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Dynamic capabilities, collaborative network and business model: An empirical analysis of Taiwan HTC Corporation

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In the era of hypercompetition in knowledge and technology, the unique capability of high technology industry that is built upon conventional resource-based theory no longer suffices for its operation. Therefore, how companies make use of dynamic capabilities and collaborative network is the primary focus of this study. The study discovers that: 1. In terms of competitive advantages in the high technology industry, besides developing unique skills using corporate resources, companies should also combine dynamic capabilities and collaborative network to ensure the sustainability of such advantages; 2. The determining factors of success of companies lie in the continuous innovation in functional strategies and capabilities regarding research and development, marketing and production; 3. It is crucial to the successful operation of businesses that strategic collaborative relationships are developed among both upstream and downstream companies of the industry in a highly competitive and dynamic business environment; and 4. Companies must continue to revamp their business model in response to industry competitions and product life cycle. The case study of the business model of HTC Corporation and the implications of its management can be used as reference for future studies and actual operation.

Key words: Mobile phones, dynamic capabilities, collaborative network, business model, financial performance.

INTRODUCTION

21st century is an era of hypercompetition in knowledge and economy, Bogner and Barr (2000) reckon that both the barriers to enter and exit contemporary high technology industry are lowered and technological paradigm shifts will introduce revolutionary change to industry structure. The life cycle product are becoming shorter and the competitive advantages of companies can disappear overnight, thus resulting in competitions that become increasingly dynamic and unpredictable (Wheeler, 2002). It is therefore worth exploring the subject of debate on how high technology companies adopt dynamic capabilities at different stages, collaborative network and business model in the fast-changing environment of the industry.

Carlsson (2004) considers, from a resource-based view (RBV), that organisational strategy theory acquires competitive advantages through internally controlling resources or skills that are rare, valuable and hard to imitate, which no longer suffices in the hypercompetitive era of knowledge and economy in the 21st century. The Dynamic Capabilities Theory (DCT) must therefore be incorporated, and emphasis placed on the capability in new knowledge reconfiguration, acquisition and adoption, while competitive advantages are obtained through early market entry. Otherwise strategic partnerships should be formed with other companies to create a network organisation, thus expanding and accelerating the acquisition of useful resources and capabilities, in order to sustain competitive advantages on the market.

The mobile phone industry is often regarded as the classical high technology industry, particularly the smartphones, which combine features of conventional mobile phones with personal computers and fully exploit the vast benefit of high-end technology. The value chain of mobile
phone industry consists of operating system, brand firms and telecommunications providers. In addition to their dynamic resources and capabilities, brand firms should build strategic partnerships with both upstream and downstream companies so as to sustain their competitive advantages.

Taiwan High Tech Computer (HTC) Corporation was founded in 1997, and in just over a decade has become the third largest smartphone manufacturer in the world. With a market growth of 119.6% in the second quarter of 2008, the company performed better than the global mobile phone giant Nokia and smartphone groups combined as a whole, whose growth are at -8.1and 15.7% respectively (Gartner, 2008). Its earnings per share (EPS) in 2006 and 2007 were five times its capital, and while major manufactures worldwide were generating losses during the financial tsunami in 2008, the EPS for HTC was still NTD 36.64. It is estimated its revenue and profit will continue to grow in 2009 (HTC, 2009). The strategies and business model adopted by HTC within such competitive industry are important reference for future firms.

Zikund (2000) argues that researchers should define research scope or questions upon which formal explanation for the objective of the research is based. The principal questions and objective of this study are as follows:

1. How do high technology firms produce dynamic capabilities? Based on the business experience of HTC Corporation, the study uncovers dynamic capabilities of different stages of development.
2. How do high technology firms undertake network collaboration? Based on the business experience of HTC Corporation, the study uncovers the development of its network collaboration strategies.
3. What is the business model of high technology firms like? Based on the dynamic capabilities of different stages of development and network partnership of HTC Corporation, the study uncovers its dynamic business model.
4. Do individual business models of high technology firms provide competitive advantages and profitability? The study analyses whether the financial performance reflects the business models adopted by HTC Corporation, global giant Nokia and mobile phone industry by comparing their financial performance within the last five years.

**LITERATURE REVIEW**

Following the dynamic change in the environment of the industry, high technology firms must develop unique skills and business model at different phases to operate in the era of hypercompetition, while continuing to maintain competitive advantages to sustain its financial profit in the long run. The reviews of literature in this Section serve as the basis upon which the theoretical framework of this study is based, and focus on the subjects of this study: high technology industries, dynamic capabilities, business model and financial performance.

**High technology industries**

Companies and firms using fast-developing, fundamental science knowledge to provide services and products are said to belong to the high technology or high-tech industries. Such industries, in general, are characterised by: 1. Product technology standard that is an importance source of competitive advantages; 2. Disruptive technology that is the driving force behind the revolutionary change in industry structure and competitions (Christensen and Overdrof, 2000); 3. Network effects that produce positive feedback loop (Shankar and Bayus, 2003); 4. Firms and companies within the industry and product value chains have close relationships; and 5. Increasingly shorter product life cycle (Wheeler, 2003).

Electronic information industry is a classical high technology industry. Electronic information industry primarily comprises telecommunications, information, semi-conductor, electronic components, consumer electronics, photonics and instruments (MIC, 2009), where computers and mobile phones are representative of such industry. For the mobile phone industry to form an industry value chain, it must combine operating platforms of information network in the upstream and industries assembling mobile phones and electronic or consumer components in the middle with telecommunication industry in the downstream. An example of this would be the smartphones, such as Symbian (63%), Windows mobile (11.3%), Linux (10.2%), RIM (10%), Apple (4.2%) and Palm (1.3%) (MIC, 2009). There is also the emergence of Google’s Android in 2009, which sees the major operating systems jostling to lead the market with their technological standard.

