Mobile Technologies for the SDGs

How EdTech start-ups in emerging markets are using mobile technology to tackle education challenges and beyond

Education is a powerful tool for tackling several of the UN Sustainable Development Goals (SDGs). Gaining access to quality education can help to break cycles of poverty, boost economic growth, reduce gender inequalities and increase incomes.

Research conducted across 114 countries has shown that an extra year of school education reduces the Gini coefficient by 1.4 percentage points.[1] However, according to UNESCO, as of 2017, 264 million children worldwide do not have access to schooling.[2] In Sub-Saharan Africa alone, 97 million children (52 million of whom are girls) do not go to school, and the situation is similar in Southern Asia where 96 million children do not attend school (47 million are girls).

Beyond access to education, 2017 research from the World Bank shows that in emerging markets, about 56 per cent of children who are in school are not learning (unable to read, write or do basic sums, even after a few years in school). In Sub-Saharan Africa, this number is about 90 per cent.[3]

This education deficit means there is a real need and opportunity for education technology[4] (EdTech) start-ups and innovators to leverage technology to unlock learning opportunities and provide points

of access to quality education. Increasingly, mobile technology is being used by EdTech start-ups across emerging markets to enhance and supplement traditional 'brick and mortar' schooling, providing better access to primary, secondary and tertiary education or professional development training.

> Based on data gathered from more than 1,253 start-ups that applied to the two most recent rounds of the GSMA Ecosystem Accelerator Innovation Fund in July 2017 and April 2018, around one in eight start-ups across Africa and Asia Pacific are currently operating in the education vertical.

Through mobile technology, EdTech start-ups address infrastructure challenges related to delivering and supporting education where conventional models fail or are non-existent, particularly in remote rural areas. In this context, the mobile industry has a significant role to play in improving the accessibility, affordability and quality of education in emerging markets.

Mobile technology as a powerful enabler for EdTech start-ups across emerging markets

EdTech start-ups across Africa and Asia Pacific operate in six different categories:

- Educational Content;
- Scholarship Disbursement;
- School Management;
- Test Preparation;
- Professional and Continuing Education; and
- Language Learning.

When researching how EdTech start-ups are leveraging mobile technology to deliver their services across these six categories, we looked at both offline (not requiring mobile data) and online technologies and identified seven main mobile tools:

- SMS;
- USSD;
- Voice/IVR;
- Airtime billing;
- Mobile money;
- Mobile app;
- Mobile responsive website; and
- Chatbot.

FIGURE 6

Examples of EdTech start-ups using mobile apps and services in Asia Pacific and Africa:

| EdTech category | Mobile-enabled technologies | | | | | | | |
| | Offline | | | | | Online | | |
	SMS	USSD	Voice/IVR	Airtime Billing	Mobile Money	Mobile App**	Mobile-Responsive Website	Chatbot
Chalkboard Education (Ghana) — Educational Content	✓	✓			✓		✓	
Eneza* (Kenya, Ghana, Côte d'Ivoire) — Educational Content	✓	✓		✓	✓			
Ruangguru* (Indonesia) — Educational Content				✓		✓	✓	
teleStory (India) — Educational Content			✓	✓				
AlterYouth (Bangladesh) — Scholarship Disbursement	✓	✓	✓		✓		✓	
ScholarX (Nigeria) — Scholarship Disbursement	✓				✓	✓	✓	
Somesha (Zimbabwe) — School Management	✓		✓		✓	✓	✓	
Bulletinboard (Indonesia) — School Management						✓	✓	
LipaMobile* (Uganda) — School Management		✓			✓			
PrepClass (Nigeria) — Test Preparation	✓		✓			✓		
EtuDesk (Côte d'Ivoire) — Professional and Continuing Education	✓			✓	✓		✓	
10 Minute School (Bangladesh) — Professional and Continuing Education						✓	✓	
Squline (Indonesia) — Language Learning			✓				✓	
Langbot (Ethiopia) — Language Learning						✓	✓	✓

* One of the start-ups funded by the GSMA Ecosystem Accelerator Innovation Fund
** Some mobile apps have both online and offline modes

The most widely used 'offline' mobile technology remains SMS. Ghanaian start-up Chalkboard Education, for instance, uses SMS to provide access to university courses via distance learning. Other 'offline' mobile services, like USSD, airtime billing, and especially mobile money, are also useful to an increasing number of EdTech start-ups. Eneza Education* provides school-level courses on either a mobile app through SMS and USSD.

An example of how EdTech start-ups are using 'online' mobile tools (i.e. those that require mobile

data) is Ethiopian-based start-up Langbot, a gamified and machine learning powered language teaching chatbot available through Facebook Messenger, which as of October 2018 over 200,000 users.[5]

> As the table above illustrates, most EdTech start-ups operating in Africa and Asia Pacific today are using both offline and online mobile tools to deliver their services to the largest possible audience.

