# population movement analytics, monitoring and prediction algorithms

movement analytics

In the beginning of 2017, Mooncascade's Data Science team started working on a project of applied research, aiming to create algorithms for evaluating population movement and predicting their displacement in time and space using mobile network data.

Creating a population-movement analytics, monitoring and prediction platform based on cellular network data and without the use of any A-GNSS systems requires the development of industry-specific algorithms and technologies which currently do not exist or are not financially viable for widespread use. During the course of the scientific research and development project, necessary methods and technologies will be developed to meet the technological objectives: dynamic data exploration, pattern mining and predictive analytics.

| Location | Analytics | Prediction algorithms | Population movement | Monitoring |
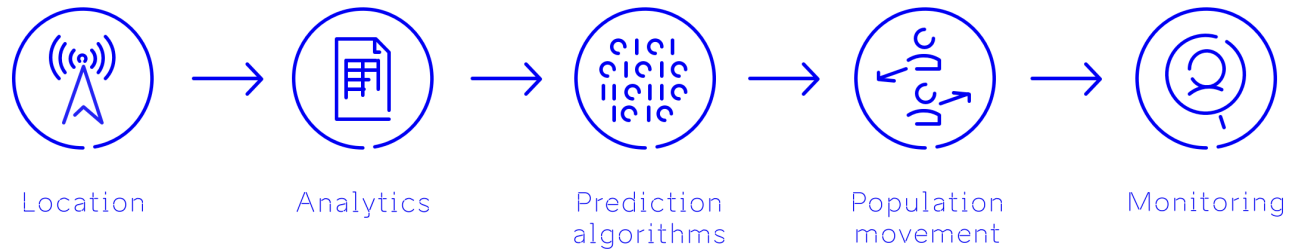
Project objectives:
- Detecting meaningful location in the cellular data and building semantic trajectories for mobility profiling
- Estimating the demographic attributes from the cellular data in order to explore the population density distribution and their displacement evolution through time and space
- Estimating the mobility flows of the population using mobile data and developing an algorithm to predict mobility patterns

Technologies used: Hadoop, Spark, HBase, Kafka, Yarn

Business value:
- Understand and predict the population movement
- Carry out better infrastructure and city planning
- Improve transport and traffic management
- Make informed business decisions based on movement data
- Identify optimal locations for retail outlets etc
- Provide targeted location-based services
- Optimize location-based and out-of-home marketing

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