

A dark, high-contrast image of an HTC Vive VR headset. The headset is the central focus, with the 'htc' logo visible on the top and 'VIVE' on the side. The background is a dark gradient.

VRBANISM

Assessing Virtual Reality as an Urban Design Method

July 6, 2017

Ruben Hanssen - 4253930

VRBANISM

MSc. Architecture, Urbanism and the Built Environment

Design of the Urban Fabric

Supervisors:

Dr. Ir. S.C. van der Spek

Ir. P. de Ruiter

Ing. P. de Jong





Ruben Hanssen
4253930



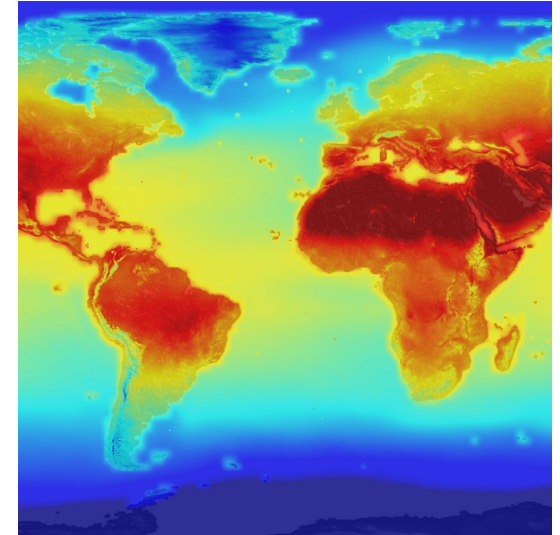
