



urbanintelligence



VR Cycling simulator to enhance societal engagement

Cycle highway academy Essen

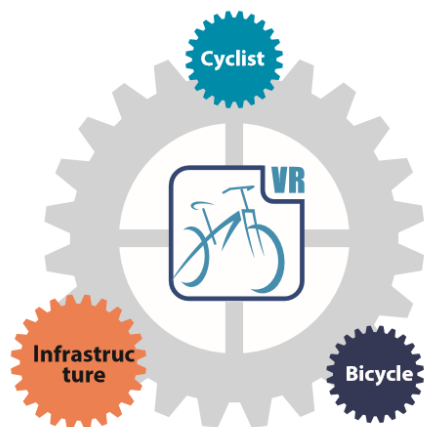
Thursday 1 March 2018

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*'Looking at the actual behaviour of cyclists
will not only learn us more about their preferences*

*it also enables us to make the switch
to customer friendly cycle policy'*



“Design cycle infrastructure
the way cyclists appreciates it the most”

Today's target

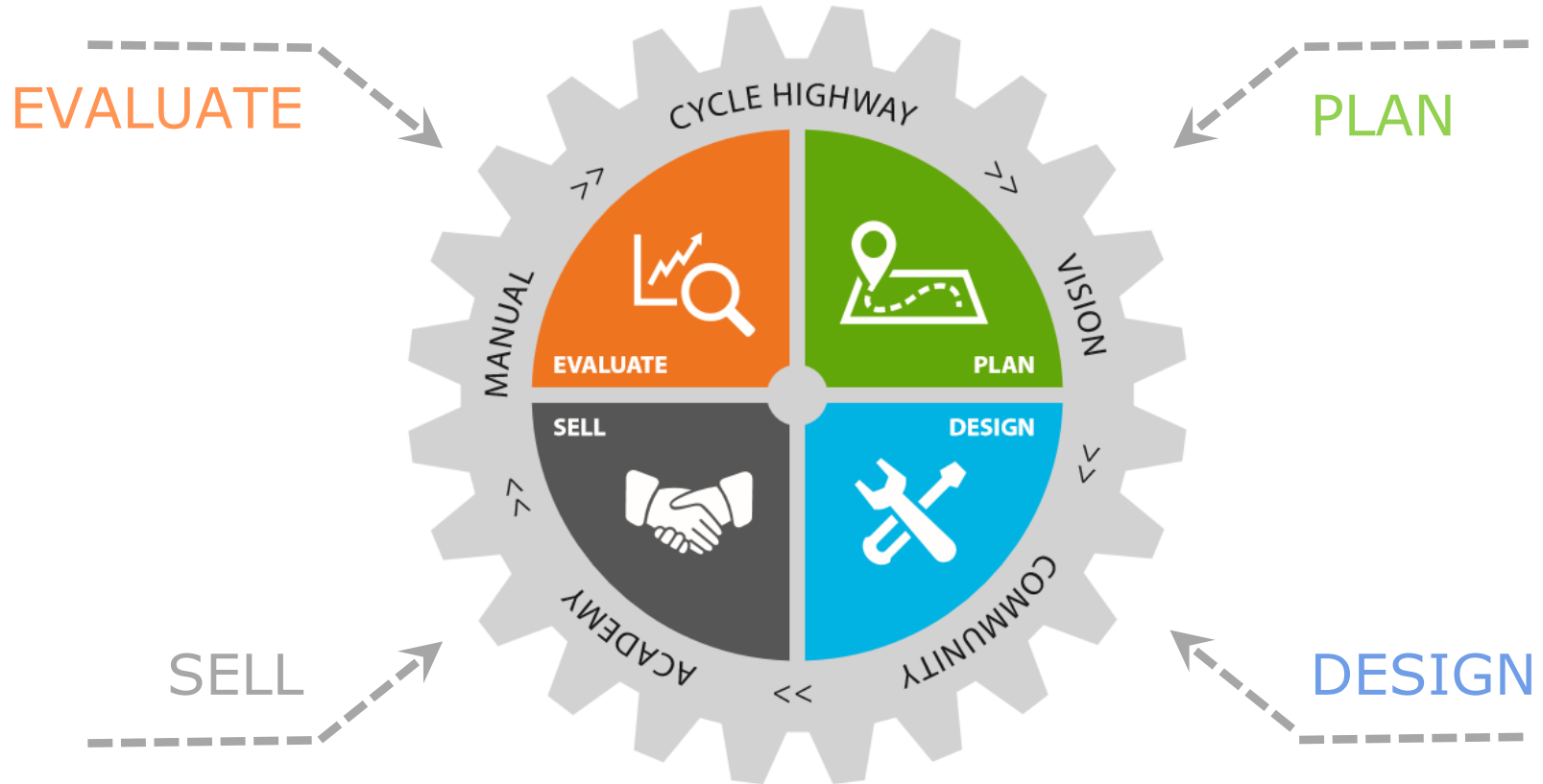
Interactive workshop about

“Using Virtual Reality technology to
sell and promote Cycle Highways”

