



Orange for Development

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Orange for Development L'exemple du challenge Data for Development

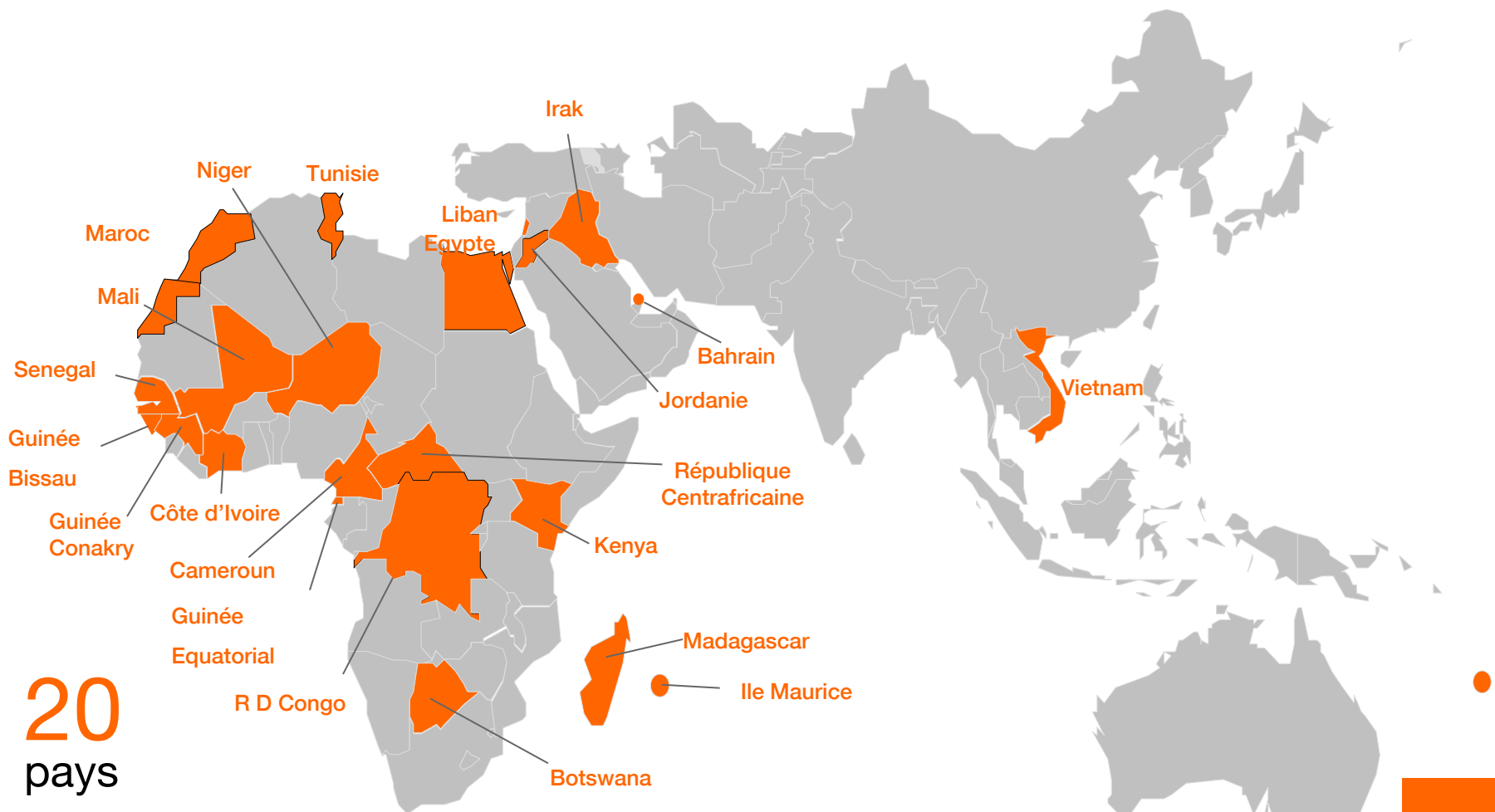
Sandrine Le Calvez– Orange Labs

Responsable projet de recherche Designed Services for Emerging Countries

12 juin 2015



Orange a plus de 110 millions de clients en Afrique, Moyen-Orient et Asie (Décembre 2014)



