Road Repairs Done Better

Mobilized Construction

What am I going to be talking about

Myself ï Who am I? Why am I digging up roads?
Mobilized Construction ï What do we do?
Mobilized Construction ï The positive (and negative) Impact ?
Social Business ï What is it?
Social Business ï What are we doing wrong?
Social Business ï How do you get involved? (and should you?)

Johan?

Johan Juul Jensen

Bachelor International Udviklingstudier from Roskilde University

- Co-founder Think Rights – Danish Forum for Human Rights
- Co-founder UNYA Denmark
- Co-founder Play It On Denmark, Germany, USA
- Student Assistant Danish Institute for International Studies

Master of Public Policy specialized in Social Innovation Management from Hertie School of Governance & Georgetown Uni

-Business Development Associate ï CPC

-STC ï World Bank ï ICT DC

-Co-Founder Mobilized Construction

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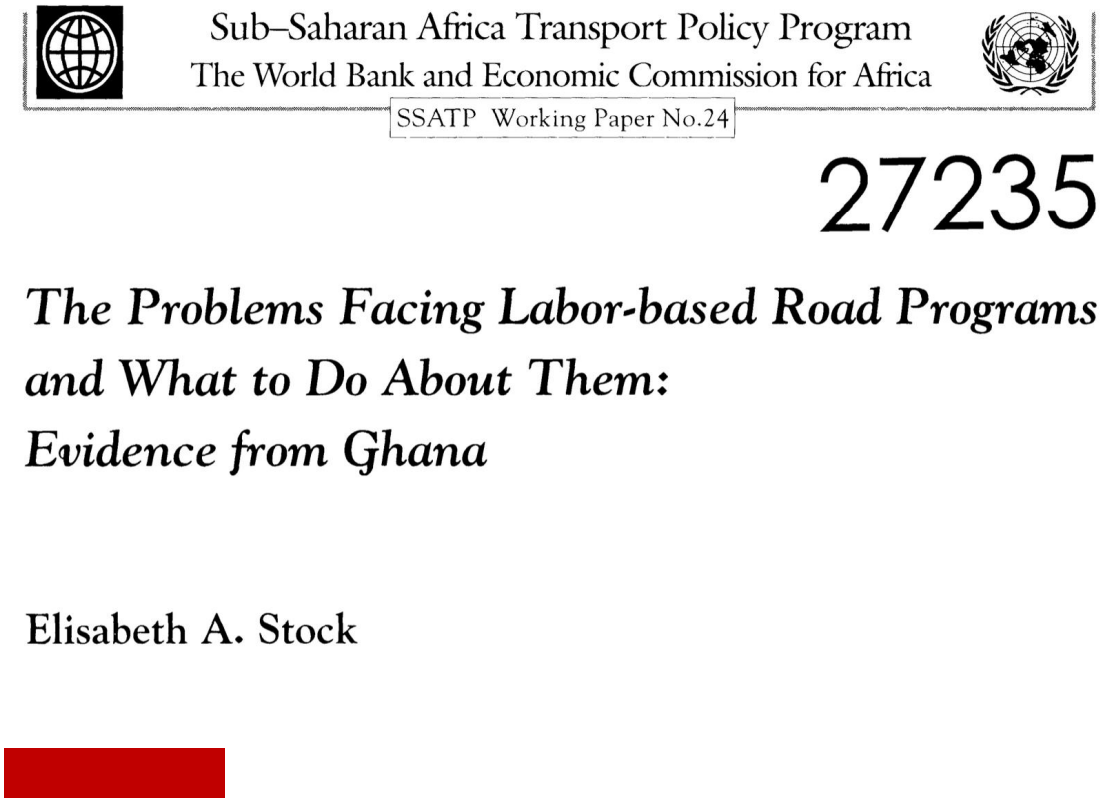
Thereôs extensive research on labor based maintenance



Sub–Saharan Africa Transport Policy Program
The World Bank and Economic Commission for Africa

SSATP Working Paper No.24

27235

The Problems Facing Labor-based Road Programs and What to Do About Them: Evidence from Ghana