1. Introduction on Cyclespex
2. Interactive discussion based on VR material
3. Discussion



Life cycle highway





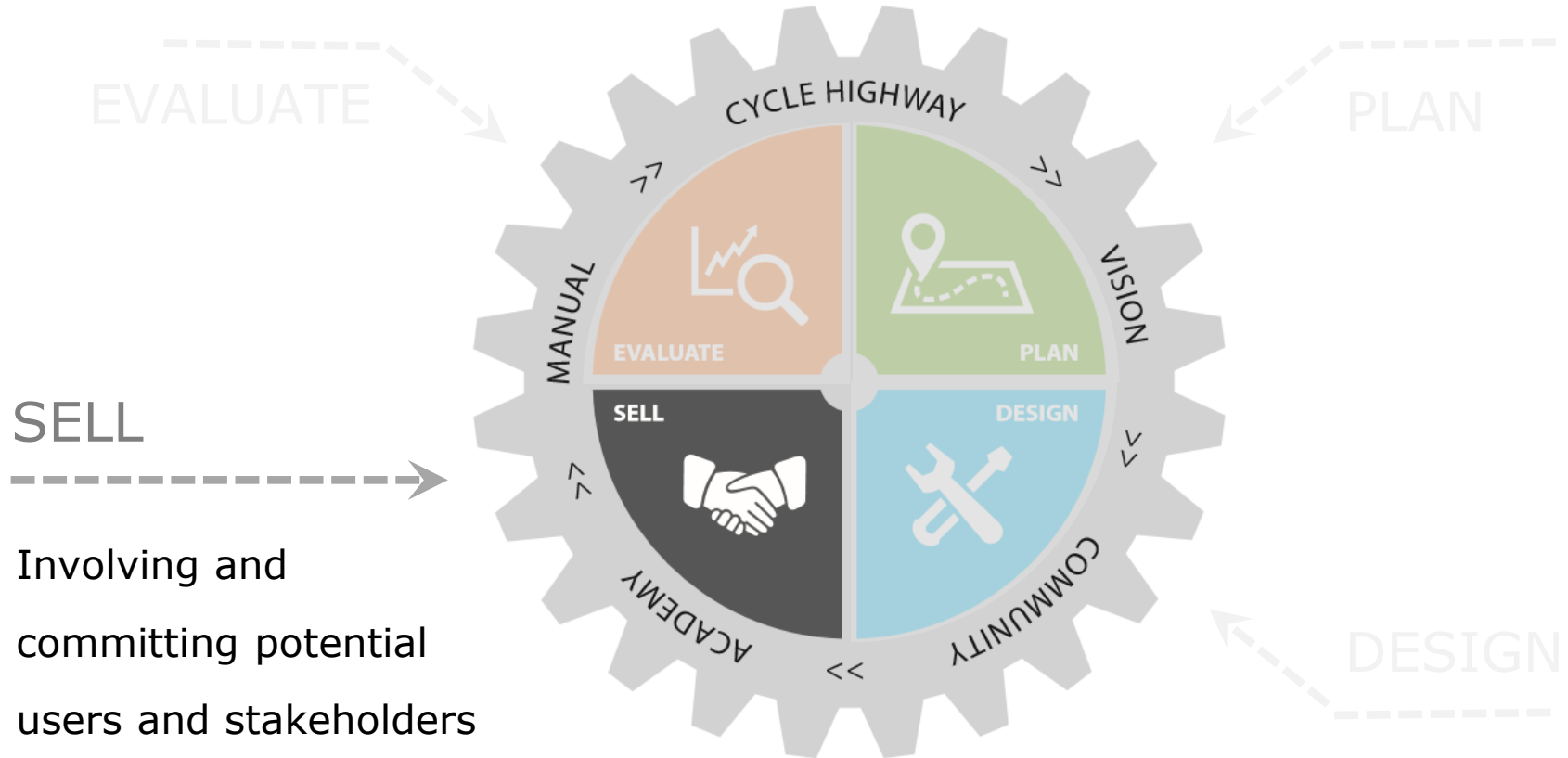
Question

