



Competing and developing competitive advantage in the digital world

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EDITORIAL

Competing and developing competitive advantage in the digital world

This special issue of *Technology Analysis & Strategic Management* was prompted by the growing significance and prevalence of digital technology in today's economy in terms of digital content and consumption, information technology application, and digital technology investment. The digital world embraces new technologies which enable extensive communications reach, on-demand and real time services, virtual networks of markets and relationships, and unprecedented depth and detail of information exchange between market participants. Such capabilities in the digital context change business organisations with a profound effect on opportunities for enhanced firm performance through cost advantages, innovations and value creation. Digital settings present high interconnectivity, often through open networks of the fixed and wireless Internet infrastructure. However, academic research on the application of digital technology has been slow compared to the rate of technological innovation and adoption.

This special issue attempts to extend knowledge about how the rapid changes of digital technology affect business strategy and competitive advantage. It was triggered by the emergence of new organisational capabilities based on technology, and their implications for theory and practice. Although the focus of the special issue is on firms' strategies through information technologies, it was clear from the outset that new technologies – and/or information technology investments *per se* – will not render competitive advantage. Thus, the special issue was not concerned about the latest technologies, but more about the mobilisation and integration of information technology in the multitudinous functions of an organisation, from transacting and competing to satisfying the various stakeholder needs.

The call for papers for this special issue was first announced in summer 2009. It attracted a good response that suggests a strong interest in digital technology and strategy models. This also indicates recognition of many unresolved issues, new challenges and opportunities for strategy researchers in the context of information technology. The papers submitted were first screened by the editors to verify their fit to the topic of the special issue and their contribution. Subsequently, the manuscripts went through a very comprehensive double-blind peer review process, and the eventual result of the accepted papers went through three rounds of review. The collective work of this issue includes theoretical development and empirical research using non-traditional methods of research on technology and strategic management to provide depth and/or capture application of information technologies. Indeed, two of the papers that appear in this special issue attempted

to test new models (namely asset-light operations and digital commons), which could offer new insights into emerging concepts for understanding digital strategies and for developing a novel approach to measuring competitive advantage in digital technology research. The four papers of the special issue are described below.

The paper by Fen-May Liou titled 'The effects of asset-light strategy on competitive advantage in the telephone communications industry' develops and examines the concept of asset-light strategy that is concerned with a firm's strategy based on minimising the use and development of new resources to make effective use of existing resources rather than building or developing the required resources. She introduces the value of light assets and the degree of asset-lightness as two indicators for examining asset-light operations. The value of light assets indicates the firm's total value including both tangible physical assets and intangible assets generated by the firm's unique resources and capabilities. The degree of asset-lightness is represented as a ratio measuring the firm's ability to generate intangible value with the physical assets in place. She develops these indicators to examine how asset-light operations generate competitive advantage in the telephone communications industry. Drawing on the resource-based theory, she focuses on competitive advantage as a result of asset-light strategy in terms of gaining abnormal returns. Using the return on invested capital (ROIC) as the book rate of return, she measures a firm's excess returns when ROIC exceeds the weighted average cost of capital (WACC) plus the risk-free return. Through the COMPUTSTAT database of telecommunications firms, she applies the indicators of asset-light operations and compute regression models to examine the effects of the asset-light strategy on competitive advantage. She tests three empirical models in the telecommunications industry: model one suggests there is no significant correlation between scale and performance; model two indicates a negative correlation between the value of light assets and the value of tangible assets; and model three highlights the degree of lightness associated with a firm's bargaining power with customers and with lowering operational expenses per dollar sale such as cost of sales, R&D, administration, and depreciation and amortisation. The results show that asset-light operations significantly contribute to competitive advantage in the telephone communications industry. This involves lowering operational costs to achieve a low unit cost of light operating costs rather than light fixed assets to generate competitive advantage.

