Mixed reality for public participation in urban and public space design

Towards a new way of crowdsourcing more inclusive smart cities

UN-HABITAT
FOR A BETTER URBAN FUTURE

ERICSSON

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Contents

KEY CONCEPTS I

INTRODUCTION I

ABOUT THIS REPORT III

EXECUTIVE SUMMARY V

CHAPTER 1. MAKING THE SMART CITY MORE INCLUSIVE AND PARTICIPATORY 10

Mixed reality - visualising 3D digital content in the real world 13

Human centric and design driven innovation 14

CHAPTER 2. URBAN PLANNING, DESIGN AND PUBLIC SPACE FOR SUSTAINABLE URBANISATION 16

The importance of urban planning and design 17

Public space and the inclusive city 18

The 5 Principles of Sustainable Neighbourhood Planning 19

CHAPTER 3. STAKEHOLDER ENGAGEMENT AND THE POTENTIAL OF DIGITAL TECHNOLOGIES 22

Inclusion and public participation 23

Urban planning and 'wicked problems' 24

The potential of digital technologies to strengthen public participation 25

Block by Block 27

UN-Habitat's cross-cutting work linking urban design, technology and participation . . 29

CHAPTER 4. MIXED REALITY - WHAT IS IT? 32

New types of digital experiences in the physical world 33

Empowered by future mobile network technologies 35

Mixed reality in mining 36

The coming technology revolution in urban spaces 37

CHAPTER 5. PROTOTYPING AND PILOTING CITY-SCALE MIXED REALITY 40

The human-centric and design-driven innovation process 41

Setting the strategic direction 43

Mixed reality and public participation concepts 44

Mixed reality and Block by Block pilot 46

Mixed reality and digital placemaking 48

Mixed reality participation pop-up kit 50

Stockholm Expert Group Meeting 52

External view of technology as democracy accelerator: Futurist Design Studio Arup . . 53

CHAPTER 6. BRINGING TOGETHER URBAN DESIGN, PUBLIC PARTICIPATION AND MIXED REALITY IN JOHANNESBURG 56

External insight: Engaging communities using mixed reality 61

CHAPTER 7. CONCLUSION: IMPLICATIONS FOR THE FUTURE 64

What next? 66

The need for effective governance 67

BIBLIOGRAPHY 68

Introduction

The contemporary world is both urban and digital. More than half the world's population live in cities and more than half of the world's population is connected to the internet. There are nearly as many mobile phones as people in the world and the gap is rapidly narrowing. These two mega trends of urbanisation and digitalisation, if harnessed well, present a great opportunity to contribute to sustainable development.

The Sustainable Development Goals (sometimes called the 2030 Agenda), adopted by UN Member States in 2015, are a comprehensive agenda outlining how the world can achieve a sustainable future through 17 inter-connected goals. Goal 11 on sustainable cities and communities highlights the importance of adequate housing, participatory urban planning and inclusive public space, amongst other targets.

The New Urban Agenda, adopted by UN Member States in 2016, outlines the global principles, policies and standards required to achieve sustainable urban development. In the New Urban Agenda, Member States commit to adopting a 'smart-city approach that makes use of opportunities from digitalisation'. They also call for the promotion of citizen-centric digital governance tools, the use of digital platforms and tools for improved, long-term integrated urban and territorial planning and design and for businesses to apply their creativity and innovation to solving sustainable development challenges.

For frontier technologies and innovations to effectively contribute to urban sustainability, they need to be appropriately applied to ensure that the prosperity they bring is shared amongst people, cities and regions. An inclusive smart city must be realised by a wide array of actors, and UN-Habitat is increasingly playing a role in this process through the integration of new technologies and innovative practices. Ultimately, the deployment of frontier technologies needs to pay special attention to underserved populations, in order to address inequalities and to bridge social and spatial divides.

Mixed reality, the technology explored in this report, holds tremendous potential for real-time digital visualisations, both at the street and neighbourhood level and the overall urban skyline and city grid. This new visually realistic blending of reality with virtual imagination can create a more intuitive space for planners, architects, residents and other stakeholders to viscerally experience and re-imagine future environments. Architectural sketches and designs can be made more legible and accessible, thus pulling users into the process of design and strengthening the long-term viability and buy-in of urban projects.

Mixed reality technology offers the opportunity to bridge the divide between inhabitants and their cities, making change literally appear before their eyes and giving entire neighbourhoods the chance to weigh in on how their future smart city will look, feel and serve their needs. Mixed reality can help to take conversations about urban design to people in the streets and thereby better include their actual needs and desires in the process.

This project shows how innovative and multi-sectoral partnerships can contribute to the global debate on the democratic and inclusive smart city and how frontier technologies can make a positive impact on sustainable development. We encourage those developing new technologies to apply their creativity and innovation capacity to solving sustainable urban development challenges.

About this report

This report was produced by UN-Habitat in partnership with Ericsson. UN-Habitat and Ericsson have been collaborating since 2014 on applied research projects which explore ways that frontier technologies can contribute to the development of inclusive, accessible and sustainable cities and provide valuable insights for city leaders and policymakers. The topics in the applied research projects have been wide-ranging, including the use of sensor networks to manage water infrastructure in informal settlements, how innovation challenges can bring youth groups, technology hubs and decision makers together and the use of technology for monitoring urban air quality. Recently, the focus has been on the role of digital technologies in public participation.

In this project, a group of UN-Habitat urban planning staff worked with designers and researchers from Ericsson to develop and test use cases in which mixed reality was used for stakeholder engagement and public participation in public space and urban design processes. The report follows two years of research and technology tests in two contexts. A first [illegible] discuss the potential of mixed reality for, urban planning and design, was held in Stockholm in September 2018.

The views on mixed reality that have come out of this research are wide-ranging, but there is a general sense that although the technology is still in its infancy it holds a lot of promise in many fields. These include urban development, but also areas such as arts and culture - which is often articulated in urban environments. However, whilst many opportunities exist, there are also risks and challenges associated with this kind of technology, including information overload, privacy concerns and increased conformity. We look forward to exploring the potential of mixed reality in the coming years.

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