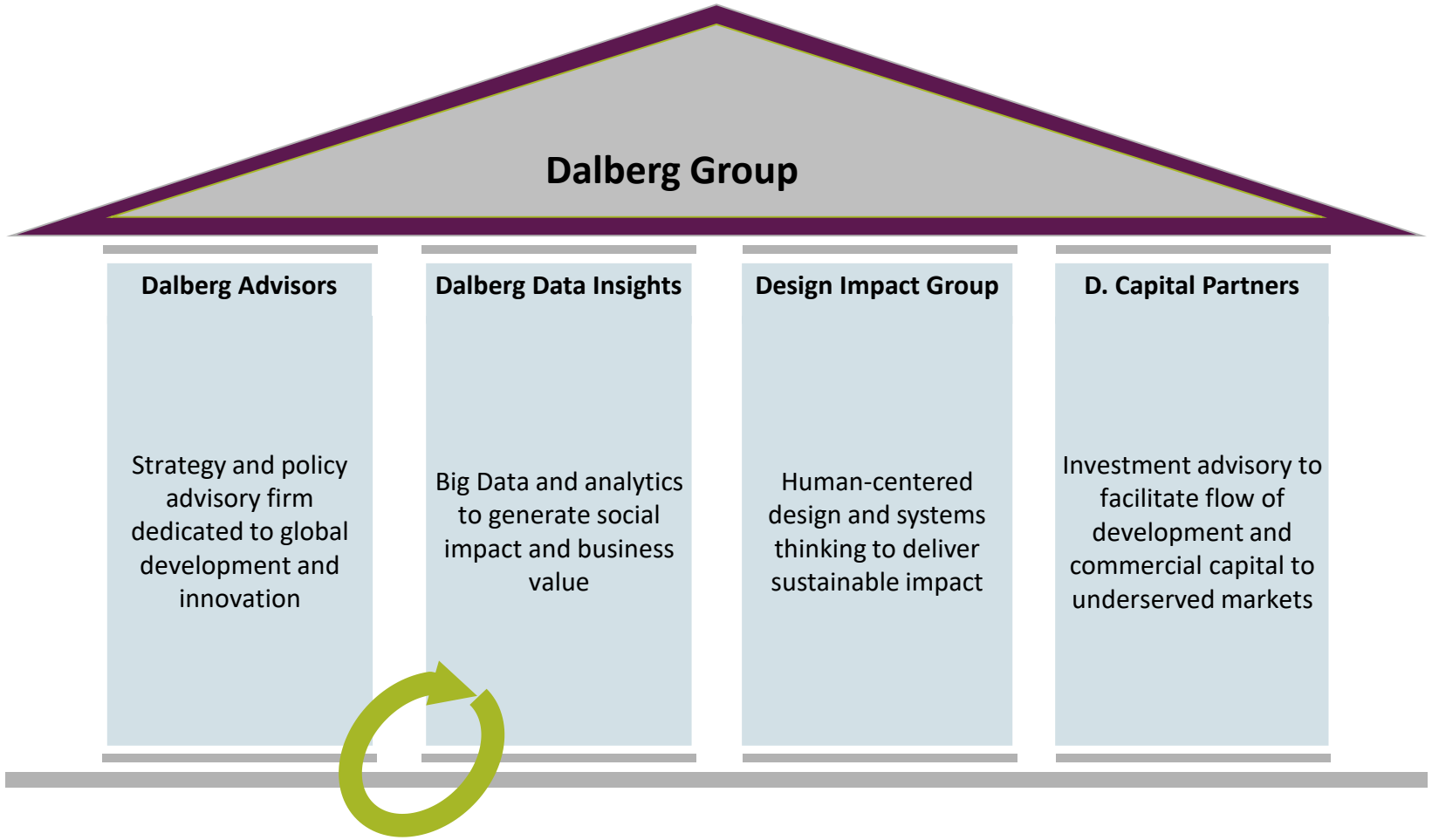
# From Policy to Start-ups: Guiding Innovation Dynamics

