



# **BIG DATA FOR URBAN CHANGE – DEBUNKING THE MYTH & A WAY FORWARD**

EXAMPLES FROM TRANSPORT IN ASIA AND AFRICA

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# Data Rich World



# People Rich World



# **CALCULATING RESPONSE**



- 1. DATA COLLECTION**
- 2. DATA ANALYSIS**
- 3. DATA VISUALIZATION**





# Data Collection

- Expensive
- Scarce
- Fragmented
- Not Shared
- Overuse of Data
  
- Infrastructure but not people

# Data Analysis Tools

Not tailored to developing country context

## Mobile Phone Data

- 90 % Pre – Paid Contracts
- Shared Use

## GPS Data

- 1 Smart Phone = 1 year income for 30% of population



# Data Visualization – Powerful policy tool



## Place Pulse

Perception of Street Safety in Salzburg  
based on Google Street View Data

MIT Media Lab, Saleses, Hidalgo & Schechtner

A woman with dark hair, wearing a red top, is shown from the chest up on the right side of the frame. She has a thoughtful expression. Above her head is a large, hand-drawn thought bubble with a scalloped edge, containing three smaller circles leading to it. The background is a light, neutral color.

# **Analysis for Big Data for Transport in South East Asia**

- **Policies**
- **Projects**
- **Technologies**

**Leapfrog with  
Mobile Phone  
& GPS Data?**



# Big Data for Transport?

## Current Policy & Project State of Play in South East Asia

Little to no evident activity or discussion

Initial interest & discussion

Introducing basic or pilot initiatives

Implementing complex, wide-scale initiatives

Cambodia

- Myanmar
- Lao PDR
- Brunei

- Thailand
- Indonesia
- Malaysia

- Philippines
- Thailand

Singapore

# Initiatives in the Philippines

## Manila

Proposal to put GPS in Manila buses

MUCEP Mobile Phone Data initiative

## Clark (Pampanga)

Clark Green City & CISCO

## Manila and Cebu

Transit mapping

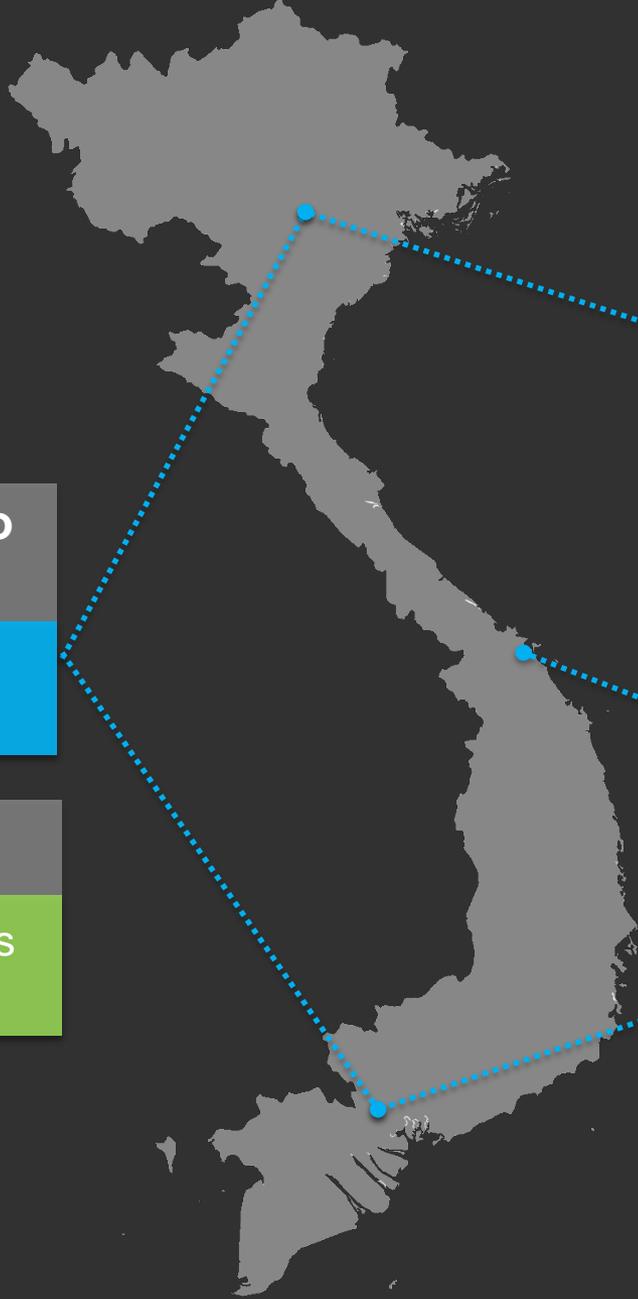
## Davao

IBM Smarter City

## Mobile apps

Waze, Google Maps, GrabTaxi/Easy Taxi, Uber, MMDA Traffic Navigator

# Initiatives in Viet Nam



## Ha Noi

Traffic monitoring

## Ha Noi and Ho Chi Minh City

GPS system for BRTs

## Da Nang

IBM Smarter City

## Government of Viet Nam

Intelligent Transportation Systems Strategy

## Mobile apps

GrabTaxi/Easy Taxi, Uber

## Ho Chi Minh

Traffic monitoring

GPS system for buses



# **Impact of Big Data in Developing Cities?**

**Why do we need tailored methods  
and tools for developing countries?**

THiếu NHị THàNH PHỐ HỒ CHÍ MINH NGUYỄN XƯNG ĐĂNG  
LÀ CÓN NGOAN, TRÒ GIÓ ĐÁU NGOAN BẮC HỒ





A large group of people, including men, women, and children, are sitting on the ground in a circle. They are all eating breakfast, with many holding bowls and eating with their hands. The scene is outdoors, and the ground is covered with a layer of snow or light-colored soil. The overall atmosphere is one of a communal meal.