Elisabeth A. Stock

ROADS AND FARMING: THE EFFECT OF INFRASTRUCTURE IMPROVEMENT ON AGRICULTURAL INPUT USE, FARM PRODUCTIVITY AND MARKET PARTICIPATION IN

Effect of rural transportation system on agricultural productivity in Oyo State

Journal of Social Science Studies
ISSN 2329-9150
2015, Vol. 2, No. 1

Rural Roads and Agricultural Development in

The Burden of Maintenance:

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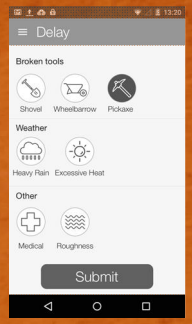
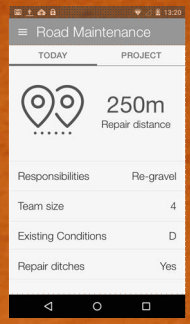
We have a two phase go-to-market strategy to reach governments

Step 1: Data-driven road intelligence

Collect road conditions data

Step 2: Road maintenance





Hire local maintenance teams

Pay individuals through mobile

Why governments will adopt

Limited real-time data and engineers typically observe conditions by eye

Avoid high upfront investments and repair more roads

No standards to determine when to repair roads besides time or politics

Job creation with repair flexibility and local capacity building

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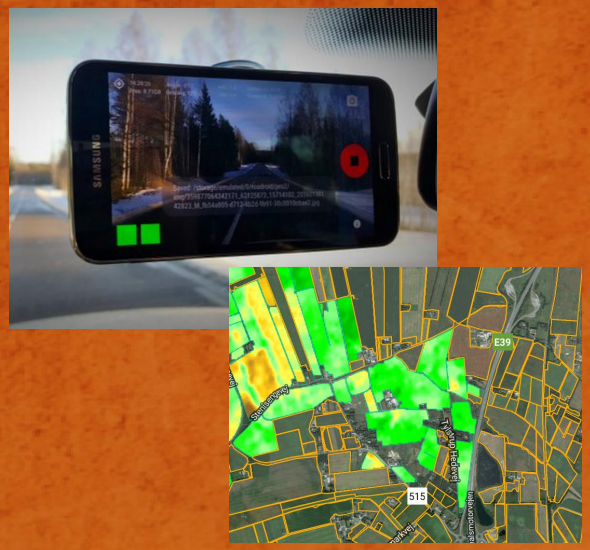
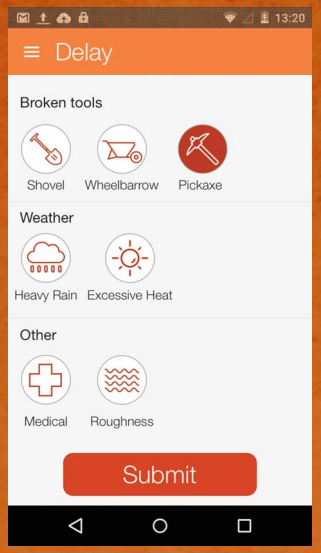
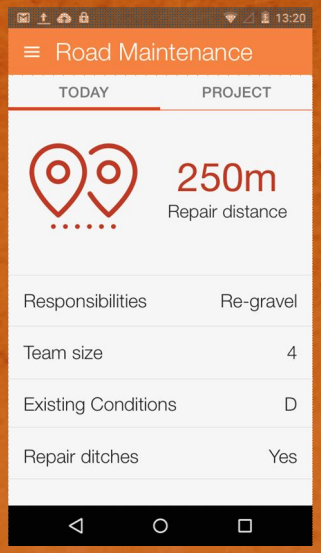
Our software platform enables governments to use labor-based road repairs



Collect road conditions data by using phone accelerometer to measure roughness





Create micro-contracts to enable local individuals to repair roads and monitor progress

M-PESA
Orange Money
airtel money

Pay individuals using mobile payments once road repairs meet quality standards

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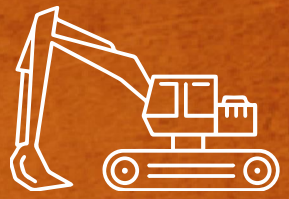
Labor-based repairs through our software saves 80-90% compared to heavy machinery

