

THE FUTURE OF BRIDGE OPERATIONS AT RIJKSWATERSTAAT

a design roadmap towards a safer water and road network

The combination of centralised automatic bridge and lock (object) control and the increase in traffic has led to a shift in object operations. In the past years, several incidents and accidents have made RWS see the value of innovation when it comes to the control of objects. This master thesis will, therefore, start with defining which problems are relevant to operators and which solutions benefit them in object operations.

To gather inside on the deeper knowledge, experiences and emotions of operators during the operation process, contextmapping (Sanders & Stappers, 2012) was used. Contextmapping enhances the operator's own understanding of experiences around safe object operations. To validate the contextmapping findings, 13 operators were interviewed using a combination of semi-structured interviews (Barribal and While, 1994) and the Scenes™ method (SAP AppHaus, n.d.). The results from the

contextmapping sessions and interviews were visualised in an operator segmentation and an operator journey map. The segmentation allows for a better understanding of the target group, when to utilise their expertise during the innovation process and how they will react towards specific solutions.

A design roadmap containing 5 horizons was created to provide RWS with an innovation strategy for the future of object control. In order to deliver an optimal service for both road and waterway traffic, while accommodating both RWS and the operator's values the future vision regarding object operations will be: *the future of object control will be an all-inclusive system to increase safety and traffic flow on water and land*. The concepts proposed in these horizons all contribute to reaching this final vision. Furthermore, it is advised to keep involving the operators throughout every horizon using creative methods.

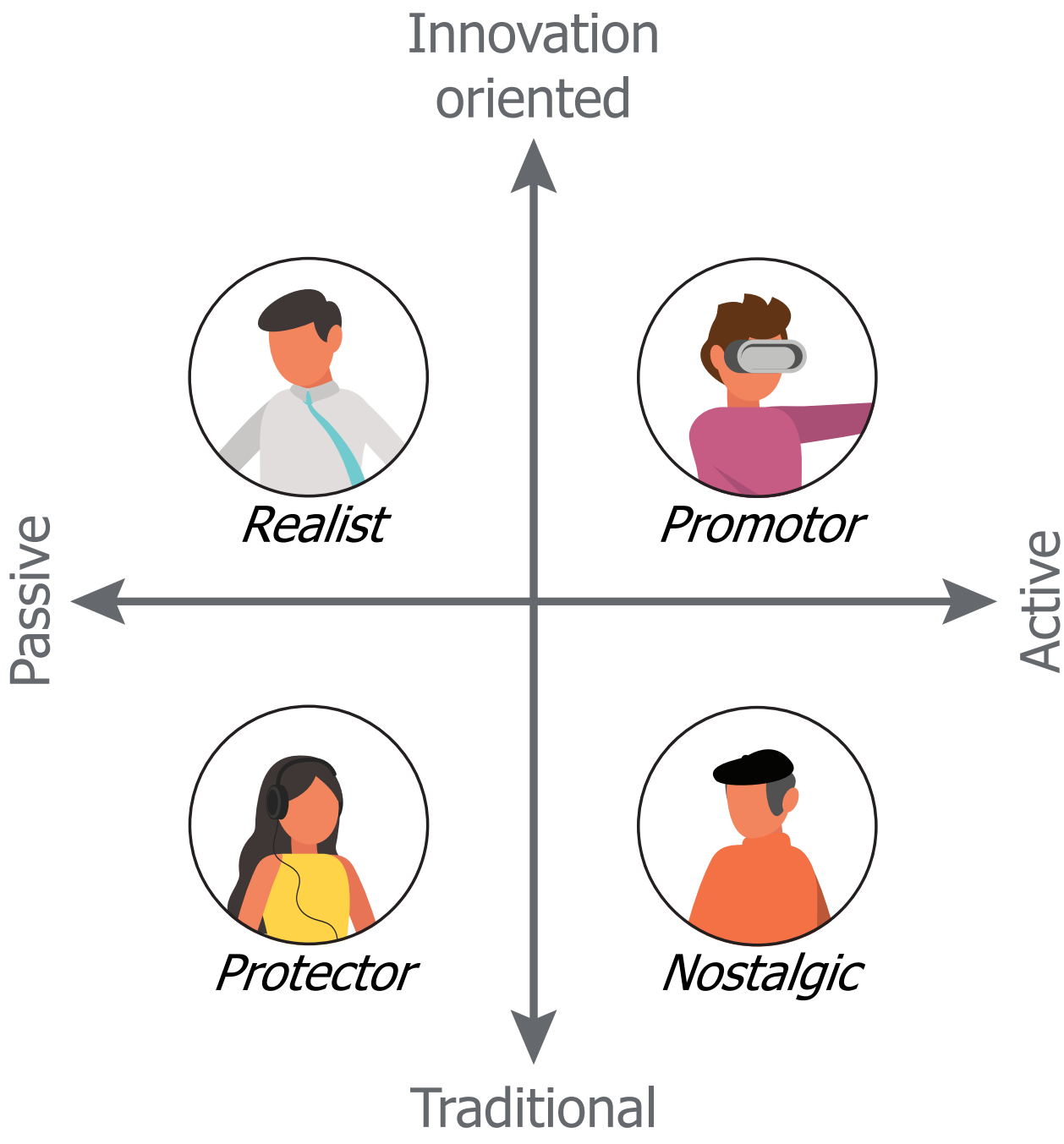
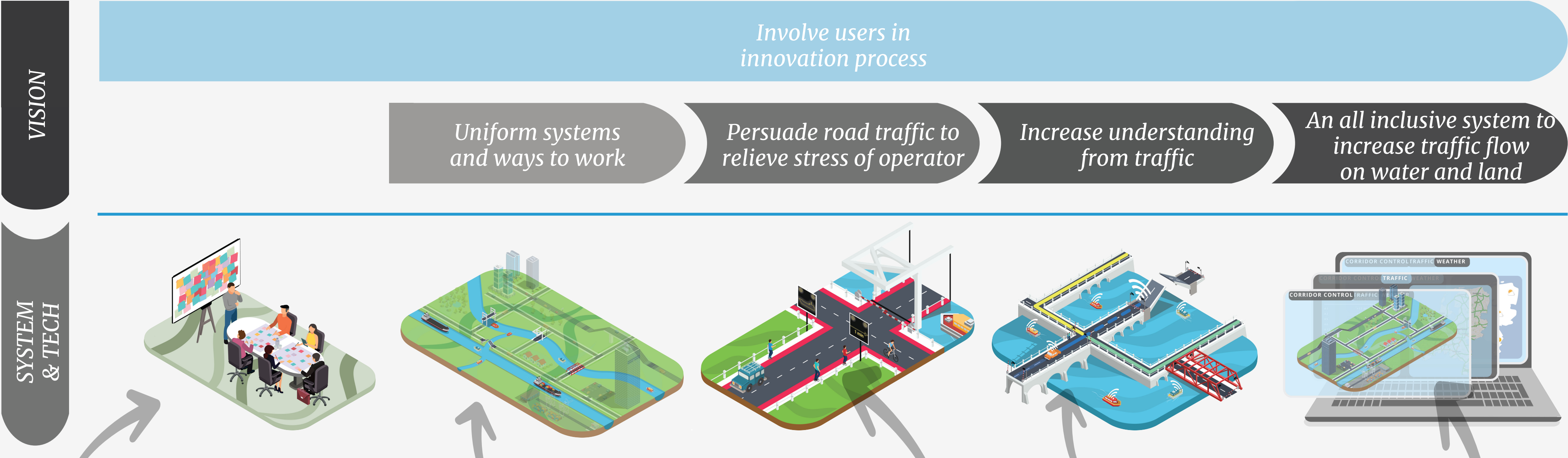


