitable scaling of EdTech in each country. This weighting was developed via an iterative approach by country-specific experts who each gathered data from dozens of EdTech stakeholders.

EdTech in Use: Translating Access into Impact

Access, effective use, and impact are three important principles to consider for scaling of Equitable EdTech. Access includes the access to technology or technology product; effective use includes the use of that technology or product; and impact includes the positive, transformative benefits from the use of that technology or product. Each of these points can be translated into phases of a country's journey toward scaled impact on learning.

Often, the term "scale-up" is oversimplified to mean an increase in size or quantity, usually through an expanded number of users. In the case of EdTech, scaling up usually means increasing access to the exact same product, service, or model to more users to improve economies of scale. Yet, one of the most common misconceptions in EdTech is assuming that scaling a promising product in one context will naturally result in its effective, impactful use in another.

To achieve transformative and equitable use of EdTech at scale, what needs to go to scale is not a specific product or service but, instead, the related impact from its effective use. Thus, **effective scale-up that creates impact might require considerable redesign of EdTech products, services, and models of implementation to better meet the needs of diverse users and their contexts**.

In the Ecosystem Change Model (**Exhibit 3**), we positioned each of the four countries – Chile, China, Indonesia, and the USA – based on their progress through the key three phases of equitable adoption: scaling (1) access, (2) use, and (3) impact. The intention is not to make an absolute judgment, but rather to highlight that **using EdTech to advance equitable, high-quality education is a process that may take years of aligned efforts across the four main ecosystem categories**.

Moreover, the model emphasizes that access to EdTech products is not sufficient to have an impact on learning; the latter depends on the way in which EdTech is integrated into the learning process according to the needs of the learner and the moves of the teacher. Ultimately, we believe that the strongest EdTech ecosystems will produce a steeper curve, indicating more rapid transition from technology access to transformative impact.

> "I've seen schools that have really limited resources in terms of tech tools, but with really forward-thinking leadership and professional development, they can do amazing things."
>
> – USA, Consortium on School Networking

Realizing Equitable EdTech impact at scale is a journey. All four countries have made major strides in this direction, and their current positions in the model are neither inherently good nor bad. Common components driving the scale-up of EdTech use and, subsequently, impact across countries include:

- Strategic government actions to support infrastructure for accessing EdTech.
- Public and private investment in EdTech product and service creation and businesses.
- A strong focus on capacity building and teacher development.
- Continuous evaluation and communication of EdTech effectiveness.
- Ongoing innovation in EdTech business models that includes tailoring EdTech to new contexts and diverse populations, and combinations of free and paid offerings.

EdTech Supply and Business Models Enrich the Ecosystem

China is an example of a booming EdTech industry, but all countries we studied show that there are successful business models that can bring high-quality content to rural or otherwise marginalized populations. In Chile and the USA, EdTech companies often bundle product sales with services in teacher training. As one Chilean entrepreneur explained: "I do not really sell products, but models that include teacher action. That is my currency and my advantage." In the USA, schools are often test beds for EdTech research and development in exchange for hardware, software, and training. Government, entrepreneurs, and educators alike spread EdTech through the strength of their ideas, leadership, and unrelenting support for a targeted vision of EdTech use.