Mehmet Gençer and Beyza Ob's paper on 'Organising the digital commons: a case study on engagement strategies in open source', develops a conceptual framework for understanding the co-evolution of a virtual community and a hybrid governance regime. The paper revolves around two main questions, (1) how community and strategy practice are initiated and, (2) how they are enacted. They apply the strategy-as-practice approach and institutional theory by developing insights into the concept of strategy-as-practice approach to examine the lifecycle stages of initiation, development and perpetuation of a hybrid governance regime in the context of a virtual community, called the Eclipse virtual community. The Eclipse community produces a programming technology that facilitates the integration of various diverse programming tools for the development of applications used in industrial settings. At the community level, strategy practice attempts to cope with tensions of institutional dynamics, and practice can be explained by the daily activities of individual community members. They examine key events at different time periods according to the lifecycle stages in order to provide insights about changes in proprietary regime, introduction of software releases and structural adjustments employed by Eclipse community members. In other words, they trace the temporal evolution of a community by developing a framework to show a hybrid governance structure to develop and structure an expanding community. They suggest that a hybrid governance regime can be created and sustained by individual activity in a virtual community. In addition, institutional dynamics provide an explanation

for how technologies and proprietary applications emerge through the co-evolution of a virtual community.

The paper by Carolina Castaldi, Casper ten Kate and Robbert den Braber titled 'Strategic purchasing and innovation: a relational view', provides a relational view on the purchasing function and firm-level conditions needed to leverage strategic purchasing for innovation. They regard strategic purchasing as strategic collaborative buyer-supplier relationships, and link strategic purchasing to innovation from both the external relations with the firm's suppliers, and the internal relations with the other functions. Using insights into capabilities and organisational learning from the resource-based view, they develop three propositions concerning how the quality of the purchasing function, supplier involvement and purchasing integration is positively related to innovation. Through multiple case studies of 12 firms, they show that a relational view extends the extant literature on either the internal integration of purchasing or the external relations managed by purchasing with suppliers to include both aspects of strategic purchasing. In addition, they point to the importance of relational resources (collaborative buyer-supplier relationships) and their integration to leverage innovation.

In Teck-Yong Eng and Duygu Okten's paper entitled 'Exploring a dynamic framework of innovative capability: A theoretical integration of technological and marketing capabilities', a conceptual framework for enhancing innovative capability through marketing and technological capabilities is proposed. Rather than examining organisational innovativeness in terms of behavioural and structural characteristics, the proposed framework examines the processes of innovation to extend marketing capabilities to a firm's innovative capability. They explore tactical and strategic marketing capabilities, and their relationship with explorative and exploitative learning to enhance innovative capability. They develop four theoretical propositions to provide insights into the mediating role of technological capability, the interplay between exploration and exploitation, and the moderating role of environmental uncertainty in enhancing innovative capability. In recognising the simultaneous interplay between exploration and exploitation in either incremental or radical innovations, they apply temporal constraints in information technology investments, and link market intelligence to provide an alternative perspective to managing and balancing levels of explorative and exploitative learning to enhance innovative capability.

The four papers in this special issue share some common themes. While information technologies mobilised in business strategy would enhance innovation and firm performance, new phenomena presented by digital technologies may require diversity in research methods to capture depth and richness of information embedded and exchanged in digital contexts. Digital technology research holds great promise for expanding theory of the business management literature on competitive strategies and sources for developing competitive advantage. Further, digital technology research can draw inspiration from established theories to extend knowledge of how digital and information technologies influence business practice and strategy, such as the potential of combining strategic purchasing with innovation from a relational view. Altogether, the four papers have important implications for the technology and strategy literature in terms of enhancing technological capability to sustain competitive advantage. The special issue presents avenues for future research, which may help provoke thoughts on existing business strategy models and spawn interesting research on exploring digital technologies across industries.

Finally, we thank the authors of this special issue. They have demonstrated a sustained interest in technology and strategy through their patience, diligence and responsiveness in the review process. We also thank the editors and the production team of *Technology Analysis & Strategic*

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