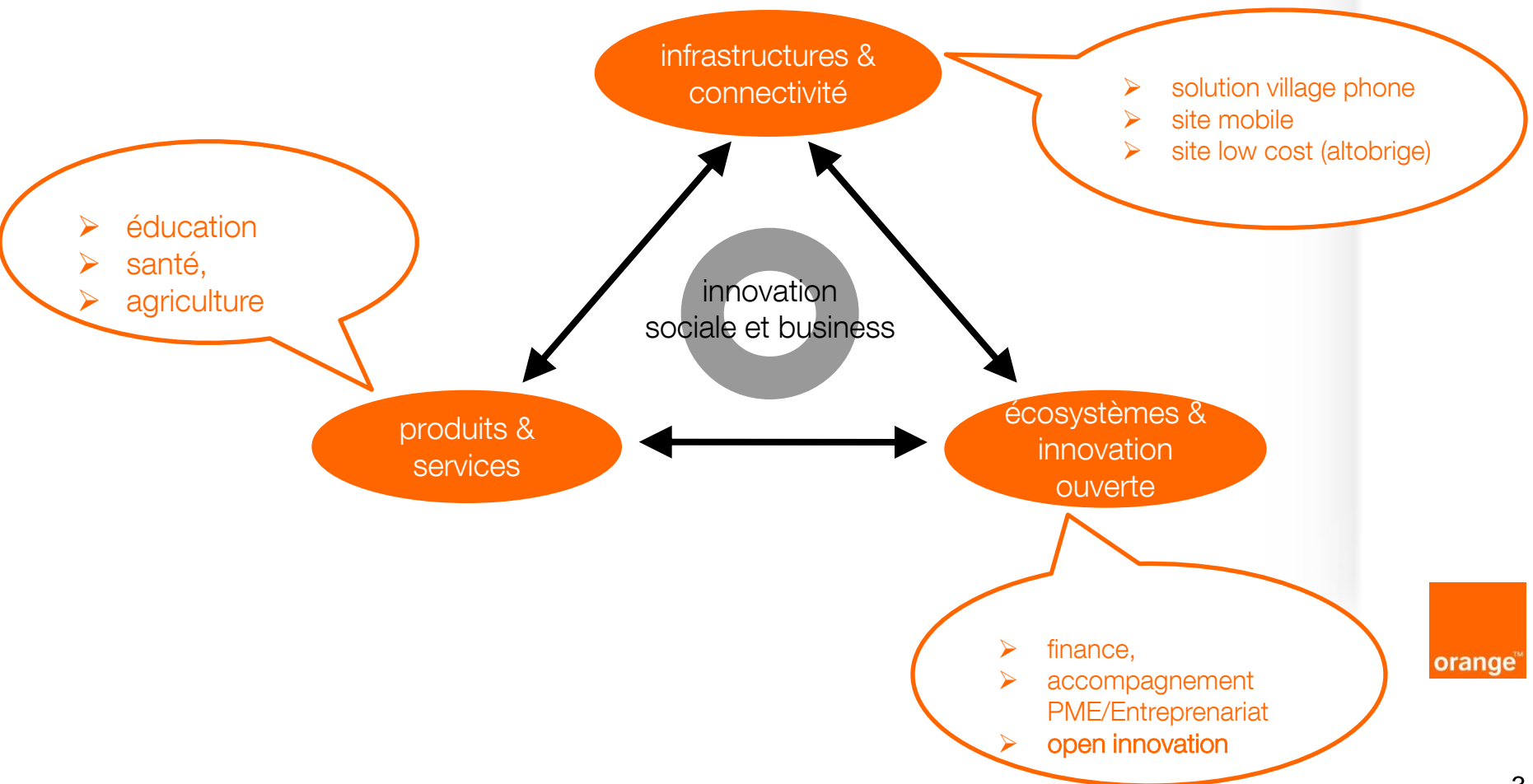
20
pays

22 000
salariés



O4D : une approche stratégique reposant sur 3 piliers ...

favoriser l'inclusion numérique des territoires en mettant nos technologies au service du développement



Orange apporte un soutien fort aux entrepreneurs africains et à l'innovation locale

incubateurs

Sénégal, Maurice,
Niger



Orange African Social Venture Prize

+2 000 start-ups de 18
pays
pendant ces 4 dernières
années

Data for Development

Big Data en Côte
d'Ivoire & Sénégal

4 APIs ouvertes aux challengers

en Côte d'Ivoire, Mali &
Sénégal, Cameroun

Orange Fab Côte d'Ivoire



hackathons

+80 applications
développées dans 5
pays



18 filiales impliquées localement
pour adresser l'innovation et les étapes successives de création d'un business

Challenge D4D (Data for Development)

2^{ème} édition au Sénégal d'avril 2014 à avril 2015

- Ambition de favoriser le développement et le bien-être des populations au Sénégal
- D'avril 2014 à avril 2015, des scientifiques émanant de 150 laboratoires internationaux ont soumis leurs projets. 60 propositions ont été soumises au jury, elles visaient à :
 - améliorer le transport et l'urbanisme au Sénégal (40%)
 - se focaliser sur le bien-être et la santé (20%)
 - analyser les statistiques nationales (15%)
 - les 25% de propositions restantes se répartissaient entre l'agriculture, la gestion de l'énergie, la data visualisation et l'anonymisation des données.