EXHIBIT 3

Ecosystem Change Model

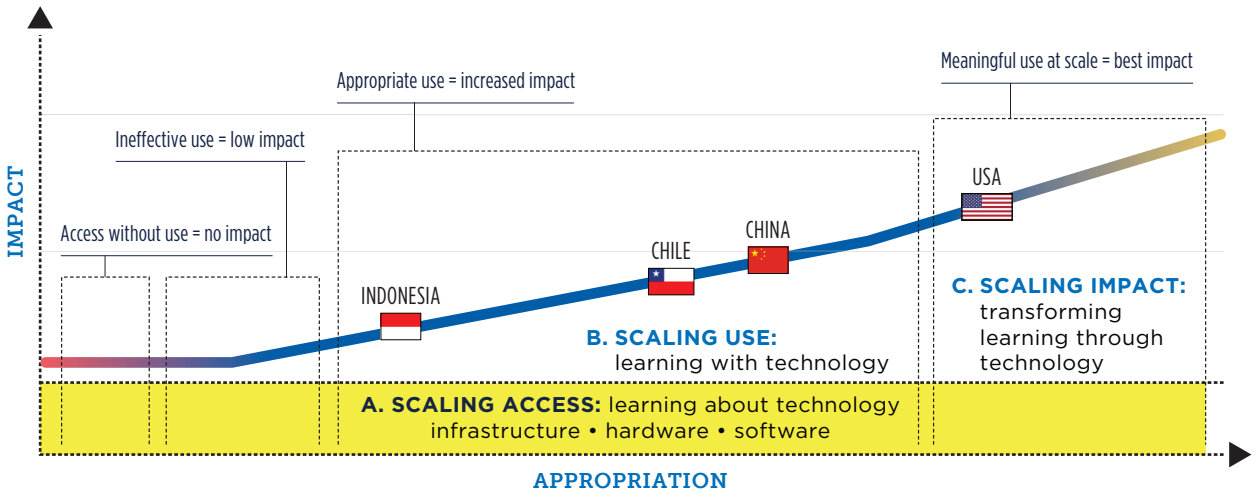


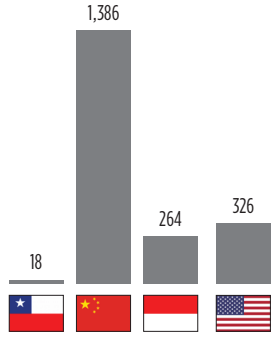
EXHIBIT 4

Case Study Demographics

Chile China Indonesia USA

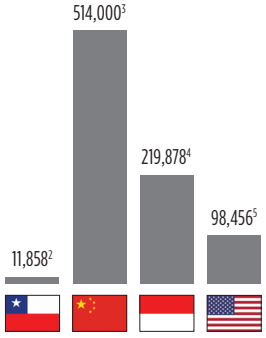
POPULATION[1]

Millions



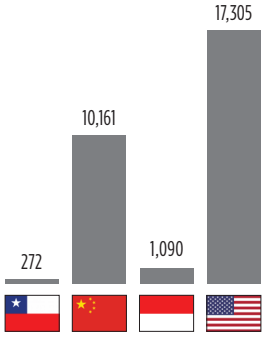
SIZE OF EDUCATION SYSTEM

Number of schools



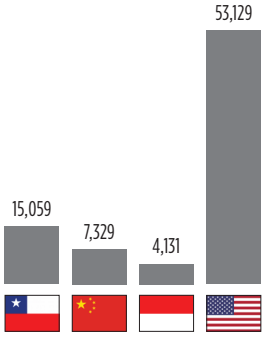
GDP[6]

Constant 2010 USD (in billions)



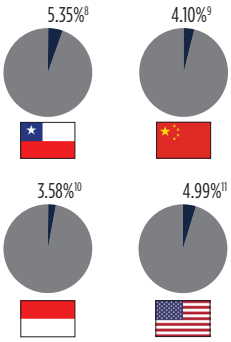
GDP PER CAPITA[7]

Constant 2010 USD



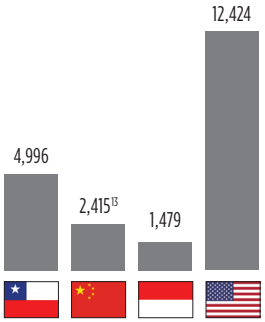
EDUCATION EXPENDITURE

Percent of GDP



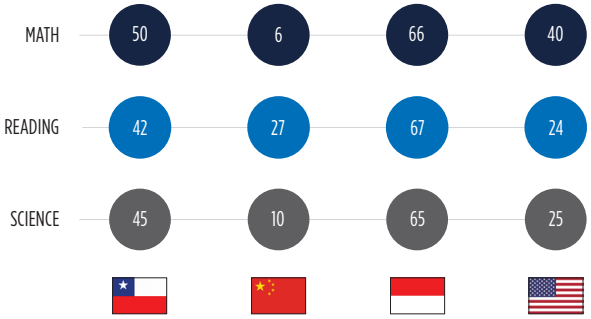
PER PUPIL EDUCATION EXPENDITURE[12]

Primary to post secondary, non-tertiay, annual USD



2015 PISA RANKING[14]

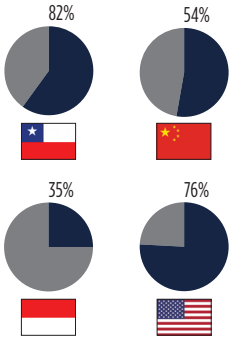
Countries are ranked relative to each other with 1 representing the highest performer and 73 representing the lowest



