8-15-1997

Industrial Learning: Does It Influence Organization Structure?

Kristina Setzekorn
Southern Illinois University at Carbondale

Industrial Learning: Does It Influence Organization Structure?

Kristina Setzekorn,
Southern Illinois University at Carbondale

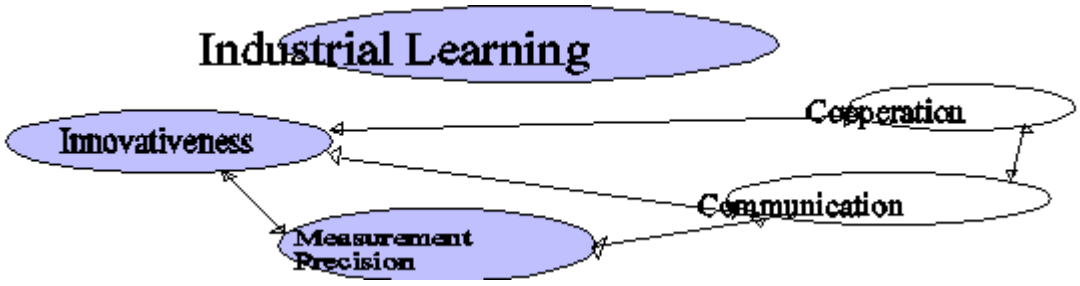
Introduction

IT and manufacturing literatures predict vertical disintegration, dis-aggregation, outsourcing, strategic partnerships, and decentralization to result from IT ubiquity (e.g., Bakos & Brynjolfsson, 1993; Clemons & Row, 1991; Clemons, Reddi and Row, 1993; Johnston & Lawrence, 1988; Malone, Yates & Benjamin, 1987; and Milgrom & Roberts, 1990). But if these post-hierarchical structures indeed result from IT ubiquity, why does the Wall Street Journal report record merger activity, concentrated in certain industry sectors?

What industry-specific factors might interact with IT ubiquity to determine the firm's and industry's optimal structural response? Perhaps industrial learning, defined here as the interorganizational creation, diffusion and management of information assets, interacts with IT ubiquity to influence industry structure.

Industrial Learning Model

The following model conceptualizes the industrial learning construct as being comprised of innovativeness, measurement precision, cooperation and communication.



The resourcebased view is used to portray industrial learning as an industry capability that can be differentially accessed by firms, depending on their absorption capacity (Foss & Eriksen, 1995) and bargaining power, both of which are functions of their complementary resources. IT ubiquity enhances industry learning by enabling innovativeness, measurement precision, and communication and cooperation among firms comprising the industry. IT also differentially enhances an individual firm's ability to access and exploit this enhanced industry capability by leveraging its complementary resources.

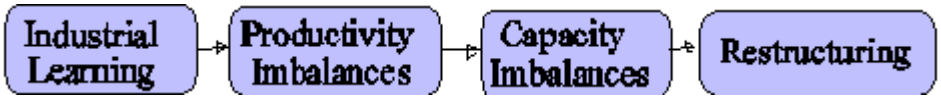
This differential exploitation will thus enhance some firms' productivity more than others, conjuring a "bottleneck" analogy for the interorganizational value chain, in which learningenhanced productivity can create "capacity" imbalances. Conceptually, this imbalance may include such dimensions as: production, management, marketing, innovation, raw materials, etc. Industry restructuring can be considered a strategic response to these learning-enhanced capacity imbalances, as offers an opportunity to remove constraints--imposed either by lack of supply or lack of demand.

Propositions:

1)Productivity will be positively associated with industry learning.

2)High productivity will be positively associated with capacity imbalances.

3)Capacity imbalances will be positively associated with restructuring.



Methodology

Data from the Global Manufacturing Research Group Survey will be used. This data includes general, as well as manufacturing planning and control**,** information gathered from firms in two industries, the small machine tool industry and the nonfashion textile industry.

Industry productivity can be compared using DEA analysis, with total number of employees, number of factory workers, and investment in production equipment and inventory as input variables. Output variables will include annual sales, and to the extent that DEA methods allow, "comparative competitiveness" in delivery, reliability, flexibility to change product, flexibility to change volume, product quality, manufacturing throughput speed, and delivery speed, as measured on a 5-point Likert scale. F tests and Tukey tests can then be used to test whether the more productive industry differs significantly from the other industry with regard to industrial learning, capacity imbalances and propensity to restructure.

References available upon request from author.