Labor-based repairs

Cost: $1,000-2,000 per km



Heavy Machinery / Consultants

Cost: $7,000-15,000 per km

Technology	
Software Licenses	$1.44
Hosting	1.20
Mobile phones	2.45
Mobile payments	9.60
Project management	46.08
Total per km	**$58.32**

Manual labor	
Productivity	20m / day
Man days per km	50 days
Wage per day	$10 / day
Total per km	**$500**

Tools & materials	
Stones	$50
Dirt	100
Tools	50
Total per km	**$200**

Kenya Road Board government estimates, quotes from Kenyan Contractors, World Bank.

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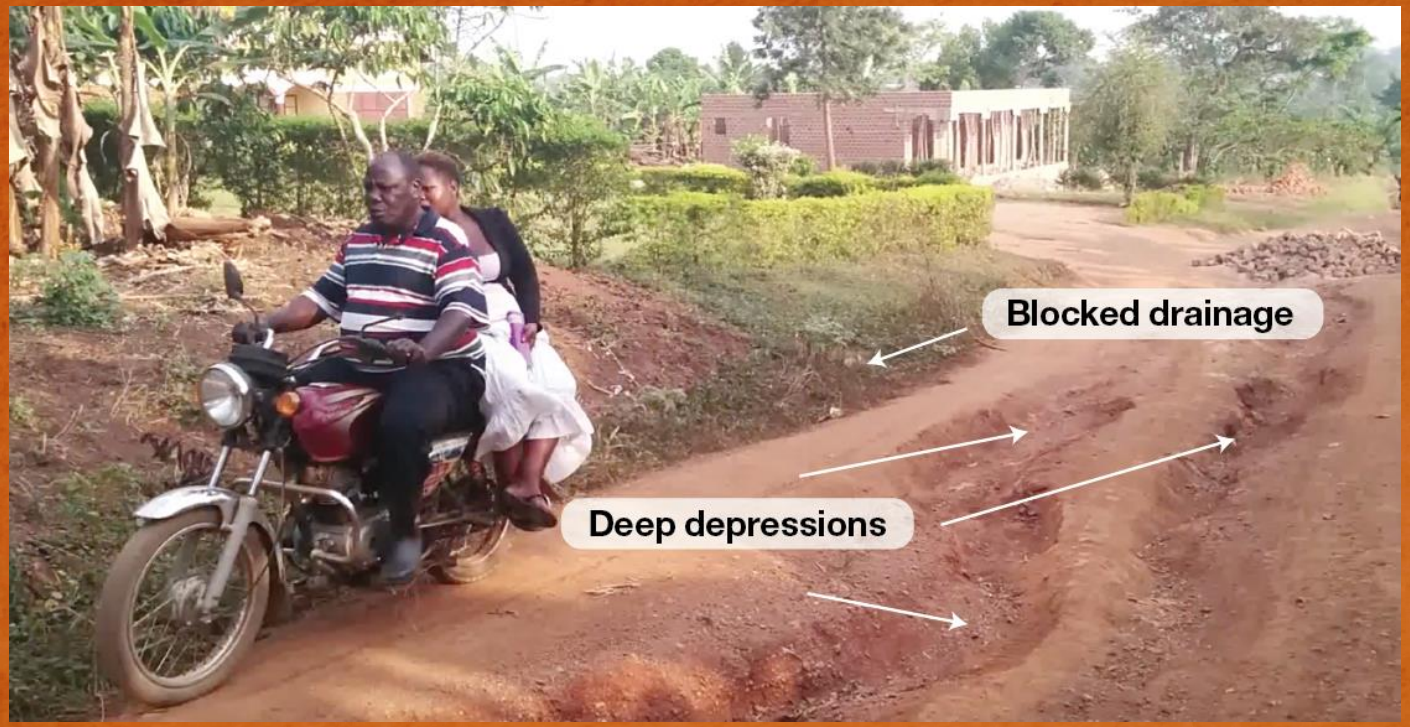
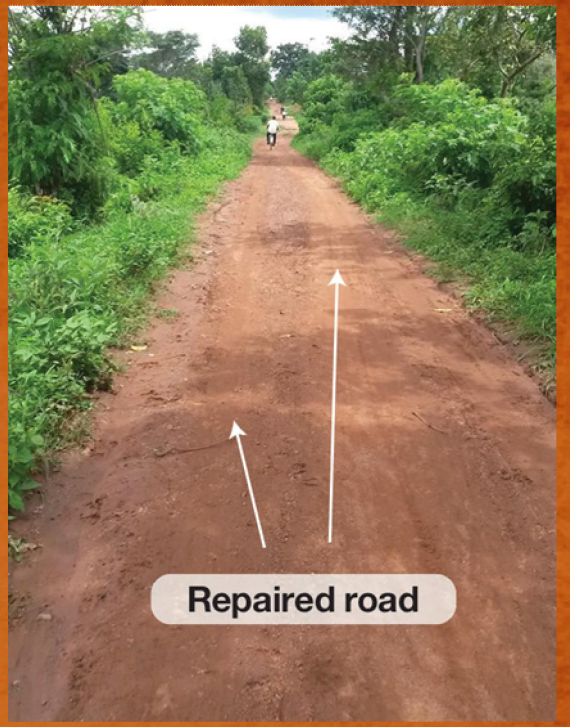
Road conditions from our project in Uganda

