



Tech Bets for an Urban World

What the tech sector can do to improve
children's lives in a rapidly urbanizing world

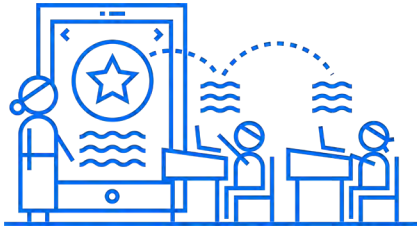
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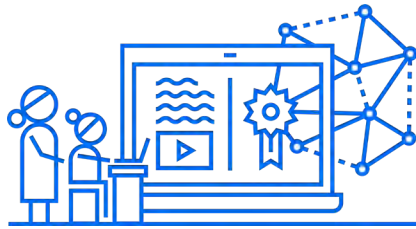
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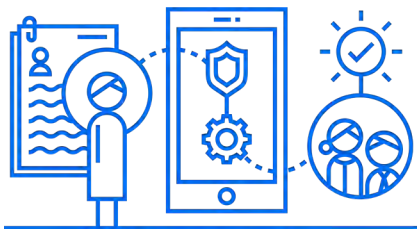
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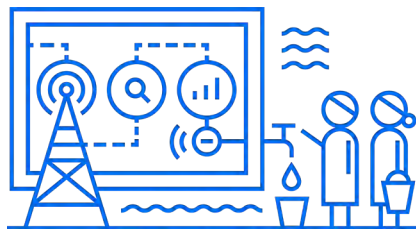
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What the tech sector can do to improve children's lives in a rapidly urbanizing world

This body of work identifies digital technologies that deliver positive social impacts for children and their families in cities, and also grow markets and deliver financial returns for technology companies and investors. It details six big tech bets and provides specific recommendations for start-ups, large tech companies and the public sector. This work was carried out by UNICEF's Office of Innovation, Arm and Dalberg.



Digital Learning

WHAT IS IT?

Platforms which allow teachers to integrate online games and content into lessons in classrooms, with the aim of enhancing primary or secondary education, by better engaging children and teaching them new skills.

WHY IS IT IMPORTANT TO SOCIETY?

It is expensive to provide high-quality skilling opportunities. Governments don't see tertiary TVET education as a priority. Providers of skilling education don't understand the 21st century job market. It's difficult to keep institutions accountable.

WHY IS IT GOOD FOR BUSINESS?

Potential market size (by 2022):
7-15 Billion USD; 200-300 Million Users

If Governments commit to digital learning in public schools, **then revenue and users would almost double.**

HOW WILL IT BE IMPACTFUL?



FEATURED USER STORY


 A close-up portrait of Maria, a woman with dark hair, looking slightly to the right. The background is a dark, draped fabric.

Maria

34 YR OLD, MEXICO CITY

“It’s all about technology with kids. We have chosen to go with these devices (tablets) because we feel that the children learn from different audio and visual ways that are more interactive.”

María is the principal of Rey Meconetzin School in Mexico City. She’s focused on integrating technology and teaching into primary education so children have a better learning experience and are prepared for a digital future.

She feels **interactive methods of teaching let teachers customize lessons to suit the needs of individuals or tailored groups of students** and different media formats let teachers gauge if a child is more visual or if he/she learns better by tactile learning or through audio input.

Maria emphasizes the critical need teachers still play in the classroom to provide in-person guidance **‘engaging with the teacher and other students is still key to learning.’**

Since the adoption of multi modal methods Maria says both students and teachers have seen benefits. The use of audio and visual mediums help students understand and retain concepts more effectively while teachers can customize the lesson to best fit the needs of individual groups of students. **‘I think gamification helps because it makes children more autonomous, especially when they have to work in teams.’**

FRAMING SUMMARY

We believe
Digital Learning technologies meet user needs and have viable business potential because...

WE LEARNED FROM PEOPLE

Society at large is eager for curriculum in schools to break out of rote learning

Students want to more effectively learn how to think for themselves. However, they don’t want to do it alone

WE KNOW THAT

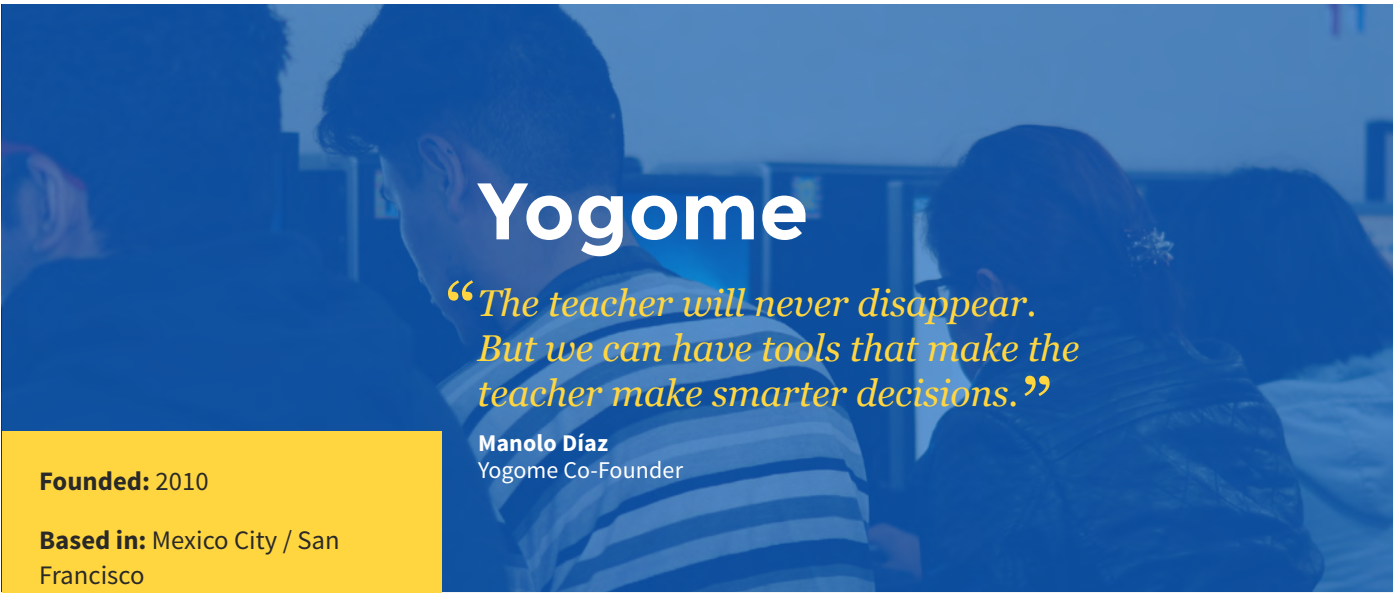
It is expensive and/or difficult to: provide high-quality tertiary and TVET education

train high-quality teachers and trainers

keep content up-to-date for (future) job market

keep teachers and institutions accountable

FEATURED INNOVATOR STORY



Yogome

*“The teacher will never disappear.
But we can have tools that make the
teacher make smarter decisions.”*

Manolo Díaz
Yogome Co-Founder

Founded: 2010

Based in: Mexico City / San Francisco

Employees: 50+

Subscriptions: 0.5-1 million

Revenue: 5-10M USD (est.)

Total Investment: ~10M USD

Investment Stage:
(Seed + Series A)

Business Model: Combined
B2C (Parents) and B2G/B2B
(Teachers)

Yogome is a learning games company founded in Mexico City by Manolo Díaz and Alberto Colin in 2010.

