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Title: Failure to adopt open innovation: A study of North East-based Manufacturing SMEs in the UK

Summary: This paper responds to recent calls for deeper research into failed open innovation (OI) strategies and the contingencies that impede OI adoption. A firm's willingness to open up its innovation process has been linked to performance benefits and faster product development cycles; however, research on the contingencies that facilitate and impede openness is still required. This paper aims to explore the adoption of open innovation business models in north east-based manufacturing SMEs. This study is based on data gathered from the initial stages of a PhD programme, and based on 10 semi-structured interviews with managers and lead engineers/designers, within 5 manufacturing firms employing 10 to 250 staff. Initial results indicate reasons for the failure of the open innovation paradigm to successfully permeate into one of the UK's key industry sectors.

Track: Innovation

Word Count: 2,000

Introduction

The collective prominence of outsourcing, strategic alliances, inter-organizational networks and innovation in contemporary strategic management is perhaps best exemplified by the popularity of the open innovation (OI) paradigm (Chesbrough, 2003). This management trend endorses the internal absorption and appropriation of external ideas (Laursen & Salter, 2006), whilst also sanctioning the revealing of ideas and technologies previously hidden within an organization, so that other firms may find a use for them (Henkel, 2006). The underlying logic being that equally good, or even superior, ideas and solutions exist outside the boundary of the firm, and that increasing R&D costs and shortening product lifecycles often make collaborative innovation a more viable alternative to internal innovation (Huston & Sakkab, 2006). Thus far, a number of studies have highlighted the benefits of openness to a number of KPIs, including; revenue growth (Chesbrough & Crowther, 2006), product performance (Lau et al, 2010) & new product release rates (Bordreau, 2010). However, there are still a significant number of gaps in our understanding of the concept; in particular, West & Bogers (2013) call for studies into failed attempts at open innovation.

This paper addresses calls for closer consideration of the factors that impede the successful implementation of open strategies (Dahlander & Gann, 2010; Lichtenthaler, 2011), by providing a rationale for lack of, and failed, adoption. This study of SMEs is based in the manufacturing cluster in the north east of the UK. The initial results help scholar's understand the reasons why, 11 years after Chesbrough's seminal book, the trend hasn't caught on in the sector and demonstrates that Not Invented Here Syndrome is still prevalent.

Open Innovation

The definition of open innovation used in this developmental paper is *'the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and to expand the markets for external use of innovation, respectively'* (Chesbrough et al, 2006, p.1). In their seminal paper, Laursen & Salter (2006) conceptualised openness as the sum of external search strategy breadth and depth. However, West & Bogers (2013) contribute to the field by delineating open innovation from the search for external knowledge & solutions by stipulating alignment of the practice with a formal business model. This alignment will be used to contrast an open innovation strategy from more general external search strategies.

SME Context

This study analyses open innovation from an SME perspective. SMEs are defined here as firms with between 10 and 250 employees (Lindic, Bavdaz & Kovacic, 2012). Whilst the R&D activity of SME's are often cited as being more productive than those of larger firms (Lee et al, 2010), studies indicate that due to liabilities of smallness, smaller firms often cannot innovate alone, and tend to become increasingly dependent on external knowledge and capabilities (Van de Vrande et al, 2009). Consequently, open innovation is perhaps more important to the survival of SMEs than to larger firms, despite being under-represented within the literature.

Methodology

This study adopts an interpretivist world-view and follows a qualitative design (Creswell, 2003; Creswell, 2009). Semi-structured interviews with two employees within each SME, 1 management level and 1 senior engineer or designer, were used to collect data on the innovation patterns of north east-based manufacturing SMEs in the UK. These allowed the researcher to gain new, highly personal, multi-dimensional accounts of a specific phenomenon (Burgess, 1982). Interviews were conducted separately and lasted between 45-75 minutes.

All firm's involved in this study employed between 10 and 250 members of staff and their annual turnover did not exceed £50 million. Data was transcribed, and subsequently analysed via template analysis (King, 2012).

Initial Findings & Discussion

The following section discusses some of the emerging themes from the initial data collection process.

Misunderstanding the service

Of the 5 companies interviewed, only engineering firm, Thor, appeared to actively employ an open innovation business model. The firm, which was heavily engaged in both military and off-shore rigging projects, told how they experienced difficulty explaining their original equipment design and manufacture (OEDM) services, a fully integrated in-house manufacturing process, to prospects. From both party's perspectives, utilizing OEDM services represents a highly collaborative, coupled innovation strategy (Enkel, Gassman & Chesbrough, 2009), which, at its extreme, allows the outsourcing of entire operations, from initial design and prototyping to dispatching. Thor intended clients to view their services as:

Interview 2A:

“An extension of their own factory”

However, they experienced difficulty selling the service, admitting:

“Our main problem with OEDM is that they (prospective clients) don't understand it.”

Their selling strategy highlights an attempt to allay client concerns regarding any opportunistic behaviour by themselves, stating:

“We're not interested in selling products into market. We're careful not to be seen as any kind of threat to our customers.”

It's apparent that Thor's clients have reservations about the OEDM business model they are trying to pursue. Concerns of opportunistic behaviour and client's fundamental lack of understanding of the model appear to contribute to its limited success.

