Policy analysis
Policy analysis shapes our society in many ways. Increasingly, modelling and simulation are gaining popularity to study these phenomena. These techniques provide a virtual laboratory to test what-if scenarios that can assess decision making processes.

Changes in our society driven by social, economic, environmental and technological developments arose a challenge for both social sciences and engineering. The European Union’s Horizon 2020 program has established a research agenda centred on societal challenges around very interesting strategic initiatives of Social Sciences and Humanities with Science and Engineering and Social Innovation as a Trigger for Transformations. Both of them point to future scenarios where the labour market will be severely transformed by robotisation and AI. This offers new business opportunities and new job market models aligned with those strategic scientific and technological areas.

Many of the challenges in Social Sciences and Humanities can be overcome by using analytic tools that rely on right data (such as education or gender issues). Simulation as a tool offers high potential in dealing with these dynamics and the population projection. For instance, in the context of a city, simulation can offer an integrative solution to define better resilience strategies for epidemic interventions (such as tuberculosis, flu, influenza and so on) by means of computational models.

Agent-based methodology is particularly useful for reproducing the activities and interactions of individuals (such as reproducing or exchanging goods), social patterns (such as segregation in neighbourhoods), and population movements on a local and global scale (like migrations or movements from rural areas to cities). However, in a large context these simulations can be very demanding and the execution of such models requires very powerful computer systems. Recently, the development of current large-scale parallel computers has made it possible to support the execution of complex social simulation models.

Objectives

1. To develop computer models to assess policy analysis.
2. To evaluate the impact of the proposed tools in providing assistance in the territory management policies or epidemic dispersal.
3. To understand long-term socio-economical dynamics using demographic, epidemiological and historical data.

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