Yogome offer a platform of more than 1000 games intended for children aged 5 to 12 years. They cover 8 subjects, including coding, math, science and languages.

Yogome's content was designed with input from teachers and education specialists, including through a

partnership with Yale University's Play2PREVENT laboratory.

The Yogome platform was first launched as a B2C product, with parents paying a yearly subscription.

Manolo and Alberto recently launched Yogome Epic Schools, where **teachers can assign games to different students and monitor their progress**, as they play in the classroom.

LOCAL SPOTLIGHT

There is a small group of MML innovators starting to tap Mexico's market potential

BUSINESS MODEL(S)

End User:

Children (and their teachers) in the school classroom

Who pays?

Public and private schools (K-12), sometimes as part of a wider Learning Management System. In most cases the school-based offering is complemented by a home-based option, which is paid for by parents

THE PLAYERS

(estimated total of 4-8, excl. foreign companies)






INVESTMENTS TO DATE

\$50M

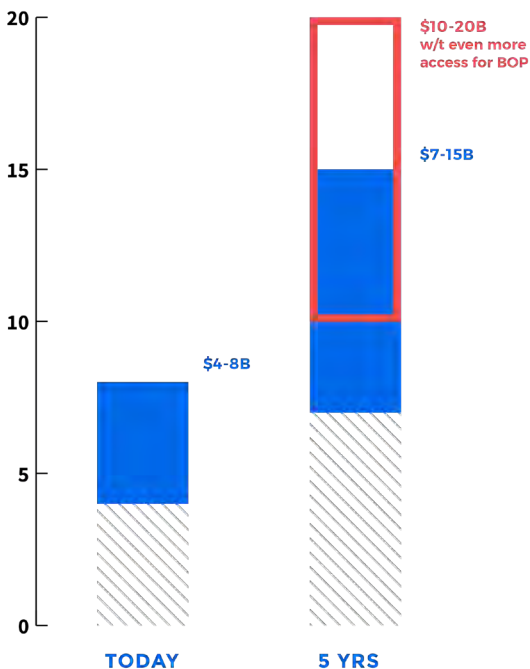
raised to date across platforms we have engaged; concentrated in two companies: one who has achieved series A of ~10M and one who has ~40 million in series A+B investment rounds. Both have are also operating in US markets.

GLOBAL OPPORTUNITY

Emerging market revenue could be 7-15B USD. If Governments commit to digital learning in public schools, then revenue and users would almost double.

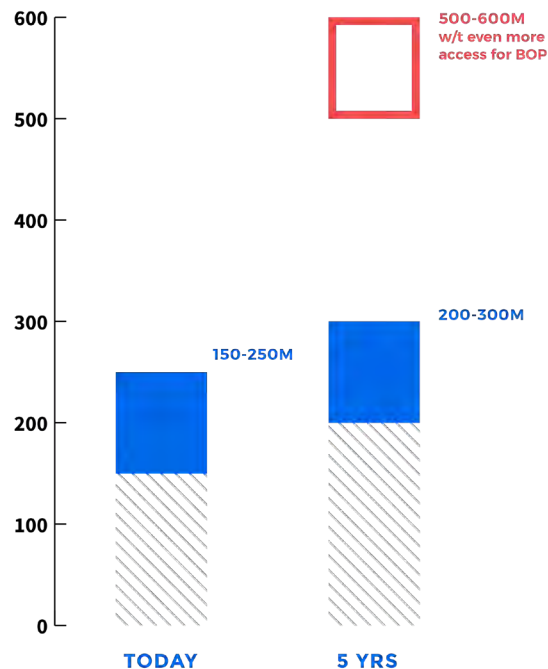
Potential Revenue in Billion (USD)

Addressable Market



Potential Users in Million

People



Sources: Dalberg analysis of World Bank data (urban population, student population, GDP per capita - PPP), PISA (school internet use), Innovator websites and interviews (price data), ITU (internet use)

ASSUMPTIONS

Based on Mexico City market:

- 60-80 USD for each child annually
- 75-95% ability to pay in urban private schools
- 25-50% use in urban public schools with internet access
- 50% discount for public schools

Extrapolated to global, taking country populations and adjusting for:

- GDP per capita (PPP)
- Urban student population
- Split of public/private students
- Internet usage

Extrapolated to 5 years time using projected figures for the year 2022

5 yrs time with even more access for BoP:

- Increased uptake across public schools (to same levels as private schools)
- A further discount to 60% for bulk procurement in the public sector

UNLOCKING GROWTH

To unlock demand, **local innovators** need to develop products that...

Encourage critical thinking, creativity, collaboration and communication alongside problem solving.

Allow teachers to deliver **dynamic in-person content**.

Are **tailored** to local languages, context, and culture.

Short timelines: **Prototype and iterate** to figure out what's working.

Longer timelines: **Build measurement and evaluation methods** into core functionality

To catalyze success, **global tech players** could...

Build and distribute excellent content.

Collaborate with innovators by opening delivery channels.

Support innovators by providing patient capital.

Help build the evidence for digital learning.

Invest in better and cheaper connectivity.

To realise the potential for every child, **UNICEF** could...

Help identify how digital learning **has the most impact**, leveraging our educational expertise and youth networks in different cities around the world.

Advise decision makers on integration of tech into the classroom where there is a clear case for improved outcomes

Help open doors for digital learning innovators by convening Government and funders.

Establish a common measurement framework to align the sector around a common set of learning objectives

PARTNERSHIP PRINCIPLES

Technology is not a replacement for high-quality teaching. The best digital learning solutions enhance the work of educators.

Children have a right to privacy. Parents need to consent to the collection, use, and sharing of data.

Keep your eye on the prize. The goal is improved learning, not better technology.



Multi-Modal Skilling

WHAT IS IT?

Services that mix online education with in-person mentoring to expand access to the skills (and certificates or qualifications) that people need to get better jobs, and often directly link learners to employers.

WHY IS IT IMPORTANT TO SOCIETY?

Children in cities need quality learning solutions that prepare them to prosper in the context of a changing, urbanizing world.

WHY IS IT GOOD FOR BUSINESS?

Potential market size (by 2022):
20-35 Billion USD; 25-45 Million Users

A price drop of 30% could unlock **twice the value and nearly triple the users.**

HOW WILL IT BE IMPACTFUL?



FEATURED USER STORY

Ica

29 YR OLD, JAKARTA

“This matches how I want to study. And I think anyone could use it-my Mom could use this!”



Ica is 29 and studying Corporate Communications, a degree from the London School of Public Relations that she takes online through HarukaEdu's e-learning platform. She works during the day in an entry-level role and studies online, mostly at night. **“My job is in corporate communications, but I don't have the background for it, so I can't advance. This degree is my strategy to advance while still working.”**

Ica loves that she can study when and where it makes sense for her and doesn't have to battle traffic in order to get to class. **“HarukaEdu helps me connect to lecturers when I have the time for it and I don't have to deal with traffic.”**

The flexibility of both accessing weekly video lectures while also studying through an always-accessible platform matches her learning style and lifestyle. **“Sometimes your mind is not in the right place to study. With this, I can eat while I learn, I can learn when I'm sick, I can learn from bed. I can learn anytime!”**

She doesn't agree that traditional campus education is necessary to have a social education experience. **“We feel totally social. We have a class Whatsapp group, we have study group Whatsapp group and eventually we usually get together in-person with people from the Whatsapp groups in person anyway-to study and hangout!”**

FRAMING SUMMARY

We believe
Multi-Modal Skilling
technologies
meet user needs
and have viable
business potential
because...