challenge
D4D



Les gagnants



First Prize and Energy Prize: Using mobile phone data for electrification planning

E.A. Martínez-Cesefia ⁽¹⁾, P. Mancarella ⁽¹⁾, M. Ndiaye ⁽²⁾, and M. Schlöpfer ⁽³⁾

Knowledge of local energy needs is crucial for the electricity infrastructure planning of a country. We have shown that mobile phone data are an accurate proxy of the energy needs and can be used to develop bottom-up demand models. The new methodology supports and prioritizes the electrification plans in areas with scarce information on local activities and energy consumption.

⁽¹⁾University of Manchester, UK - ⁽²⁾ Ecole supérieure polytechnique de Dakar UCAD, Senegal - ⁽³⁾ Santa Fe Institute, USA



Agriculture Prize: Genesis of millet prices in Senegal: the role of production, markets and their failures

D.C. Jacques ⁽¹⁾, R. d'Andrimont ⁽¹⁾, J. Radoux ⁽¹⁾, F. Waldner ⁽¹⁾, and E. Marinho ⁽²⁾

Information asymmetries are responsible for price differentials in only the few areas where the mobile phone coverage has not yet reached its full potential, which damages both poor producers and food insecure consumers. To address this issue, we have integrated it in a spatially explicit model that simulates the functioning of agricultural markets.

⁽¹⁾ Earth and Life Institute, Université Catholique de Louvain, Belgium - ⁽²⁾ Independent researcher, Rio de Janeiro, Brazil



Health Prize: Uncovering the impact of human mobility on schistosomiasis...

L. Mari ⁽¹⁾, R. Casagrandi ⁽¹⁾, M. Ciddio ⁽¹⁾, S.H. Sokolow ⁽²⁾, G. De Leo ⁽²⁾, and M. Gatto ⁽¹⁾

Schistosomiasis is water based parasitic worm infection with debilitating symptoms affecting millions of people. We show that a relatively simple model can reliably reproduce regional patterns of schistosomiasis prevalence across the country. We use the model to study the role of human mobility on disease dynamic and to analyze intervention strategies aimed at reducing disease burden.

⁽¹⁾Dipartimento di Elettronica, Informazione e Bioingegneria, Politecnico di Milano, Italy - ⁽²⁾ Hopkins Marine Station, Stanford University, USA



National Statistics Prize: Virtual Networks and Poverty Analysis in Senegal

N. Pokhriyal, W. Dong, and V. Govindaraju

Computer Science and Engineering, State University of New York at Buffalo, USA

Poverty is a complex phenomenon, but can be approximated by observing mobile phone usages and mobility at regional level and extrapolated at more granular level. Poverty maps showcasing multiple perspectives can provide policymakers with better insights for effective responses for poverty eradication.

Transport Prize: National and Regional Road Network Optimization for Senegal Using Mobile Phone Data

Y. Wang ⁽¹⁾, G. Homem de Almeida Correia ⁽¹⁾, and Erik de Romph ^(1,2)

Anonymous mobile phone traces can be filtered with an algorithm to generate a proxy for a trip origin-destination matrix. This is used to develop a gravity model that predicts the future mobility in the country dependent on travel time and number of calls and messages between the departments. This information is then used to improve decision making for road network planning.

⁽¹⁾ Department of Transport and Planning, Delft University of Technology, The Netherlands - ⁽²⁾ DAT.mobility, The Netherlands



Data Crossing Prize: Using mobile phone data for Spatial Planning simulation and Optimization Technologies (SPOT)

S. Gueye ⁽¹⁾, B.M. Ndiaye ⁽²⁾, D. Josselein ⁽²⁾, M. Poss ⁽³⁾, R.M. Faye ⁽²⁾, P. Michelon ⁽¹⁾, C. Genre-Grandpierre ⁽²⁾, and F. Ciari ⁽⁴⁾

We propose a methodology of location and relocation of amenities (home, shop, work, leisure places) for urban planning decision. Our methodology exploits mobile phone data and other variables and point of interest on maps to propose optimal amenity locations to reduce the overall travel time or travel distance.

