



Project Results

C³PO

Nourishing participative urban planning

EXECUTIVE SUMMARY

A cloud collaborative and semantic platform for city co-design was the goal the C³PO platform set out to achieve, one that covers the whole urban project development process whereby cities empower, encourage and guide different stakeholders to co-develop an urban project.

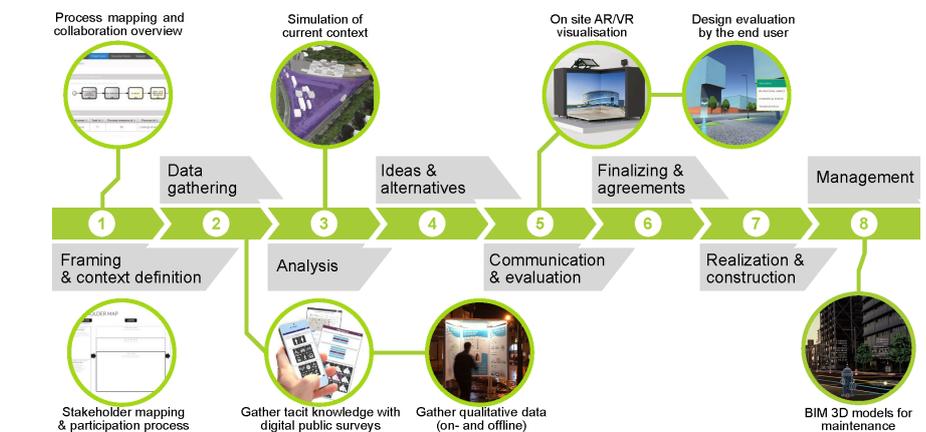
PROJECT ORIGINS

With five billion people likely to be living in cities by 2020, the urbanisation and immigration challenges posed to cities are becoming immense. City design is complex and everything impacts everything else. IT can provide opportunities at affordable cost for cities with the promise of opportunity for smart support of the urban development and the mitigation of risk through better planning and prediction. The enhancement of city planning by co-design requires simple access to different sources of information, the visualisation of relevant information for decision-making, the simulation of different scenarios, stakeholder communication support and static and dynamic data.

Bearing all of these factors in mind, the ITEA project C³PO focused on tackling the urban design challenges through a cloud collaborative and semantic platform for city co-design. In targeting the growing market of smart cities, which is expected to be worth USD 1.5 trillion by 2020, the C³PO solution covers the whole urban project development process and involves citizens, decision makers, architects, etc. The goal of the C³PO project, therefore, was to provide all the ingredients needed for a participative urban planning process.

TECHNOLOGY APPLIED

In developing what is essentially an open and generic intermediary, the C³PO project ran the rule over the market in terms of the three key functions of participative urban planning: city data access, acquisition, transformation, analysis,



8-step city co-design process flow – developed by the C³PO consortium

management and integration; applications development support and dissemination; enabling user (stakeholder) involvement, participation and city co-design. This process ensured that the interaction between existing applications was focused through a unique multi-dimensional repository covering the different types of information in city co-design, like GIS, BIM, electricity grids and traffic. This resulted in unique but partial solutions of city co-design, incorporating simulation tools, open API, 3D modelling and visualisation, gaming tools, etc.

The C³PO platform takes two forms: cloud-based data storage (owned by NETAS) and local data storage (MAPGETS, owned by FCG City Portal). Among the key innovations are multi-ontology usage via one platform that breaks up the vertical

silos and enables the faster development of applications, process management for the large-scale participation of multiple stakeholders and visualisation (3D, Augmented Reality and Virtual Reality). The visualisation component plays an important role in the C³PO platform. Trials in Finland and Turkey demonstrated the value of markerless AR for new urbanisation areas and 3D mock-ups for table-top urban planning and visualisation. VR was demonstrated in virtual tours in case studies in Oulu and Kouvola while the new Pendik Municipality building provided a setting for selecting different options. The trials in the city of Brussels were focussing on accessibility, and were used as proof of concept of the co-design process using data integration, and the different C³PO tools and methods. The cooperation with the City of Oulu and other

stakeholders is continuing after the project to further develop AR services in city planning.

MAKING THE DIFFERENCE

The value for stakeholders is manifold. Data providers gain a data asset that is made available to ICT companies plus new business opportunities and increased data value through data integration, analysis and further visualisation. In turn, new business opportunities are generated for ICT companies by vertical integration with other applications, new markets and new space for the promotion of apps as well as enhanced application value to current customers able to access a wider set of data. Citizens benefit from better liveability and engagement in their city, gain new ways to participate in improving the place where they live and work, and have continuous access to up-to-date city development plans that they can influence. Cities, supported by enhanced data analysis procedures, profit from improved decision-making processes, mitigated urban development risk through better planning and prediction, and can actively involve their citizens.

The technical results of VTT have been translated into ARonSite Visualisation for Android, an app that comprises positioning and orientation with GPS, compass and an interactive map. The new products developed from the results of C³PO include Semantic Simulation Workflows (Noesis), a pilot project/MVP web app for participation (Createlli, Studio Dott, ASSAR Architects, City of Kortrijk), a Participation App for customers in three countries (Createlli), a physical installation for in-context urban participation (Studio Dott), a process integration portal (Noesis) and a transportable Immersive 3D Cave (Barco). Other forms of exploitation include a framework contract with the Flemish government (Createlli), the MAPGETS platform for interactive urban planning and RAKSITE solution for interactive construction site management (FCG) as well as True Co-Design in area planning in Oulu and Playsign featuring Nordic Built Cities (both Playsign). The 'PLANET' planning solution – for the planning, revision of plans or changes of zoning plans used in City and Regional Planning discipline applications – can be used as a standardised data model and exchange format to store digital 3D models of cities and landscapes in Turkey.

MAJOR PROJECT OUTCOMES

Dissemination

- More than 50 dissemination activities realised, including contributions to smart-city events, workshops, television features, newspaper articles, books and dedicated presentations to end-users
- Publication to guide cities and municipalities (e.g. Book “ Pathways To Participation”)
- More than 30 presentations at conferences/fairs (in areas of e.g. Smart City, R&D and Innovation summits and VR)
- C³PO Workshop organized in Pendik (TUR) with 300+ participants to present C³PO and discuss the contribution of 5D Smart City Technologies to urban transformation and the innovative expansions

Exploitation (so far)

- More than 20 fast exploitation results and several more foreseen after the project
 - E.g. CITYINFO for interactive urban planning and RAKSITE for construction management (both on the MAPGETS platform)
 - E.g. transportable immersive 3D Cave allowing you the flexibility of taking your VR expertise and your project on the road
 - E.g. new and enhanced participation apps to enhance collaboration between different stakeholders
- More than 18 different city, customer and participation projects started

Standardisation

- Contributions to W3C/OGC: Spatial data on the Web Working group
- Contributions to CityGML – Finland national city modelling guidelines
- Contributions to PLANET in Turkey

Spin-offs

- FCG City Portal

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Partners

Belgium

Assar Architects

Barco

Centre d'Informatique pour la Région

Bruxelloise

City of Kortrijk

Createlli

Noesis Solutions

Sirris

Studio Dott

Finland

City of Kouvola

City of Oulu

FCG City Portal Oy

FCG Design and Engineering Ltd

Lappeenranta University of Technology

Playsign Oy

Tekla

VTT Technical Research Centre of Finland

Turkey

Bahcesehir University

ERARGE

Mantis Software

Netcad

Pendik Municipality

Project start

December 2014

Project end

November 2017

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