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# OPAL

open algorithms for better decisions

**of the Data Revolution: How to unlock the potential of private sector data for public good purposes in a safe, ethical, scalable, and sustainable manner.** This is achieved primarily by pushing the computation out to these sensitive data, rather than exposing them, and setting up inclusive governance mechanisms.

OPAL came out of the realization that under current conditions **using these ‘big data’ sources collected by private companies (such as “Call Detail Records” by telecom operators) for research and policy purposes has been and will remain hampered by legitimate ethical and commercial reasons.** “Data challenges”, such as those arranged by Orange, Sonatel, and Telefónica, and bilateral agreements have produced how computational analysis of these data, alongside traditional survey data and official statistics, could inform better decisions to curb poverty, inequality, epidemics, crime, traffic, waste, and more, by unveiling socio-economic outcomes and processes at levels of granularities and complexities never seen before. But these arrangements are costly and risky to scale, at a time when concerns over privacy, fears of growing digital divides, and criticisms about “black box” algorithmic decision-making concealing rules and procedures that cannot be subjected to public scrutiny and redress have started giving data a bad name.

## OPAL: the culmination of a decade of Data Revolution

With experimentations, expectations, skepticism, controversies, and many questions



To date, **there are no systems and standards to mitigate the associated privacy risks and capacity gaps to leverage these data for the greater good, ethically, at scalable, in a sustainable manner.** OPAL aims to do just that. It is designed to provide a far better picture of human reality to official statisticians, policymakers, businesses, and citizens, while fostering inclusion and inputs of all on the kinds and uses of analysis performed on personal data about them, **in the context and in support of the Sustainable Development Goals and the Principles for Digital Development.** As such, OPAL is designed as a new paradigm for using private data for social good and a key milestone towards a vision where data is at the heart of fairer and more efficient 21st Century social contracts and systems.

**Open algorithms: A new paradigm for using private data for social good**

By Thomas Roca, Emmanuel Letouzé | 18 July 2016



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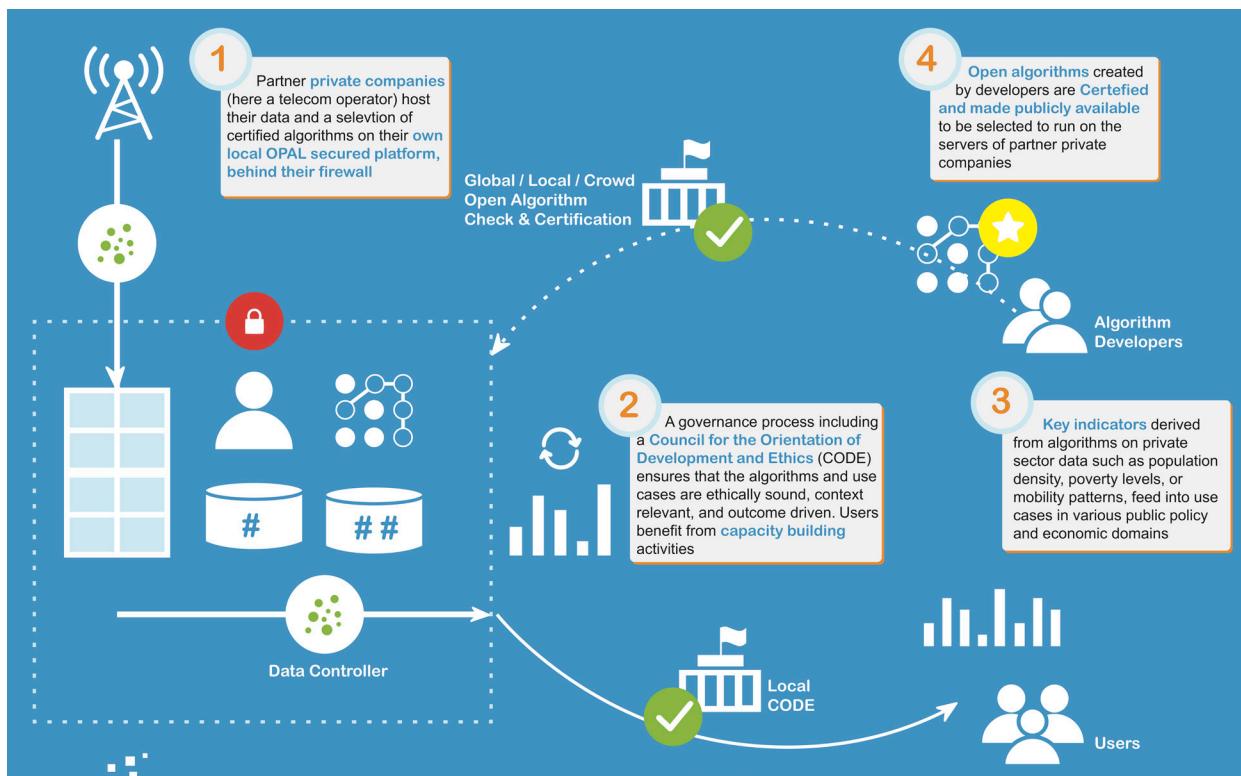
DANE sonatel Telefónica