Introduction video



Urbanisation



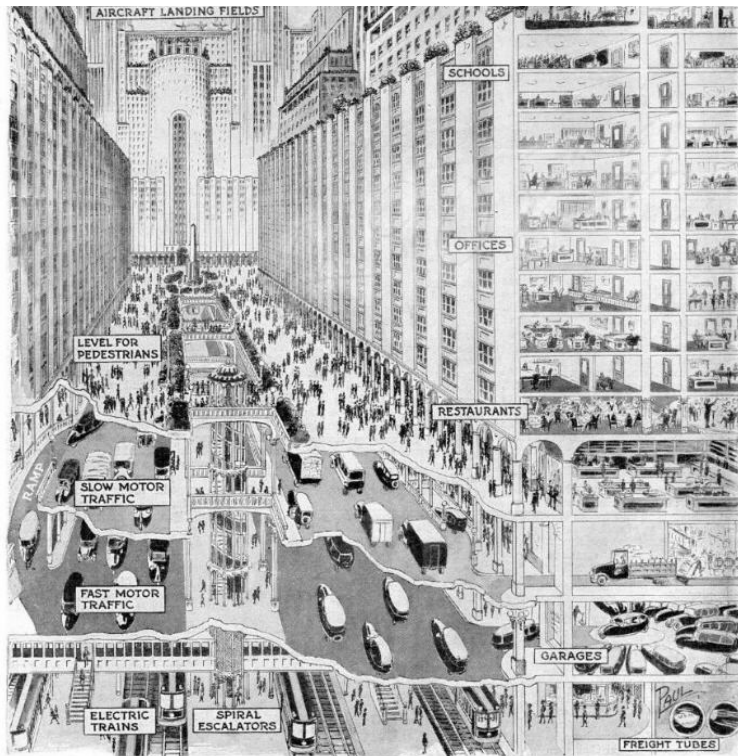
Population growth



Climate change



ARCHITECTURE



Vision: 1925



Transbay Transit Center: 2017



Hand sketches

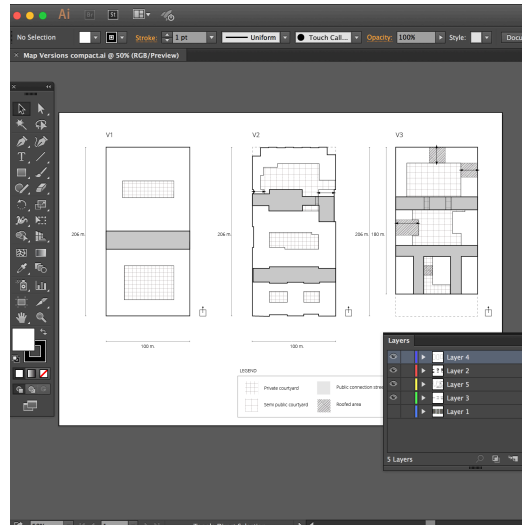
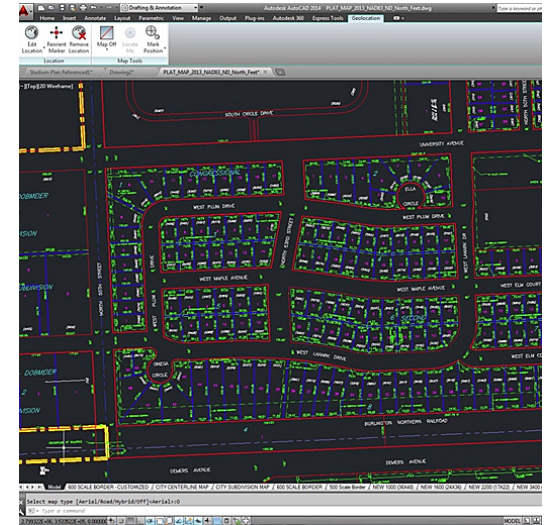
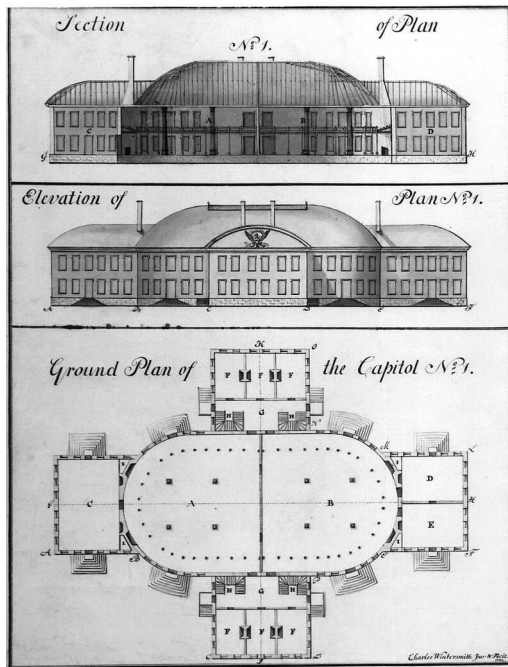


Illustration software



CAD software

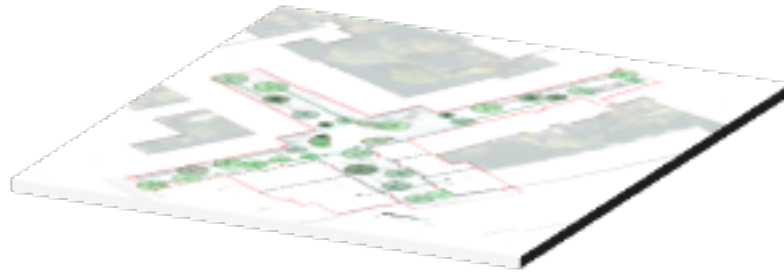
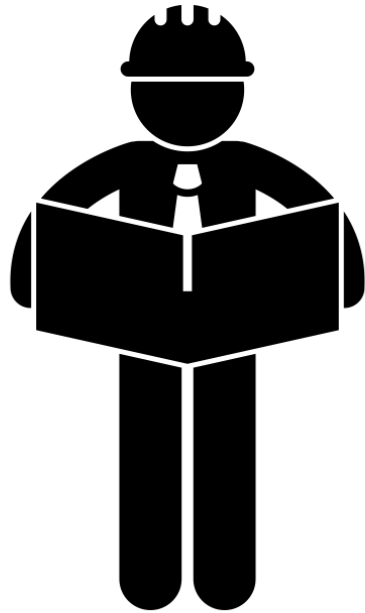


Section, elevation, plan

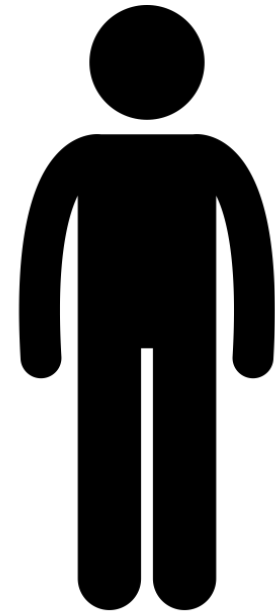


... still used today

!!!



