C³PO

C³PO democratises City Planning

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For centuries, many residents have come to know their cities, towns and villages like the back of their hands. They know the shortcuts, the hot spots and problem zones. However, before the age of social networks, city planners would first hire architects and contractors for new urban developments and improvements and, once the plans had been finalised and a 3D scale model produced, they would consult their voters. Today, the ITEA C³PO project has found ways for city planners and designers to consult citizens throughout the urban transformation process and thereby give citizens a better say in urban developments. The aim of the project was to set up a common digital platform that connects all the tools for collaborative urban development. This includes available (open) data sources, 3D models and visualisations as well as opinions and insights from citizens and interest groups.

Impact highlights

- Thanks to the enhanced collaborative capabilities developed by Noesis in the C³PO project, aerospace and automotive engineers from different teams worldwide benefit from the possibility to share engineering workflows, data and knowledge related to common design projects, enabling them to improve product performance by 10% or more and save on average over 30% in engineering time.
- For Studio Dott, the C³PO project gave access to a new market of citizen's involvement and this is reflected in a projected revenue growth of €1.7 m within 5 years.
- The resulting demonstrator TCAVE helps Barco to sell its 'Group VR' solutions to the market. Barco's annual revenue on this type of product is about €20 m. In addition, it will also further help Barco in commercialising other solutions such as PowerWalls and CANVAS, the latter addressing a new market segment, the Architecture, Engineering and Construction (AEC) industry, where Barco expects annual growth of about 10% in the coming three to five years.
- The new solutions developed by Mantis in the C³PO project pushed up their annual revenue by almost 15%. The know-how has also been used in other projects after C³PO.
- Netcad developped Netigma and Netcad Digital Universe which are marketed and sold in Turkey and in the Middle East region yielding in a revenue increase of 30%. Netigma is used extensively by local authorities (1000+ municipalities).
- The project also supported FCG's expansion in three channels of its digital business: solution development, platform economy and SDK sharing. Between 2018-2022 this will result in an annual revenue growth of 5%. During C³PO, a computer scientist was hired who finalised his MSc in support of the project.

Project results

The project developed a cloud platform based on existing technologies and applications, as well as new products for the Smart Cities market. The project was strengthened by the involvement of the cities of Brussels, Kortrijk, Kouvola, Oulu and the Municipality of Pendik (a district of Istanbul).

Trials in Finland and Turkey demonstrated the value of markerless Augmented Reality (AR) for new urbanisation areas and 3D mock-ups for table-top urban planning and visualisation. Virtual Reality (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 focused on accessibility and were used as proof of concept of the codesign process using data integration, and the different C³PO tools and methods. The cooperation with the city of Oulu and other stakeholders has continued after project completion to further develop AR services in city planning.

Exploitation

In addition to these trials, the different partners benefited in their own way from the C³PO project. For example, **Noesis** developed the Noesis Process Portal and Semantic Workflows, which are key components that complement every co-design activity from city co-design to aircraft and automotive. The portal and the underlying workflows allow the setup of a true collaborative multidisciplinary design process and optimisation.

The Belgian design agency **Studio Dott** is commercialising a physical installation, the 'Participation pavilion' that can be placed anywhere by local authorities that want to collect a citizen-centred view on an urban design proposal.
One demonstrator created by **Barco** was the Transportable CAVE (TCAVE), a professional collaborative VR solution - a mobile setting that offers companies better immersive VR experiences. Citizens step inside the TCAVE wearing 3D glasses to see what a developed space would look like.
Belgian SME **Createlli** commercialised a participation platform and services. It has been used in 80+ projects so far in Belgium, Spain, France, the Netherlands and the UK.

Turkish company **ERARGE** developed a semantic framework that relies on the Urban Transformation and Transportation Ontology (UTTO). This approach enabled a data-driven and semantic traffic monitoring solution in Pendik to simulate how the city traffic may be affected by the urban transformation processes.

Mantis developed a screen that allows local authorities to showcase what people are saying on social media and an ontology platform where the data coming from different sources of a smart city can be managed by a single platform.
Netcad, another Turkish SME, is now commercialising a map and GIS-based platform called Netigma, helping local authorities and designers to analyse data, e.g. the density of urban traffic. Experience gained in C³PO led Netcad to join another project called ASUA and develop a state-of-the-art smart city platform called Netcad Digital Universe.

The Finnish **FCG** created the MAPGETS platform for interactive urban planning and the RAKSITE solution for interactive construction site management.
Finally, **Playsign** turns urban plans into immersive environments for better communication and co-design. It is an efficient tool for drafting, testing, communicating and creating future plans with citizens and other stakeholders.

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PROJECT LEADER

Andy De Mets, Barco

PROJECT START

December 2014

PROJECT END

November 2017

PROJECT WEBSITE

https://itea4.org/project/c3po.html

PARTNERS

Belgium

ASSAR ARCHITECTS	⊙
Barco N.V.	◉
Centre d'Informatique pour la Région Bruxelles	●
City of Kortrijk	●
Createlli nv	⊙
NOESIS Solutions N.V.	◉
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 Ltd.	○

Turkey

Bahcesehir University	◉
ERARGE	⊙
Mantis Software	⊙
Netcad	⊙
Pendik Municipality	●

◉ (Large) Industry ○ Research institute ⊙ SME ◉ University ● Government