



IMR
20,4

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Guest editorial: research in international new product development – current understanding and future imperatives

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Keywords *Product development, Research, Globalization*

Abstract *Successful new product and service development increasingly relies on the ability to adopt an international perspective, throughout the development process itself, and by targeting international or global markets, rather than simply serving domestic customers. Yet, although there exists an impressive body of research concerning the management of new product development, the evidence base with respect to international (or global) new product development practices and management is largely in its infancy, and is, at best, fragmented. This guest editorial provides a synopsis of the main research streams in the broad field of international new product development, highlighting major gaps in current knowledge and understanding. The special issue is a modest attempt at tapping current thoughts and research investigations in this critical area, seeking, also, to stimulate much-needed debate and further research. One article examines whether international diversity is positively associated with new product development performance. Two articles tackle the role that national culture plays in influencing consumer acceptance of new products (technology) on the one hand, and firms' global new product development approach on the other. A final article investigates technology transfer as a special case of new technology adoption in developing markets.*

The notion that markets are becoming increasingly internationalized and globalized is not new. In the past two decades, this has been an observable trend that has posed both difficulties and opportunities for a host of businesses in both manufacturing and service sectors. In the context of innovation and, more specifically, new product development, organisations have had to grapple with more demanding regional and global customers and a rising level of international competition, suppliers and resource markets, not forgetting the pressure to keep pace with rapid technological change and modern advances in information and communication technologies. Realistically, firms that seek to excel cannot ignore these challenges. Instead, they can ensure survival by capitalising on internationalization opportunities. Previous research suggests that companies that adopt an international and world-market focus when developing and commercializing new technologies or products achieve higher



market share and financial performance than those that have a narrower, domestic market focus (e.g. Kleinschmidt and Cooper, 1988). Hence, firms' propensity to enhance the commercial returns on new product development is raised through targeting international or global markets rather than simply serving domestic customers. In order to create value for international or global customers, managers need to formulate and implement appropriate new product development strategies and processes to meet the needs and demands of international markets. They have to be market-responsive, learning to tap global resource markets and to build technical and marketing knowledge to facilitate the creation and commercialisation of innovations for multiple country markets. They also have to be adept at globally disseminating the new product development (NPD) effort, leveraging company and third party resources, assets and capabilities at a global level in order to exploit internationally dispersed capabilities and to maximise the returns on commercialising innovations on an international scale.

To a large extent, there is an established knowledge base concerning the management of new product development. There is an impressive body of literature on the critical success factors in product, process, or service innovation (see, for example, Cooper, 1979; Zirger and Maidique, 1990; de Brentani, 1991, Cooper and Kleinschmidt, 1995). In addition, there are extensive reviews of product innovation practices and strategies, and their antecedents and performance consequences across a wide range of industries and countries (for relevant reviews, see Montoya-Weiss and Calantone, 1994; Griffin and Page, 1996). Surprisingly, however, and despite the accelerating trend towards internationalization (globalization), research on international (global) product innovation management and best practice remains relatively limited and fragmented. A disproportionate number of past studies have tended to adopt a domestic market focus and orientation (e.g. Griffin, 1997). Or, data have been derived primarily from samples of Northern American and Canadian businesses (e.g. Kleinschmidt and Cooper, 1988). However, there is growing concern that strategies, structures and processes for developing and commercialising new technologies and products for domestic markets may not be entirely suitable to meet the demands of businesses serving international (global) markets. Also worrying is the dearth of cross-national evidence-based understanding of the links between firms' international diversity and new product development performance. Are the implied positive associations between international (global) orientation and innovation performance generalizable to all firms irrespective of their country of origin? What are the determinants and outcomes of international (global) product development strategies and processes and how might this knowledge guide international product managers' new product launch decisions? Bearing in mind that "more firms are interested in launching products in multiple countries or even on a global basis" (Dekimpe *et al.*, 2000, p. 50), this is an important gap in the literature. Importantly, no matter how effective or efficient the internal product

development process, unless an appropriate market-led strategy is selected (and implemented) to “roll out” the product in its intended geographic market(s), international new product success may be compromised.

