

2003

The effect of industry structure, learning and innovation on brand performance

Craig C. Julian
University of Adelaide

Aron O'Cass
University of Newcastle

Jay Weerawardena
University of Queensland

Publication details

Julian, CC, O'Cass, A & Weerawardena, J 2003, 'The effect of industry structure, learning and innovation on brand performance', *A celebration of Ehrenberg and Bass: marketing knowledge, discoveries and contribution: Proceedings of the Australian and New Zealand Marketing Academy (ANZMAC) Conference*, Adelaide, SA, 1-3 December, University of South Australia Press, Adelaide, SA, pp. 2365-2372. ISBN: 0868039837

ePublications@SCU is an electronic repository administered by Southern Cross University Library. Its goal is to capture and preserve the intellectual output of Southern Cross University authors and researchers, and to increase visibility and impact through open access to researchers around the world. For further information please contact epubs@scu.edu.au.

The Effect of Industry Structure, Learning and Innovation on Brand Performance

Craig Julian
University of Adelaide

Aron O’Cass
The University of Newcastle

Jay Weerawardena
University of Queensland

Track 16 Strategic Marketing Issues

Key Words: Industry Structure, Learning, Innovation, Brand Performance

Abstract

The conceptual framework presented here suggests that firms operating within a turbulent industry structure tend to build and nurture distinctive learning capabilities and these learning capabilities lead to innovation and superior brand performance. The results of the study suggest that market focused learning capability plays a key role in the hypothesized industry structure-innovation-performance relationship. It was found that senior managers perceptions of their industry’s turbulence influences learning and subsequently learning influences innovation which then influences performance.

Introduction

Utilizing Porter’s (1991) work it is argued that a successful firm operating within a turbulent industry structure is one with an attractive relative position that has been achieved either through a superior cost advantage or differentiation advantage. Firms that seek to achieve either of these positions must in general develop new ways of performing its value creating activities in the value chain through innovative acts (Porter 1990). In this context organizational learning capabilities are seen as key antecedents of this process. Accordingly, firms operating within a competitive industry tend to pursue innovation as a key thrust of their competitive strategy. Such firms tend to build and nurture distinctive learning capabilities that enable them to achieve higher degrees of innovation and superior brand performance.

Organizational learning approaches to firm innovation, suggest that the degree of innovation reflects the extent of new knowledge embedded in an innovation (radical to incremental) (Dewar and Dutton 1986; Ettlíe 1983). Radical innovations imply that a firm is engaging in generative learning, the highest level of organizational learning. The literature also suggests a strong relationship between organizational learning processes and organizational capabilities (Day 1994b). In this context it is argued that organizational learning itself is a core capability of the organization and a source of competitive advantage (Crossan et al. 1992; Senge 1990). Therefore, organizational learning theory provides a sound theoretical foundation in which to examine industry effects, firm level capabilities and innovation, because organizational learning capabilities link industry structure with firm innovation and performance outcomes.

Literature Review

In Porter’s (1985) model the analysis of competition in an industry not only relates to the behavior of existing firms, but also includes the structure of the industry’s environment (Pecotich, Hattie, and Low 1999). Industry structure comprises five competitive forces: threat

of entry, threat of substitute products, power of buyers, power of suppliers, and rivalry among existing firms that are present in a firm's environment (Pecotich, Hattie, and Low 1999). This view sees organization responses at a strategy derived largely from the firms' perceptions of its environment. The argument presented here is based on the view that firms operating within a turbulent industry tend to challenge their current practices and tend to pursue greater learning with the aim of exploring innovative ways of serving their customers. As observed by Dodgson (1993), the strategy literature sees learning as a purposive quest to retain and improve competitiveness, productivity, and innovativeness in uncertain technological and market circumstances and the greater the uncertainty the greater the learning. Organizational learning capabilities are seen in the context that organizations learn from multiple sources. As Dibella, Nevis and Gould (1996, p. 364) observe, 'some organizations acquire knowledge from their external environment; other organizations generate or create knowledge internally. Many organizations rely on both orientations or processes to varying degrees'.

Within the context of learning, March (1991) suggests that learning from external sources (termed 'exploration') and internal sources (termed 'exploitation') are equally important for organizational change. March (1991) further argues that organizations must continually balance between *exploitation* and *exploration* for survival and prosperity. March (1991) suggested that a dynamic industry environment allows the firm more opportunities for exploration and exploitation. This suggests that the extent to which an organization possesses capabilities for learning from external and internal sources may depend on the strategic learning choices of the firms. Within this framework, the literature on innovation-based competitive strategy suggests that organizations learn from three sources and these sources provide a sound basis to capture a firm's learning capability structure. Based on the sources of learning discussed, the learning capabilities of the firm are identified as, market focused learning, internally focused learning and relational learning. Market-focused learning and relational learning are externally focused learning capabilities, whereas internally focused learning reflects the firm's capacity to learn from internal sources.