## WSIS Forum 2017

**Monday 12th June (14h30-18h15, ITU Tower Room A)**

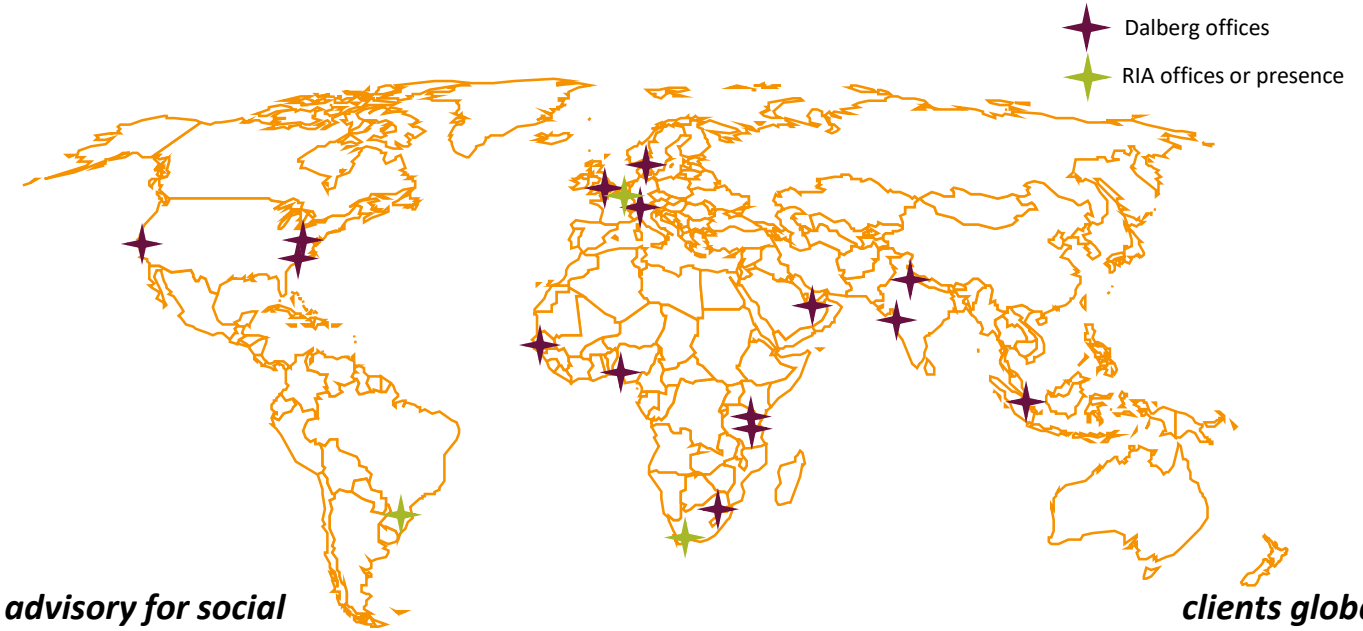
Dalberg Data Insights

# DDI is part of Dalberg Group




**Combining Big Data capabilities with strategy can lead to transformational social impact and business value**

# DDI builds on a global footprint




**Dalberg**
***world class advisory for social and economic development impact***

**RIA**
***clients globally with real time data on over 400 million people***

# DDI leverages telecom and other private data


**Have framework agreement to access data or specific contract for a specific topic**

**Own activities**

- DDI accesses the data of the private businesses (e.g. telecom operators) for their own purposes
- DDI has been supporting **telecom operators to increase their own penetration and usage of Mobile money**

**Social impact**

- DDI accesses the data of private businesses (e.g. telecom operators) to address social questions
- DDI has been supporting **local public authorities and international organizations** to address questions around financial inclusion, smart cities, public health or national statistics (e.g. gender bias)

**Other corporations**

- DDI accesses the data of private businesses (e.g. telecom operators) to support other corporations or public authorities
- DDI has been supporting the **police forces in some countries and is in discussion with advertisers** to improve their ROI

# DDI aligns multiple stakeholders

## Governments

***Brazil*** - *City of Sao Paulo*

***Uganda*** - *Kampala capital city authority and National Statistics office*

***Haiti*** – *Ministry of Public transport*

## Private businesses

Digicel – Expect More. Get More!

MTN

airtel

Telefónica

EQUITY Bank • Your Listening, Caring Partner

## Ecosystem players

BILL & MELINDA GATES foundation

WORLD BANK

UNITED NATIONS

USAID FROM THE AMERICAN PEOPLE

IDB Inter-American Development Bank

**Have framework agreement to access data or specific contract for a specific topic**

**Align ecosystem players with end-users**

WSIS FORUM

ITU-D 1992 2017 CELEBRATING 25 YEARS OF ACHIEVEMENTS

# DDI creates platforms while protecting privacy

- All individual data remain within the premises of the data providers
- All individual data are anonymized
- All individual data are aggregated
- All algorithms are open and availble
- Pushing algorithms to the data

**Big Data smart city platform**

| | | | |
|---|---|---|---|
| Module 1 – Telecom data module | Module 2 – Survey data module | Module 3 – Administrative data module | Module 4 – Retailers' data module |
| Module 5 – Satellite data module | Module 6 – Public transport data module | Module 7 – Social media data module | Module 8 – Basic technical layers |
| Module 9 – Mobility monitoring module | Module 10 – Public transport module | Module 11 – Road network module | … |

…

# DDI covers a diverse set of topics

## 1 Financial Inclusion

- Where and how to push digital payments?
- Where to further develop BC network?