WE LEARNED FROM PEOPLE

To enter the workforce a degree can still make or break your future. Flexible, affordable options are needed. However, direct routes to employment are helping many forge alternative paths.

Multi-modal formats are enhancing both of these learning experiences. In both situations, students crave their investment will lead to a brighter future.

WE KNOW THAT

It is expensive to provide skilling in a traditional way

Governments often don't see tertiary and TVET education as a priority

Universities and TVET providers do not understand the job market

It is hard to keep skilling institutions accountable

FEATURED INNOVATOR STORY



HarukaEdu

“We asked what industry needed and we created content based on their answers.”

Novistiar Rustandi
Co-Founder

Founded: 2013

Based in: Jakarta

Employees: 50+

Total Investment: ~2M USD (B)
+ Undisclosed (A)

Investment Stage: Series A + B

Business Model: B2C (Students)
+ B2G/B2B (Universities)

HarukaEdu, based in Jakarta, was founded by four co-founders in 2013. Haruka was incubated by Google Launchpad and received >\$2M from Pearson Affordable Learning Fund.

HarukaEdu partners with local universities and training providers to expand access to the content, by increasing the flexibility for learners.

HarukaEdu offers both tertiary certifications and skills trainings

through a hybrid model of online learning and in-person education.

The organization primarily targets full time workers who need time and geographic flexibility and boast ~4,000 users to-date, targeting 18,000 by end 2018.

HarukaEdu is currently exploring routes to expand reach by delivering content through the social media applications which are most popular in Jakarta.

LOCAL SPOTLIGHT

MMS is already taking off in Jakarta

BUSINESS MODEL(S)

End User:

Adults seeking skills or certifications that qualify them for jobs or for advancement in their careers

Who pays?

Jobseekers pay or, in some cases, employers looking to upskill their employees

THE PLAYERS

(estimated total of 6-12, excl. foreign companies)



INVESTMENTS TO DATE

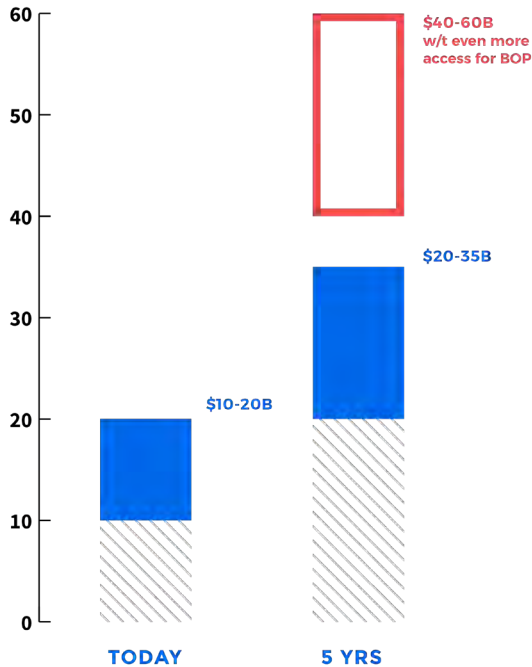
\$3-8M

raised to date across platforms we engaged; many with \$1-3M angel or series A investment rounds.

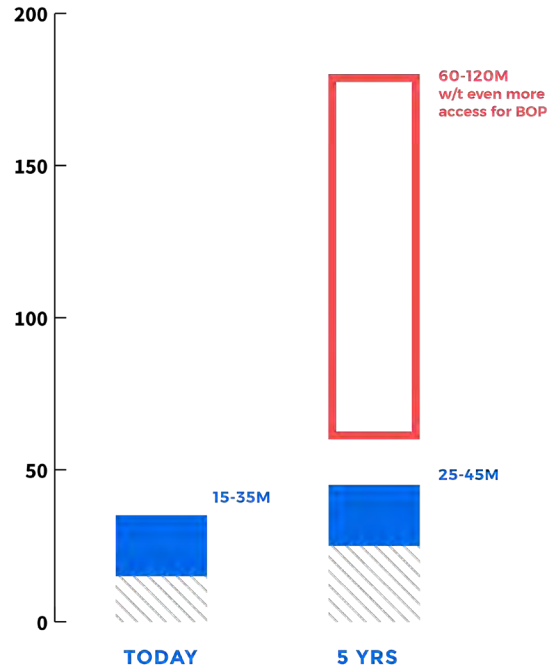
GLOBAL OPPORTUNITY

The addressable market is 10-20B dollars in emerging economies and it's growing.

**Potential Revenue
in Billion (USD)**
Addressable Market



**Potential Users
in Million
People**



Sources: Dalberg analysis of World Bank data (urban population, GDP per capita - PPP), SAKERNAS (workforce, degree holders), Innovators (price, WTP data), "Strategies for Overcoming Hypothetical Bias in Stated Preference Surveys", WEA, 2013

Notes: *Jabodetabek refers to Jakarta and satellite cities **Reduced to account for typical positive bias in surveyed WTP and spread over 6 years to account for catch-up in cohort who did not have access to offering in the past (this would in theory reduce the modeled market size in year 7, but in reality would be spread much more evenly)

ASSUMPTIONS

Based on Jabodetabek* market

Population who:

- Have a high-school diploma or lower degree
- Want to continue education
- Can afford tuition at 20% of income
- Are willing to pay a tuition fee of 65-75 USD per month**

Extrapolated to global, taking country populations and adjusting for:

- GDP per capita (PPP)
- Internet usage

And excluding countries with:

- GDP of more than 20,000 USD pc.
- Less than 15% internet use

Extrapolated to 5 years time using projected figures for the year 2022

UNLOCKING GROWTH

To unlock demand, local innovators need to develop products that...

Expand flexibility by catering to the lifestyles many online learners lead.

Build in **online and offline** engagement.

Provide access to a **wider network** of teachers, mentors, and experts than can be accessed in-person

Help students show off **tangible representations of their unique skill sets** (Help make them more valuable than a GPA or certificate of achievement)

Create more efficient and effective **bridges to employers**.

To catalyze success, global tech players could...

Build and distribute excellent content.

Collaborate with innovators by opening delivery channels.

Collaborate on open certification

Support innovators by **providing patient capital**.

Help **build the evidence base** for multi-modal skilling.

Invest in better and **cheaper connectivity**.

To realise the potential for every child, UNICEF could...

Help identify how digital learning has the most impact, leveraging our educational expertise and youth networks in different cities around the world.

Advise decision makers on integration of tech into the classroom where there is a clear case for improved outcomes

Help open doors for digital learning innovators by convening Government and funders.

PARTNERSHIP PRINCIPLES

Diversity in access. Attract new market segments and include groups who are underrepresented.

Industry standards for skilling requires collaboration. **Educators and employers need to work together.**

Impact on employment outcomes is the central goal. Players in this space need to hold themselves accountable for improved results.

There is no one-size-fits-all approach. Consider local contexts and how solutions can be adapted to local job markets.



Smart Recruiting for the Informal Economy

WHAT IS IT?

Platforms which connect individuals and employers with workers in the informal economy for one-off or short-term jobs, using matching algorithms to recommend the most suitable candidates for customers and providing additional protection and security for workers.