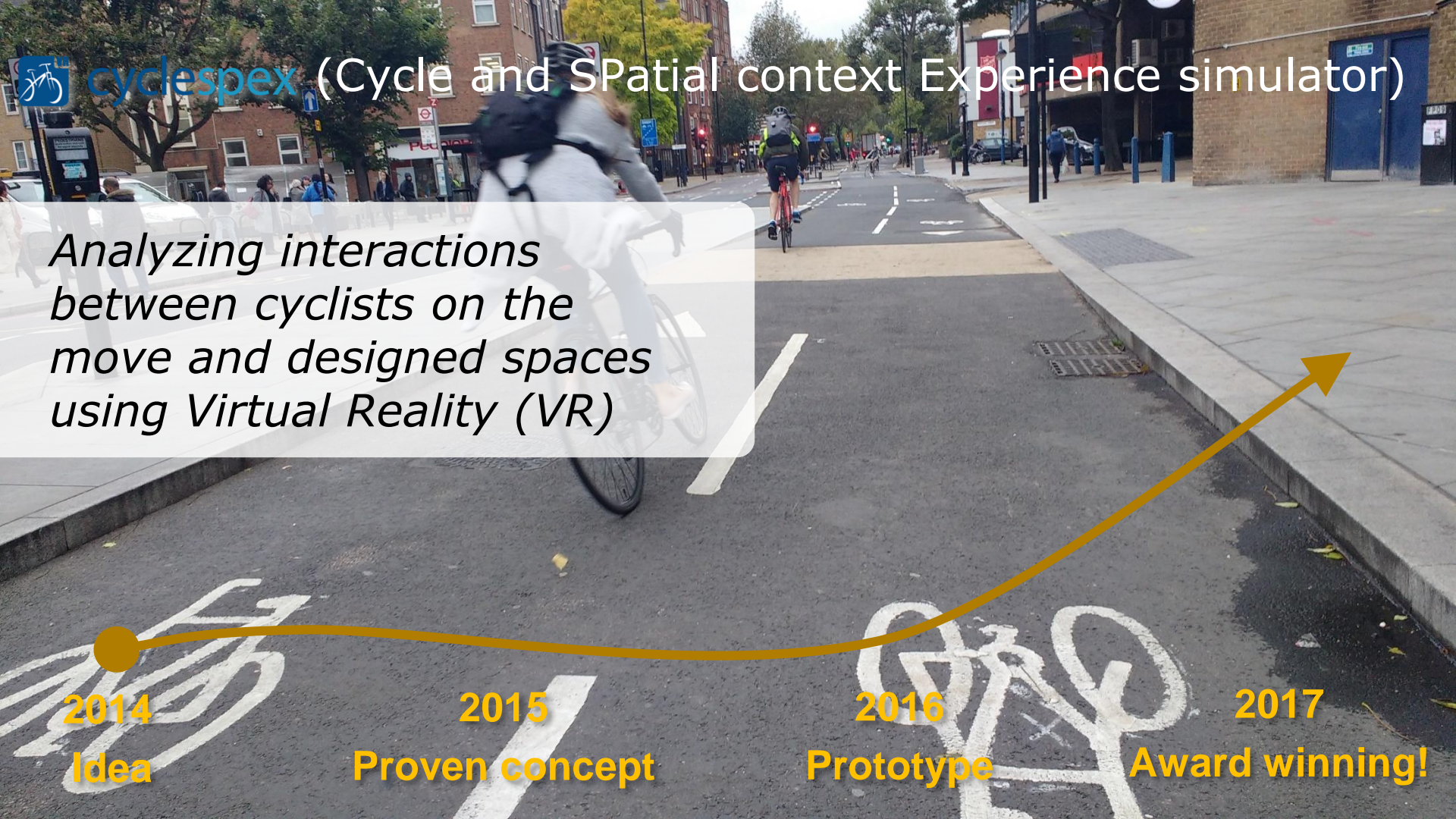
In which phase of a cycle highway project would VR be an appropriate tool to involve the (potential) end-user according to you?