## 2 Smart cities

- What are the traffic patterns?
- Where to further develop urban infrastructures?
- How to optimize public transport?

## 3 Public health

- Where to prioritize disease control and eradication?
- Are the quarantine zones enforced?

## 4 National Statistics and SDGs

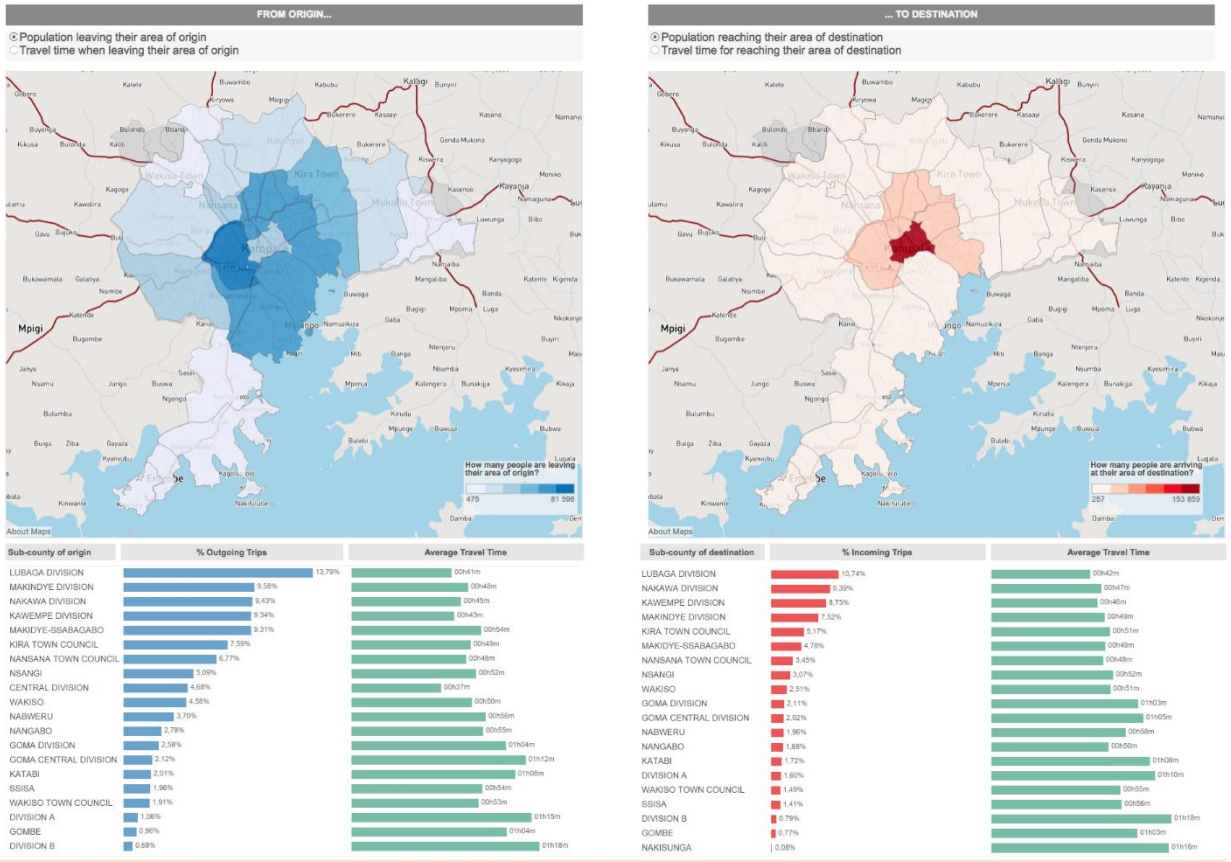
- Where do people work and live?
- Where are the poor communities?
- What are the female communities?