Market focused learning capability

Learning from markets is cited as a key to innovation and greater firm performance. The literature suggests that 'market driven firms stand out in their ability to continuously sense and act on events and trends in their markets. They are also better equipped to anticipate how their markets will respond to actions designed to retain or attract customers, improve channel relations, or thwart competitors' (Day 1994a, p. 9). Innovations are deemed to arise as a result of a perceived and sometimes clearly articulated customer need (Myer and Marquis 1969). To be effective innovators, organizations should constantly scan the horizons for new opportunities to satisfy their customers (Levitt 1960). These views are embedded in research on market orientation and organizational performance (Slater and Narver 1995; Kohli and Jaworski 1990). Because market orientation reduces the degree of incompatibility of the new product with customer needs, it is likely to enhance speedy adoption and success of innovations (Cooper 1979; Cooper and Kleinschmidt 1978). Sinkula (1994) indicates five reasons which make market-based organizational learning unique in the creation of knowledge. First, it is a core competency and is less visible than most internally focused organizational learning competencies. Second, market-based learning results in fundamental bases of competitive advantage. Third, market-based organizational learning is distinct from other types of organizational learning in that observation of others is essential. Fourth, the market information that resides in organizational memory is typically more difficult to access. Finally, market-based learning is unique.

Internally focused learning capability

Internally focused learning capability includes experiential learning (trial and error learning), and experimental learning (developing new ways of doing things) (Dixon 1992; Huber 1991). A commonly pursued experimental learning activity in a manufacturing firm is in-house R&D activity. R&D activity is interpreted as a search process to learn and generate cumulative technical advances in specific directions (Hyvarinen 1990) and a source of the technological capability of the firm (Durand 1988). In-house R&D activity is a key source of knowledge acquisition (Abbey 1989; Macpherson 1992) and there is overwhelming evidence to suggest that in-house R&D is essential for effective innovation (Kim, Song, and Lee 1993).

Relational learning capability

There is strong evidence to suggest that the ability to exploit external knowledge is a critical component of innovative capabilities (Cohen and Levinthal 1990; Myer and Marquis 1969). Although in-house R&D and other forms of internally focused learning may be necessary, firms have to access external technological resources and modify them in order to develop the technological capabilities needed to respond to technological changes effectively (Dodgson 1990; Rothwell 1989). Collaborative linkages or 'net-working' improves the innovation potential of the organization (Mowery 1988) and relational capability is a source of competitive advantage (Lipparini and Sobrero 1994).

Organizational innovation intensity

Firms undertake both technological and non-technological innovations. Such innovations can lead to a competitive advantage (Hyvarinen 1990), suggesting that innovation could be the key to a firm's performance. Organizational innovation being defined as the application of ideas that are new to the firm, that create added value, whether the newness and added value are embodied in products, processes, services, or in management or marketing systems. As such, organizational learning capabilities are prerequisites for innovation. Firms operating within a competitive industry environment undertake greater learning through market focused, internally focused and relational learning activities. These learning activities enable the firm to pursue innovative ways of delivering superior products and services which in turn enable the firm to gain positional advantages in the target market that impact performance.

As such, the conceptual framework incorporates six constructs, namely, industry structure, market focused learning, internally focused learning, relational learning, organizational innovation and brand performance. Firms operating within a turbulent industry environment tend to develop distinctive capabilities in market focused, internally focused and relational learning. These learning capabilities enable firms to achieve higher degrees of organizational innovation and in turn higher brand performance. Thus,

H¹ Industry structure will have a significant positive effect on the market focused learning.

H² Industry structure will have a significant positive effect on the relational learning.

H³ Industry structure will have a significant positive effect on the internally focused learning.

H⁴ Market focused learning will have a significant positive effect on the organizational innovation intensity.

H⁵ Internally focused learning will have a significant positive effect on the organizational innovation intensity.

H⁶ Relational learning will have a significant positive effect on the organizational innovation intensity.

H⁷ Organizational innovation intensity will have a significant positive effect on sustained competitive advantage.