Much current and past research on the management of innovation in an international context emphasises the generation of new technologies (e.g. R&D). Research questions have been addressed by scholars from multiple disciplines, including economics, marketing, international business, R&D management, strategic management and organisational behaviour. Collectively, these disparate, though not always unrelated, scholarly streams have enhanced our understanding of international R&D management. The economics, R&D and international business literature have addressed the process of internationalisation of R&D and management of foreign R&D units (e.g. Hakanson and Zander, 1988; Florida, 1997). Another stream has examined the characteristics and drivers of national innovation systems and impacts on productivity and economic growth (e.g. Hoppe, 1993; Kedia *et al.*, 1992).

A third line of enquiry has focused on cross-cultural differences and similarities in firms’ new product development processes and performance (e.g. Song and Parry, 1997; Mishra *et al.*, 1996; Souder *et al.*, 1997). However, with a few exceptions (Chryssochoidis and Wong, 1998, 2000), these studies have largely compared new product development practices of firms from different countries (e.g. the USA, Korea, Japan, Holland, the UK) as opposed to identifying the content and outcomes of international product innovation strategies and processes. Nonetheless, some of the fastest growing markets, such as mobile communication hardware and service products, motor cars, PCs and Internet services, are found in the emerging and newly industrialising countries in Asia. International new product developers targeting these markets would benefit from a deeper understanding of the drivers of cost-effective commercialisation of innovations in these markets. At the same time, firms in countries such as China, Taiwan and South Korea are paying more attention to designing and introducing new products to global markets. Are there lessons that can be learned from evaluating the new product practices of international firms in these economies? As mentioned earlier, although previous authors have examined new product development practices from a cross-national comparative context, much of this line of investigation has centred on understanding new product success drivers within the context of domestic, as opposed to international, market commercialisation outcomes. In view of the potential value of distinguishing between best practices within and across national boundaries, research needs to widen the international comparative evidence base by addressing the antecedents and outcomes of international (global) new product development approaches of businesses.

A fourth stream examines how multinational enterprises (MNEs) manage innovation across borders from a broader organisational, as opposed to functional (e.g. R&D), structural context (e.g. Goshal and Bartlett, 1988; Nohria and Goshal, 1997). More recently, researchers have begun to address and

characterise the nature of global R&D or new product project teams (e.g. McDonough *et al.*, 2001). For example, Chiesa (2000) attempts to develop a taxonomy for global R&D projects based on the extent of specialisation of project structures and the level of integration across HQ, subsidiaries and collaborative R&D networks. However, his focus, while empirical, remains exploratory, with conclusions drawn from observations of practices in a limited sample of MNCs from the USA, Europe and Japan. In addition, research also has focused on the global innovation process as a communications process involving flows of knowledge between players within the product development team (Moenaert *et al.*, 2000).

Studies addressing the international commercialisation strategies and implementation processes for innovations are lamentably scarce. There is a substantial marketing literature on cross-national innovation adoption and diffusion patterns and why differences occur in the diffusion patterns across countries. However, this literature is dominated by the econometric modelling of adoption and diffusion patterns, typically non-linear least squares estimation of the Bass (1969) model, to estimate internal (interpersonal) and external (mass media) communications effects. Recently, these models are being questioned due to their limited focus on coefficients of communication influences, instead of analysing other salient determinants of market take-up, such as firms' product-market strategies and operational decisions (Mahajan *et al.*, 2000). Importantly, there is growing concern expressed in the marketing and product innovation management literature over the gaps in understanding of strategies and processes for achieving effective international (global) commercialisation of new products and technologies.