Start-ups, mobile money and the Sustainable Development Goals (SDGs)

Along with enabling millions of users to access a better education, EdTech start-ups are having a broader socio-economic impact among the populations they serve. We have observed that while all EdTech start-ups address SDG 4 (Quality Education) most also help to address other socio-economic issues, including poverty alleviation (SDG 1: No Poverty), sustained economic growth, higher levels of productivity and technological innovation (SDG 8: Decent Work and Economic Growth) as well as reducing income inequality (SDG 10: Reduced Inequalities). Here are a few examples:

START-UPS	SUMMARY
Baobab+ (West Africa)	Baobab+ offers access to energy and smartphones through pay-as-you-go models. In addition, they are currently offering a specialised solution, the EDUCA tablet, which comes preloaded with a selection of educational apps.
fenix intl (Uganda)	Fenix** provides off-grid customers in emerging markets an affordable stand-alone solar home system called ReadyPay,[6] which customers pay for via MTN Mobile Money. To support users in financing their education,[7] Fenix offers a school fees microloan service that leverages the customer's repayment data from the initial ReadyPay solar loan. As of June 2018, Fenix has disbursed over 7,400 school fee loans nationally. (For more details, see the GSMA Mobile for Development (M4D) Utilities case study on Fenix International.)
AFRICAN MANAGEMENT INITIATIVE (Kenya)	The African Management Initiative (AMI) is pioneering a scalable approach to workplace learning by combining mobile and web-based learning with in-person workshops and on-the-job support. Training is tailored for managers, entrepreneurs, employees and job seekers. AMI has trained over 20,000 people in 11 African countries.
ruang guru (Indonesia)	Ruangguru* is a freemium learning management system that helps students prepare for exams using content tailored to the national curriculum and helps teachers to crowdsource educational content and distribute it to students. As of October 2018, Ruangguru has reached over 10 million students registered on its platform. Find out more in our case study.

START-UPS	SUMMARY
Accelerated (Ethiopia)	Accelerated is a teacher training service that helps educators use technology effectively through a teacher-coaching platform. Teachers learn with a dedicated one-on-one coach to improve teaching standards. As of October 2018, it has worked with 20 schools, 500 teachers and reached 11,200 learners.
Learntalk (Philippines)	Learntalk is an on-demand live video call English tutorial platform accessible on a mobile or online through their website. Learntalk also offers live English teaching to educational institutions and businesses by using adaptive learning classes to match students' education levels and interests. As of October 2018, Learntalk has worked with over 100 certified English teachers and has over 8,000 registered users.
PrepClass (Nigeria)	PrepClass is a digital tutoring marketplace connecting learners to tutors through face-to-face tutoring and a mobile app, PrepTest. As outlined in the PrepClass case study earlier in this report, PrepClass provides a source of income for tutors who are often poorly paid teachers, while simultaneously supporting the education of Nigeria's students. Between January 2015 and September 2018, PrepClass has enabled 5,154 teachers to generate additional income through its platform. As of October 2018, over 312,000 learners have accessed educational content through the PrepTest app.

* One of the start-ups funded by the GSMA Ecosystem Accelerator Innovation Fund
** One of the start-ups funded by the GSMA Mobile for Development (M4D) Utilities Innovation Fund