Methodology

This study was based on an empirical investigation of firms in Queensland. The sample of 1000 firms came from a wide cross section of industries and was provided by a government department. After the pilot test the questionnaire was mailed to the sample who were apriori identified as being involved in direct exporting, yielding 252 useable questionnaires, accounting for an effective response rate of 25.2 percent and deemed to be adequate (Menon, Sundar, and Howell 1996).

In order to obtain valid and reliable measures of the variables, previously validated scales were used for all of the constructs in this study. All items were measured via seven-point scales with scale poles ranging from strongly disagree (1) to strongly agree (7) and never (1) to extensively (7). The instrument contained 25 items measuring industry structure based on the five forces measure originally developed by Pecotich, Hattie, and Low (1999) and was reduced from the original 54 items to 25, with 5 items measuring each of the five forces. The measures for each of the distinctive organizational learning capabilities encompass the four learning activities that constitute the firm's overall organizational learning processes (Sinkula 1994; Slater and Narver 1995). These activities are knowledge acquisition, knowledge sharing, knowledge utilization and unlearning. High scores on the market-focused learning scale indicate that the firm possesses distinctive capabilities in the acquisition of knowledge on consumer preferences and competitor behavior in terms of the four learning activities. Firms that score highly on this scale collect market information frequently and have a thorough understanding of market preferences (Day 1994). The internally focused learning scale captured the extent to which the firm generated knowledge through internal experimental and experiential sources of learning. High scores on this scale suggest the firm's internally focused learning capabilities are in some way distinctive (Atuahene-Gima 1993). High scores on the relational learning scale indicated that the firm possessed distinctive capabilities in the acquisition of technological and non-technological knowledge through links formed with external organizations (Cohen and Levinthal 1990; Rothwell 1989). The innovation intensity scale captured the extent of the firm's product, managerial, and marketing innovations (Damanpour 1991; Hyvarinen 1990). High scores on the innovation intensity scale indicated that the firm had introduced radical innovations in its product, managerial, and marketing systems. Brand performance was measured via a single item for the firms overall performance of a specific brand ranging from very poor (1) to very good (7).

Data Analysis

The data were initially analyzed using principal components analysis to assess the psychometric properties of the measures. All items loaded appropriately onto their respective factors and no cross-loadings above .4 were identified. The final reliabilities for all scales were greater than .86. Partial Least Squares (PLS) was used to analyse the data. PLS is a general technique for estimating path models involving latent constructs indirectly observed by multiple indicators. A systematic examination of a number of fit indices for predictive relevance of the model was necessary including, r^2 , AVA and regression weights. These indices provide evidence for the existence of the relationships rather than definitive statistical tests. As indicated in Table 1, the majority of the individual r^2 's and AVA for the endogenous variables were acceptable. It is also appropriate and informative to examine the significance of the paths associated with these variables. A reasonable criterion for evaluating the

significance of the individual paths is the absolute value of the product of the path coefficient and the appropriate correlation coefficient (Falk and Miller 1992, p. 74). As paths are estimates of the standardized regression weights this produces an index of the variance in an endogenous variable explained by that particular path and 1.5% (.015) of the variance is recommended as the cut off point. In Table 1 the majority of paths exceed this criterion and the bootstrap critical ratios are of the appropriate size (greater than 1.96).

Table 1 Results for the Hypothesised Relationships

Predicted variables	Predictor variables	Path	Path variance	R ²	Critical ratio
H1: Market focused learning	Industry structure	.180	.03*	.032	3.28*
H2: Relational focused learning	Industry structure	.078	.01	.006	1.21
H3: Internal focused learning	Industry structure	.025	.00	.001	0.39
H4: Organizational innovation	Market focused learning	.252	.14*		3.35*
H5:	Relational focused learning	.382	.05*		1.72*
H6:	Internal focused learning	.117	.23*	.413	6.55*
H7: Overall brand performance	Organizational innovation	.472	.22*	.223	6.51*
	AVA			.140	

(* exceeds minimum acceptable level)

The various criteria used to evaluate the hypotheses using PLS indicated that hypotheses H1, H4, H5, H6 and H7 were supported. However, none of the benchmark criteria used to evaluate the hypotheses supported H2 and H3.