1. Planning phase
2. Design phase
3. Selling phase
4. Evaluation phase



Life cycle highway





cyclespex

(Cycle and SPatial context Experience simulator)

*Analyzing interactions
between cyclists on the
move and designed spaces
using Virtual Reality (VR)*

2014

Idea

2015

Proven concept

2016

Prototype

2017

Award winning!

"Innovation is not always about thinking up something new, but about combining knowledge from various domains"

Game Architecture and Design



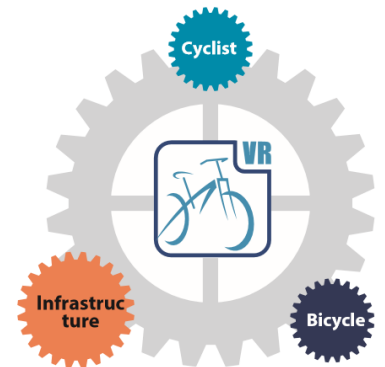
Spatial development





Answer research questions

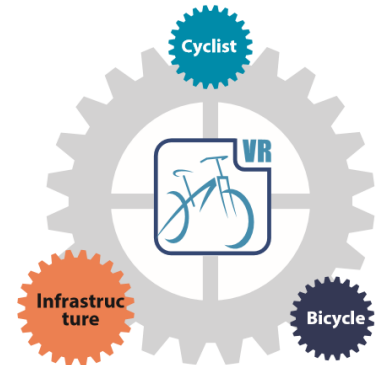
- Easily scenario construction and manipulative traffic
- Immersive and realistic virtual environments and cycling experience
- In-game questionnaires
- Tracking and logging cycling behaviour





Engagement of people

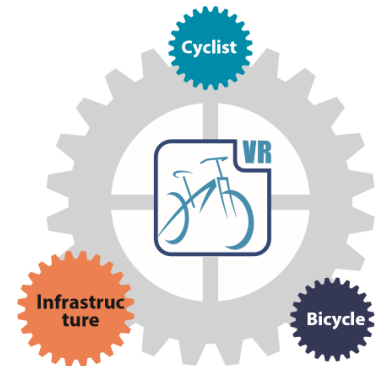
- Reconsider communication strategies
- Actively inform and involve potential end-users & stakeholders
- Create commitment
- Smoothen decision making processes





Design ex-ante evaluation

- Test on potential target groups
- Measure effect on appreciation and experience
- Evaluate behaviour
- Optimize before implementation



A large, circular graphic composed of many small white squares arranged in concentric, slightly offset rings, creating a pixelated or digital effect. It is centered on the slide.

selling
with VR



Interaction

Three VR situations are shown of an access road in a ordinary city

- Look at the picture closely
- Three items are questioned with each situation

poorly separated lanes * no greenery * few cyclists and pedestrians



poorly separated lanes * no greenery * few cyclists and pedestrians

1. I would enjoy cycling in this environment

2. I would feel safe cycling in this environment

3. I find this environment aesthetically pleasing

well separated lanes * no greenery * few cyclists and pedestrians





well separated lanes * no greenery * few cyclists and pedestrians

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A large, circular graphic composed of many small white squares arranged in concentric, slightly offset rings, creating a pixelated or digital effect. The text "lessons learned" is centered within this graphic.