Innovation@ITU-D

# Monitoring mobility

Using telecom data, we mapped mobility in Kampala in real-time and assessed commuting patterns across the city.

- Understanding origin / destination flows between neighbourhoods, prioritising commuting routes and peak travel times




**We answer key questions:**

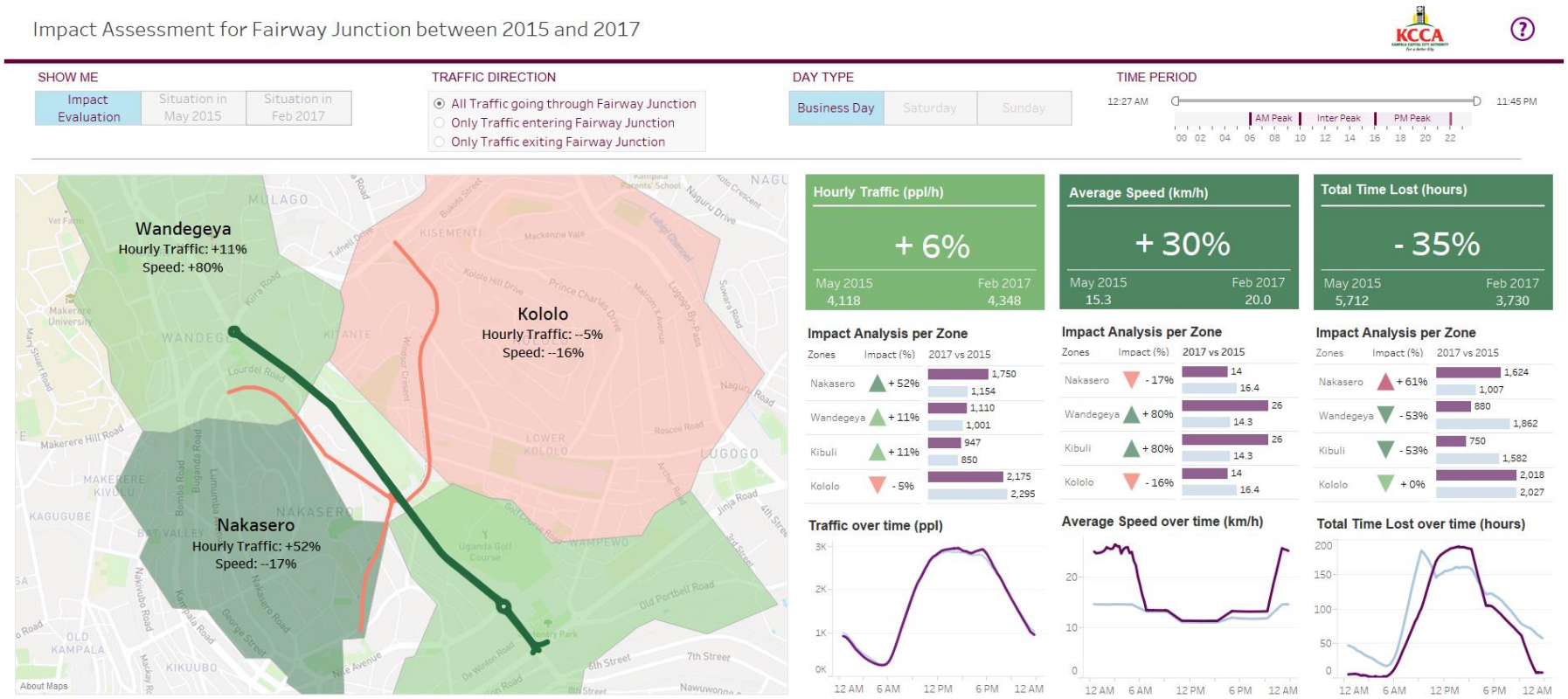
- Which places attract the most people at what times?
- What are the preferred routes between neighbourhoods?
- How many trips are taking place and how is traffic evolving over time?
- What is the speed and travel time?

**These insights can be used for**:

- Traffic monitoring
- Better planning of public transport networks
- Prioritise infrastructure investments

# Assessing real time impact on mobility

Using telecom data, we measured mobility performance before and after the building of a new junction in Kampala to understand its impact.




- Using our algorithms we mapped the origin/destination of daily commuters, estimating the flow of people and their travel time over various time periods.

