

## Innovation case study in Seqwater

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### 1 Introduction

Innovation is an important activity for organisational success [1, 2]. Accordingly, managers and academics have been trying to understand how to best foster innovation to improve the level and extent of success from innovation in organisations [3].

Williams and Samset [4] point out that the need to innovate challenges conventional project management. The reason is because traditional project management methodologies, are rigid and inflexible and not suited to changeable and a fast paced environment. Projects often have unique tasks to complete (especially those in engineering) and thus, can generate novel learnings or innovations [5, 6]. However, to innovate in projects, the manager must balance the exploitation of what is currently known while developing new knowledge to suit new challenges and meet the objectives of the project.

The reason for failure in projects can thus be due to the inability to respond to the emergence of new circumstances in the project environment, which has been attributed to ineffective knowledge management (KM) and innovation management (IM) [7, 8]. Consequently, project-based organisations (like many utilities) are notorious for having failed projects [9]. This research focuses on this problem and aimed to explore innovation processes in a project-based context.

### 2 Methodology

This qualitative, case study-based research (conducted for Master's thesis) used a single case study—a innovation-based project, which aimed to develop novel water quality profilers for dams. The data for the case study was obtained through documentation, observations and interviews with project participants.

### 2 Findings

Analysis of the data revealed that two critical events: drought and flood, were the main drivers for the project to begin. Enablers of the project were a dissatisfaction with the current knowledge base (a lack of water quality data) as well as collaboration within and external to the organisation to fill knowledge gaps.

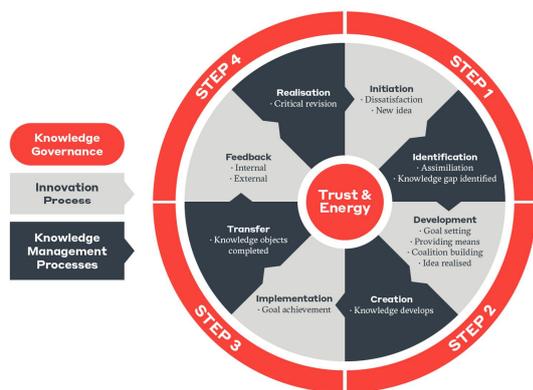
After the initial goal was realised in the project case study, a second goal became apparent which was to operationalise the technology for efficiency purposes. Barriers for achieving the second goal were found to be associated with trust and energy.

The outcomes of the innovation were measured by the level of implementation of the idea (the new water quality profiler) within the organisation. However, during implementation, trust in the technology was not fully realised which reduced the level of energy for the project that was required to continue the knowledge building process. Knowledge was required to troubleshoot the problems with the technology and to share the knowledge across the organisation. Energy was also required from the organisation to provide enough resources to overcome these problems. Furthermore, the level of implementation of knowledge across the organisation was limited due to the absence of a clear KM plan.

The influence of decision making upon project success was found to be linked to goal setting and to energisation. The importance of trust among project stakeholders and in the innovation were also highlighted. Both, trust and the goal setting influenced the energy levels amongst project members to proceed with the project and develop the technology. This energisation was found to have an important link back to leaders who, in this case, had exemplified their support for the project. Knowing these relationships, managers can develop strategies to garner

trust between networks prior to project initiation and for when a problem that erodes trust is realised.

The proposed knowledge—innovation framework is illustrated in Figure 1. When initiating projects, managers should ensure that KM has a focus and continues throughout the project maturation; that resource gaps and project aim conflicts are identified and acted upon; that feedback is sort regularly and followed through, and attention is given to the level of trust in and energy for the project.



**Figure 1:** Illustration of the Knowledge Innovation Framework

Actions for establishing a knowledge strategy could entail developing a knowledge policy and identifying: where KM is to be used; likely communities of practice and how the transfer of knowledge in these networks could be improved; extent of current knowledge-based objects and where additional resources are needed to improve the level of knowledge transfer; and, which work processes could be improved through KM.

### 3 Conclusions and Recommendations

A knowledge—innovation framework has been developed to improve the success of innovations from projects. This research asserts that improving our understanding of the IM and KM processes and their relationship, could be a key element that may improve the success rate. The framework describes the process of innovation from the inception of the idea, knowledge development, transfer and implementation. The key aspect is to acknowledge the need for feedback and to ensure the process continues until the innovation is fully embedded within the organisation. Energy and trust is required to

ensure the process continues. Thus, having a strategy to support the tracking and management of these constructs will increase the likelihood of innovations succeeding.

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