Chapter VI

Diffusion of Information and Communication Technology: A Community of Practice Perspective

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Abstract

This chapter explains the community of practice (COP) concept from the perspective of three major Australian construction contractors. It also describes and provides an analysis of their COPs from the perspective of the individual, work group, and organisation. We provide maps of these COPs for each of the three contractors studied. The intention of using this approach is to offer readers insights into how these COPs can be developed and supported. The study we base this chapter upon focussed on groupware as an ICT initiative being rolled out using COPs as an integral part of the innovation diffusion strategy. Case study findings relating to these COPs reveal that they are not only supported by ICT, but also that ICT itself supports these COPs in a self-referential and synergistic way. The important contribution that this chapter makes to our understanding of the studied phenomenon was not only the ‘what’ or descriptive nature of these COPs, but also insights that help us understand the ‘how’ of the process, so that lessons learned may be absorbed and diffused more widely in the construction industry.
Introduction

Construction organisations comprise geographically dispersed, virtually linked sub-organisations that work together to realise projects. They increasingly do so using information and communication technology (ICT) to communicate, coordinate their activities, and solve complex problems. One salient problem they face is how to effectively use requisite ICT tools. Communities of practice (COPs) generate knowledge networks that enhance and sustain competitive advantage, and they are also used to help COP members actually use ICT tools. Etienne Wenger defines communities of practice as “groups of people informally bound together by shared expertise and passion for a joint enterprise” (Wenger & Snyder 2000, p. 139). This ‘chicken-or-egg’ issue about needing a COP to use the tools that are needed to effective broaden COPs (beyond co-located these groups) led us to explore how best to improve the process of ICT diffusion through construction organisations—primarily using people supported by technology that improves knowledge sharing.

We present insights gained from recent PhD research results in this area. A semi-structured interview approach was used to collect data from ICT strategists and users in the three large Australian construction organisations that are among the 10 or so first tier companies by annual dollar turnover in Australia. The interviewees were categorised into five organisational levels: IT strategist, implementer, project or engineering manager, site engineer, and foreman. The focus of the study was on the organisation and the way that it implements ICT diffusion of a groupware ICT diffusion initiative.

From the three Australian cases, several types of COP networks emerge: within-organisation COP; institutional, implementer, or technical support; project manager/engineer focussed; and collegial support. Also, there are cross-organisational COPs that organically emerge as a result of people sharing an interest or experience in something significant. Firstly, an institutional network is defined as a strategic group, interested in development of technology innovation within an organisation. This COP principally links business process domain experts with an ICT strategist.

We have structured this chapter as follows. First we provide some background to ICT diffusion in general and how COPs can use groupware ICT applications. We follow this with a discussion of theory underpinning the research project reported upon in this chapter, and we explain the differences between teams and COPs. We then report research findings from three case studies and present our analysis. We conclude the chapter with some helpful tips and hints for readers wishing to make practical use of our findings.

Learning Objectives

1. Readers should gain a sound understanding of how ICT is diffused through construction organisations using a human infrastructure supported by ICT—specifically from the way that COPs influence how their members actually diffuse ICT.
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