**These insights can be used for**:

- Infrastructure planning and decision-making
- Assessing future investments in infrastructure projects

# Prioritize the work on Zika and Dengue

## Zika & Dengue App *Análise baseada em CDR*

**Cidade de interesse**

SAO PAULO

**Analisar**

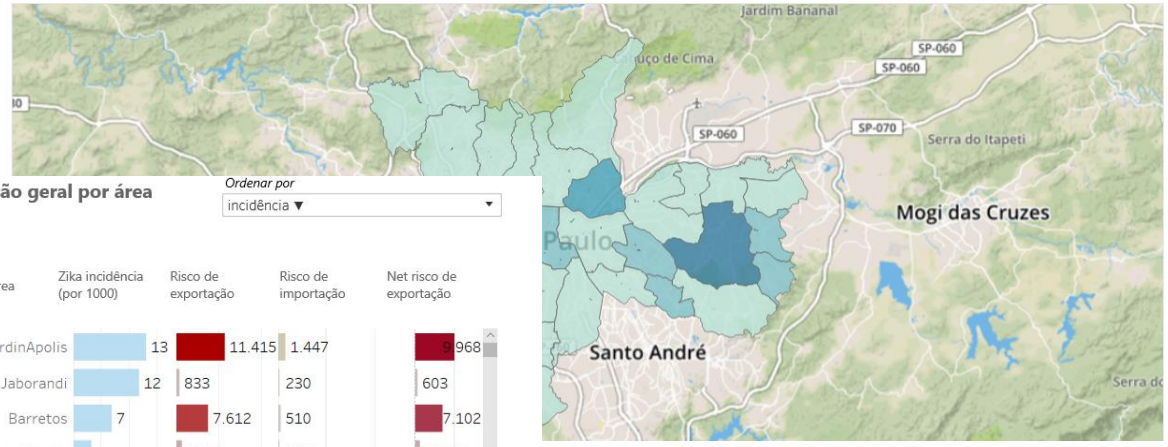
- (•) toda a população
- ( ) mulheres na idade da gravidez

**Selecione as viagens por**

Origem

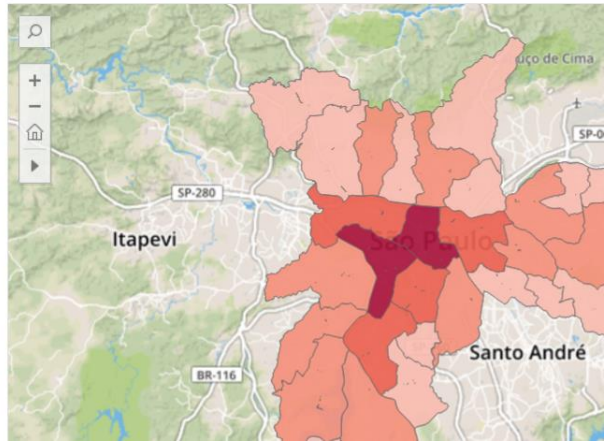
### Área de interesse

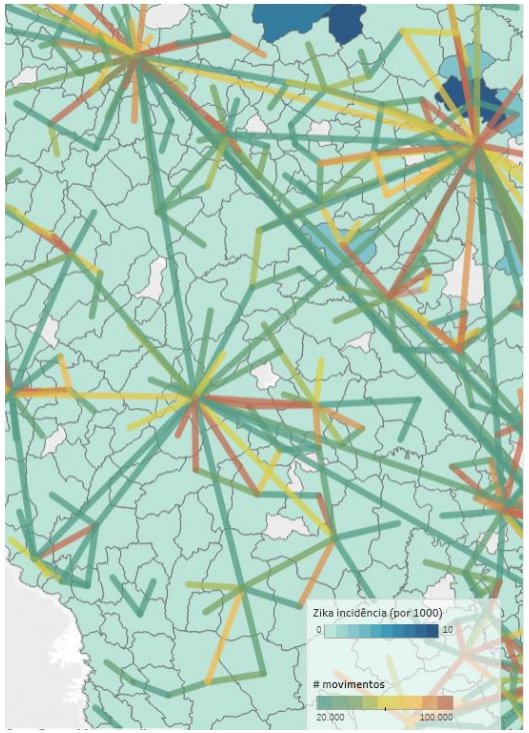
**Escolha uma área de interesse, para ver onde as pessoas viajam e a distribuição local de incidência.**