EDUCATION OUTCOMES INEQUALITY RATIO[15]

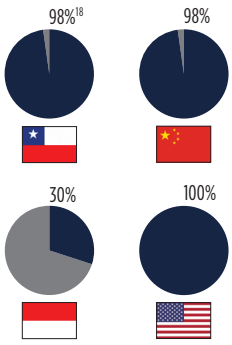
INDIVIDUALS USING THE INTERNET[16]

Percent of population



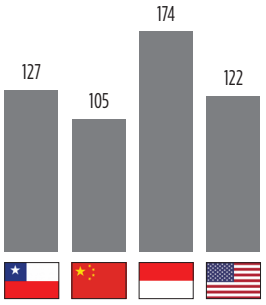
LOWER SECONDARY SCHOOLS WITH ACCESS TO INTERNET[17]

For pedagogical purposes



MOBILE CELLULAR SUBSCRIPTIONS[19]

Per 100 people



Interventions with Impact: Recommendations for Scaling EdTech

As we have seen through this report, multiple actors – including government stakeholders, education innovators and investors, and philanthropic capital – need to be aligned across sectors in local ecosystems in order for EdTech to be both scalable and sustainable. Based on the findings across Chile, China, Indonesia, and the United States, there are a number of high-impact interventions that we recommend and merit support from stakeholders across the system.

Foster a Good Data Culture

Lay the groundwork for data interoperability and minimum common standards for innovations.

- Sponsor prototyping of new cost-effective innovations in hardware and connectivity.
- Establish minimum standards for data interoperability – defined as the seamless, secure, and controlled exchange of data between applications – based on a clear vision and expectations for how EdTech will be used. Note: Given it is important to not impede innovation in the early stages of EdTech ecosystem development, interoperability should be prioritized at a more mature stage.
- Include standards for data protection, use, and privacy.
- Sponsor dialogue and problem-solving to address the tension between hardware and software innovation and standardization.

Example

In the USA, established EdTech providers secured multi-year contracts, with extensions only being available from the provider. Connection to other systems of these proprietary models could be costly, time-consuming, imperfect, or impossible. Lack of interoperability also made data analysis across systems difficult and can hinder the implementation of personalized learning. This situation is changing as districts are increasingly requesting interoperability from EdTech providers. Advocacy groups such as Project Unicorn are focused on advocacy and public education about data interoperability. Government education officials should be aware of total cost of ownership issues related to data and hardware interoperability and strive to set standards for investment to optimize.

Enable Business Models

Identify, support, and promote sustainable and responsible EdTech business models.

- Develop public goods and platforms that facilitate government and school purchase of EdTech solutions at scale.
- Identify creative, multi-year financing strategies that help bridge startup gaps; incentivize designing products for smaller, underserved markets.
- Help operationalize longer-term partnerships with schools, combining sales and training in order to have more predictable long-term revenue.

Example

In Chile's open EdTech marketplace, procurement is facilitated through a central online platform managed by the central government where schools can directly choose and purchase from approved suppliers. When EdTech companies achieve large sales either through business-to-government or business-to-consumer models, including "freemium" licensing, it is more likely they will have funds to invest in further content development for smaller markets.

Invest in Champions and Leaders

Build upstream capacity in EdTech leadership, strategic planning, implementation, and evaluation.

- Strengthen school or government leadership.
- Provide funding and training in EdTech implementation support and evaluation, including continuous, rapid-cycle assessment of EdTech use.
- Build capacity in financial planning and negotiation skills with EdTech partners relating to equitable, affordable licensing, subscriptions, and support.

Example

EdTech can flourish where leaders have practical skills to promote and implement relevant agendas. In Kenya, presidential leadership drove the expansion of eGovernment services which has laid groundwork for the school-based integration of EdTech. Each year, 400 IT graduates are mentored through the private sector and government under the Presidential Digital Talent Programme. With private sector investment, awardees are placed in internships with specialized training, certification, and mentorship, while contributing to public-sector EdTech and eGovernment development. At the end of the program, a culminating innovation showcase awards EdTech and GovTech products that have the best potential for impact and business returns.