Not Invented Here Syndrome

Furniture manufacture GS highlighted what could be interpreted as classic Not Invented Here Syndrome (Katz & Allen, 1982) (NIHS), simply stating:

Interview 3a:

“We just don’t need to; it’s not what we do”

The senior engineer at mechanical engineering firm Thermos’s echoed thought’s at GS, declaring;

Interview 4a:

“When we encounter a problem, we generally solve it in-house...we may contact our US sister companies if we think they could help, but we’d never really go to a separate firm...unless it was something we just didn’t do.”

The rationale behind participant 4a’s account of the do it yourself, or ‘keep it in the family’, mentality seemed to be an innate confidence in the organization’s ability to solve problems themselves. In such cases, external solutions were deemed as unnecessary, the assumption being that an external party’s knowledge and resources had no value to add.

Redundancy of external technology

In another case, an engineering firm highlighted it’s acquisition of a small company, with the aim of appropriating its technology.

Interview 1A:

“We do have Spit Fire Steel (another part of the company), a small company our boss bought but we never really found any real consistent application for.”

This venture was deemed a failure, as the technology didn’t fit the business model of the focal firm. It represents a costly, failed outside-in open innovation strategy. When asked whether the company had ever considered licensing the technology, the participant simply responded:

“No...no I don’t think so”

This reveals both a failed outside-in innovation strategy and, potentially, a missed opportunity to generate rents from a currently redundant technology by adopting an inside-out approach. The failure of contemporary firms to adopt inside-out forms of open innovation strategy might, again, be explained by recurring instances of NIHS.

Emphasis on Collaboration

Interestingly, collaboration with clients was desired by the majority of firms, and often encouraged.

Participant 4b:

“We try to have this collaborative working arrangement with all our clients, arm’s length transactions just don’t provide the pay-off we need.”

Participant 2a:

“This business unit here, is all around collaboration. It’s around collaborative product development. We’re generating IP here.”

“The metal fabrication side of the business...typically dealing with the OEMs (Original Equipment Manufacture)...all they’re looking for is cheapest parts...there’s often not much of an opportunity to add value with these types of customers.”

This maybe surprising, yet it shouldn’t be if we accept West & Bogers (2013) delineation of the two concepts, i.e. open innovation being a choice of business model. A firm can engage in highly collaborative behaviour, and still not pursue an open innovation strategy. This argument is expanded below:

Participant 5b:

“on the garment, we’ve got two buckles that fasten beneath the arm, what one of our marketing directors is saying is...when the riders are actually riding it, the arms are actually rubbing on the buckle...we’ve gone back to the office, altered patterns, made new samples so that the top buckle sits further back, so it doesn’t rub on the arm. And now I’m talking to different suppliers to try and source a different type of buckle which is flatter, which doesn’t rub either.”

It’s quite evident that from this anecdote, that the problems participant 5b (a design technologist) is regularly dealing with are highly specific, however, designers can draw from the ideas embedded in other garments;

“You could probably look at other garments in the industry or other performance garments...that have got straps that fasten under the arms, I think you do learn from competitors and looking at other products.(We might) implement it, but kind of change it as well, so it’s like, unique to you.”

This insight highlights use of external ideas and could arguably represent external search activity (Laursen & Salter, 2006), a form of OI. However, this external search activity isn’t decreed in a formal business model (West & Bogers, 2013). It is hardly the same as a hi-tech firm deciding to utilize and build their product on top of open source software (Hippel & Krogh, 2003).

Conclusion

Initial findings reveal that NIHS is still prevalent within north east manufacturing SMEs, which may impede the adoption of open innovation strategies. Barriers to OI adoption, from a client perspective, include the threat of opportunism and client struggles to grasp the concept, and value, of some of its manifestations. Furthermore, these preliminary findings reveal that even an SME that attempts to pursue an outside-in OI strategy, may fail to find a profitable application for it, and may not recognize the benefits of pursuing external paths to market for their redundant ideas and technologies. Finally, initial analysis reveals failure to adopt an open innovation approach may not be due to a fundamental lack of appreciation for external ideas; instead, it could simply be the result of an informal means of external search activity

which isn't formalized into an SME's business plan, which recent literature highlights as a key distinction of open innovation (West & Bogers, 2013).

Further work

This work constitutes the early stages of a PhD project. By the time of the conference, 20 interviews across 10 manufacturing SMEs will have been collected. Furthermore, a complete review of the literature will have been finalised. It is expected that the nature of the industries will be explored in greater detail to examine potential factors which may inhibit the successful adoption of open innovation in the manufacturing industry.

Why is this important?

Open innovation is at the forefront of strategic management research and interest is increasing, however, the barriers to, and failures of OI haven't been adequately studied within the literature (West & Bogers, 2014). The qualitative nature and limited sample size of this research means these preliminary findings cannot be generalized, nor are they intended to refute the diffusion of the open innovation business model in practice. This ongoing research intends to contribute to theory and practice by exploring the impediments to open innovation adoption and reasons for implementation failure, in this specific context. Given that open innovation strategies, much like other collaborative endeavours, are expensive and are prone to failure (Park & Ungson, 1997), this work could contribute to practice by highlighting the primary reasons open innovation strategies have failed in the past.

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