**Culture eats Technology for Breakfast**

# **STILL** CALCULATING RESPONSE

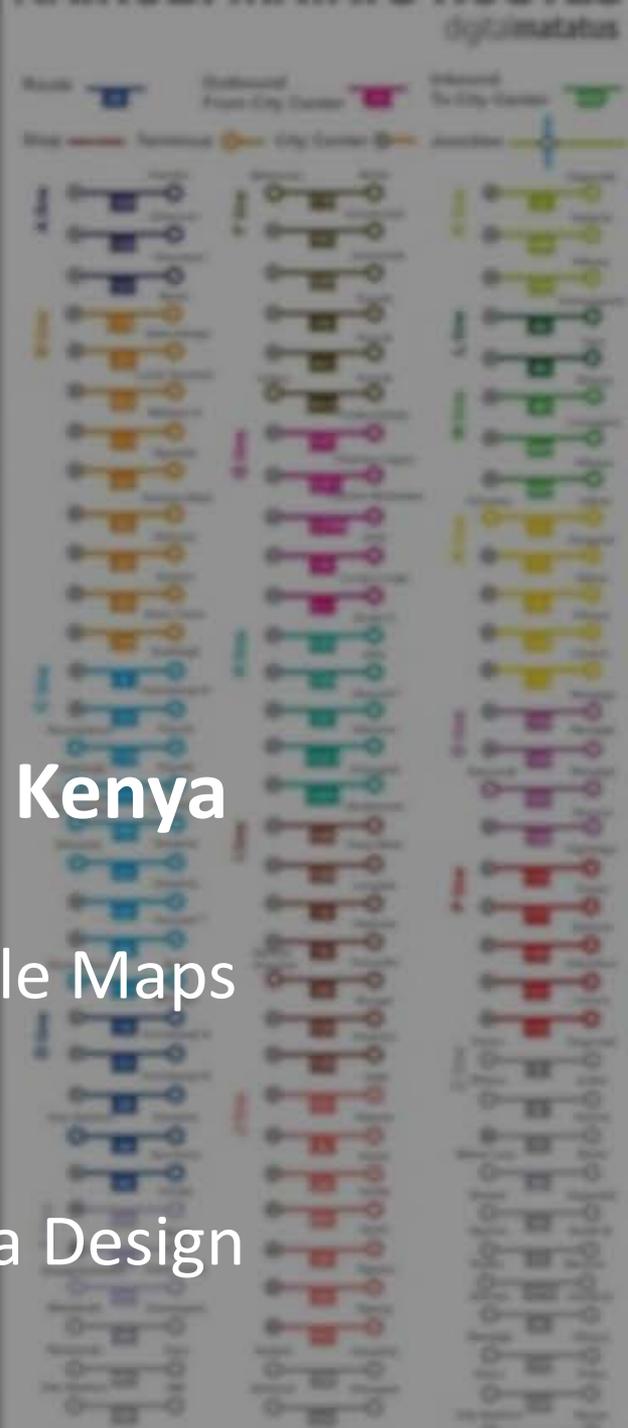




# Public Transport Planning – Dhaka, Bangladesh

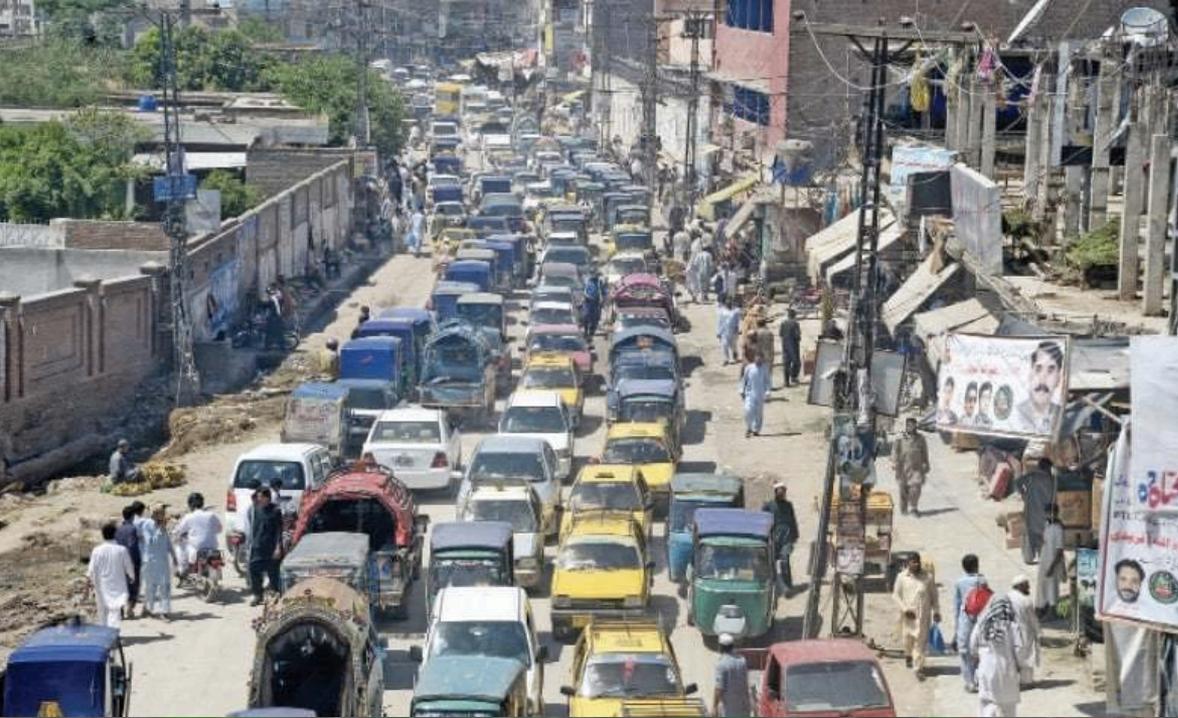
(Origin Destination Matrices - Mobile Phone Data Records)

University of Tokyo/Asian Development Bank



**Mapping Informal Transit – Nairobi, Kenya**  
(GPS Data/GTFS Standard – First informal representation of informal transit in Google Maps “Data for the rest of us”)

