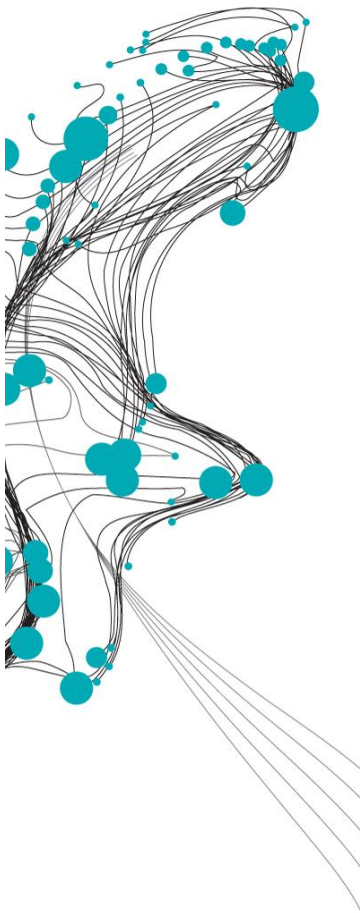


ARE FLOOD MODEL USED?

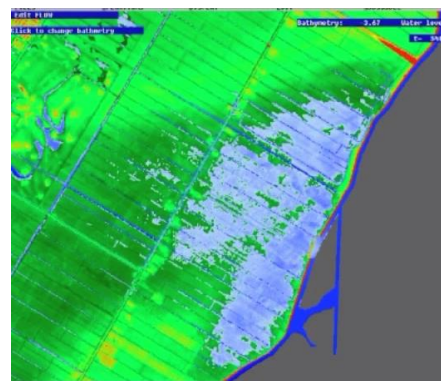
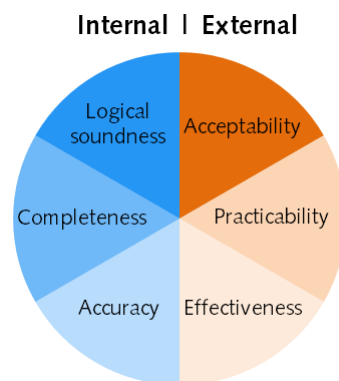
A METHOD FOR ASSESSING THE USE OF FLOOD MODELS IN THE OPERATIONAL PHASE OF FLOOD CALAMITY MANAGEMENT



This research focuses on the operational phase, lasting from three days before an event right until the event occurs. In this phase, actions taken are reactive to the situation. Currently, flood models are used in the preparatory phase of flood calamity management. However, in the operational phase flood models are barely used (Leskens & Brugnach, 2012). The last few years the 3Di consortium has worked on a powerful tool that may be usable in the operational phase of flood calamity management (see Fig.2). However, it is still unsure if this tool will effectively improve the decision making process and there is currently no method available to assess this. This research focuses on developing such a method. This thesis presents a method to assess the use of flood models in the operational phase of flood calamity management, using a set of specific and measureable indicators.

The method for assessing the use of flood models in the operational phase of flood calamity management consists of twenty indicators. These indicators are grouped in six categories, based on the structure of Covello and Merkhofer (1994). Three categories consider internal aspects and three categories consider external aspects (see Fig.1). To measure an indicator, one or more questions are suggested that need to be answered affirmatively. Each question can be answered using one of three types of measurement methods: objective measurement, expert elicitation and user interviews.

The internal and external categories address the importance of both model properties and model usage. Two types of possible relations between two indicators are recognized, ranking by importance and trade-offs. The representativeness of the indicators for a real flood calamity is verified at the flood calamity exercise at Hoogheemraadschap Delfland on the 14 November, 2012. That day also the use of the 3Di flood model to support decision making is assessed by the model users based on the indicators identified in this research.



Alexander Hoff

Graduation Date:
1 February, 2013

Graduation committee:
University of Twente
Dr. M.S. Krol

Nelen & Schuurmans
Ir. J.G. Leskens

Figure 1: six categories based on Covello and Merkhofer (1994).

Figure 2: example of the 3Di flood model.

Covello, T., & Merkhofer, W. (1994). An evaluation of the state of the art Risk assessments methods: approaches for assessing health and environmental risks. New York: Plenum Press.

Leskens, J., & Brugnach, M. (2012). Applying a network approach to identify reasons for the limited use of flood models. Paper presented at the 19th Annual Conference on Multi-Organisational Partnerships, Alliances and Networks, Wageningen University.