It is against this background that the idea of a special issue on international new product development research for the IMR was spawned. In our pursuit to tap current thoughts and the research evidence base relating to this emerging, but hitherto neglected, new product management field, we are consistent with the sentiments extolled in recent special issues on "Marketing and product innovation" and "Internationalization in innovation", published, respectively, by the *Journal of Product Innovation Management* (2000) and *Journal of Market Research* (1997) – there is great need for more systematic research to advance understanding of the management of international (global) new product development.

Not all the questions we posed above are addressed in their entirety by the articles accepted for this special issue. However, we hope that this issue goes some way towards tackling these questions and stimulates further debate and research in this critical area. One article examines whether international diversity is positively associated with new product development performance, drawing conclusions from a comparative study of US and Chinese businesses. Two articles tackle an important area – the role that national culture plays in influencing consumer acceptance of new products (technology) on the one hand, and firms' global new product development approach on the other. One

other article investigates technology transfer as a special case of new technology adoption in overseas developing markets. We are delighted to note that two of these articles, and a large number of the manuscripts submitted for the special issue, address various facets of international new product development involving China. This reflects the current academic and practitioner interest in the emerging role of this nation, not just as a consumer of new products, but as an increasingly powerful player in developing international product development capabilities. Below, we introduce the articles and briefly outline their major contributions to advancing knowledge of international new product development. We hope you enjoy reading this special issue.

In this issue

In the first article, Insik Jeong addresses an important gap in the literature – the implications of a firm’s international diversity for new product performance in overseas markets. This work makes a contribution in drawing attention to potential cross-national differences in the learning and experiential effects of multinational expansion on product innovation performance. In a survey of 179 US and 250 Chinese firms, the author assesses the international diversity among these two groups of firms and new product outcome in terms of customer acceptance, profitability, sales and technical performance. In addition to identifying cross-national differences, he also explores the role of firm size in facilitating the relationship between multinational expansion and new product performance. The study shows that US firms were more highly diversified with respect to the proportion of foreign market sales to total company sales than Chinese firms in the sample. Whereas US firms achieved better new product performance with a growing level of international diversity, Chinese firms may expect higher new product performance initially, but will potentially experience deteriorating performance when they expand beyond a certain threshold level. This unique international diversity-new product performance pattern observed for Chinese firms suggest that international diversification may not always bring about higher performance for firms domiciled in different countries. The differences in the international diversity-performance effects observed for US and Chinese firms may be explained by differences in learning and experience effects which affect the new product efforts of US and Chinese firms. The article also shows that US firms can incorporate the benefits of international expansion into their new product development efforts, irrespective of their size. However, small Chinese firms are less likely than their larger counterparts to achieve higher new product performance with a growing level of international diversification.

The second article by Sengun Yenyurt and Janell Townsend revisits the role of cultural attributes and socio-economic factors in influencing the adoption of new products by consumers in a country. Applying Hofstede’s four-dimension cultural framework, the authors examine the effects of power distance,

individualism, uncertainty avoidance and masculinity on the acceptance rates of personal computers, cellular phones and the Internet by consumers in 56 countries. They argue that, even in the age of globalisation, culture plays a significant role in influencing new product adoption. Specifically, individualism has a positive relationship, whereas power distance and uncertainty avoidance shows a negative association, with new product diffusion rates. However, masculinity is negatively related to penetration rates, but the association is not statistically significant. They also show that the significant relationships between these cultural dimensions and penetration rates are moderated to a greater or lesser extent by some socio-economic variables. Economic well-being and urbanisation rates appear to reinforce the significant effects of culture and diffusion rates. By contrast, literacy levels and openness of the economy to foreign goods tend to dampen the cultural impacts on new product acceptance. These findings suggest that managers responsible for international new product introduction should consider not only the implications of cross-cultural differences for international market launches, but also pay greater attention to the potential interactions between cultural and socio-economic factors when projecting demand and adapting multi-country launch strategies for new products.