Digital Matatus/Sarah Williams - Civic Data Design Lab MIT



# Bus Rapid Transit Planning – Peshawar, Pakistan (Satellite Images)

European Space Agency/ Asian Development Bank



# Traffic Flow Monitoring – Manila, The Philippines (Shared Economy Data – GPS, Mobile & Crowdsourcing)

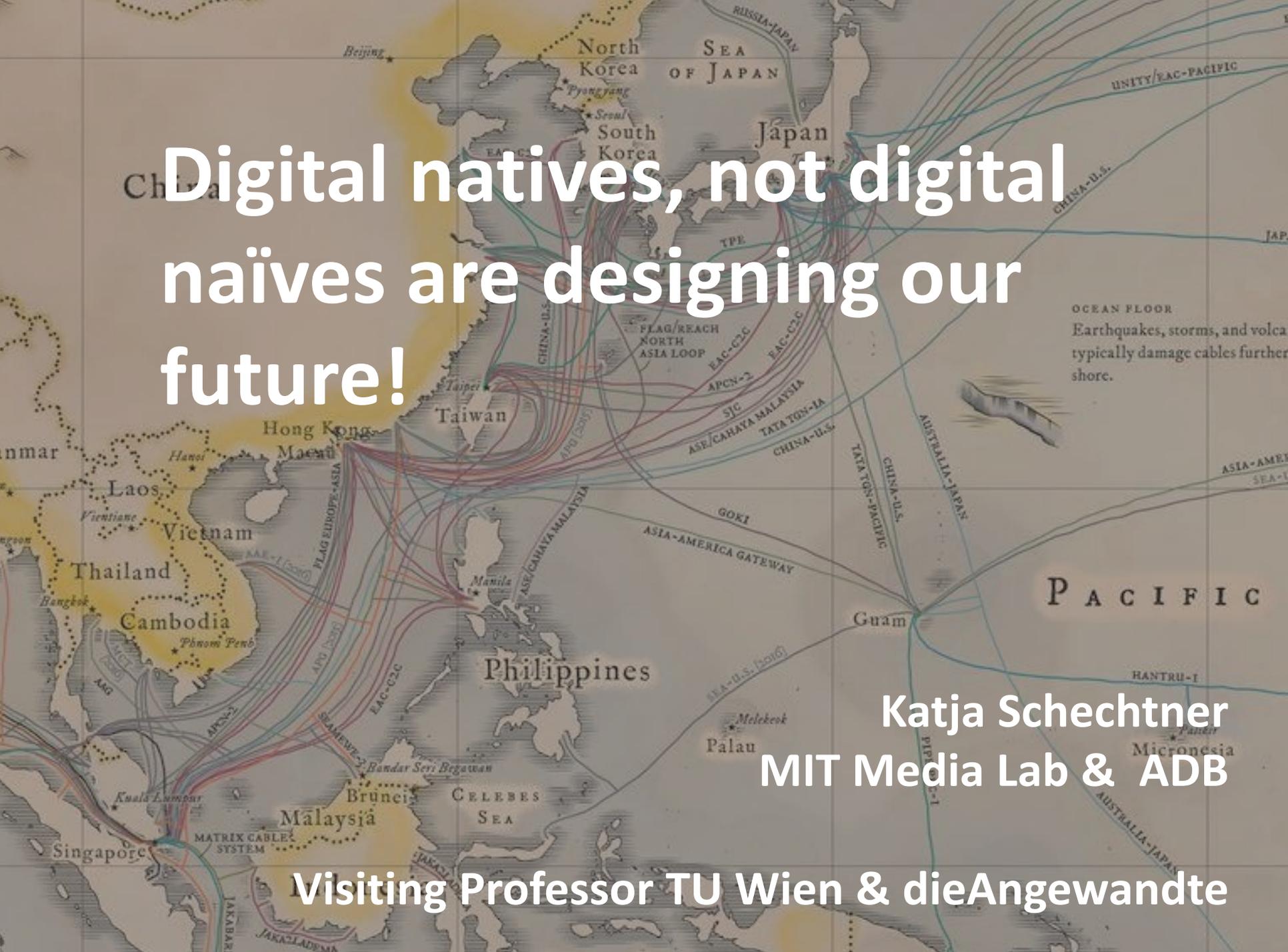
World Bank/Grab Taxi/DOTC (start Spring 2016)

A detailed map of the Asia-Pacific region, showing major submarine cables and geographical features. The map includes labels for countries like China, North Korea, South Korea, Japan, Taiwan, Hong Kong, Laos, Vietnam, Thailand, Cambodia, Malaysia, Brunei, Indonesia, and Micronesia. It also shows the Sea of Japan, Celebes Sea, and the Pacific Ocean. Numerous submarine cables are depicted with colored lines, including the FLAG EUDROP-ASIA, APCN-2, SEA-ME-WE-2, MATRIX CABLE SYSTEM, and others. A note on the right side of the map states: "OCEAN FLOOR Earthquakes, storms, and volcanoes typically damage cables further shore."

**Development Banks & Tech Know How**  
**Technology Know How of Staff**  
**Role of IT & Tech in Operations & Projects**  
**Sourcing of Tech Savy Consultants**  
**Cross-Sector Collaboration**

## **Policy Development**

**Global and