Developing new categories of knowledge acquisition, translation and dissemination by technological gatekeepers.

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Synopsis

As firms become more knowledge intensive the role played by gatekeepers who acquire external knowledge, translate and contextualise it for their companies needs and disseminate it to key personnel is of increasing importance. This study uses a single case study to extend the existing literature on technological gatekeepers by examining how they operate in a new functional area and by focusing on their use of corporate information systems. It developed new categorisations within each phase of the traditional gatekeeping activity, resulting in a revised model of gatekeeper behaviour. Two new and distinct modes of knowledge acquisition were identified: reactive acquisition to solve immediate problems and proactive acquisition that was related to emerging technologies. Knowledge translation could be 'in-use' and not disseminated, rationalised, requiring clarification and elaboration, or tiered, necessitating electronic versioning for different user groups. While interpersonal dissemination was present the increasing reliance on information systems for dissemination diminished the traditional need for gatekeepers to expend time and energy developing social networks.

Introduction and Background

The technological gatekeeper concept was developed to aid an understanding of an emergent (Whelan, Collings, & Donnellan, 2010) and informal (Sturges, 2001) role occupied by those few employees in research and development departments who acquired external knowledge on scientific developments (Allen & Cohen, 1969) and who acted as boundary spanners between external and internal environments when translating knowledge (Allan, 1977) so that it could be is disseminated to appropriate colleagues in the firm (Tushman & Nadler, 1986). It involves three phases: acquisition, translation and dissemination.

Every R&D laboratory needs to import external information to keep abreast of the latest scientific and technological developments (Allen & Cohen, 1969). Gatekeepers enable their fellow researchers to be kept aware of the 'broad world' of research (Sturges, 2001). One aspect of the role is to scan and search the external environment for technological and scientific developments identified as relevant to the firm (Morrison, 2008; Whelan, Collings, et al., 2010). Gatekeepers may therefore influence organisational innovativeness based on the information that they allow to enter the firm (Emmitt, 2001). Part of a gatekeeper's expertise lies in knowing

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who is doing what inside the firm (Whelan, Collings, et al., 2010) so that they can distribute external information to appropriate colleagues (Tushman & Nadler, 1986). They provide a linking role, acting as boundary spanners between separate groups or networks (Tushman & Scanlan, 1981a,b), particularly where disparities exist between the internal and external environments 'coding schemes' (Tushman & Scanlan, 1981b). After translation they deliver acquired information so that it can be used by others in the R&D group (MacDonald & Williams, 1993), making it meaningful to them (Morrison, 2008; Whelan et al., 2009) or to managers (Katz et al., 1995).

Issues and Questions Considered

Research on gatekeepers focused initially (Allen & Cohen, 1969; Tushman & Scanlan, 1981a) and more recently (Allen et al., 2007; Whelan, Collings, et al., 2010; Whelan et al., 2013) on R&D groups. While the notion of individuals within R&D departments acting as gatekeepers has been extensively examined little research has focused on other departments. Given firms' increasing knowledge intensity across all functions this is a gap that needed to be addressed.

The role of information and communication technologies was absent in earlier studies. Recently gatekeepers admitted (Whelan et al., 2009), that much of the information they needed was available on the internet, their most widely used source of external information (Whelan, Collings, et al., 2010). Dissemination involved sending e-mails with attached content to employees the gatekeeper knew would be interested (Whelan, Collings, et al., 2010). A key issue regarding the use of corporate systems by gatekeepers is the degree to which they can replace or reduce the need for gatekeepers to develop extensive interpersonal or electronic social networks. There is a lack of studies examining gatekeepers' reliance and use of corporate information systems. The purpose of this research was to examine how the traditional role of technological gatekeepers in acquiring, translating and disseminating external knowledge is affected when using corporate information systems in a new, non-R&D context and to extend the existing gatekeeper literature by identifying new distinctions and categorisations.

Methodology

This research was based on a case study of two product support departments of a multinational corporation. The case company was selected on the basis that it met certain theoretical criteria (Cantabous,

Gond, & Johnson-Cramer, 2010; Johnson, Prashantham, Floyd, & Bourque, 2010; Moisander & Stenfors, 2009). The first criterion was that, in addition to employees using knowledge for their daily tasks, it was necessary that a certain portion of their work involved elements of all three phases of gatekeeper activity, though it was not required that all phases were undertaken by a single individual. Given the gaps in existing research regarding technologies already investigated and the typical focus on R&D departments it was necessary that there was heavy reliance on corporate information systems to accomplish work and finally, that a non-R&D environment was selected. Qualitative data collection methods were used at specific times over a year and included semi-structured interviews where employees were asked to describe their everyday activities, as well as through participant observation of employee use of corporate information systems.

Outcomes and Findings

External knowledge acquisition was found to be either proactive or reactive. Proactive acquisition was needed prior to new products being launched and had a wide focus while reactive knowledge related to client issues with changed or upgraded products and was narrow in terms of the knowledge required. The information system stored both acquired and validated knowledge as well as knowledge on current thinking in a problem domain, the validity of which had yet to be fully established.

Translation of knowledge 'in-use' involved knowledge being translated and validated for a particular context without being disseminated for fear of inappropriate reuse. 'Rationale-ised' translation sought to overcome this risk by clarifying and elaborating what was stored in the information system to enable better computer-mediated dissemination. Translation, using system functionality, could also be 'tiered' and only made available to categories of recipients based on their level of knowledge.

Though interpersonal dissemination was present, it was more formal, using mentors and specialists. The use of information systems diminished its importance except for training and very complex or ambiguous knowledge. The predominant mechanism for knowledge dissemination was found to be electronic through a repository of service solutions, white papers, technical advisories and product specification documents. While the traditional three phases of gatekeeper activity were present, the activities that comprised them were significantly different from previous studies.

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