Journal of Forest Economics 19 (2013) 190–205

Contents lists available at SciVerse ScienceDirect

Journal of Forest Economics

journal homepage: www.elsevier.de/jfe

# Mechanisms of capability evolution in the Finnish forest industry cluster

Mirva Peltoniemi*

*Aalto University School of Science, Industrial Engineering and Management, PO Box 15500, 00076 Aalto, Finland*

ARTICLE INFO

*Article history:*
Received 27 March 2012
Accepted 8 February 2013

*JEL classification:*
M21
L73
D22

*Keywords:*
Capability evolution
Forest industry
Mature industries

ABSTRACT

In recent years researchers have shown increasing interest in capabilities as the foundation of competitive advantage in the forest industry. However, we still do not know how these capabilities change in the firms and in their interactions. Therefore we ask: through what mechanisms do capabilities evolve in the forest industry context? The study was conducted by interviewing 30 forest industry experts and the data was analyzed qualitatively. We find that the main mechanisms of capability evolution include capability gaps, capability selection, capability development and capability outcomes. The study contributes through a rich description of capability evolution and by identifying theoretically meaningful mechanisms through which capability evolution takes place. Furthermore, several implications for practitioners are presented.



## Introduction

Explanations of competitive advantage tend to rely on either physical resources or intangible capabilities (see Conner, 1991, for a review). In the forest industry research context both have been popular. In terms of the physical resource school, the interest has been in raw material (Baker, 2004), capacity (Christensen and Caves, 1997; Lantz, 2005), firm structure (Daveni and Ilinitch, 1992; Davis et al., 1992) and price and market shares (Karikallio et al., 2011). The capability school, on the other hand,

* Tel.: +358 505768332.
*E-mail address:* mirva.peltoniemi@aalto.fi

1104-6899/$ – see front matter 
http://dx.doi.org/10.1016/j.jfe.2013.02.001

has been interested in the locus of innovation (Anderson, 2006; Chamberlin and Doutriaux, 2010), new industry emergence (Arbuthnott et al., 2010), organizational renewal (Korhonen, 2006) and creating value-added (Lähtinen, 2007). Even though there is a considerable amount of evidence for the existence and change of such capabilities in the forest industry context, we still do not know how this change takes place in the firms and in their interactions. Therefore we ask: through what mechanisms do capabilities evolve in the forest industry context?

We rely on interview data from executives in the Finnish forest industry cluster and perform a qualitative analysis. We take the forest industry to include wood supply, pulp and paper production, machine production and chemicals production. Such a wide industry context allows us to capture the interdependencies between different sectors and their effects of capability evolution. A similar extensive approach has been adopted in many industry studies on, for example, nanotechnology (e.g. Alencar et al., 2007), semiconductors (e.g. Holbrook et al., 2000) and creative industries (e.g. Lampel et al., 2000). All these sectors include several types of products and producers, but due to their being interconnected, it makes sense to study them together.

We find that four mechanisms affect capability evolution. First, the identification of capability gaps directs executives' attention to certain areas where development efforts are perceived to be required. Second, capability selection determines which existing capabilities are invested in. Third, capability development comprises conscious actions aimed at improving the capabilities selected. Fourth, capability outcomes include tangible manifestations of improvements in capabilities, providing a feedback loop back to directing executive attention.

The present study contributes through a rich description of capability evolution and by identifying theoretically meaningful mechanisms constituting the capability evolution process. Several suggestions for practitioners are also presented.

## Theoretical background

### *Capabilities and how they change*

Capabilities are understood as a collection of routines and know how that together enable firms to conduct their business and to learn and adopt new capabilities as required by the changing business environment. Capabilities are situated between intention and action and they enable the firm to produce the intended outcomes (Dosi et al., 2000). In the literature, capabilities are often divided into technological, organizational and market capabilities (Laaksonen and Peltoniemi, 2012).

Research on resources, routines and capabilities highlights both stability and change. Capabilities consist of routines which are inherently stable: they are established, taken-for-granted ways of doing things, they are performed regularly and they explain why firms differ from each other (Nelson and Winter, 1982). Similarly resources, of which capabilities are a part, are heterogeneously distributed across firms and such differences are stable over time (Barney, 1991). In a similar vein the industry life-cycle model (Klepper, 1996; Peltoniemi, 2011) assumes that there are differences between firms' innovative capabilities which lead them to develop differing product variants. Moreover, the industry life-cycle literature assumes that differences in firm performance can be explained by differences in capabilities that spin-offs and entrepreneurs inherit from parent firms (Klepper, 2002; Klepper and Sleeper, 2005). These conceptualizations assume that capabilities are relatively stable, at least in the short term.

Building on these conceptualizations highlighting stability, recent capabilities research stresses the ability of firms to sense and seize opportunities and manage threats and reconfigurations (Teece, 2007). Jacobides' work on capability evolution focuses on the effects of changes in vertical scope and industry structure, and the development of complementary assets (Jacobides et al., 2006; Jacobides and Winter, 2005, 2012). Such phenomena change firm boundaries, the division of labour between firms and incentive structures. Hence firms end up investing in particular capabilities and not in others (Jacobides, 2006). Teece, on the other hand, highlights the role of entrepreneurial actions that may never be repeated in changing firm capabilities (Augier and Teece, 2006; Teece, 2012). In capability evolution there is thus space for both external forces that change incentive structures and internal entrepreneurial forces.