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6   GSMA, 15 May 2017, "Catching up with the first energy grantees of the Mobile for Development Innovation Fund" https://www.gsma.com/mobilefordevelopment/programme/m4dutilities/catching-up-with-the-first-energy-grantees-of-the-mobile-for-development-innovation-fund/
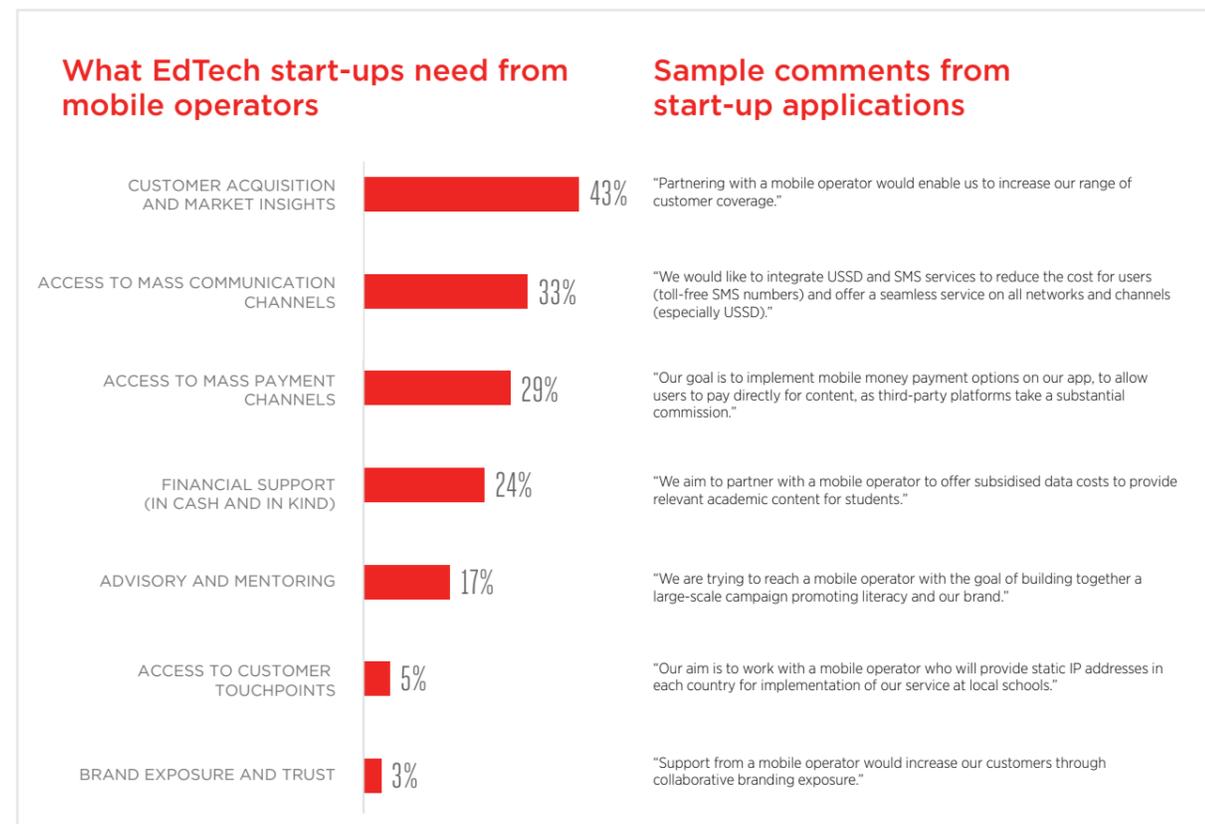
7   Daniel Waldron and Chris Emmot, 1 August 2018, "Off-Grid Solar Company Helping Customers Pay School Fees", CGAP Blog, http://www.cgap.org/blog/grid-solar-company-helping-customers-pay-school-fees

Unpacking the collaboration opportunity between mobile operators and EdTech start-ups

As we highlighted in our publication, "Building Synergies: How Mobile Operators and Start-ups Can Partner for Impact in Emerging Markets", mobile operators have reached the scale that start-ups lack, while start-ups have the local innovation mobile operators need.

Insights from the 699 start-up applications received for the third round of the Ecosystem Accelerator

Innovation Fund between March and April 2018 show that the 58 EdTech start-ups that applied to the Fund seek to fill specific 'needs' through partnerships with mobile operators. Gaining customer acquisition and market insights was the greatest need expressed by EdTech start-ups, which aim to augment their customer base and expand their knowledge of their market through insights from mobile operators' customers.

What EdTech start-ups need from mobile operators

Sample comments from start-up applications

CUSTOMER ACQUISITION AND MARKET INSIGHTS	43%	"Partnering with a mobile operator would enable us to increase our range of customer coverage."
ACCESS TO MASS COMMUNICATION CHANNELS	33%	"We would like to integrate USSD and SMS services to reduce the cost for users (toll-free SMS numbers) and offer a seamless service on all networks and channels (especially USSD)."
ACCESS TO MASS PAYMENT CHANNELS	29%	"Our goal is to implement mobile money payment options on our app, to allow users to pay directly for content, as third-party platforms take a substantial commission."
FINANCIAL SUPPORT (IN CASH AND IN KIND)	24%	"We aim to partner with a mobile operator to offer subsidised data costs to provide relevant academic content for students."
ADVISORY AND MENTORING	17%	"We are trying to reach a mobile operator with the goal of building together a large-scale campaign promoting literacy and our brand."
ACCESS TO CUSTOMER TOUCHPOINTS	5%	"Our aim is to work with a mobile operator who will provide static IP addresses in each country for implementation of our service at local schools."
BRAND EXPOSURE AND TRUST	3%	"Support from a mobile operator would increase our customers through collaborative branding exposure."

Source: 58 EdTech start-ups that applied to the GSMA Ecosystem Accelerator Innovation Fund Round 3, including 20 start-ups from Asia and 38 start-ups from Africa.