Sustain Change with Human Capacity and Long-Term Policy

Promote the importance of pairing infrastructure investments with interventions in policy, business models, and capacity building.

- Support and advocate for strategic, long-term planning based on a vision for EdTech use.
- Support advocacy groups and cross-sector coalitions to develop action plans and monitoring systems that address all four categories of the ecosystem.

While a basic IT backbone of electricity and internet might be a minimum standard for every school, only long-term policies and sustained human capacity-building efforts will enable that infrastructure to be transformative.

Example

In 2014, Los Angeles Unified School District, the second-largest public school district in the USA, ended a controversial one-to-one laptop program designed to equip 650,000 students with iPads and custom digital curriculum. Soon after the contract was awarded, it was discontinued: Devices broke; students hacked the system to bypass the security filters; teachers were ill prepared to integrate the iPads with their classroom instruction, and the digital curriculum was incomplete. iPads without keyboards proved ill-suited to the needs of secondary school students to use the technology for writing. The effort is an example of what can happen when large technology purchases are made without sufficient input, coordination, piloting, and research to ensure that investments are aligned to specific needs and use cases. Other experiences from the USA, documented by Project RED, for example, demonstrate better models of one-to-one technology programs.

Create Objective Evidence and Platforms for Selection

Stimulate demand for quality EdTech by sponsoring rigorous evidence and platforms for selecting quality products or services.

- Establish a rigorous standards-based product and service catalogue for objective review of products and services.[8]
- Invest in communication platforms that share evidence in accessible ways with relevant stakeholders, such as school and district managers.
- Provide objective evaluation of EdTech products; sponsor events to disseminate good practice; and facilitate communities of practice.

Example

In the case study countries, there were no perfect examples of quality platforms or certification labels that help objectively select EdTech based on evidence – each had certain limitations. For example, Chile's Mercado Publico only updates with new suppliers every four years; in the USA EdTech product catalogues are either too complex for many teachers to use, not objective or comprehensive enough, or not based on credible user reviews (which often have more weight than experimental evidence or product marketing).

Develop Long-Term Advocates in the System

Support NGO advocacy groups and think tanks that can play essential, specialized roles in the EdTech ecosystem over time. They can:

- Establish and disseminate best practice guidelines on important issues such as privacy and data security in EdTech.
- Develop consumer protection guidelines.
- Develop and recommend policies and regulations.
- Support development of implementation guidelines and rubrics.
- Develop and deliver training for teachers, administrators, IT support, and EdTech leaders.

Example

Any ecosystem involves multiple entities acting together to achieve a common goal. Across countries, nongovernmental organizations (NGOs) have been instrumental actors in supporting use and maintenance of EdTech. In Chile, the Enlaces network established school infrastructure and use at scale through government and university collaboration. In the USA, NGOs, empowered through government initiatives like "Future Ready Schools" and ConnectEd, supported schools with grant writing, training, content, implementation support, self-assessment rubrics, and evaluations. In Indonesia and China, NGOs and business coalitions spread awareness and advocated for effective EdTech use. Across case study countries, partnerships between telecom companies, hardware manufacturers, content publishers, and educators have contributed to the scaling of EdTech access.

Top Three Actions for Government Stakeholders

1. **Establish, communicate, and sustain a vision for transformative, Equitable EdTech use.**

   - Create a long-term vision, embodied in written policy, and (if applicable) supported by strong legislation so that the vision can survive changes in administrations. It should be a well-branded initiative that can be easily communicated to and by parents and school leaders.
   - Describe what technology is recommended, for whom, why, and how it should be implemented.
   - Ensure the vision aligns with funding opportunities for implementation. Also ensure it is integrated into teacher preparation programs and is updated regularly based on evidence of past practice, horizon scanning of current local and global innovations, and future thinking.

2. **Support local innovation through early stage risk capital.**

   - Encourage local innovations to support the development of products and services that are more relevant in the environment.
   - Support EdTech businesses at the early stages through seed funding, innovation hubs, competitions, and partnerships. The majority of countries that have scaled equitable access to EdTech have had this government support.

