

INTERNATIONAL CENTER FOR GROWTH-ORIENTED ENTREPRENEURSHIP

Research and Developments: Comparative Management Studies

SOCIETAL CULTURE AND PRODUCT DEVELOPMENT

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October 14, 2013

Abstract

It has often been suggested that societal culture is a fundamental determinant of product innovation and this report describes the work of researchers that have explored how differences in societal culture may influence the way in which firms approach their new product development activities and how they view long-term planning for selection, development and commercialization of new products and technologies.

It has often been suggested that societal culture is a fundamental determinant of product innovation and one researcher has argued that societies that are more accepting of uncertainty tend to be more innovative than societies where uncertainty avoidance is strong.² Ettlíe et al. observed that information collected during their cross-national study of various aspects of the new product development processes used by durable goods manufacturers in five dispersed countries suggested that differences in societal culture influenced the way in which firms approached the processes for concept development and generation of ideas at the earliest stages of product development.³ For example, they comment that indications that integration of design and manufacturing processes proceeded more smoothly in Germany and Scandinavia than in the US might be attributed to stronger emphasis on technical training (Germany)⁴ and greater standardization of design practices (Scandinavia).⁵ Other researchers had noted that apprenticeship, believed to be a valuable prerequisite to stronger technical training, was much more prevalent in Germany than in the US, a phenomenon that is often attributed to the conscious

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² S. Shane, Cultural Influences on Rates of Innovation, 7 *Journal of Business Venturing* 29 (1993).

³ J. Ettlíe, C. Dereher, G. Kovacs and L. Trygg, Cross-National Comparisons of Product Development in Manufacturing, 4(2) *The Journal of High Technology Management Research* 139, 141, 151 (1993).

⁴ L. Lynn, Technology and Organizations: Cross-National Analysis, in *Technology and organizations*, 174, 189 (P. Goodman and L. Sproul eds., 1990).

⁵ L. Trygg, *Engineering Design: Some Aspects of Product Development Efficiency* (1991).

decision of Germany policymakers to provide large amounts of government support to work force training.⁶

Ettlie et al. also noted that the parity in the percentage of degreed design and manufacturing engineers at the 100% level in the German firm included in their survey was illustrative of what they referred to as the “stereotypical German approach to technical problems—thorough, painstaking, and with high technical standards”.⁷ In contrast, the much higher percentage of degreed design engineers in relation to degreed manufacturing engineers (90% to 10%, respectively) in the Swedish firm included in the same survey was illustrative of how Swedish firms took a more “creative” approach to product development issues in comparison to, for example, German firms.⁸ In the Japanese firm in the survey there was near parity in degreed design and manufacturing engineers at a very high percentage level (95% and 80%, respectively), a result similar to the German firm and one that Ettlie et al. explained as consistent with the Japanese cultural predisposition of high concern for technical accuracy.⁹

Limprecht and Hayes also identified several different characteristics associated with German firms and their management and human resources practices that would likely influence the way in which they approached and conducted their new product development activities.¹⁰ First of all, senior managers in German firms generally had strong technical backgrounds.¹¹ Second, the strength of apprenticeship programs in Germany, and the reliance of German firms on the skills disseminated in those programs, created a workforce that was more qualified to understand and efficiently incorporate manufacturing technologies. Third, product strategies favored by German firms focused on creating well-engineered, high quality products that were delivered on time and supported by extensive and excellent service. Finally, German firms take a more long-term view of product evolution and market competitiveness and thus are willing to accept lower profit margins to secure and maintain market share and long-term stability.

The raucous level of competition between American and Japanese firms over the last several decades has generated a great deal of interest in comparing product innovation practices used in

⁶ J. Lee and N. Wallbaum, Apprenticeship Training: The U.S. versus West Germany, 8 (3/4) *Operations Management Review* 19 (1991).

⁷ J. Ettlie, C. Dereher, G. Kovacs and L. Trygg, Cross-National Comparisons of Product Development in Manufacturing, 4(2) *The Journal of High Technology Management Research* 139, 150 (1993).

