

**DeSIRE Tenure track position #2:
Monitoring the resilience of artificial and natural infrastructure in cities and urbanized deltas**

University: University of Twente
Faculty: Engineering Technology
Department: Department of Civil Engineering
Responsible Professor: Prof. Dr. Kathelijne Wijnberg (k.m.wijnberg@utwente.nl)
Expected to open: This position is expected to open around September/October 2018

Description:

More than half of the world's population today lives in cities or urbanized regions. Deltas are a very attractive location for humans to settle. Most urbanized deltas consist of conglomerations of larger and smaller cities, towns and villages, and urbanized and rural regions.

In these complex, interconnected and urbanized delta's, the ability of critical infrastructure to keep functioning under conditions of stress or shocks is crucial to creating and maintaining livable cities and regions. For example, accelerating rates of relative sea level rise and increasing peak river discharges create world-wide growing demands on artificial and natural flood protection infrastructure. Moreover, existing urban infrastructures such as streets & utility networks are currently ageing. This creates major reconstruction and maintenance peaks and challenges to construct (subsurface) assets without interfering or disturbing the functioning of the urbanized region.

The emergence of new technologies (sensors, sensor networks and platforms, remote sensing) and advances in data analytics offer opportunities to greatly improve the performance monitoring of both artificial infrastructure (e.g. roads, dykes, bridges, sluices) and natural infrastructure (e.g. green infrastructure, rivers, natural flood protection). This tenure track aims to advance the measuring and monitoring of the resilience of infrastructure in cities and urbanized deltas, using and developing innovative technologies and methods.

Position in framework of the programme:

- Approaches/discipline:
Monitoring, data analytics, decision modelling and support, Cross-cutting methodologies
- Scale/application area:
Cities & regions of interconnected mid-size towns/Water/Urban-Infra

Synergy with other tenure track position(s):

- Governing Resilience of the RURBAN Metropolis (UT, Behavioural Management and Social Sciences)
- Resilient asset management and maintenance (TU/e, Industrial Engineering & Innovation Sciences)
- Designing resilient urban climates (WUR, Environmental Sciences)
- Flood resilience (DUT, Civil Engineering and Geosciences)