3. **Build and maintain infrastructure.**

   - Continue to strive for universal access to basic infrastructure, including internet connectivity. Although connectivity is not always necessary during product use, it has the benefit of creating opportunities for teacher professional development around product use, more efficient distribution and support for EdTech products, research and evaluation, product selection, and opportunities for more transformative use of EdTech through communication and collaboration among learners.
   - Explore Universal Service Funds, block grants, flexible decentralized funding, and public-private partnerships with telecom companies. These examples are strategies used outside of basic government funding for infrastructure.

Top Three Actions for Entrepreneurs and Education Innovators

1. **Raise awareness around EdTech benefits.**

   - Advocate for evidence-based government policy, strategy, and resource allocation benefiting appropriate EdTech.
   - Bridge the gaps between users, decentralized education authorities, and central policy to build common understanding of policies that help or prevent EdTech scale-up.
   - Engage in visioning exercises, planning, resource allocation, and major procurement decisions.

2. **Build the capacity among stakeholders.**

   - Engage teachers and other stakeholders in understanding and implementing models of transformative use of technology (as opposed to simple replacement of regular resources with digital ones).
   - Provide training on adapting and adjusting implementation models to the needs of particular groups in the form of organized training, virtual communities of practice, or guidelines for implementation and performance monitoring.

3. **Focus on research and communications.**

   - Produce unbiased product reviews and regular communication about the realities of EdTech implementation – both positive and negative.
   - Sponsor or participate in school-based product pilots or engage in rigorous experimental research and evaluation. Ensure findings feed back into advocacy and capacity-building efforts.

Top Three Actions for Private and Philanthropic Capital

1. **Support the growth of innovators, coalitions, and advocacy organizations.**

   - Invest through philanthropic funding, strategic grants, impact investment, or other incentivized financing. Investment is essential for innovations to grow and sustain through the challenging early phases.

2. **Product research, evaluation, and communication.**

   - Support high-quality, unbiased product evaluations carried out by independent organizations.
   - Contribute to convenings of EdTech users and stakeholders to share lessons and stimulate user-based design..
   - Sponsor development and maintenance of platforms for selecting and comparing features and evidence of good EdTech practice.
   - Fund or provide thought leadership and best practice on important issues that are perhaps under-addressed (because they are not revenue-generating), such as privacy, data security, internet safety, health concerns, and eWaste.

3. **Support EdTech business models that reach the most marginalized with both capital and counsel.**

   - Support EdTech entrepreneurs with patient capital, opportunities for stop-gap research and development funding, and grants for product development or adaptation for the needs of the most marginalized.
   - Identify diverse sources of revenue, establish efficient sales and product distribution strategies that promote equitable access to EdTech.

A Promising Future for Students

EdTech has the exciting potential to enable transformative learning experiences for students in all corners of the globe. Impact Investors, like Omidyar Network, are taking lead roles alongside government and public education leaders.

The world needs to take a holistic, ecosystem approach to deliver on its promises to prepare future citizens for a global, ever-changing society. The current systems do not enable all learners to realize their full potential, to break cycles of poverty, or to engage as active and empowered participants in the future of work. We hope you take inspiration from the ecosystem model, the four case study countries, and your local colleagues, and that they empower you, in your local context, to unleash equitable and quality learning.

To learn more, or to receive the detailed global and country reports, please email **EdTech@omidyar.com** and follow **#EquitableEdTech**.

MARK, EDUCATOR, UNITED STATES

Mark is an 8th grade classroom teacher in the United States. His classroom today is always connected, thanks to equipment, infrastructure, and internet connectivity that have been paid for through a series of grants from the federal government as well as a state-wide tax levy. It wasn't difficult to convince parents and the school board of the value of the technology investment after benefiting from a series of presidential initiatives like ConnectEd and Future Ready Schools. Beyond just being able to benefit his students, Mark appreciates how technology helps him to learn and grow as a professional.

TIFA, LEARNER, INDONESIA

Tifa is a student in Indonesia who loves to interact with her friends on social media. This has become even easier for her to do thanks to the decreasing cost of phones and increased availability of internet connectivity, even on some of the archipelago's more remote islands. Beyond just connecting, Tifa and her friends are increasingly able to learn together. The government's open educational resources platform, along with the educational television channel and video-based lessons from private companies, offer Tifa and her friends a wealth of locally relevant audiovisual content available to stimulate her learning.

Endnotes

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8. Through user-generated reviews, quality labels, or independent awards based on credible evidence generation.

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Page 23, Exhibit 4: Case Study Country Demographics

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