⁸ J. Ettlie, C. Dereher, G. Kovacs and L. Trygg, Cross-National Comparisons of Product Development in Manufacturing, 4(2) *The Journal of High Technology Management Research* 139, 150 (1993).

⁹ J. Ettlie, C. Dereher, G. Kovacs and L. Trygg, Cross-National Comparisons of Product Development in Manufacturing, 4(2) *The Journal of High Technology Management Research* 139, 150 (1993).

¹⁰ J. Limprecht and R. Hayes, Germany’s World-Class Manufacturers, *Harvard Business Review* 137 (November/December 1982).

¹¹ Ettlie et al. also observed that the relative abundance of technically trained managers in Germany was likely to influence the new product development process, particularly the design approach, among firms in that country. See J. Ettlie, C. Dereher, G. Kovacs and L. Trygg, Cross-National Comparisons of Product Development in Manufacturing, 4(2) *The Journal of High Technology Management Research* 139, 142 (1993). With regard to the influence of professional orientation on organizational culture and practices generally, see also J. Van Maanen and S. Barley, *Occupational Communities: Culture and Control in Organizations*, in *Research in Organizational Behavior*, 287 (1984).

those two countries. Ettlíe et al. noted that Hellwig had identified considerable differences between US and Japanese companies with respect to “product genesis”, or the “evolution of an idea into a manufactured and marketed product”.¹² In the US, for example, there was a strong tendency toward maintaining the process as strictly proprietary, an approach which also extended to applied and basic research. In contrast, Japanese product development was often done on a cooperative basis that extended through prototyping and which was open to foreign participants, an act of inclusion almost never seen in the US. Japanese companies have also been noted as keen learners of technologies originally developed elsewhere, particularly in the US. While US companies have generally not shown the same level of curiosity, some of them have reached out to Japanese counterparts in certain industries such as automobiles.¹³ Cole observed that while US firms tended to carry out technology adoption and development in parallel to manufacturing productivity enhancement and product development Japanese firms incorporated new technology as part of their continuous improvement programs.¹⁴ Mansfield found that the “time-to-market” for new products among Japanese firms was faster than among US firms.¹⁵

Another aspect of new product development that may be influenced by societal culture is planning, which is obviously relevant when new products are being vetted, selected, developed and commercialized. As discussed elsewhere in this publication, variations among countries and societal cultures with respect to formalization of planning have been identified and researchers such as Schneider and DeMeyer have observed differences among societal cultures with respect to how strategic planners interpreted risks.¹⁶ In addition, researchers have found that planning can lead to different types of successful outcomes and that variable patterns can be observed across cultures. For example, Hagerty and Hoffman found that better planning among Anglo firms translated into higher returns on sales while the better planners among German firms realized the value of planning through higher returns on assets and the better planners among Nordic firms enjoyed higher sales growth.¹⁷

¹² H. Hellwig, Differences in Competitive Strategies Between the United States and Japan, 39(1) IEEE Transactions on Engineering Management 77 (1992).

¹³ J. Ettlíe, C. Dereher, G. Kovacs and L. Trygg, Cross-National Comparisons of Product Development in Manufacturing, 4(2) The Journal of High Technology Management Research 139, 151 (1993).

¹⁴ R. Cole, U.S. Quality Improvement in the Auto Industry: Close But No Cigar, California Management Review 71 (1990).

¹⁵ E. Mansfield, The Speed and Cost of Industrial Innovation in Japan and the United States: External vs. Internal Technology, 34 Management Science 1158 (1988).

¹⁶ S. Schneider and A. de Meyer, Interpreting and Responding to Strategic Issues: The Impact of National Culture, 12 Strategic Management Journal 307 (1991).

¹⁷ W. Hagerty and R. Hoffman, The Relationship between Strategic Planning and Performance Among Three Cultures, Proceedings, Academy of Management 106 (1990).