CrossMark

Classification Model

Henrique Vicente[1] · **Fábio Borralho**[2] · **Catarina Couto**[2] ·
Guida Gomes[3] · **Victor Alves**[3] · **José Neves**[3]

Abstract The International Water Association and the World Health Organization has promoted, worldwide, the implementation of Water Safety Plans (WSPs) to ensure, consistently and systematically the water quality for human consumption. In order to complement and potentiate the WSPs, this work presents an adverse event reporting and learning system that may help to prevent hazards and risks. The proposed framework will allow for automatic knowledge extraction and report generation, in order to identify the most relevant causes of error. It will cater for the delineation of advance strategies to problem accomplishment, concluding about the impact, place of occurrence, form or type of event recorded with respect to the entities that operate in the water sector. To respond to this challenge the Eindhoven Classification Model was extended and adapted to the water industry, and used to classify the root causes of adverse events. Logic programming was used as a knowledge representation and reasoning mechanism, allowing one to model the universe of discourse in terms of

✉ Henrique Vicente
hvicente@uevora.pt

Fábio Borralho
fabi0_jmb@hotmail.com

Catarina Couto
horbite@gmail.com

Guida Gomes
mguida.mgomes@gmail.com

Victor Alves
valves@di.uminho.pt

José Neves
jneves@di.uminho.pt

[1] Departamento de Química, Centro de Química de Évora, Escola de Ciências e Tecnologia, Universidade de Évora, Évora, Portugal

[2] Departamento de Química, Escola de Ciências e Tecnologia, Universidade de Évora, Évora, Portugal

[3] Centro Algoritmi, Universidade do Minho, Braga, Portugal

defective data, information and knowledge, and its embedded quality, that enables a direct study of the event's root causes. Other approaches to address specific issues of water industry, presented in literature, do not consider the problem from a perspective of having to deal with incomplete, unknown, contradictory or even forbidden data, information or knowledge, and their conclusions are not object of a formal proof. Here it is not only presented a solution to the problem, but also a proof that the solution(s) is (are) the only one(s).