

APPLYING LEAN PRINCIPLES TO THE CROWDSOURCING PROCESS

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Abstract

The paper is a research-in-progress that focuses on examining the applicability of lean principles to the crowdsourcing process. While crowdsourcing is seen as an excellent exemplar of open innovation, there is no research that has focused on the wasteful, time-consuming or bloated nature of many crowdsourcing initiatives. This paper attempts to address this gap and examine the applicability of lean principles to the crowdsourcing process.

1. Introduction

In recent years, it has been recognised that innovation management is not solely an activity to be performed within the firm, but must also take into account activities that are performed through collaboration/cooperation with external partners (Diener and Piller, 2010). Open Innovation (Chesbrough, 2003; 2006; 2008) is an approach that seeks to take advantage of ideas that come from outside the boundaries of the firm. This concept challenges the dominant view of closed innovation where it is assumed that it is the experts 'within' the company that invent and design innovative new products to meet customer needs (Chesbrough, 2003). Open innovation focuses on transforming the previously solid boundaries of a firm to a more semi-permeable membrane to enable innovation to move easily and more fluidly between the external and internal environment.

The open innovation model has been used with much success by firms such as Proctor & Gamble and Threadless. Dahlander and Gann (2010) warn, however, that there can be significant drawbacks to open innovation and argue that these have attracted less attention in the literature. An examination of the literature reveals a rapidly growing body of research on Open Innovation, including different models (e.g.

crowdsourcing, open sourcing), processes (e.g. outside-in, inside-out, coupled), and descriptive cases (e.g. Procter & Gamble, British Telecom, Philips, Cisco, Sun, DuPont, etc.). One mechanism used to source innovations from outside the firm is 'crowdsourcing' (Howe, 2008) of innovation using 'broadcast search' (Jeppesen and Lakhani, 2010) facilitated by an open innovation intermediary such as YourEncore, Innocentive and NineSigma (Feller et al., 2009).

None of this research, however, focuses on examining the applicability of lean initiatives to the open innovation process in order to assist in the reduction and elimination of waste. Chesbrough & Garman (2009) describe how OI can be used "in lean times", in that OI can be used to cut costs and add value in a constrained environment. Nevertheless, there are no frameworks or assessments for evaluating lean initiatives in OI, and as far as we are aware little, if any, research has focused on this to date. This is somewhat surprising given the prevalence of lean thinking in contemporary business, the fact that many open innovation initiatives require significant organisational change and the turbulent economic conditions that today's organisations operate within. Indeed, the very concept of open innovation and lean initiatives may well complement each other when you consider the rudiments that they share. For example, high value is assigned to the benefits that come about from creating a lean environment that emphasises continual reflection, improved efficiency and experimentation to solve problems. We believe that open innovation can serve as a powerful means to that end as it embraces continual learning, collaboration where all members actively engage in continuous reflection and effective knowledge-sharing as a means for solving problems (Morgan et al., 2010). Thus, taking the process of crowdsourcing as an exemplar of open innovation, the objective of this paper is to examine the applicability of lean

principles to the crowdsourcing process.

2. Theoretical Background

In a systematic review of the literature on open innovation, Dahlander and Gann (2010) found that there is a lack of knowledge about the costs of using an open innovation approach. The total investment for a firm seeking innovations through open innovation intermediaries such as Innocentive can be high when the cost of posting the challenge, internal work in the organisation (e.g. problem specification and evaluation), the cost of the challenge prize, and fees paid to the intermediary (for services such as Innocentive's OnRamp) are included. In a study of 166 challenges posted on Innocentive, Lakhani and Jeppesen (2010) found that only a third of the problems were actually solved. This may indicate that challenges were not sufficiently decomposed, were badly designed or poorly conceived (Lakhani and Jeppesen, 2010). Critics of the crowdsourcing process have argued that the process is not truly collaborative, rather the process creates an illusion of improved problem-solving by revealing and leveraging the talent of a select number of individuals. Additionally, if the goal of a crowdsourcing initiative is to arrive at a cheaper and quicker solution this can lead businesses to make decisions based on budget rather than evaluating the impact of the solution on the overall company mission (Osiek, 2010). It has also been pointed out that crowdsourcing initiatives generate an overwhelming amount of information and knowledge. Thus, sorting through content submissions etc. is often an onerous and time-consuming task for end consumers (Woloszynowicz, 2011) and thus, it is necessary to develop a system to filter the results and data in order to locate the best solutions. This may reveal the need for a leaner approach to the crowdsourcing process.