???



We ervaren steden in 3D
(animatie ?)



J.M.W. Turner 1877

3d modelling programs

2d screen (video)

VIRTUAL REALITY

“An artificial environment which is experienced through sensory stimuli (such as sights and sounds) provided by a computer and in which one's actions partially determine what happens in the environment” (Merriam Webster dictionary, s.d.)

VR today vs. 10 years ago (images)

WHY VR?

For urbanists?

immerse

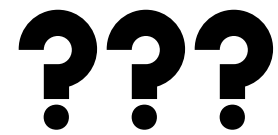
Example video / picture

Interact

Example video / picture

Employ software possibilities

Example video / picture



Many questions: new technology!

PROBLEM STATEMENT

Gap of knowledge about the benefits, disadvantages and potential of using Virtual Reality as an urban design tool

RESEARCH QUESTION

“How could VR be applied in an urban design process in regard to visual and spatial aspects of urban design?”

**1ST URBAN DESIGN
PROJECT USING STATE
OF THE ART VR**

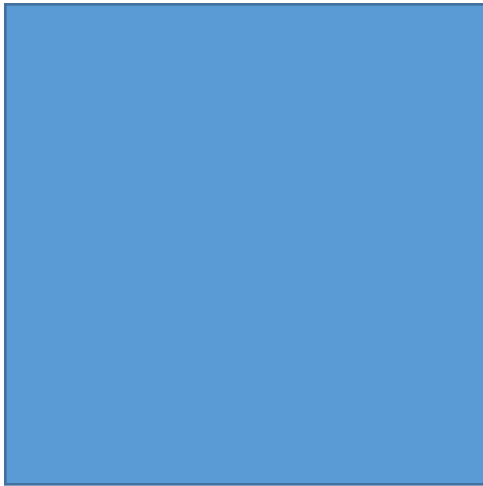
Luchtfoto Sloterdijk I

Pictures of area: industrial

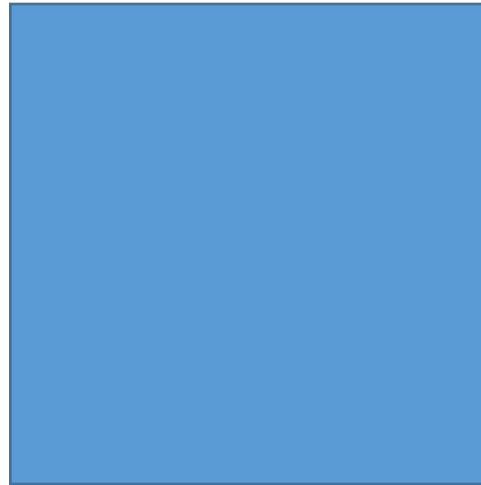
Video of requirements design

HOW?

3 phases



Virtual
Environment
From location



create
Design system



Design

PHASE I

image

PHASE 2

image

PHASE 3

image

Design variants

3 video's

RESULTS

Virtual environment aspects

3 video's

Advantages connected
to experience from
various perspective

2 video's

Modular system benefits & disadvantages

video

APPLICATION IN URBANISM

Example 1

Example 2

Example 3

Approach was limited

RESULTS

essential to urbanism?

CONCLUSION

gain **additional spatial overview** and insight at **multiple perspectives**, such as **eye level** perspective or **bird's eye view**,

direct feedback on **morphological and appearance based design choices**. The enhanced spatial overview and insight of VR is enabled by its **immersiveness**, but dependent on **correct scale**, a **sufficient level of detail** and a **sense of context** in the virtual environment.

Future research

AR in VR

AR in physical environment

Procedural design

Video data layers in VR

Video AR

Video procedural design

THANK YOU