WHY IS IT IMPORTANT TO SOCIETY?

The local economy does not create enough formal employment. Employees are vulnerable to abuse in the informal sector. Job markets do not create equal opportunities.

WHY IS IT GOOD FOR BUSINESS?

Potential market size (by 2022):
0.5-2 Trillion USD; 0.8-1.2 Billion Users

HOW WILL IT BE IMPACTFUL?



FEATURED USER STORY



Anna has three jobs to make ends meet. She runs a small store near her home, and works two days a week at a packaging facility, with the remainder of her time she works on a flexible contract basis for Aliada.com, a home and business cleaning service that digitally connects her to clients.

Anna says the technology and training Aliada has brought into her life has changed it in powerful ways, the most being the ability to have steady, reliable, yet flexible work opportunities.

'Always having the option to take on a job and earn income is what I like the most about this service.'

When an earthquake rocked Anna's community, Aliada helped fill critical financial gaps. **'I would be destitute right now if I didn't work for Aliada.'**

All the schools around here closed for many weeks, and the store didn't bring in money because the kids are my main clients.'

Anna deeply values the training Aliada provided around soft skills like customer relationships and guidance around safety while on the job. **"The training was really important because so many people don't know how to deal with customers and talk to them and how to make them feel safe with you."**

Lastly, Anna deeply values the mutual respect and trust she feels Aliada has built into the company's culture and digital tools. **"I help them and they help me. They listen to me if I have an issue with customers and don't immediately assume it's my fault if there's a problem with a customer."**

FRAMING SUMMARY

We believe
Recruiting for the
Informal Economy
technologies
meet user needs
and have viable
business potential
because...

WE LEARNED FROM PEOPLE

With or without an education, jobs are hard to find and recruitment processes are rarely transparent or fair

Who you know matters. More established networks mean more opportunities

When curated online recruiting platforms don't exist, people often cobble together their own

People want to be treated fairly (and it's key to expanding growth)

WE KNOW THAT

The economy does not create enough formal employment

Employees are vulnerable to abuse in the informal sector

Job markets do not create equal opportunities

FEATURED INNOVATOR STORY

Aliada

“We focus on providing men and women with the right set of tools so they can thrive and generate more income for themselves and their families.”

Ana
Aliada Co-Founder

Founded: 2014

Based in: Mexico City

Employees: 20+ / ~1,500 domestic professionals

Users: ~50,000 services monthly

Total Investment: 1M USD (Seed) + Undisclosed (A)

Investment Stage: Seed + Series A

Business Model: B2C (residential) + B2B (commercial)

Aliada was launched in Mexico City in 2014 by Rodolfo Corcuera and Ana Isabel Orvañanos, as a platform to connect households directly with domestic professionals.

Aliada saw an opportunity to better link people with cleaning and other services. Most of Mexico City's 2.9 million domestic workers are employed through housekeeping agencies who largely determine work hours and location and take a larger cut of wages that Aliada.

Aliadas can determine their work hours and price and accept (or decline) opportunities depending on past reviews, location and other customer information. All are covered by a benefits package and social security.

Aliada recently launched a B2B option where they hire and manage staff to manage the running of offices for clients.

LOCAL SPOTLIGHT

Jakarta has already seen investment of more than three billion dollars

BUSINESS MODEL(S)

End User:

Adults seeking skills or certifications that qualify them for jobs or for advancement in their careers

Who pays?

Jobseekers pay or, in some cases, employers looking to upskill their employees

THE PLAYERS

(estimated total of 3-6, excl. foreign companies)



INVESTMENTS TO DATE

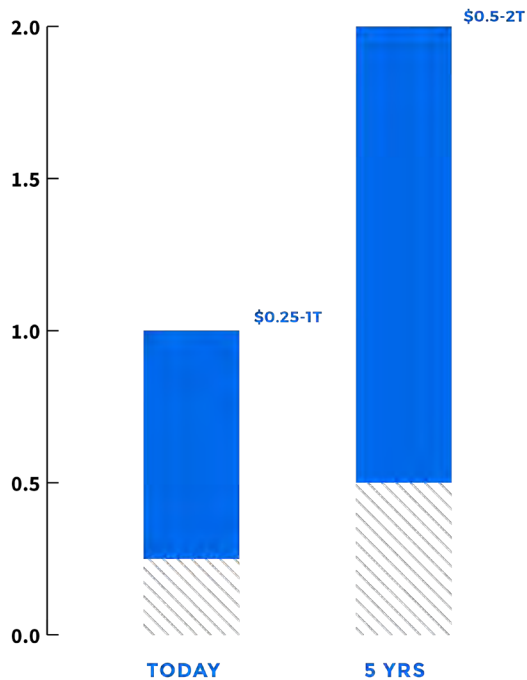
\$3B

Raised to date across platforms we have engaged; largely driven by Go-Jek and Grab's >\$1B fundraising rounds

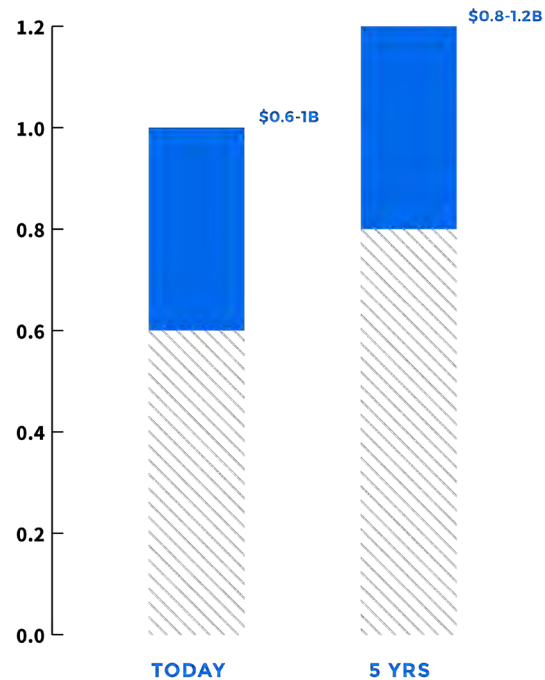
GLOBAL OPPORTUNITY

Global emerging market revenue could reach 2 Trillion

Potential Revenue in Trillion (USD) *Addressable Market*



Potential Users in Billion *People*



Sources: Dalberg analysis of World Bank data (urban population, GDP per capita - PPP), SAKERNAS (workforce size), Intuit (addressable workforce), Innovator websites and interviews (price and utilization data) Note: We do not include a third "extended" scenario for this use case, as it is already targeted at jobs at the base of the pyramid

ASSUMPTIONS

Based on Jakarta market:

- 40-60% of existing workforce
- Earning 5-7.50 USD per hour
- Utilization of 50% during working hours
- Matching fee of 10-20%

Extrapolated to global, taking country populations and adjusting for:

- Urban Population
- GDP per capita (PPP)
- Internet usage

UNLOCKING GROWTH

To unlock demand, **local innovators** need to develop products that...

Continue to highlight and **broaden the skills** people are able to advertise.

Assist people in **refining and fully developing** the skills they already possess.

Be mindful about creating **avenues for participation**, especially for women.

Reward and recognize workers for exceptional performance.

Be a **leader** in great labor practices.

To catalyze success, **global tech players** could...

Follow best practices in worker protection and empowerment.

Support best practice innovators so they maintain their competitiveness and pull other players up.