### Viagens desde a área selecionada.

**Mova o mouse sobre o mapa para ver o número de viagens desde a área selecionada.**



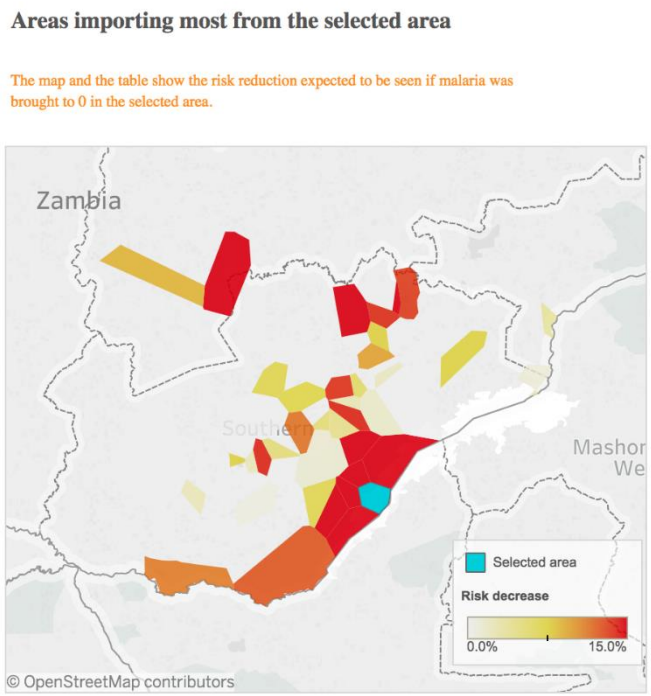

### Visão geral por área

Ordenar por: incidência

| Area | Zika incidência (por 1000) | Risco de exportação | Risco de importação | Net risco de exportação |
|---|---|---|---|---|
| JardinApolis | 13 | 11.415 | 1.447 | 9.968 |
| Jaborandi | 12 | 833 | 230 | 603 |
| Barretos | 7 | 7.612 | 510 | 7.102 |
| Santa Rita d.. | 3 | 1.502 | 117 | 1.386 |
| Brodowski | 3 | 1.008 | 831 | 177 |
| MatAo | 3 | 3.195 | 385 | 2.811 |
| TuriAsba | 3 | 245 | 15 | 230 |
| Sales Oliveira | 2 | 429 | 141 | 288 |
| RibeirAo Bo.. | 1 | 271 | 50 | 221 |
| TaiAsva | 1 | 133 | 33 | 101 |
| RIBEIRAO P.. | 1 | 10.676 | 10.029 | 647 |
| BONFIM PA.. | 1 | 440 | 324 | 116 |
| Aramina | 1 | 73 | 34 | 40 |
| Taquaritinga | 1 | 669 | 437 | 232 |
| Bento de Ab.. | 1 | 67 | 3 | 64 |
| SAO JOSA D.. | 1 | 4.102 | 1.268 | 2.833 |