OPAL is **built on two complementary tracks** that reflect and foster these objectives:

- A **Technology track**, with a state-of-the-art privacy-preserving open source platform and open algorithms, developed by Imperial College London, MIT Media Lab, Orange Labs, Telefónica, and communities of local developers. A defining feature of OPAL is its “question-and-answer” approach to data access and analysis, where computation of key indicators (such as population density, mobility and poverty estimates) is “pushed out”. Certified open algorithms run directly on pseudonymized data that remain on the servers of the partner companies, behind their firewalls, and only aggregated statistics are made available to selected users. **With OPAL, no sensitive data ever leave the servers to be exposed to theft and misuse.**
- A **Governance track**, with local oversight bodies known as Councils for the Orientation of Development and Ethics (CODE), participatory design and testing with local users, and capacity building activities, led by Data-Pop Alliance and the World Economic Forum, and local partners. This aims to **ensure that use cases are relevant to local needs and constraints, respectful of local ethical norms and regulations, and that capacities, incentives, and connections are strengthened within local ecosystems**. Building first generations data governance standards centered on empowerment of data subjects, is a core objective of OPAL.



## The future OPAL ecosystem



## OPAL 2017-18: \$2M MVP pilots in Colombia and Senegal

The **real-world deployment of OPAL started in mid-2017 in Colombia and Senegal** with pilots leading to Minimum Viable Products in 2 phases (MVP1 and MVP2). These pilots are implemented in partnership with Senegal's *Agence Nationale de la Démographie et la Statistique* (ANSD), and Colombia's *Departamento Administrativo Nacional de Estadística* (DANE) and *Departamento Nacional de Planeación* (DNP), and 2 major telecom operators, Sonatel and Telefónica. Core funding for the MVP phase of 1.5M EUR was provided by the Agence française de développement (AFD), with additional support from the World Bank, the Global Partnership for Sustainable Development Data (GPSDD), and the Sustainable Solutions Development Network (SDSN).

The pilots have achieved major milestones along Technology and Governance tracks in 2018. In terms of Governance,



these have included: in-depth user needs assessments, capacity building activities, signatures of all key contracts, set up of the local CODEs, green-light from the Data Protection Authorities, and hiring and interviewing of initial Friendly User Testers (FUTs), including both National Statistical Offices (NSOs). On the Technology side, these have included: development of demo versions with 3 algorithms by the telecom partners in both Colombia and Senegal, installation of servers in both countries, availability of 2 years of CDRs in Senegal and 3 years in Colombia, and end-to-end functioning of the platform on real data from Senegal, undergoing security tests. As the pilot phase comes to a close, OPAL is ready to move forward to the Beta phase.