Champion better industry regulation and use your influence on the industry or governments.

Help build the evidence for matching in informal markets.

To realise the potential for every child, **UNICEF** could...

Help create global and local worker protection standards in collaboration with Governments, industry, and other partners

Raise consumer awareness of best practice innovators in communication and partnerships efforts

PARTNERSHIP PRINCIPLES

Workers deserve fair wages. These platforms should not support a race to the bottom.

Benefits and protections should be portable. Benefits and protections need to be attached to workers rather than employers.

Worker protections should be universal.

Platforms need to fight discrimination. They should be designed to identify and mitigate patterns of discrimination.

Safety should be prioritized in design. Platforms have an obligation to **protect all their users and workers.**



Water Metering

WHAT IS IT?

IoT networks of sensors and meters, purchased by municipal water companies, to monitor the flow and/or quality of water through the network to identify leakages and aggregate water revenues, ultimately improving accessing to clean, fairly-priced water.

WHY IS IT IMPORTANT TO SOCIETY?

The freshwater supply is stressed. It is expensive to connect people to piped water. Operating a water network requires good planning and management. Inconsistent supply means that private providers can overcharge for water.

WHY IS IT GOOD FOR BUSINESS?

Potential market size (by 2022):
20-35 Billion USD; ~1.5 Billion Users

If savings allowed expansion in urban areas then everyone would win

HOW WILL IT BE IMPACTFUL?



FEATURED USER STORY

Rose

42 YRS OLD, NAIROBI

“I use this because it’s cheaper and cleaner than the other water sources here. It’s always the same price even when there are water shortages elsewhere.”



Rose lives in Korogocho, a large slum in Nairobi, and is a single mother to six daughters. In her community almost all of the available water supplies are illegally tapped sources subject to improper infrastructure, installment, and maintenance. However, about a year ago a water meter was installed near Rose’s home that delivers clean, affordable, and reliable water.

Rose uses the metered water pump for all of her family’s daily needs. An electronic key loaded with credit via Mpesa allows her to fill her cans. She loves that this solution exists in her community because

“it is more affordable, reliable, and safe compared to the other options.” Rose encourages people to use the pump but says many often resist because they can’t see the difference in quality. **“It’s extremely hard to know if the water is clean and safe, if people could more easily understand the danger that would be better.”**

Rose has seen many different water borne illnesses, like cholera, devastate members of her community and she prays more water sources like this tap will be installed so the risk of disease is greatly reduced. **“Water is life, but it has to be clean water! We need that so badly here.”**

FRAMING SUMMARY

We believe
water metering
technologies
meet user needs
and have viable
business potential
because...

WE LEARNED FROM PEOPLE

People need consistent, safe, affordable water. Providing less than that is currently good business of a few

Improving access to water improves safety for women

The quality of water is variable and people don’t know who to trust

WE KNOW THAT

Water supplies are stressed

It is expensive to connect people to piped water

It is difficult to plan and operate a water network

Inconsistent supply leads to rent-seeking behavior

FEATURED INNOVATOR STORY



Upande

Founded: 2009**Based in:** Nairobi**Employees:** 20+**Revenue:** Not disclosed**Total Investment:** Not disclosed**Investment Stage:** Seed**Business Model:** Combined B2B and B2G

Upande is a social enterprise founded in 2009 by Jody Eijsenga and Mark De Blois.

Upande develops customized systems for businesses, government, and NGOs that capture, store, analyze, manage, and present location-tagged data.

They recently partnered with BRCK and Kericho Water and Sanitation Company (KEWASCO) to map existing water infrastructure and implement real-time monitoring systems, using

smart meters with alert modules and low-cost solar-powered data loggers.

As a result, Upande was able to identify non-revenue water losses for KEWASCO, who estimate they were previously losing up to 70% of their water to leakage and theft.

Upande is looking to expand beyond Kericho as well as developing additional IoT offerings in Kenya.

LOCAL SPOTLIGHT

Water saving products and innovators are emerging in Kenya

BUSINESS MODEL(S)

End User:

Municipal water utilities (public or private) and customers

Who pays?

Municipal water utility (public or private) is the direct payer, likely through a contract that includes installation and ongoing maintenance. The indirect payer would likely either be the customer or government (through some form of subsidy)

THE PLAYERS

(Excl. municipal water utilities)



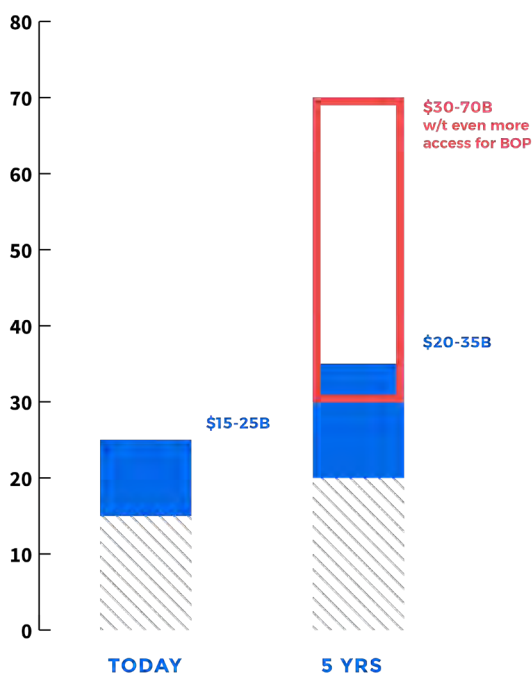
INVESTMENTS TO DATE

undisclosed

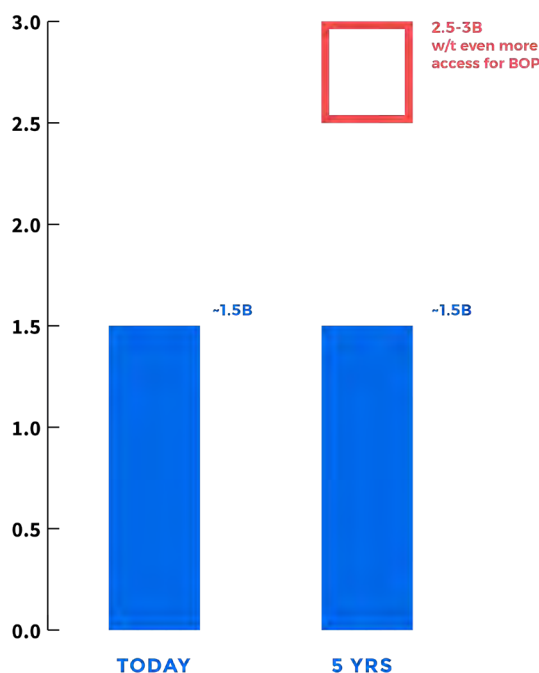
GLOBAL OPPORTUNITY

Market revenue could be 20-35B USD, covering ~1.5 billion people. If savings allowed expansion in urban areas then everyone would win.

**Potential Revenue
in Billion (USD)**
Addressable Market



**Potential Users
in Billion
People**



Sources: Dalberg analysis of World Bank data (urban population, urban access to improved water sources, GDP per capita - PPP), Kenyan Water Services Regulatory Board (active connections), IEEE (overhead costs), Innovator websites and interviews (price data)

ASSUMPTIONS

Based on Nairobi market:

- 1 smart meter per active piped water connection
- 8-10 year average life of meter
- 30-50% overhead for placement, maintenance and management of system
- 60-80 USD per meter

Extrapolated to global, taking country populations and adjusting for:

- Urban population
- GDP per capita (PPP)
- Urban access to improved water sources

Extrapolated to 5 years time using projected figures for the year 2022

5 yrs time with even more access for BoP:

- Increased uptake to 75-85% of required connections
- Reduction of 10% in prices

UNLOCKING GROWTH

To unlock demand, **local innovators** need to develop products that...