⁽¹⁾ LIA, Université d'Avignon, France - ⁽²⁾ LTI, ESP - Université de Cheikh Anta Diop, Senegal - ⁽³⁾ LMDAN, FASEG-Université de Cheikh Anta Diop, Senegal - ⁽⁴⁾ Institute for Transport Planning and Systems (IVT), Zurich, Switzerland - ⁽⁵⁾ UMR ESPACE, CNRS, Avignon, France



Data Visualization Prize: Data for Development Reloaded: Visual Matrix Techniques for the Exploration and Analysis of Massive Mobile Phone Data

S. van den Elzen, M. van Dortmont, J. Blaas, D. Holten, W. van Hage, J-K. Buenen, J.J. van Wijk, R. Spousta *, S. Sala *, S. Chan *, A. Kuzmickas * University of Technology SynerScope BV Sensemaking Fellowship

Eindhoven University of Technology & SynerScope BV, The Netherlands

* Sensemaking Fellowship (MIT, Harvard University)

In our Visual analytics techniques for the exploration and analysis of massive mobile phone data, users are enabled to identify both temporal and structural patterns such as normal behavior, outliers, anomalies, periodicity, trends and counter-trends.



Practical Application Prize: Mobile Data as Public-Health Decision Enabler: A Case Study of Cardiac and Neurological Emergencies

E. Mutafungwa ⁽¹⁾, F. Thiessard ⁽²⁾, M. Pathé Diallo ⁽²⁾, R. Gore ⁽²⁾, V. Jouhet ⁽²⁾, C. Karray ⁽²⁾, N. Kheder ⁽²⁾, R. Saddem ⁽²⁾, J. Hämäläinen ⁽¹⁾, G. Diallo ⁽¹⁾

The objective of the study is to show the areas in which the absence of a nearest hospital can result in death or serious squeals. The identification of areas at high risk in case of stroke of myocardial infarction, requiring rapid intervention, could help Public Health decision makers to prioritize investments.

⁽¹⁾ Department of Communications and Networks, Aalto University School of Electrical Engineering, Finland - ⁽²⁾ ERIAS INSERM U897, ISPED, Université de Bordeaux, France - ⁽³⁾ Virginia Modeling Analysis and Simulation, Old Dominion University, USA - ⁽⁴⁾ Faculté des Sciences de Tunis, University of Tunis, Tunisia

Scientific Prize and Ethics Mention: Construction of socio-demographic indicators with digital breadcrumbs

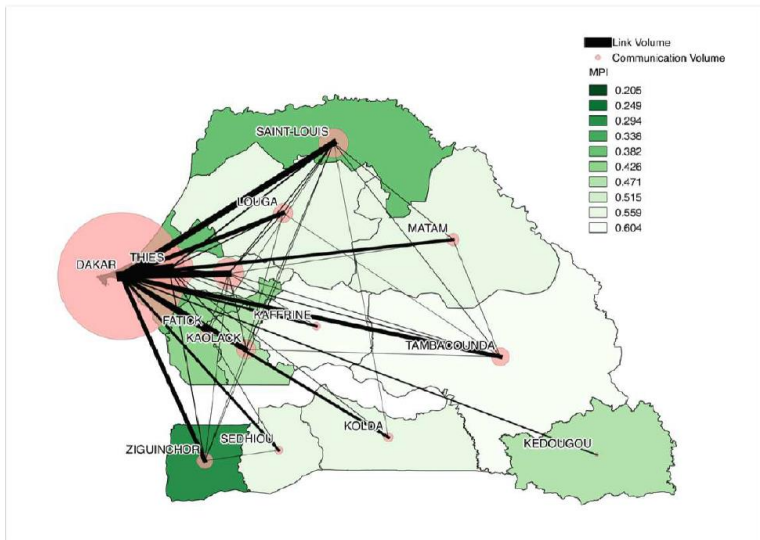
F. Bruckschen ⁽¹⁾, T. Schmid ⁽²⁾, T. Zbiranski ⁽¹⁾

We show that socio-demographic indicators such as population, age, literacy, poverty, religion, ethnicity, electricity supply and others can be estimated in unprecedented detail and virtually ad-hoc using antenna-to antenna traffic data only. We offer a uniform approach that can be easily extended to other variables. Results are tested for spatio-temporal robustness and visualized as heat maps.

⁽¹⁾ Humboldt Universität Berlin, Germany - ⁽²⁾ Freie Universität Berlin, Germany

Les prochaines étapes

- 3 projets vont être lancés, en collaboration avec les autorités locales, les équipes de recherche, les experts partenaires, le groupe Orange et la Sonatel (subventions partielles des projets par la fondation Gates)
 - Statistiques : création de proxy de statistiques nationales
 - Santé : amélioration de modèles épidémiologiques (malaria et schistosomiasis)
 - Agriculture : amélioration de la sécurité alimentaire



asante

mulțumesc

شكرا

thank you

dziękuję

misaotra

dank u wel

merci

djiere dieuf

շնորհակալ

gracias

dakujem

Спасибо