Previous road conditions



Post-rainy season



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Labor-based road repairs in Uganda

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Enabling impact across sectors

Health

- Road safety
- Hospital visits
- Emergency services
- Cost of medicine
- Accessibility

Agriculture

- Crop productivity
- Crop mix
- Crop spoilage
- Transport distance
- Farmer income

Water

- Road safety
- Transport distance
- Time and frequency
- Accessibility

Education

- Road safety
- School attendance
- Literacy & communication
- Lifetime earnings

Markets

- Cost of goods
- Job creation
- Fuel consumption
- Sustainability
- Transportation times
- Market access

Conflict

- Community networks
- Enabling production
- Creating opportunity
- Capacity building

Existing research shows impact to agriculture

Cost of Goods

50-75% of the retail price of a good[1]

Capacity Building

60% of Africans do not live within 2km of an all--season road[5]

Farming Inputs

15kg of inputs used per hectare in sub-Saharan Africa[3]

Job Creation

Employment in rural areas to supplement incoming

Sustainability

Improves fuel efficiency by 1-2%[4]

Farmer Profits

Farmers receive less than 20% of the market price[5]

Transportation

Development of non - traditional high - value export products[6]

Market Access

ñTraders pay the farmers what they wantò- AfDB[3]

1: The Economist: Get a move on. 2: The Belgian Development Agency. 3: The Economist: A green evolution. 4: The Concrete Sustainability Hub at MIT. 5: The World Bank. 6: Rwandan Government Agriculture Sector Investment Plan.