Make water **safety visible**.

Use **data** to identify consistency and sort out problems.

Be **mindful** about where water points are located.

Encourage municipalities to **work with existing power structures** and players during roll out to avoid sabotage.

Encourage municipalities to conduct **community sensitization** especially at community water points, so people understand how to use the water points and spread the word about their value.

To catalyze success, **global tech players** could...

Support innovations for emerging markets.

Advocate for governments to help finance smart-metering.

Support water utilities to turn savings into pro-poor investments.

Provide patient capital for innovators.

To realise the potential for every child, **UNICEF** could...

Help strengthen the evidence for smart meters in resource limited environments by partnering with innovators, utilities, and government on smart metering pilots.

Advise on water distribution models for different urban contexts.

Champion smart-metering with decision-makers.

Convene the people and players on the ground, particularly the children and youth in the communities which will benefit most from metering.

PARTNERSHIP PRINCIPLES

Work with utility companies that are committed to **increasing access. Innovators and investors should work with utilities to ensure that metering projects actually result in **improvements for citizens, particularly those at the base of the pyramid**.**

Customer data should be stored and used appropriately. Investors and innovators should **ensure adequate privacy protections for users.**



Emergency Response

WHAT IS IT?

Platforms that link people to the full range of public and private emergency response services through one interface, matching people in urgent need with the closest and best equipped vehicles and mapping their routes to-and-from the incident.

WHY IS IT IMPORTANT TO SOCIETY?

Private companies lack incentives to serve people with lower incomes. Centralized “911” systems are expensive. Weak infrastructure hampers dispatch.

WHY IS IT GOOD FOR BUSINESS?

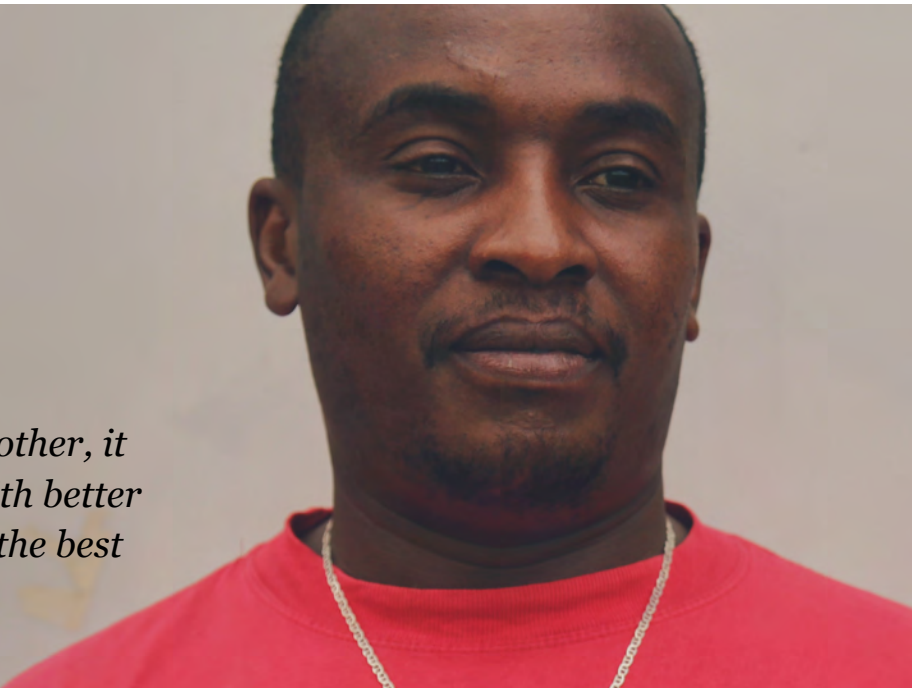
Potential market size (by 2022):
70-90 Billion USD; 2-3 Billion Users

If Governments subsidized memberships, then revenue would grow with coverage

HOW WILL IT BE IMPACTFUL?



FEATURED USER STORY



Chelsea

36 YR OLD, NAIROBI

“From one hospital to another, it can take 2 hours. But with better navigation, I will know the best roads to take.”

Chelsea is a long-time ambulance driver who lost his first Nairobi patient because he couldn't navigate to the hospital, and the ambulance didn't have equipment to stabilize the patient.

Since moving to Nairobi to head the ambulance department at Neema Hospital, Chelsea has improved equipment quality, personnel training, and ambulance availability. He's now in discussions with a new ambulance service that connects patients, who become members of the service, to the closest ambulance and a facility that is equipped to handle their particular emergency.

“If this service can get medical care to patients as quickly as possible it will give people a centralized number to call. That's really needed.” He also emphasized that many people rely on friends and taxis to take them to the hospital because many can't afford the cost or the wait time. But Chelsea believes that a service committed to working through the barriers will be a game-changer.

FRAMING SUMMARY

**We believe
Emergency
Response
technologies
meet user needs
and have viable
business potential
because...**

WE LEARNED FROM PEOPLE

The value chain for emergency services is broken at nearly every step and failing the most vulnerable

In emergencies patients make critical financial trade-offs

Trust is key

WE KNOW THAT

Private companies lack incentives to serve people with lower incomes

Centralized “911” systems are expensive

Weak infrastructure hampers dispatch

FEATURED INNOVATOR STORY



Flare

“Why can Kenyans get an Uber in minutes and order food delivery in less than an hour but not get an ambulance?”

Caitlin Dolkart
Flare Co-Founder

Founded: 2015

Based in: Nairobi

Employees: 10+

Subscriptions: In beta

Revenue: In beta

Total Investment: ~0.5M

Investment Stage: Seed

Business Model: Combined B2C and B2B

Flare is an emergency response matching platform founded in Nairobi by Maria Rabinovich and Caitlin Dolkart in 2015.

It matches multiple ambulance (and other emergency service) providers in Nairobi with people in need.

Using real-time tracking of ambulances and fire engines, and location data from customers, Flare can ensure its members get the closest ambulance that meets their needs.

They also ensure that patients arrive at a hospital which is ready to accept them.

Flare works with more than half of Nairobi's ambulances, using their fleet management system. The team is currently managing the roll-out of the customer facing Flare application (and number).

Flare is also looking to expand to other African cities and would like to offer a B2G option to expand coverage of ambulances.

LOCAL SPOTLIGHT

The next generation emergency service provider market is very young in Kenya

BUSINESS MODEL(S)

End User:

Patients, ambulance companies and health service providers

Who pays?