# Eradicating Malaria – Where to start?

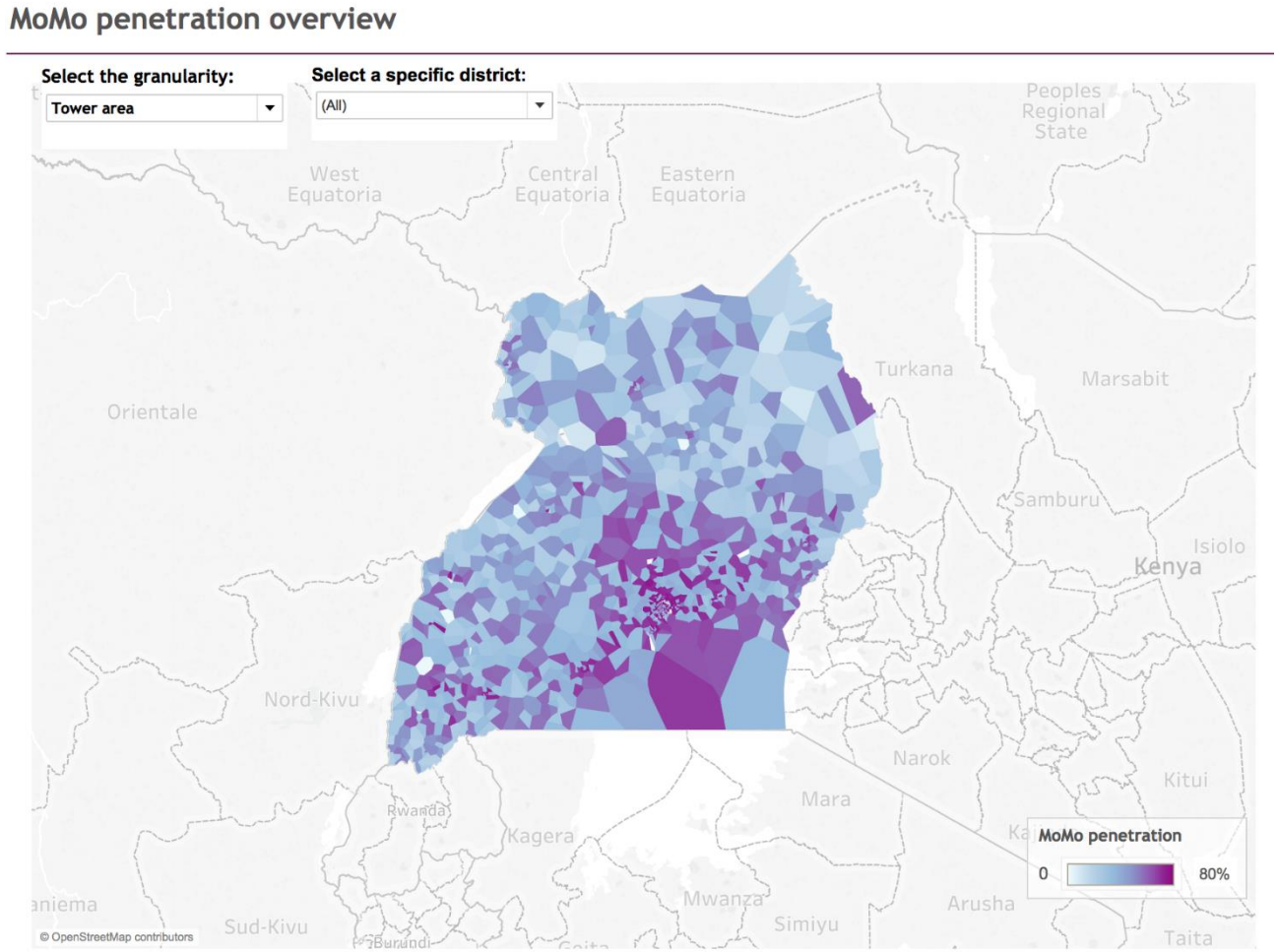
We can identify areas in which eliminating disease would have the greatest impact on disease in the overall region.


- **High export areas** can be identified by the number of areas they distribute disease to
- We can model the **decrease in risk** of disease by eliminating disease from the high export area

# Mobile money – Where are the users?

Using telecom data, we measured the development of mobile money across Uganda, identifying actionable insights to promote its growth.




**We answer key questions:**

- Who is using mobile money and in what regions?
- How is it being used by different value chains and farmers?
- What is the impact of certain mobile money programmes targeting uptake and usage?
- In what regions is more engagement needed to increase mobile money usage?

# Finding female communities

Women are reliable and efficient users of microcredit loans, but how do you target them to increase financial inclusion?

➢ **We can identify women through their phone usage patterns**

**Data**

- Airtel Uganda (39% women): CDRs, Top-ups + CRM data for the whole customer base
- Dataset A (28% women): outgoing CDRs, Top-ups + CRM data for ca 160 000 users
- Dataset B (42% women): CDRs, TOP-UPS + CRM for ca 160 000 users

**Methodology**

- Over 150 features summarizing usage patterns, social network, mobility and top-ups
- Trained random forests and support vector machines based on a labelled training sample