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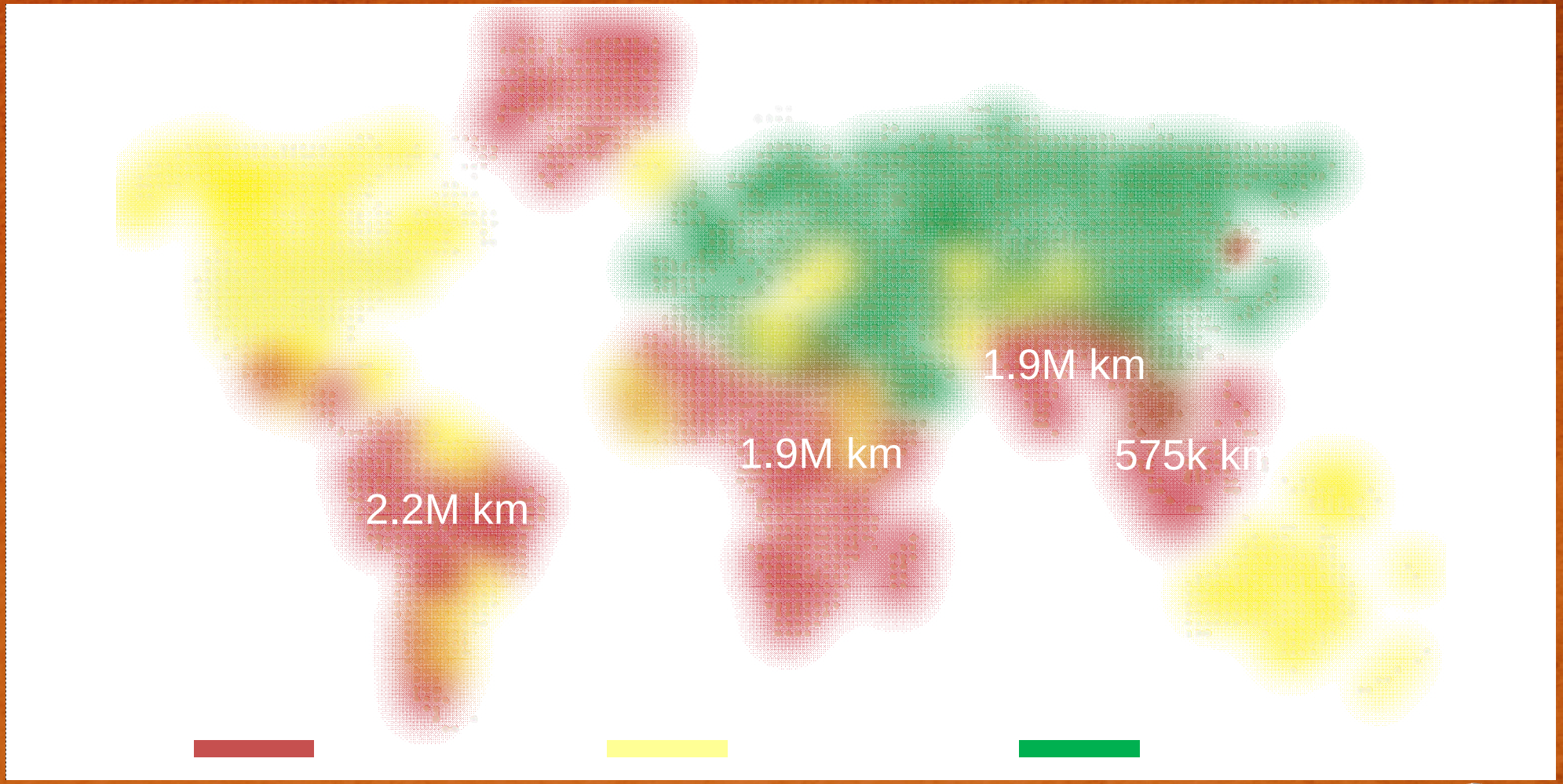
Over 1 billion people face limited road accessibility



CIA World Factbook

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Jobs in Kenya?

35000 net new jobs created

or the same as 11 x Safaricom

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Pan African or globally?

470.000 new jobs created on the African continent

1.6 million new jobs on the southern hemisphere

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UBER

Rebuild roads. Empower entire communities.
johan@mobilizedconstruction.com
Twitter: @MobilizedC &
@johanjuuljensen
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We generate revenue by facilitating road repairs through our software platform

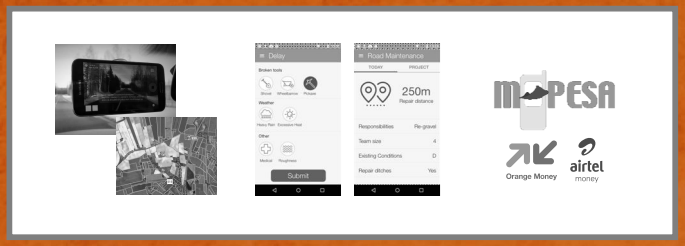
Funders

Gov

DFIs

Private

MC Software



Communities

Manual labor

Revenue: $200 per km per year

Sample project: 500km (Small county - Busia)

MC Revenue: $100,000 MC Costs: $29,000

Government road repair budget: $1.6M

Government savings: $1.1M

Sample project: 45,000km (National - Kenya)

MC Costs: $2,550,000

MC Revenue: $9,000,000

Government road repair budget: $66.0M

Government savings: $20.3M

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We are raising funds to accelerate field testing and product adoption