Patients (either through a membership/insurance option), businesses (who want to provide cover for their employees), insurers (to purchase cover for their members,) or Governments (who want to provide access to members of public insurance schemes)

THE PLAYERS

(excl. individual ambulance companies)

flare



INVESTMENTS TO DATE

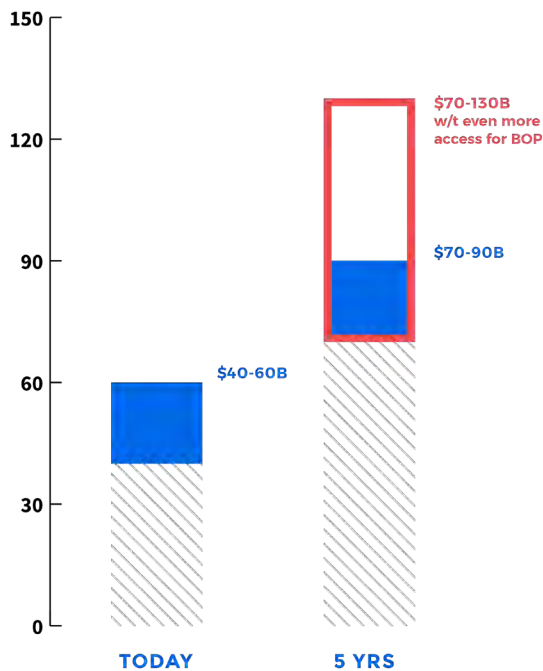
\$0.5M

raised to date

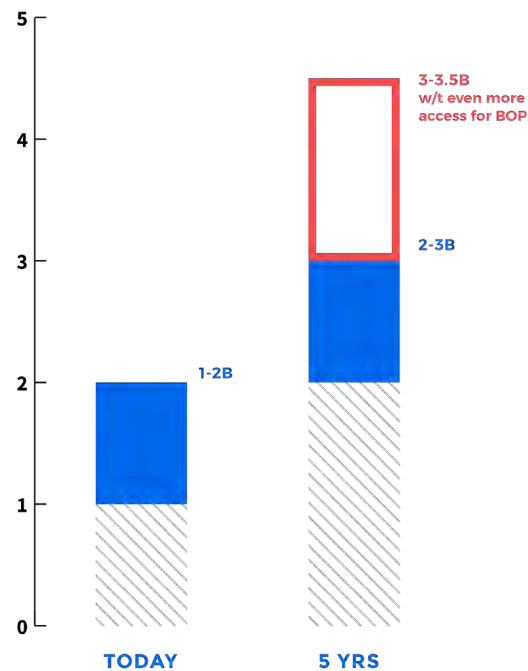
GLOBAL OPPORTUNITY

**Emerging market revenue could be 70-90B USD, covering 2-3 billion people.
If Governments subsidized memberships, then revenue would grow with coverage.**

**Potential Revenue
in Billion (USD)**
Addressable Market



**Potential Users
in Billion
People**



Sources: Dalberg analysis of World Bank data (urban population, student population, GDP per capita - PPP), PISA (school internet use), Innovator websites and interviews (price data), ITU (internet use)

ASSUMPTIONS

Based on Nairobi market:

- 5-10 USD per year per membership
- Ability to pay of 50% to 75% (assuming maximum 25% of current out-of-pocket health expenditure)

Extrapolated to global, taking country populations and adjusting for:

- Urban population
- GDP per capita (PPP)
- Internet usage

Extrapolated to 5 years time using projected figures for the year 2022

5 yrs time with even more access for BoP:

See above, except with:

- Increased uptake to 80-90% of population
- Reduction of 10% in membership costs

UNLOCKING GROWTH

To unlock demand, **local innovators** need to develop products that...

Utilize **technology to fix gaps** in the value chain.

Increase investment in **tools and resources** in vehicles.

Create payment models that meet the **financial needs of low income customers**. Prototype with people to get it right.

Connect emergency response products to **existing insurance options**.

Develop relationships and **point people in different communities** to increase access and decrease barriers.

Make a concerted effort to **build trust** for ambulances at large.

To catalyze success, **global tech players** could...

Support innovators by providing capital.

Advocate for Governments to subsidize membership.

Champion industry standards.

Support innovators through tech transfer.

To realise the potential for every child, **UNICEF** could...

Help strengthen the evidence for new emergency response systems.

Help develop **minimum standards** for emergency care.

Help **open doors** for emergency response innovation by convening innovators, Government and funders.

Work with governments to explore integrating emergency response technologies in public health system.

PARTNERSHIP PRINCIPLES

Access should be as broad as possible. UNICEF will champion private companies that **increase access for vulnerable segments who have not historically been able to afford private ambulances.**

Safety is the priority. Innovators should commit to rigorous and regular testing for reliability.

Minimum standards are needed for emergency care and transport.

Alternative methods and redundancy are needed. Best practice providers will not allow technical problems to delay service.



Commuter Ride-Sharing

WHAT IS IT?

Car pooling services offered to worker by employers to ensure that they get to work safely, to reduce their impact on the environment, and to reduce the time wasted travelling to work.

WHY IS IT IMPORTANT TO SOCIETY?

Cities face a legacy of underinvestment and poor city planning. More people are travelling further, increasing cost for commuters and congestion on the road. It is expensive to build a fair public transport system. It is hard to keep travellers safe.

WHY IS IT GOOD FOR BUSINESS?

Potential market size (by 2022):
30-70 Billion USD; ~300 Million Users

With expansion into SMEs, these figures could grow by about 15%

HOW WILL IT BE IMPACTFUL?



FEATURED USER STORY



Anya

34 YR OLD, MEXICO CITY

“On the bus there’s a lot of catcalling and sexual harassment - it doesn’t even matter what you’re wearing.”

For many women like Anya, transportation within and outside Mexico city is a big problem. Normally her commute requires taking multiple trains and buses to get to the final destination. With traffic and other delays it can often take 3 hours each way. **‘How much time people spend commuting to and from work each day is just crazy.’**

When Anya can afford it she uses a pooled ridesharing service to get to work because it’s a much more pleasant experience. **‘Using ride sharing to get to work is such a luxury. I sit the whole ride and pull up to the location.’**

Anya spoke of other safety benefits of using pooled ride sharing services such as being able to see the details of the driver, co-passengers, and their user

ratings. **‘I select my ride based on the reviews, amount of time, and the rating of the driver.’** But Anya is still looking to improve her experience and believes these platforms can do more to increase safety.

‘Maybe there should be a panic button for passengers and drivers. Safety is an issue for everyone here. It’s especially important for women because they get harassed all the time.’

She would also love to find more affordable ride sharing options to get to and from work. **‘If there was a way to better manage the commute I think a lot of people would do it—traveling 3 hours each way is exhausting. There has to be a better solution to the traffic here sometime soon.’**

FRAMING SUMMARY

**We believe
Commuter
Ride-Sharing
technologies
meet user needs
and have viable
business potential
because...**

WE LEARNED FROM PEOPLE

Getting to work is work for millions of people everyday

Women bare the biggest burden with long commutes

So, there is a hunger for more enjoyable, safe, affordable commutes

WE KNOW THAT

Cities face a legacy of underinvestment and poor city planning

More people are travelling further

It is expensive to build a fair public transport system

It is necessary but hard to keep travellers safe

FEATURED INNOVATOR STORY



Founded: 2014

Based in: Mexico & USA

Employees: 15+

Revenue: Not disclosed

Total Investment: ~1.5M USD

Investment Stage: Seed

Business Model: B2B (with customers splitting cost of each commute)

SPLT is a corporate ride-sharing enterprise launched based in Mexico and the USA founded in 2014.

SPLT's offers a ride-sharing services which matches the routes of employees to work, allowing them to split the cost of the commute. The company pays for SPLT and offer it as part of their employment package.

By using SPLT, employees are able to avoid the usual dangers of their commute by controlling who they ride with, and they save by sharing the cost of each commute.

