Chapter 2
From Closed to Open:
ICT as an Enabler for Creating Open Innovation Systems in Industrial Settings

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ABSTRACT

Most forestry machines being produced today include a PC that monitors and controls the harvester head, and an information system that stores data on every action the driver or the machine performs. ICT thus provides an opportunity to improve efficiency and competitiveness and possibly also opens up for new ways of working for actors in the forestry industry. The purpose of this study is to investigate how ICT can enable the transformation from selling products to selling services in the forestry industry. The author investigates this through performing a case study including a number of actors from the forestry industry in northern Sweden. First, he investigates the barriers for establishing an open innovation system in forestry. Then he describes the main steps to be taken and how the use of ICT can enable the establishment of such a system. The case study shows that the forestry industry is committed to working according to a traditional value chain and is committed to a closed innovation paradigm. He argues that the ICT component in Timbercut's forestry machines constitutes a latent potential that can be fully captured through changing the business model and setting up a joint venture with Rewire.

INTRODUCTION

Information and communication technologies (ICTs) enjoy a pervasive role in most societal context. In the past few decades ICT has come to play a major role in traditional industry settings (Jonsson et al, 2008; Zuboff, 1988). The forestry industry is no exception as it has come to be a high-tech industry in many ways. The mechanization of forestry in Sweden started in the 1960's. The woodsmen started using chainsaws and log-driving and transports by horse were replaced by tractors and lorries. During this decade, productivity increased drastically while

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the number of forestry workers was reduced by half. The first fully mechanical forestry machines were imported from Canada, the U.S. and Russia. In 1970 6% of the timber was logged with forestry machines. This figure grew and was 65% in 1980. During the 1990's, production was transformed from being of a bulk-character to being more customer-oriented.

A continuous technical development has resulted in the harvesters and forwarders of today. Most machines today include a PC that monitors and controls the harvester head and an information system that stores data on almost every action the driver or the machine performs. ICT thus provides an opportunity to improve efficiency and competitiveness and possibly also opens up for new ways of working. To this end the use of ICT in the forestry industry reflect patterns of ICT usage from other settings where ICT brings with it a potential to transform organizational collaboration (Holmström & Boudreau, 2006; Holmström & Robey, 2005), transform business models (Jonsson et al., 2008) or flattening organizational hierarchies towards an open innovation ideal (Westergren & Holmström, 2008). What is less understood is the ways in which ICT can enable changes. While calls have been raised to be more specific about the ways in which ICT contribute to socio-technical change (Orlikowski & Iacono, 2001; Orlikowski & Scott, 2008; Rönnbäck et al., 2007) there are few, if any, examples of how ICT can enable transformation across organizations.

The purpose of this study is to investigate how ICT can enable the transformation from selling products to selling services in the forestry industry.

The analysis is guided by the following research questions:

- What are the barriers for establishing an open innovation system in forestry?
- How can the use of ICT enable the establishment of open innovation systems?

We use the open innovation lens in pursuing these research questions. The term open innovation was first coined by Henry Chesbrough in 2003. In the open innovation paradigm, firms do not try to protect their research to the same extent as in the closed innovation paradigm. Firms bring in knowledge from the research of other firms and also share their own knowledge with them. This can be done through joint ventures, spin-ins and spin-offs. This way of doing business often requires new business models that will be an aid in making sure that the firm captures amount of the value it helped to create (Chesbrough, 2006). It is worth noting that open innovation is an emerging field of research and Fredberg et al. emphasize that it is still in a phase that is very fluid (Fredberg et al., 2008). By applying the theories of open innovation to an actual case we hope to make a contribution to the development of the field.

The forestry sector is currently organised as a traditional value chain and we will argue that this way of working could be replaced by an open innovation system, where the actors are organised in value constellations.

We rely on data collected from 2008-2009. During this period we conducted interviews with representatives from the actors within the forestry industry in the northern part of Sweden.

The analysis reveals that there are a number of barriers to be overcome when taking the journey from a traditional value chain to an open innovation system. First, we identify these barriers and study them in detail. Second, we illustrate the main steps to be taken and how ICT can enable the transition. Based on the analysis, our conclusion is that ICT can enable new kinds of business models within forestry. However ICT alone cannot enable the transition. Organizational values and culture within the forestry sector also needs to be changed in order for the transition to happen. ICT is a necessary, but not sufficient part of a solution.