$300,000 funding

$150,000 project operations

$150,000 technology + government relations

$500 labor cost per km

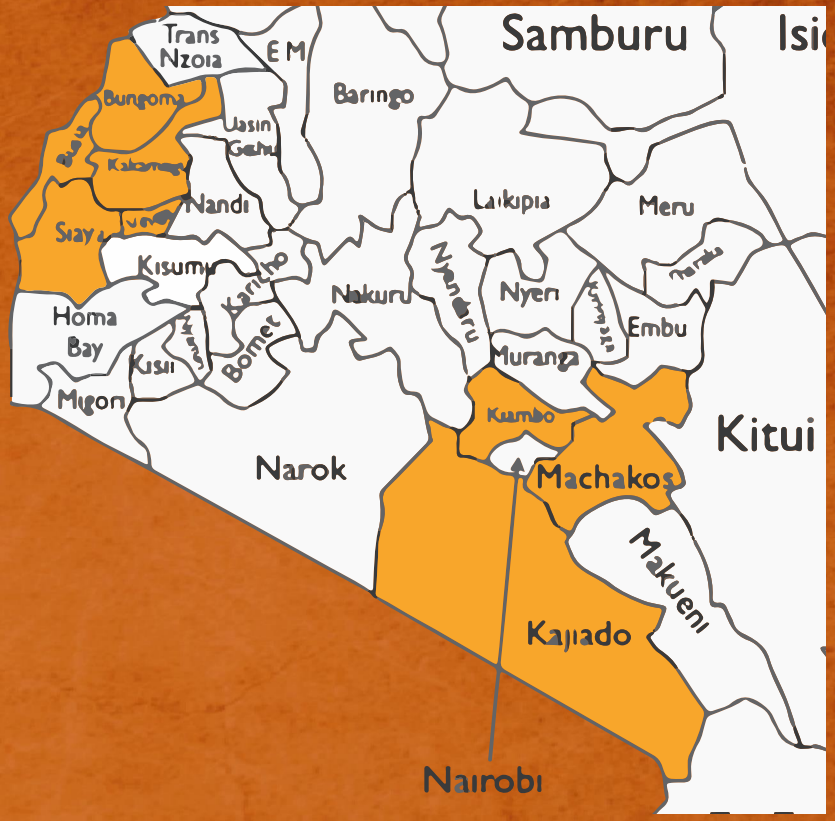
$200 materials cost per km

150-200 km road repair project, creating 50-100

full-time jobs for 6 months

Improving life for 50,000-100,000 individuals

Kenyan counties with expressed interest



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We've made incredible progress to date and believe we are 3-4 quarters from commercialization

Feb 2016

1 km built between village and health clinic in Uganda

July 2016

Relocated to Kenya and discussions with county and national governments

Today

Relocate to Washington D.C. for outreach to foundations and development institutions

August 2017

Begin additional software testing via new road repair project in Kenya

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Appendix

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Risks and challenges exist but we will mitigate and minimize them

	Risk	Mitigation strategy	
Sale-cycle	Agreements typically take 12-18 months with foreign governments	1. Opened outreach to DFIs like the World Bank and AfDB from D.C.	2. Hired government relations liaisons in Kenya to continue outreach and keep our software top of mind
Local adoption	Communities may not want to use manual labor to repair roads	1. Target areas who have expressed interest and high unemployment to create jobs	2. Communicate with local communities early and often throughout training and operations
Technology	Software may need to be customized by region	1. Assembled strong team with overlapping skills in technology and international development	2. Advisors with 20+ years of experience building products from diversified sectors globally