Discussion

The findings suggest that industry competitiveness forces firms to undertake greater market focused learning. Firms confronted with a competitive industry environment tend to acquire information on customer needs and competitor behavior. These firms share such knowledge within the firm and integrate the acquired new knowledge into products, processes, marketing methods and organizational systems for creating superior value to customers served by the firm. They also, regularly review the firm's beliefs about markets served by the firm and share such knowledge within the firm. Furthermore, knowledge of the industry structure and the competitive intensity faced by a firm consequently influences the strategic decisions made by the firm. Knowledge of the five forces of competitive pressure also highlights the strengths and weaknesses of a firm, and forms a useful basis for the evaluation of its position in the industry (Pecotich, Hattie and Low 1999). Industry analysis conducted by utilizing this framework would then clarify the areas where strategic changes may yield the greatest payoff and highlight the areas where industry trends may be significant as either opportunities or threats (Porter 1980).

All three learning capabilities, namely, market focused learning, internally focused learning and relational learning influence organizational innovation intensity. This relationship has not been examined in prior research. Past research has typically focused exclusively on technological innovation including product modifications. In contrast, this study provides evidence that the three learning capabilities enable firms to pursue both technological (product and process) and non-technological (marketing and organizational systems) innovations. This study also finds that organizational innovation enables firms to achieve higher brand performance. This is important, as few studies in this area have focused on a

specific identified brand that the firm markets. Therefore, it is at this level (specific brands) where a greater understanding of the environment, learning and innovation will be gained in the strategy area.

In conclusion, it is evident that managerial perceptions of the industry structure play a key role in the learning and innovation process. Firms experiencing turbulent environments attempt to achieve positional advantages by challenging their current assumptions about the ways of performing activities of the value chain. They tend to perceive innovative ways of performing activities of the value chain that requires such firms to build and nurture distinctive learning capabilities. We concur with Ghemwat (1991) that without a challenging environment there would be no room for discretionary managerial decisions on strategy crafting. In effect, industry competitiveness leads to greater learning and learning in turn drives organizational innovation and brand performance. The conceptual framework presented and tested here largely supports this view. It is our contention that it is the brand marketed by a firm, which is a key indicator of success because increasingly brands are the key points of differentiation for firms in an increasingly global market (O’Cass and Lim, 2002). As such, in a marketing context it is preferable to focus on brand performance than a more generic or global performance approach.

References

- Abbey, A. (1989), ‘The Strategic Management of Technological Innovation’. *Industrial Management*, vol. 31. no. 1, p.6-19.
- Atuahene-Gima, K. (1993), ‘Determinants of Technology Licensing Intentions: An Empirical Analysis of Australian Engineering Firms’. *Journal of Product Innovation Management*, vol. 10, p.230-240.
- Cohen, W., and Levinthal, D. A. (1990), ‘Absorptive Capacity: A New Perspective on Learning and Innovation’. *Administrative Science Quarterly*, vol. 35, p.128-152.
- Cooper, R. G., and Kleinschmidt, E. J. (1978). ‘What Makes a New Product a Winner: Success Factors at the Project Level’. *R&D Management*, vol. 17, p.175-189.
- Cooper, R. G. (1979), ‘The Dimensions of Industrial New Products Success and Failure’. *Journal of Marketing*, vol. 43, summer, p.93-103.
- Crossan, M. M., Lane, H., Rush, J. C., and White, R. E. 1992, ‘Organisational Learning: A Meta Competence for Sustainable Competitive Advantage’, Presented at the *Strategic Management Society International Workshop in Belgium*, November.
- Damanpour, F. (1991), ‘Organisational Innovation: A Meta-analysis of Effects of Determinants and Moderators’. *Academy of Management Journal*, vol. 34, no. 3, p.555-590.
- Day, G. S. (1994), ‘Learning about Markets’. *Marketing Science Institute Report Number 91-117*, Marketing Science Institute, Cambridge, MA.
- Day, G. S. (1994a), ‘The Capabilities of the Market-driven Organization’. *Journal of Marketing*, vol. 58, p.37-51.
- Day, G. S. (1994b), ‘Continuous Learning about Markets’. *California Management Review*, vol. 36, p.9-31.
- Dewar, R. D., and Dutton, J. E. (1986), ‘The Adoption of Radical and Incremental Innovations: an Empirical Analysis’. *Management Science*, vol. 32, p.1422-1433.
- DiBella, A. J., Nevis, E.C., and Gould, J. M. (1996), ‘Understanding Organizational Learning capability’. *Journal of Management Studies*, vol. 33, no. 3, p.361-384.
- Dixon, N. M. (1992), ‘Organisational Learning: A Review of Literature with Implications for HRD Professionals’. *Human Resource Development Quarterly*, vol. 3, p.29-49.