Companies which use SPLT ensure that all their employees are able to reach work more safely and reduce their carbon emissions. For example, during a 6 month pilot with Bosch in Mexico, SPLT found that 1000 employees saved 75,000 KM of driving.

SPLT is continuing its expansion in the Americas and looking at ways to work with smaller businesses, as part of their expansion approach.

LOCAL SPOTLIGHT

The nascent ride-sharing market in Mexico City is set to grow

BUSINESS MODEL(S)

End User:

Employees of large businesses, usually blue or entry-level white collar workers

Who pays?

The employer (sometimes with employees also contributing towards the costs of trips) or individual commuters or travellers

THE PLAYERS

(Estimated 3-5 companies)



INVESTMENTS TO DATE

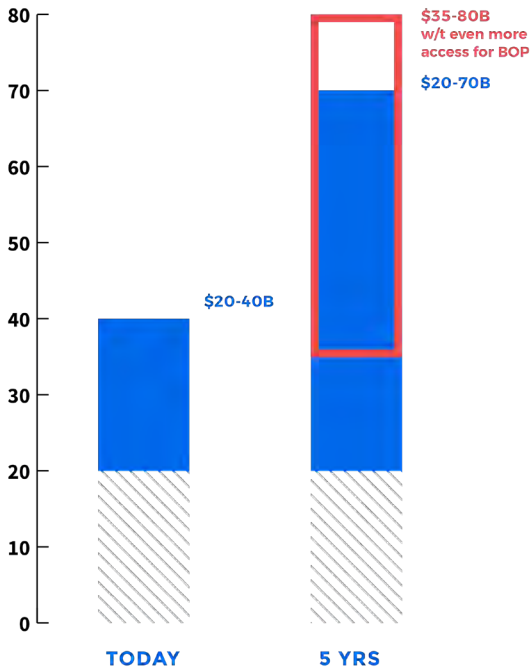
~\$2M

Raised to date across platforms we have engaged

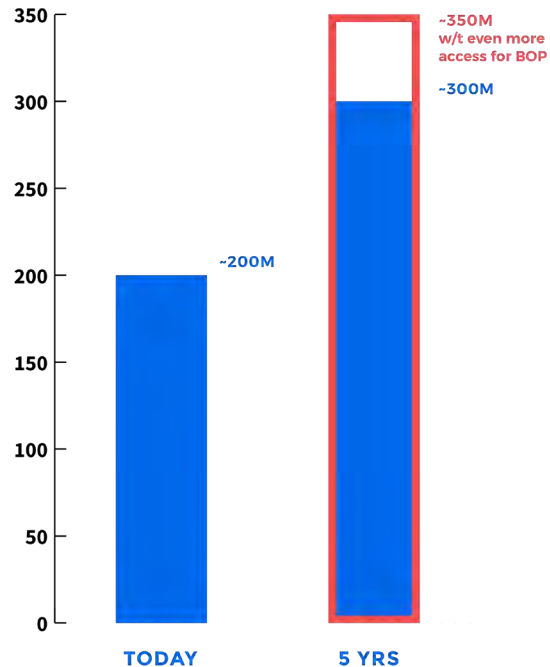
GLOBAL OPPORTUNITY

Market revenue could be 30-70B USD, covering ~300 million people.

**Potential Revenue
in Billion (USD)**
Addressable Market



**Potential Users
in Million
People**



Sources: Dalberg analysis of World Bank data (urban population, GDP per capita - PPP), INEGI (number of employees), UN Habitat and Globescan (commuting distance), Innovator websites and interviews (price, uptake data), ITU (internet coverage)

ASSUMPTIONS

Based on Mexico City market:

- 50% of number of large enterprises
- 30% uptake of staff in each enterprise
- Average distance of commute of 6500-9000 kilometers per year per person
- Price of 0.16-0.27 USD per kilometer (not including costs shared by riders)

Extrapolated to global, taking country populations and adjusting for:

- Urban population
- GDP per capita (PPP)
- Internet usage

Extrapolated to 5 years time using projected figures for the year 2022

5 yrs time with even more access for BoP:

See above, except with:

- Inclusion of staff working in medium-sized enterprises

UNLOCKING GROWTH

To unlock demand, **local innovators** need to develop products that...

Reduce commuting costs for customers **through innovative business models**.

Make the experience enjoyable so people continue to use it, and employers continue to offer it as an incentive.

Use technology to sort out the **logistics**.

Develop features that **reduce safety threats** specific to the context.

To catalyze success, **global tech players** could...

Be first movers in markets where your employees are commuting long distances

Advocate for better regulation that allows for ride sharing innovation

Provide patient capital for innovators.

To realise the potential for every child, **UNICEF** could...

Convene and help Governments and industry to develop safety standards which meet the needs of vulnerable children, youth and women.

Advise decision-makers on how to design regulation that supports ridesharing innovation.

PARTNERSHIP PRINCIPLES

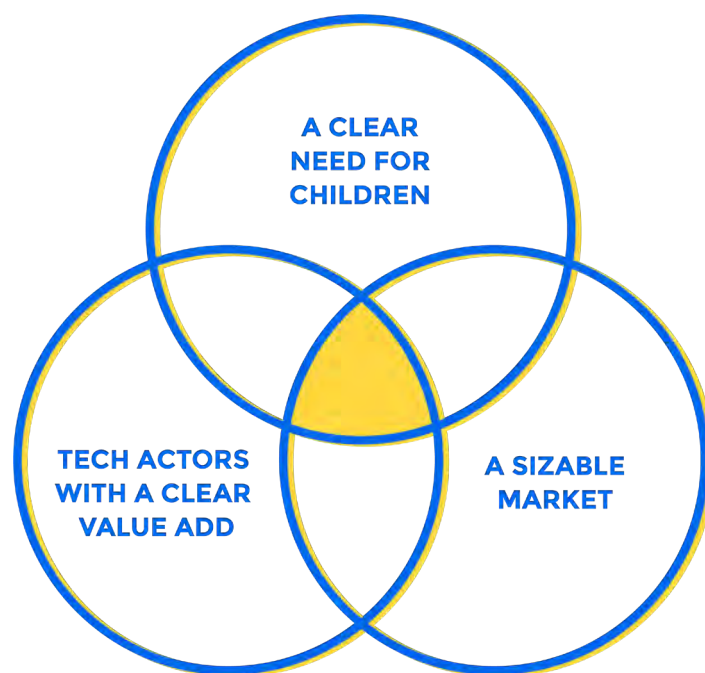
Safety of riders is the first priority. innovators should hold themselves to account for safety even in countries where safety regulation (or its enforcement) is insufficient.

Effective transport systems require collaboration. Holistic solutions are always the best solutions.

Closing

We conducted this research to identify where clear needs for children overlap with sizable markets and **clear shared value for tech actors.**

We believe that the nexus of these elements represents the best opportunities to do good and do good business. We want to work together to realize this potential for impact as equal partners, with a shared belief in the role that technology partners can play to positively transform the lives of the poor. Urban innovation is a new frontier for UNICEF innovation, and as such we seek visionary partners to work with us as we set out to design and develop new innovation projects and projects in this space, building on our year of research and scoping.



Links:

[UNICEF Innovation](#)

[Urbanization Handbook](#)

[Market Sizing Annex](#)

[SDG Impact Cards](#)

For more questions, contact us at:

urbantechbets.org



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Dalberg