Most literature traces lean thinking back to the Toyota Production System in the 1950s (Ohno 1988), although as stated earlier, some have traced leanness back to World War 2 (Childerhouse, Disney et al. 2000) and even as far back as 1915 (Drucker 1995). Early lean thinking in Toyota was initially applied to car engine manufacturing but extended to vehicle assembly in the 1960s and the wider Toyota supply chain in the 1970s. The Machine that Changed the World (Womack et al., 1990) described how Toyota used lean production to change the nature of automobile manufacturing. The lean philosophy

essentially centres around eight wastes, first identified by Ohno (1988) of Toyota, reported by and extended by Womack and Jones (1996). The eight wastes include:

Overproduction – This waste includes the production of an excess of products, products being made too early and increased inventory.

Waiting – This waste, sometimes referred to as 'queuing', is manifested through periods of inactivity in a downstream process because an upstream activity has not delivered on time.

Transport – This waste refers to unnecessary motion or movement of materials, such as work in progress (WIP) being transported from one operation to another.

Extra processing – This waste includes any extra operation such as rework, or any handling or storage that occurs due to defects, excess inventory or overproduction.

Inventory – This waste includes any stock on hand that is not directly required to fulfil a customer order. Inventory includes raw materials, work-in-progress and finished goods. Inventory all requires additional handling and space. Its presence can also significantly increase extra processing.

Motion – This waste includes any extra steps taken to accommodate inefficient layout, defects, reprocessing, overproduction or excess inventory.

Defects – This waste includes any finished goods that do not meet the required standard customer expectation.

Underutilisation - This waste refers to underutilisation of people and in particular their ideas and creative input to improve the process.

It is worth noting that the original Ohno (1988) list contained seven wastes, with the eighth subsequently added by Womack and Jones (1996).

Given some of the issues outlined in the existing literature surrounding crowdsourcing, it would be useful to examine the applicability of lean principles to the process. As far as we are aware little research has examined the extent to which crowdsourcing initiatives are streamlined or the extent to which these processes are bloated or wasteful. By drawing on lean theory as outlined above, we will attempt to address this gap.

3. Proposed Research Methodology

Given the scarcity of empirical work in the area of lean and crowdsourcing, and the need to obtain rich data, the study is considered exploratory in nature and thus, a case study research strategy is considered

most appropriate. Case studies are considered to be a suitable research approach for this study since it is exploratory in nature, with the intention of investigating the principles of lean in the crowdsourcing process (Yin 2003) and they explore a phenomenon in its natural setting, applying several methods of data collection to gather information from one or a few entities (Benbasat et al. 1987).

We have already sought and gained agreement from key personnel in three major international corporations operating in the services and manufacturing sector. These companies include an open innovation intermediary, a manufacturer of computer components and a telecommunications company. Data collection will be carried out using semi-structured interviews with key personnel from the participating ISD projects. The approach is considered an appropriate data gathering technique as the study requires both structured answers to certain questions but also requires rich data and information concerning interviewee's personal opinions, beliefs and insights.

The data will be imported into NVivo and a structured coding approach will be used to analyse the data. The coding approach will use techniques proposed by Strauss and Corbin (1990) as this form of analysis facilitates the development of substantive theory without prior hypotheses, and can be used in the absence of, or in conjunction with, existing theory (Strauss and Corbin, 1990).

4. Next Steps

This paper constitutes part of a research in progress aimed at exploring the applicability of lean initiatives to the crowdsourcing process. At the moment, we are collecting data from one of the three cases outlined above. Each case will be examined in the context of lean theory.

This study will make a number of contributions. Firstly, the application of lean theory will contribute to the open innovation and general management literature in that it will provide a lens for examining lean initiatives in a crowdsourcing process. Additionally, the study will provide an insight into how companies streamline their crowdsourcing initiatives to enable waste minimisation, cost reduction and time spent on certain tasks.

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Acknowledgement

This work was supported, in part, by Science Foundation Ireland grant 03/CE/11855 (for CSET2) to Lero, the Irish Software Engineering Research Centre (www.lero.ie).