The third article, offered by K. Sivakumar and Cheryl Nakata, also addresses the effects of national culture on international new product development outcomes. Unlike the previous article that examines cultural impacts on consumers' adoption of new products, the authors study how culture dimensions affect the development and launch of new products. The key question posed is: are there optimal global culture-based new product team compositions that will maximise new product development success? The authors generate a series of optimisation models that are subsequently tested through some 540 simulations characterising different project situations confronting GNPTs. They show how global new product teams (GNPTs) might be configured to leverage the heterogeneity and differing individual levels (intensity) of culture values to achieve new product development success. In addition, in their analyses, the authors incorporate the conflicting effects of culture dimensions on the front-end (initiation) and back-end (implementation) stages of the innovation process and the relative importance of these two stages in radical versus less radical product development projects. The research makes an important contribution in positing a new conceptual model for new product development in an international context. That is, culture dimensions (individualism, uncertainty avoidance, masculinity, power distance and long-term orientation) can facilitate or impede the two phases of new product development (initiation and implementation). Moreover, the framework suggests that optimality of new product outcomes results from simultaneously considering the intensity of culture values, heterogeneity of culture values, consistency of culture effects across the two development

phases and newness of the innovation to the firm and market, all of which impact on new product success. In terms of managerial utility, the authors discuss how the numerical simulations may be used to guide team composition processes.

In the final article, Anthony Di Benedetto, Roger Calantone and Chun Zhang investigate international technology transfer to developing nations by extending and applying the technology acceptance model (TAM). International technology transfer is an important part of the increasing capability of firms located in developing countries to develop globally competitive products. The extended TAM model draws on behavioural adoption criteria familiar to the product diffusion/adoption literature. In particular, the authors contend that a person's attitude toward a behaviour influences their intentions to perform that behaviour and such intentions affect actual performance of the behaviour. The antecedent variables of ease of use and anticipated benefits of adoption are usefully added. These are important dimensions for the specific situation of international product technology transfer and rapid adoption. The model is tested on a sample of 500 firms in China. The application to developing countries is a novel and valuable contribution. The findings support their hypothesised relationships among the variables, advancing understanding of managerial attitude formation and behavioural intentions towards technology transfer. In particular the results emphasise the importance of perceived ease of use, rather than perceived usefulness, in influencing a manager's intention to adopt new technology. In developing countries, firms' concerns are likely to centre on developing learning capabilities and finding appropriate ways to adopt new technology, rather than on understanding perceived benefits of the technology, which are usually well documented and understood. By highlighting the critical behavioural factors likely to influence managers' decision-making processes, Di Benedetto *et al.*'s study provides useful guidance for managers marketing new technology to firms in developing countries. It suggests that the latest and newest technology is unlikely to be embraced easily by overseas firms in developing countries unless managers make efforts to build in required features or performance levels that address the adoption criteria considered.

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Veronica Wong (BSc, MBA, PhD, FCIM, FRSA, ILTM) is Professor of Marketing and Head of the Marketing Research Group at Aston Business School. Her research interests lie in product management, international new product development and global launch strategies, with particular emphasis on high-technology sectors. She has written over 60 articles for refereed and professional journals as well as contributions to research and managerial books. Her work has appeared in *Journal of International Business Studies*, *Journal of Product Innovation Management*, *Industrial Marketing Management*, *International Marketing Review* and *European Journal of Marketing*, among others. She has also written Europe's best-selling marketing text, *Principles of Marketing* (3rd European edition), co-authored with John Saunders at Aston Business School and American colleagues, Philip Kotler and Gary Armstrong. The text has been translated into seven other languages including German, Dutch, Spanish, Greek, Ukrainian, Polish and Russian. Veronica is also a member of the ESRC Virtual Research College for Management, Psychology, Linguistics, and Education (MPLE College), the European Marketing Academy Executive Board and Chair of the European Marketing Academy Doctoral Colloquium Organising Committee.

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