

Chapter 11

Innovation Through Social Media: A Case Study From the Oil and Gas Industry

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ABSTRACT

This chapter explores the potential of work-oriented social media (WOSM) platforms for generating innovative ideas. A case study of a single WOSM platform, focused on innovation, is analysed from the perspective of features influencing adoption. The features are examined using the unified theory of acceptance and use of technology (UTAUT) framework. Primary research was conducted through a study on the use of a WOSM platform called Brightidea to promote crowdsourced innovation. The work included investigation of features that influenced adoption and usage of the platform. Additionally, the potential for domain-crossing innovation was explored through data analysis of ideas on the platform. The study was built on data collected from a survey of employees of Kerpoc (a pseudonym), a large company in the oil and gas (O&G) sector, and interviews with Kerpoc staff. The chapter concludes that although the business value of the platform may have been below expectations, its social media-like features were positively viewed by users and facilitated discipline crossing.

INTRODUCTION

The study of innovation as a distinct research area, in terms of scholarly analysis of enabling factors, ongoing processes and social and economic outcomes has grown tremendously in recent years (Fagerberg et al., 2012). From a perspective of organizational and social mechanisms and structures promoting innovation, there is evidence that innovation benefits from increased knowledge sharing and collaboration. For enterprises that seek to derive value from knowledge sharing and innovation through broad technology-assisted networks, the applicability of Metcalfe's Law may be instructive. Robert Metcalfe,

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credited with inventing the Ethernet in the late seventies (von Berg, 2001), proposed a formulation of network value in terms of the network size, which later earned the moniker of Metcalfe's Law. The Law states that the value of a network is proportional to the square of the size of the network; it predicts an exponential increase in value of networks as they grow in number of nodes (or participants), as opposed to a linear increase. While there have been a number of competing formulas for the actual value-determinant equation, Metcalfe's Law has been validated in practice in several situations, including the value of very large social networks like Facebook and China's Tencent (Xing-Zhou & Jing-Jie, 2015).

The growth in both content of social networks and number of participants in these networks can be attributed to three technology trends. First, the proliferation of affordable web-based services throughout the world has made the Web a common, standardized tool, comparable to the printed books and newspapers of the past few centuries. Second, most of the information on the Web is being created by a large number of dispersed participants in small portions at a cost near zero, which creates a significant advantage compared to large centralized newspapers and other publishers, who employ permanent staff to produce information packages. Third, the Web enables people in multiple social and economic strata, across diverse geographies, languages and cultures, to create and collaborate in multiple fora to produce new and useful knowledge efficiently (Carr, 2008).

Web-based platforms may be viewed as a general purpose technology (GPT), a concept promulgated by Bresnahan and Trajtenberg (1995) as a technology that enabled the creation or growth of related technologies, through enabling a new technology to overcome the difficulties of combining both vertical and horizontal integration. Vertical integration, which is essentially the issue of getting upstream and downstream actors to use compatible technology, is often challenging due to scale – Walmart's automation of key elements of their supply chain, for example, would be almost impossible without the benefit of their massive buying power (Friedman, 2005). Horizontal integration, which relates to the cross-sector application of the technology, enables the technology to overcome user resistance and also facilitates improvement and growth in the technology as it becomes "mainstream" across multiple sectors (Ott et al., 2009). This horizontal integration is clearly identifiable in IT devices and applications, including the PCs of the 90s, enterprise resource planning (ERP) systems and e-commerce systems. The GPT concept is arguably relevant to the use of web-based platforms. Bresnahan and Trajtenberg (1995) promote the concept of "innovational complementarities", arguing that the productivity of R&D in a downstream sector increases as a consequence of innovation in the GPT, since it reduces duplication of effort through the use of common base methodology and methods.

In the case of utilising social media platforms for innovation, taking a vertical integration perspective, the formation and articulation of ideas may be viewed as "upstream", and the adaptation and implementation in practice may be viewed as "downstream". The enabling technology, the WOSM platform, is then identifiable as the product itself.

This chapter reports on research undertaken in the period 2018-2020 (Nobbay, 2020), and comprises five sections. Following this introduction, relevant literature is assessed and then the research methodology is explained. The case study findings are then detailed and analysed, and the following section discusses the main emergent themes. Finally, the main conclusions are briefly summarised, limitations of the research are noted, and possible future areas for related research studies are outlined.

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