national data & tech e.g. data privacy/ownership & revenue allocation from user & public data (WEF – Initiative, “Toward a New Deal on Data”, Sandy Pentland)**

A detailed map of the Pacific region, including East Asia, Southeast Asia, and Oceania. The map is overlaid with a complex network of colored lines representing submarine cables. Key locations labeled include Beijing, North Korea, South Korea, Japan, Taiwan, Hong Kong, Macau, Manila, Singapore, Kuala Lumpur, Brunei, Malaysia, Philippines, Guam, Palau, Micronesia, and Australia. Cable names include CHINA-U.S., TPE, FLAG/REACH NORTH ASIA LOOP, APCN-2, EAC-C2G, EAC-C2C, SJC, ASE/CAHAYA MALAYSIA, TATA TON-LA, CHINA-U.S., GOKI, ASIA-AMERICA GATEWAY, SEA-U.S. (twice), AUSTRALIA-JAPAN, HANTRU-I, AUSTRALIA-JAPAN, and MATRIX CABLE SYSTEM. A note on the right side of the map reads: "OCEAN FLOOR Earthquakes, storms, and volcanoes typically damage cables further shore." The text "Digital natives, not digital naïves are designing our future!" is superimposed in large white font over the upper left portion of the map.

**Digital natives, not digital naïves are designing our future!**

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**Visiting Professor TU Wien & dieAngewandte**