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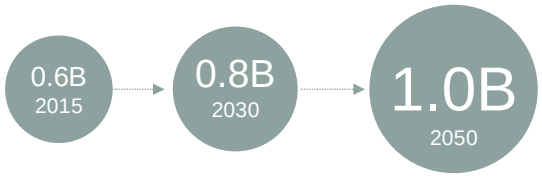
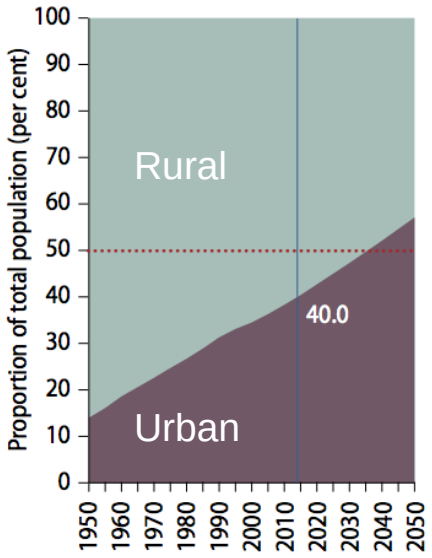
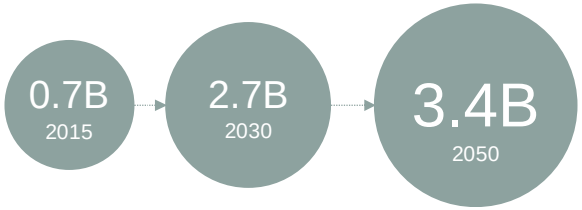
Billions of individuals currently live and will continue to reside in rural areas

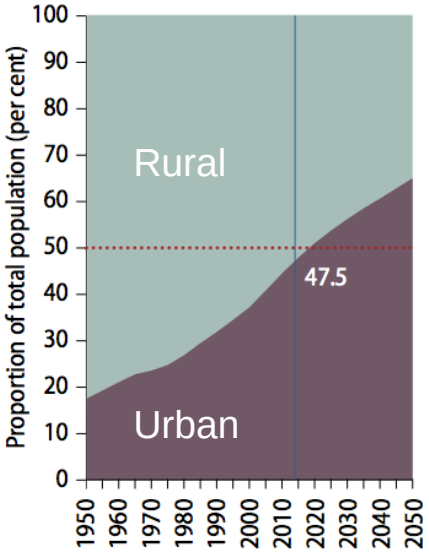
Africa



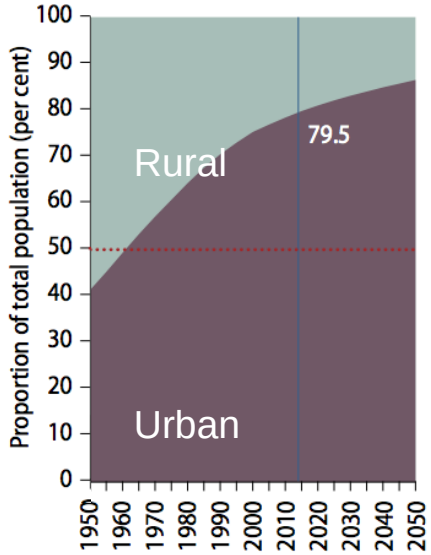


Asia





Latin American



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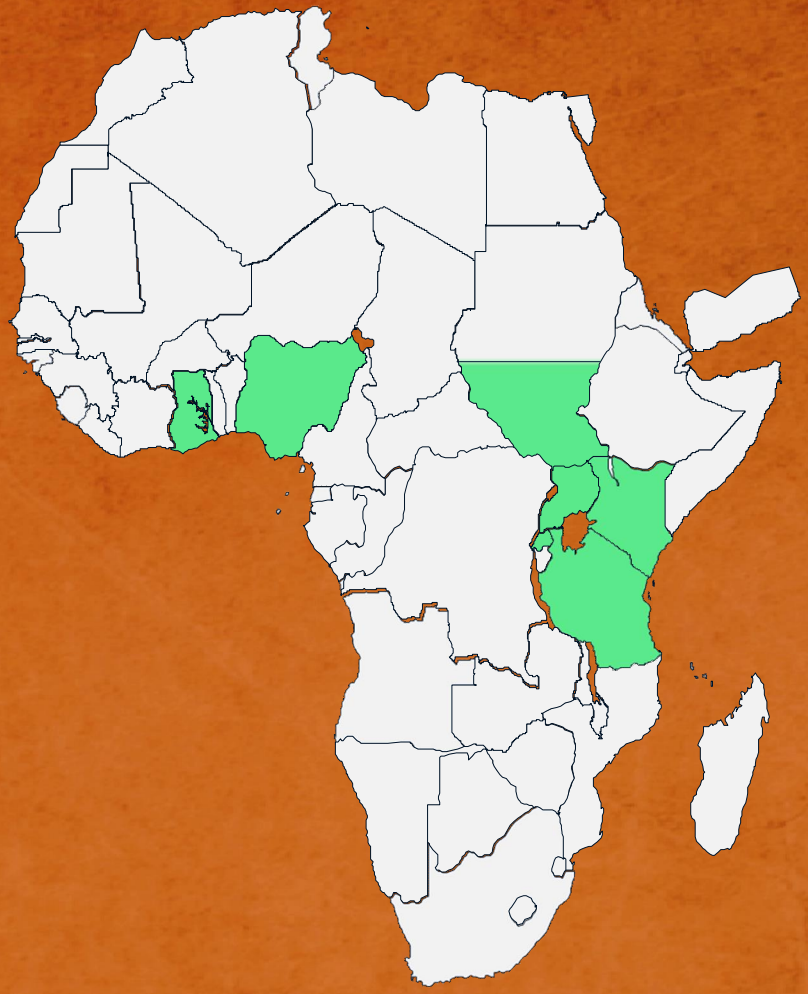
Expressed interest on the African continent