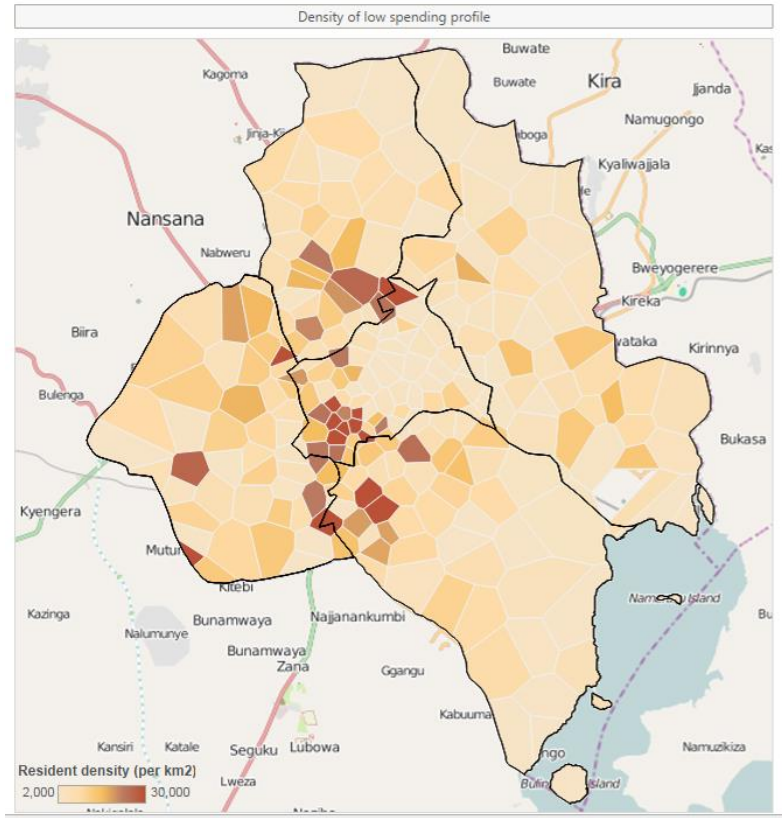
**Results**

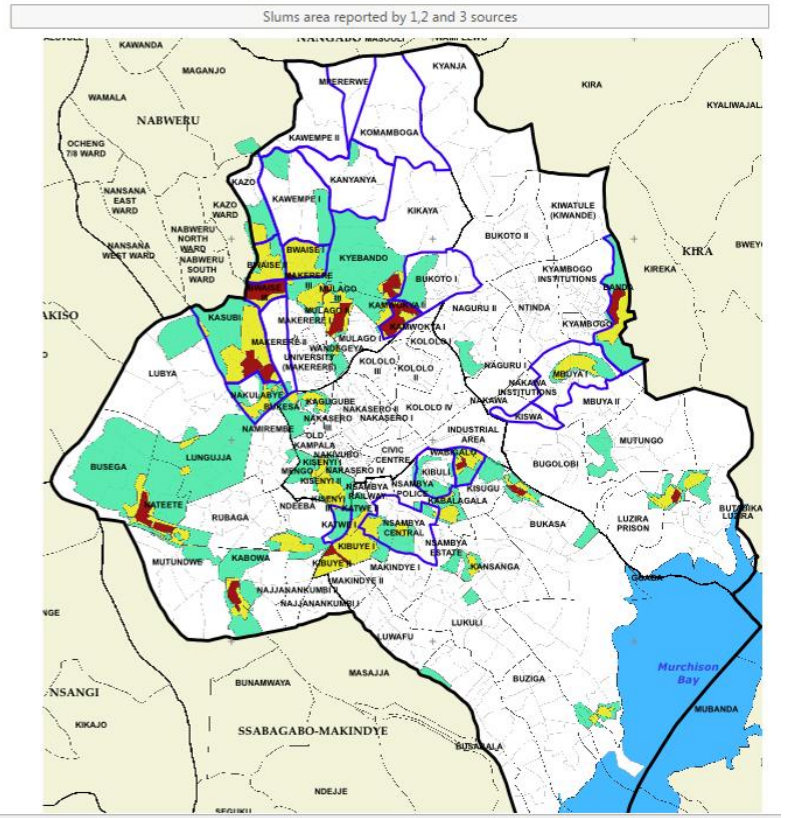
- 3 key variables determining female gender: call duration, number of outgoing calls and number of contacts for incoming calls
- Predicted gender accuracy of 70-75% and option to better target one gender group
- Lowering the coverage increases the accuracy: for dataset A we are 90% sure of the gender for 30% of our sample

# Mapping poor communities and slumps

**Distribution of telecom spending and population density based on Telecom usage**

**Mapping of poverty pockets and evolution of granular slum areas**



# Strategic priorities going forward

| | From | To |
|---|---|---|
| **Topics / Sectors** | **Pilot use cases** using aggregated public open data and some private data sources to show value and opportunities / ecosystem | **Platforms of mosty open algorithms with a network of technical partners** accessing and integrating multiple public and private data sources to address **scalable topics** |
| **Regulation** | **Research** environment | Supportive **set of laws and regulations** |
| **Data providers** | **Research** partner | **Market for data**, where data providers see data as a commodity, including economic / financial flows |
| **End-users** | **Co-developing** third parties | **Ecosystem of end-users** of operational tools, involving specific processes, e.g. resilience officer for smart cities |