From a mobile operator's perspective, the opportunity to tap into the digital education market through local EdTech start-ups is real. Mobile learning revenues in Asia reached $4.5 billion in 2014[8] and are expected to surge to $7.7 billion by 2019,[9] while in Africa, the market for e-learning is expected to reach over $1.4 billion in value by 2022.[10]

Together, mobile operators and EdTech start-ups can tackle several SDGs in emerging markets as mobile technology is becoming an entry point to education for many people.

Examples of collaborations between mobile operators and EdTech start-ups in Africa and Asia Pacific

eneza education
**Safaricom**
(Kenya)

The Kenyan mobile operator Safaricom partnered with Eneza* to launch Shupavu291, a virtual classroom available on any mobile phone. As of October 2018, Eneza Education provides school-level courses on a mobile app, through SMS or USSD, to 4.9 million mobile users with feature phones across Africa. Students receive quizzes and tutorials, can search Wikipedia, view reports and ask questions to live teachers through SMS on a subscription. Working with mobile operators is at the core of Eneza's growth and replication strategy. To date, Eneza has partnered with MTN Ghana, Tigo Ghana and Orange Côte d'Ivoire (to learn more, visit our blog). After launching its service in Côte d'Ivoire in September 2018, Eneza Education received a grant from the GSMA Ecosystem Accelerator Innovation Fund in November 2018 to expand the solution across the country.

OPENCLASSROOMS
orange
(Africa)

OpenClassrooms and Orange have partnered to provide digital training across Africa to tackle unemployment. Students have access to OpenClassrooms courses via the mobile network. The courses can be followed on the student's smartphone for subjects that do not require a computer (such as 'Understanding the web', 'The network', 'Big data' and 'Bitcoin'), or on a computer with internet access via the user's smartphone, for example, for courses that teach programming.

ruang guru
TELKOMSEL
(Indonesia)

Telkomsel and EdTech start-up Ruangguru* have created a joint offering targeted at students through Telkomsel's youth brand, 'Loop'. The package offers free data exclusively to users to access Ruangguru's educational content on the web and on mobile. Ruanggurru received a grant from the GSMA Ecosystem Accelerator Innovation Fund in April 2017 to launch an online marketplace for personalised education (for more details, see our case study on Ruanggurru).

Juggernaut
airtel
(India)
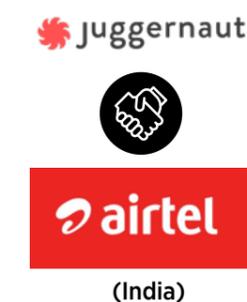
Juggernaut is a smartphone-first publishing house that provides readers and authors with both a digital and traditional publishing platform. Juggernaut also has a writing platform where amateur writers can upload their stories. Bharti Airtel has acquired a strategic stake to ramp up content acquisition and digital marketing and is preparing for a subscription offering.[11]

* One of the start-ups funded by the GSMA Ecosystem Accelerator Innovation Fund

8   docebo, 2017, "eLearning Market Trends and Forecast 2017–2021", https://www.docebo.com/resource/elearning-market-trends-and-forecast-2017-2021/

9   Ambient Insight, March 2015, "The 2014–2019 Asia Mobile Learning Market", http://www.ambientinsight.com/Resources/Documents/AmbientInsight-2014-2019-Asia-Mobile-Learning-Market-Overview.pdf

10   IMARC Group, 2018, "Africa E-Learning Market: Industry Trends, Share, Size, Growth, Opportunity and Forecast 2018–2023", https://www.imarcgroup.com/africa-e-learning-market

11   Airtel, 4 December 2017, "Airtel acquires strategic stake in Juggernaut", https://www.airtel.in/press-release/12-2017/airtel-acquires-strategic-stake-in-juggernaut

Looking ahead: Calling on mobile operators to collaborate with EdTech start-ups to create gateways to enhanced learning

The path is clear for mobile operators to collaborate with EdTech innovators, many of which are already leveraging mobile technologies. Since learners in rural areas are less likely to be covered by mobile broadband and are often lower level tech users, access to mobile operator APIs (primarily SMS and USSD), for instance, goes a long way. Similarly, mobile money and digital financial services have the potential to help low-income families overcome challenges such as school fee payments.[12]

As mobile devices (both basic handsets and smartphones) become even more ubiquitous, affordable education through mobile technology is becoming more prevalent and offers tailored and high-quality education content. No longer are brick and mortar classrooms seen as the only way to deliver education. Today it co-exists with mobile technology services and platforms that can be accessed 'offline' (through SMS, USSD and voice/IVR) and 'online' (via mobile data).

Through deeper and meaningful partnerships, mobile operators and EdTech start-ups can significantly transform the sector.