Ghana

Nigeria



South Sudan

Uganda

Rwanda

Kenya

Tanzania

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Labor-based maintenance addresses 8 Sustainable Development Goals

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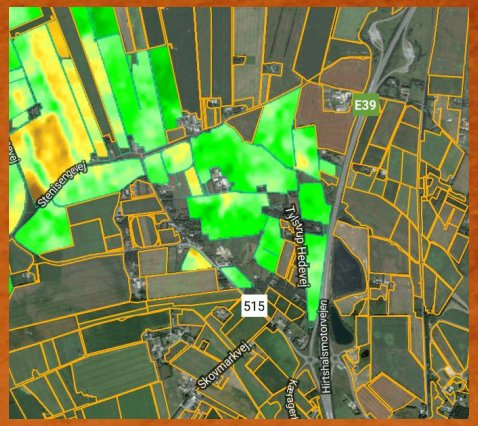
Deeper dive: Collecting data on road conditions



RoadRoid

- Car mounted smartphone
- Gathers the World Bank recognized International Roughness Index to GPS location

FieldSense

- Satellite imagery analytics to monitor road conditions
- Satellite imagery with a spatial resolution of 10x10 meters

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Deeper dive: Creating repair schedules and deploying teams

Analytics of Road Data

- Determine which roads need repairs
- Before and after comparisons for quality control

Marketplace

- Enables individuals to bid on micro-contracts for road maintenance repairs
- Transparency across public construction projects

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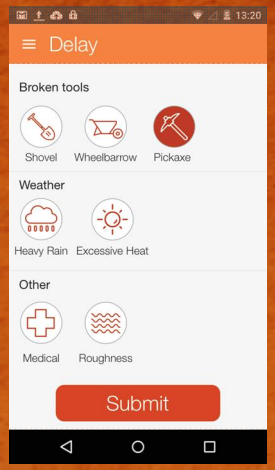
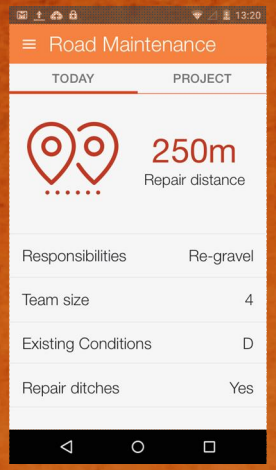
Deeper dive: Road repairs and mobile payments





M-PESA

Orange Money

airtel money

Field Supervisor App

- Send road repair parameters to individuals
- Input and track daily maintenance activities and receive updates

Mobile Payments

- Remit wages for road maintenance repairs to individuals

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1) Taxi Vognmand*Omstilling*Chauffør = Dyrt

2) Taxi Vognmand*Computer*Chauffør = Billigere (mere fortjeneste til alle)

3) (Taxi Vognmand+Computer)*Chauffør= Billigere (mere fortjeneste til vognmanden)

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