Figure 1. Operator segmentation

Roadmap towards a safer water and road network.



The first system spans the entire innovation process. It is advised to organise contextmapping workshops at set time intervals. By doing this, RWS ensures operators are constantly involved during the innovation process. This will not only improve solutions, it will also create better understanding between the operational site and management.

With uniform systems and ways to work, operators will have a better understanding

of objects. Object control will become more centralised, and the operation process more uniform.

By use of existing communication technologies, road traffic will be persuaded to abide traffic rules, in such a way that the operator experiences less stressful moments during object control.

The combination of smart systems on and around objects and the growing availability of traffic data will create an ecosystem

where the operator will better understand both water and road traffic.

RWS will offer an all inclusive service to increase traffic flow on water and land. With the introduction of corridor based operations RWS will pave the way towards a synchromodal system by enabling an integrated solution for waterway traffic.

Barribal, K. L., & While, A. (1994). Collecting data using a semi-structured interview: a discussion paper. *Journal of Advanced Nursing-Institutional Subscription*, 19(2), 328-335.

Sanders, L., & Stappers, P. J. (2012). *Convivial design toolbox: Generative research for the front end of design*. BIS.

SAP AppHaus. (n.d.). *Scenes - Every great experience starts with a great story*. Retrieved from <https://experience.sap.com/designservices/scenes>

Maarten van Rooij
Smart technologies and human factors for
detection during bridge operations
01-07-2019
SPD

Committee Prof. Dr. Snelders, H.M.J.J.
Dr. Egmond, R. van

Company Rijkswaterstaat

