

The Innovation Management Modelling in the Water Sector in the United Arab Emirates: A Mixed-Methods Study

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Abstract

The United Arab Emirates (UAE) is encountering a scarcity of water resources. It is counting on innovation management to alleviate the situation. In that context, there is a need for a managerial framework for this subject. Therefore, the aim of the current study is to build up an innovative managerial model. To establish this model, we applied a convergent, parallel, mixed-methods design. The study participants ($n = 42$) consisted mostly of leaders and experts working for the main water institutions. We analysed the quantitative method via partial least squares structural equation modelling (PLS-SEM), a SmartPLS software. Qualitative method procedures were conducted starting from coding, categorising, obtaining themes, and lastly, the establishment of grounded theory. We obtained two rigid inputs (quantitative and qualitative models) for the last phase (mixed-methods analysis). The quantitative findings revealed a significant and robust relationship (t value = 26.6, $p = 0.000$, coefficient = 0.888, $R^2 = 0.788$). The qualitative findings also produced a steady grounded theory. Both quantitative and qualitative models were crossed according to the 'convergence coding matrix' and 'triangulation analysis protocol'. Ultimately, we built a holistic framework named 'the UAE water innovation model', consisting of 12 components (meta-themes). This model should be adopted as the main guide for innovation management and strategy in water public sector institutions. Globally, this model could be a significant contribution, and it would be applicable to any country in the world with the same arid environment as the UAE.

Keywords: balanced scorecard, innovation management, modelling, technology transfer, water sector, public sector

1. Introduction

This study's original contribution is devising a new managerial framework for solving water challenges in United Arab Emirates (UAE) (Figure 1). The main motivation for conducting this study was to reconcile with the water innovation strategy accredited by the UAE government. It also contributes to many national initiatives, such as the UAE Water Security Strategy 2036 and the National Water and Energy Demand Management Program (<https://www.moei.gov.ae>).

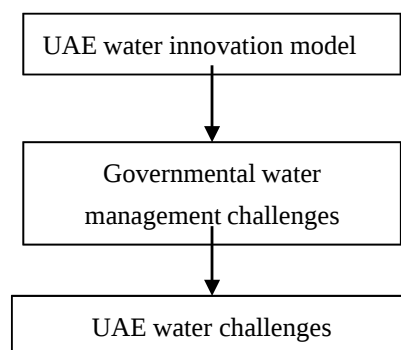


Figure 1. The relationship between the water innovation model and the water challenges in the UAE



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