### OPAL pilot phase key components and deliverables

#### MVP Pilots 2017-18



#### TECHNOLOGY

##### Features



- 1 Fully functional version of the core architecture
- 2 Open code of the platform
- 3 Three algorithms and indicators available
- 4 Use cases

#### GOVERNANCE

##### Features



- 1 Training and open source material
- 2 Fully functioning governance bodies (C.O.D.E.)
- 3 Position paper on ethics and GDPR compliance
- 4 Installation toolkit



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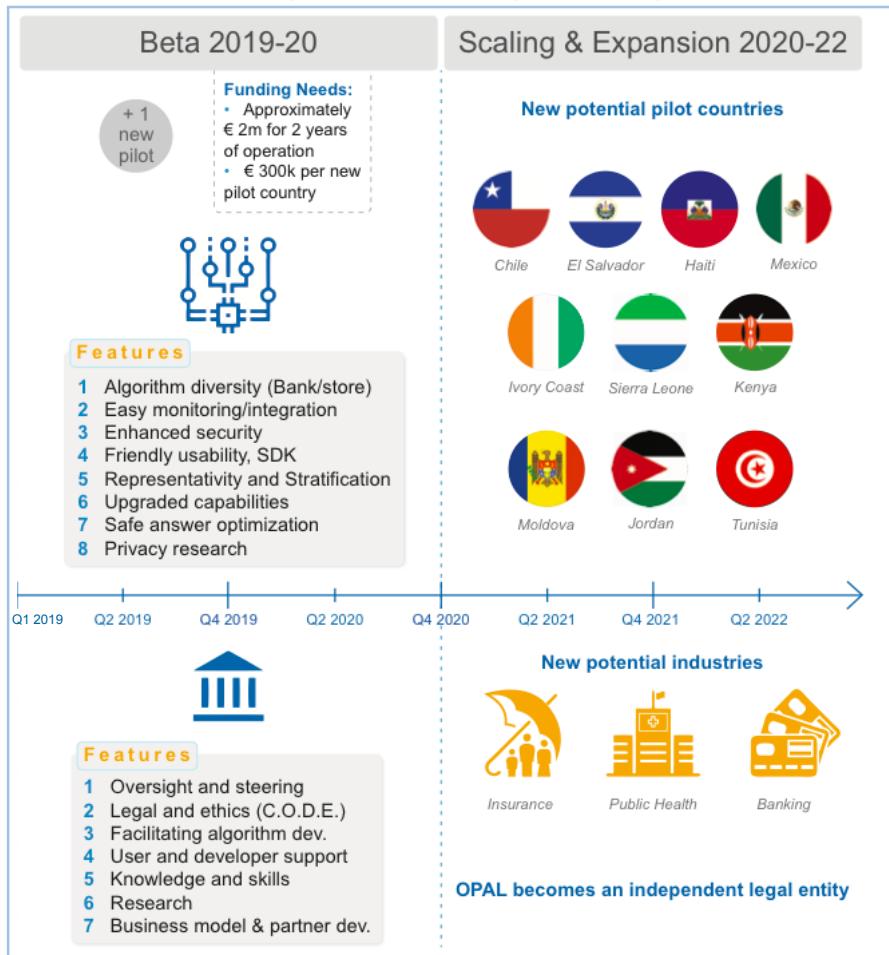
Telefónica



In 2019, OPAL has entered a 2-year Beta phase, expanding from a “proof of concept” to a “proof of market”, as well as to at least one more country. OPAL has secured \$250k in additional funding from the UN Foundation Digital Impact Alliance (DIAL) and seeks a further \$1.5M - \$2M to turn the Minimum Viable Products developed in Colombia and Senegal in the pilot phase into robust Beta versions with enhanced technological and governance features. Key beta technological features will include performance optimization, a research environment, a bank of certified and documented algorithms, and service integration APIs. Key governance functions will include CODEs running in both countries and meeting on a quarterly basis, more advanced capacity building resources and activities, including online technical assistance and support to key users such as both NSOs, and the setup of a long term viable business model based on a freemium and revenue sharing approach. These will help produce a body of use cases serving as proof of market. The deployment on OPAL in another country from a list of half a dozen options is also a priority.

By 2020, building on the lessons of the first 2 years of deployment, OPAL will have created public knowledge, know-how and a community of developers and users for leveraging the transformative power of private sector data in an ethical and scalable manner. In doing so, **it will have paved the way for the expansion of OPAL to other industries such as banking, insurance, hospitals, and other geographies, including up to 10 countries by 2025.**

## OPAL development and expansion plans 2019-22



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