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Developing a systemic lessons learned knowledge model for organisational learning through projects

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Abstract

A significant challenge for government and business project organisations is to ensure that lessons are learned and that mistakes of the past are not repeated. Both knowledge and project management literature suggests that in practice lessons learned processes rarely happen, and when it does it is concerned with lessons identification rather than organisational learning. There are limited practical models for general management to use to conceptualise what organisational learning is and therefore how to enable it. However, aspects of health care, nuclear power, rail, and aviation organisations have successfully implemented organisational learning by way of the Swiss cheese model for safety and systemic failures. This paper proposes an adaptation of the Swiss cheese model to enable project organisations to conceptualise how they learn from past project experiences and distribute successful project know-how across an organisational network of elements such as individual learning, culture, social, technology, process and infrastructure.
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1. Introduction

There is a government and business need to successfully manage programmes and projects, to learn from success and failure, and to capture, disseminate and apply lessons learned (Li, 2002; NASA, 2012; National Audit Office, 2009; New Zealand Government, 2010). The Project Management Institute's (PMI) Project Management Body of Knowledge (PMBOK® Guide) identifies the importance of collecting and documenting lessons learned and implementing process improvements (Project Management Institute, 2008a). However, in practice organisational learning from projects rarely happens, and when it does it fails to deliver the intended results (Atkinson et al., 2006; Keegan and Turner, 2001; Kerzner, 2009; Klakegg et al., 2010; Milton, 2010; Schindler and Eppler, 2003; Williams, 2008; Wysocki, 2004,

2009). Nevertheless, some organisations in the sectors of health care, nuclear power, rail and aviation have demonstrated their ability to apply lessons learned by way of Reason's (1997, 2000) Swiss cheese model. This model enables these organisations to conceptualise how safety and accident prevention know-how is distributed across a network of interconnected organisational faculties and systems.

In this paper we develop a conceptual model, hereafter referred to as the systemic lessons learned knowledge model or Syllk (pronounced Silk) model, which is a variation or adaptation of Reason's (1997, 2000) Swiss cheese model. Whereas the Swiss cheese model appropriately fits accident causation, the Syllk model is better suited to the organisation managing projects. We present the case that both Swiss cheese and Syllk models capture the essence of how naturally evolving complex adaptive systems incrementally modify their behaviour over time to optimally fit their environment. Put simply; in aviation the Swiss cheese model enables lessons learned data to be collected from each plane flight today, so that the aviation industry can improve how planes fly tomorrow. For project organisations, we envisage that the Syllk

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model will enable lessons learned data to be collected from each project so that the organisation is able to improve its future project delivery performance.

The paper begins with a problem statement about the organisational lessons learned paradox, namely; why, when there are so many opinions, guides, and models on organisational lessons learned processes, do organisations generally still fail to learn from their past project experiences? In this section we highlight that the problem is not with identifying lesson, nor is it to a lesser extent with the ability to store or share knowledge by technological means. But rather the problem appears to be that organisations are unable to apply or implement the lesson learned (knowledge) they have. They lack, metaphorically speaking, an organisational central nervous system and a way of conceptualising it so that it is actionable. More practically, this means organisations require an active and manageable systemic approach to lessons learned where learning through past experiences pervades all organisational processes, systems, and practices. With this point in mind the literature review explores organisational learning and lessons learned techniques, how naturally evolved complex adaptive systems learn and adapt, and how both these topics relate to the project organisation. We then review the literature on successful learning organisations and show how their learning mechanism is underpinned by James Reason's (1997, 2000) Swiss cheese model for safety and accident prevention. Our line of enquiry is formed from a gap in the literature which results in our research question; how can the lessons learned concepts illustrated in Reason's Swiss cheese model be broadened beyond safety to meet the learning needs of project organisations? To address this question based on the groundwork of the literature review, we describe the development of the Syllk model for organisational learning through projects and present the findings of a small conceptual test of the model with practitioner focus groups. Finally we discuss the findings within the framework of the literature and speculate on practical applications and future research opportunities.

2. The problem statement

In this section we discuss the general trend of project organisations failing to learn from their past experiences whilst at the same time being surrounded by lessons learned models and guides and opinions on how to apply them. We highlight how cultural and social factors can be both a problem and solution to organisational learning, and discuss the need for a new paradigm for organisational learning that conceptualises and articulates how organisational know-how about successful project delivery is in practice distributed across networked or interconnected areas of the organisation.

2.1. There is a general trend in failing to learn from projects

There is significant dissatisfaction with project lessons learned processes as they are. Lessons from projects might be identified but not many are learned when it comes to picking up on early warning signs in problem projects (Klakegg et al., 2010). Out of 74 organisations that attempted lessons learned processes, 60%

were dissatisfied (Milton, 2010). In another study, 62% of 522 project practitioner responded that they had a process for learning lessons and of those only 11.7% followed the process (Williams, 2007). Furthermore, whilst the lessons learned process is popular, it fails to deliver the intended results as lessons are identified and are often not followed through and integrated into the organisation (O'Dell and Hubert, 2011).

Even institutions such as NASA have issues with lessons learned from projects. Following reviews in 2000 of NASA's Mars Program, the Space Shuttle wiring problems, and the implementation of NASA's Faster, Better, Cheaper (FBC) project, NASA implemented action plans to improve sharing of experiences and lessons learned (Keegan and Griner, 2000; NASA, 2012). In 2002 the Government Accountability Office found that NASA's lessons learned were not routinely identified, reviewed and accessed by project managers (Li, 2002). A recent 2012 NASA Office of Inspector General audit report highlights that NASA project managers are still not routinely using the lessons learned information system (LLIS) to contribute new information or to search for lessons learned identified by others (NASA, 2012).

Other renowned institutions have similar lesson learned issues. A review of the BP Deepwater Horizon accident investigation revealed how lessons learned of previous "well control event incidents" and "lines of communication" were not acknowledge or addressed and was a contributing cause to the failure (BP, 2010; Cleveland, 2011). NASA today uses the BP Deepwater Horizon incident as a lessons learned case study paying particular attention to communication deficiencies around government oversight, disregard of data, testing, changes to process, safety culture and lessons learned from previous incidents (NASA, 2011).

There are also few signs that lessons are being learnt through public sector projects. For example the Australian State Victorian Government Ombudsman examined 10 major ICT business transformation projects during 2011 and identified that despite the extensive guidance, reports and literature available, agencies are still making the same mistakes around planning, governance, project management and procurement (Brouwer, 2011). The Queensland Health Payroll System Commission of Inquiry highlighted that problems from the Queensland Health payroll project (the worst failure of public administration in Australia) "were known to be ones not uncommon in large government projects of this kind. The neglect of them in this case is cause to think it is likely the lessons will again be ignored" (Chesterman, 2013, p. 219).

2.2. Not for the want of opinions, guides, and models on lessons learned

Generally speaking, there are many opinions and guides, but little practical advice regarding workable processes that effectively enable the organisation to learn from past project experiences. Over the last 14 years the PMBOK® Guide has increased its references to the term lessons learned. In the PMBOK® Guide 4th edition there is a focus on process improvement as a result of lessons learned (Project Management Institute, 2008a). However, in the PMBOK® Guide 4th and 5th editions (2008b, 2013) the 'lessons learned' process is not