- Dodgson, M. (1990), 'Technology Strategy in Small and Medium-sized Firms'. In Acs, Z. J. and Audretsch, D. B. (eds.) *The Economics of Small Firms: A European Perspective*, Kluwer Academic Publishers, Boston, M.A., pp. 157-167.
- Dodgson, M. (1993), 'Organizational Learning: A Review of Some Literature'. *Organization Studies*, vol. 14, no. 3, p.375-394.
- Durand, T. (1988), 'R&D Programmes Competencies Matrix: Analysing R&D Expertise within the Firm'. *R&D Management*, vol. 18, p.312-320.
- Ettlie, J. E. (1983), 'Organisational Policy and Innovation Among Suppliers to the Food Processing Sector'. *Academy of Management Journal*, vol. 26, p.27-44.
- Falk, R. F., and Miller, N. B. (1992), *A Primer for Soft Modeling*, University of Akron Press, Akron, OH.
- Ghemwat, P. (1991), *Commitment: The Dynamics of Strategy*, Free Press, New York.
- Huber, G. (1991), 'Organizational Learning: the Contributing Processes and Literature'. *Organisation Science*, vol. 2, p.88-115.
- Hyvarinen, L. (1990), 'Innovativeness and its Indicators in Small and Medium-Sized Industrial Enterprises'. *International Small Business Journal*, vol. 9, p.64-74.
- Kim, Y., Song, K., and Lee, J. (1993), 'Determinants of Technological Innovation in the Small Firms in Korea'. *R&D Management*, vol. 23, p.155-162.
- Kohli, A. K., and Jaworski, B. J. (1990), 'Market Orientation: The Construct, Research Propositions and Managerial Implications'. *Journal of Marketing*, vol. 54, April, p.1-18.
- Levitt, T. (1960), 'Marketing Myopia'. *Harvard Business Review*, vol. 24, p.45-56.
- Lipparini, A., and Sobrero, M. (1994), 'The Glue and the Pieces: Entrepreneurship and Innovations in Small-firm Networks'. *Small Business Venturing*, vol. 9, p.125-140.
- O'Cass, A and Lim, K. (2002), 'Toward Understanding the Young Consumer's Brand Associations and Ethnocentrism in the Lion's Port'. *Psychology and Marketing*, vol. 19, no. 9, p.759-776.
- Macpherson, A. D. (1992), 'Innovation, External Technical Linkage and Small Firm Commercial Performance: An Empirical Analysis from Western New York'. *Entrepreneurship and Regional Development*, vol. 4, p.165-183.
- March, J. G. (1991), 'Exploration and Exploitation in Organizational Learning'. *Organization Science*, vol. 2, p.71-87.
- Menon, A., Sundar, G., and Howell, R.D. (1996), 'The Quality and Effectiveness of Marketing Strategy: Effect of Functional and Dysfunctional Conflict in Interorganizational Relationships'. *Journal of Academy of Marketing Science*, vol. 24, Fall, p.299-313.
- Mowery, D. (1988), *International Collaborative Ventures in US Manufacturing*, Ballinger, Cambridge.
- Myer, S., and Marquis, D. C. (1969), *Successful Industrial Innovations*, National Science Foundation, NSE, Washington, D.C., p.69-17.
- Pecotich, A., Hattie, J., and Low, L. P. (1999), 'Development of Industrect: A Scale for the Measurement of Perceptions of Industry Structure'. *Marketing Letters*, vol. 10, no. 4, p.409-422.
- Porter, M. E. (1980), *Competitive Advantage: Creating and Sustaining Superior Performance*, Free Press, New York.
- Porter, M. E. (1985), *Competitive Advantage: Creating and Sustaining Superior Performance*. Free Press, New York.
- Porter, M. E. (1990), *Competitive Advantage of Nations*, Free Press, New York.
- Porter, M. E. (1991), 'Toward a Dynamic Theory of Strategy'. *Strategic Management Journal*, vol. 12, winter special issue, p.95-117.
- Rothwell, R. (1989), 'SMEs, Inter-firm Relationships and Technological Change'. *Entrepreneurship and Regional Development*, vol. 1, p.725-739

Senge, P. M. (1990), *The Fifth Discipline*, Doubleday, New York.

Sinkula, J. M. (1994), 'Market Information Processing and Organizational Learning'. *Journal of Marketing*, vol. 58, no. 1, p.35-45.

Slater, S. F., and Narver, J. C. (1995), 'Market Orientation and the Learning Organization'. *Journal of Marketing*, vol. 59, no. 1, p.63-74.