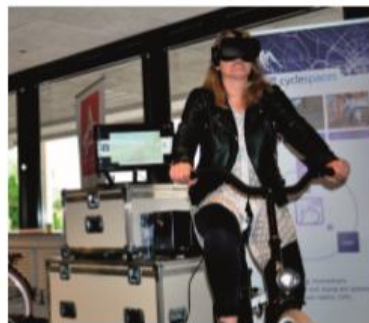
lessons
learned

Discussion

To which extent would you incorporate the results from the VR-study with potential end-users in the final design decision(s)?

Stakeholder engagement

Smart and healthy cities, 2017



Statement

I would consider applying VR-technology

... when this contributes shortening the planning process

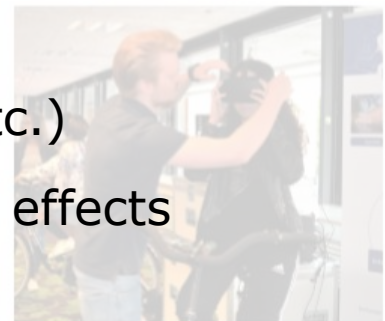
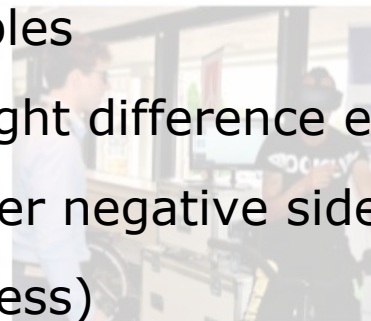
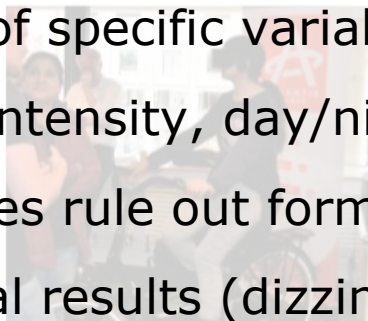
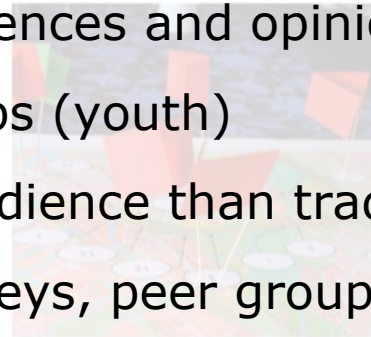
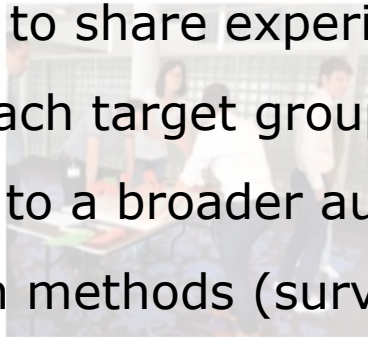
... when this contributes to a higher appreciation and commitment of the end-users to the end result

... when the ex-ante evaluation of the Cycle Highway design results in less modifications after realization

Lessons learned

Smart and healthy cities, 2017

1. Citizens are more inclined to participate
2. VR functions as trigger to share experiences and opinions
3. Involving difficult to reach target groups (youth)
4. VR technology appeals to a broader audience than traditional research methods (surveys, peer groups)
5. Clear results on effects of specific variables
(traffic intensity, day/night difference etc.)
6. Improved VR technologies rule out former negative side effects
on actual results (dizziness)



NHTV cycle Intelligence

Enhance a global shift towards active modes of transportation by supporting cities and professionals in built environment to get a grip on their cycling ambitions through applied science

www.nhtv.nl

www.shapingsociety.nl



Educate & enthuse new generation



research & innovate



politics & policy



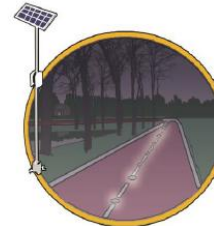
Promote & cooperate



prioritize & design



connect & facilitate



test & implement



network & performance



monitor & evaluate