The emergence of smartphones that combine features of mobile phones and personal computers, which exploits disruptive technology, has put an end to the global dominance of former mobile phone giants Nokia, Motorola and Ericsson. According to statistics from the International Data Corporation (IDC, 2009), in terms of global mobile phone market share, besides Nokia that still occupies the leading position, Samsung and LG from Korea and HTC from Taiwan are catching up. In addition to product innovation, the fact that Samsung and LG from Korea are able to successfully become the top five global firms is primarily due to their expansive strategic collaborations with telecommunications providers around the globe, which produce positive feedback loop due to network effects. Furthermore, the strategic partnerships among mobile phone firms and their capabilities to commercialise rapidly are key to obtaining competitive advantages and generating profit in the fast-changing and competitive market.
Dynamic capabilities

Over the last half-century, several scholars (Schumpeter, 1942; Nelson and Winter, 1982) have suggested concepts related to dynamic capabilities and contended that organisations should be able to distinguish the unique capability that produces competitive advantages, while learning how to develop, use and protect the skills and resources of organisations. Their point of view emphasises that organisations create technology, operation and management that are not easy to imitate. An increasing number of scholars (Teece et al., 1997; Eisenhardt and Martin, 2000) have devoted themselves into the study of dynamic capabilities in recent years. They define the term as the capabilities of organisations to integrate, construct and re-organise their competitiveness, both internal and external, to adapt swiftly to the changes in the environment. The focus is on two key aspects: dynamic and capabilities, where the former emphasises the ability of organisations to reinvent its skills to adapt to changes in the environment and the latter emphasises the appropriate improvement, integration and re-organisation of both internal and external skills, resources and operation of organisations to adapt to changes in the environment.

Teece et al. (1997) also believes that the unique dynamic capabilities of firms come from process, position and path, and the capabilities are embedded in process. However, the connotation and opportunities provided by process are significantly influenced by the position a manufacturer holds and its path of evolution. The process of organisational management includes:

1. Co-ordination/ integration, that is, coordinating and integrating both internal and external activities and technology. The business performance of an organisation does not depend on capital investment and the degree of procedure automation, but rather on unique and good co-ordination between co-ordinating and integrating and on integrated procedure that reduces costs and enhances quality, efficiency and business performance (Clark and Fujimoto, 1991);

2. Learning, that is, improving execution quality and efficiency through imitation and trials. In the long run, the continuous learning activities help to preserve sensitivity to changes in the environment and enhance the ability to detect new opportunities from the outside;

3. Reconfiguration/ transformation, that is, the necessity, as detected by organisations, to reconfigure asset structure and the ability to complete both internal and external transformation (Amit and Schoemaker, 1993). Such ability comes from continual supervision of the market and technology as well as the willingness to adopt the best practice.

Position refers to all the assets the firms own. Amit and Schoemaker (1993) propose that organisational assets include tradable knowledge, properties and human resources. Teece et al. (1997) divide assets that influence the competitive advantages of organisations into eight categories, namely technology, complementary, finance, reputation, structure, system, market and organisational boundary, and argue that assets owned by firms affect their competitiveness and the drafting of strategies.

Path means business trail of a manufacturer from past to present. Any strategy or action adopted at a particular point in time might be affected by a decision made at or technological opportunity from an earlier point in time, while such strategy or action might in turn indirectly influences the strategy or action at an upcoming point in time. Teece et al. (1997) consider that path dependency and technological opportunity can explain the limitations on current actions of firms and the influence to which they are subject.

Collaborative network

Collaborative network refers to the formation of network organisation through external collaboration to expand and accelerate the acquisition of useful resources and skills. The guiding theory of network collaboration is Social Capital Theory (SCT), which advocates that the network of relationship provides its members with highly valuable resources during their social interaction. These resources include the exchange of information, knowledge and resources as well as the discovery and control of opportunities. Members of such network are thus privileged in acquire the trust and support of fellow members (Bourdieu, 1986).

Several recent studies have indicated that the positions of firms in interorganizational networks influence firm behavior and outcomes (e.g., Powell, White, Koput, and Smith-Doerr, 2005; Walker, Kogut, and Shan, 1997).

Because of their facilitative role in various interorganizational contexts, network relationships have even been described as network resources. In spite of the growing consensus that networks matter, however, the specific effects of different elements of network structure on organizational performance remain unclear. In the social networks literature, a debate has arisen over the form of network structures that can appropriately be regarded as beneficial (Walker, Kogut, and Shan, 1997).

According to one view, densely embedded networks with many connections linking ego’s alters are facilitative for ego, and social structures are seen as advantageous to the extent that networks are “closed” (Walker, Kogut, and Shan, 1997).

According to an alternate view, however, social structural advantages derive from the brokerage opportunities created by an open social structure (Burt, 1998). Actors can build relationships with multiple disconnected clusters and use these connections to obtain information and control advantages over others (Burt, 1992). From the perspective of the network theorist, these differences have different, even contradictory, normative
implications (Walker, Kogut, and Shan, 1997). From Coleman's (1988) standpoint, the optimal social structure is one generated by building dense, interconnected networks. From Burt's (1998) position, constructing networks consisting of disconnected alters is the optimal strategy. Clarifying the implications of cohesive versus disconnected network structures for various organizational outcomes is important to our understanding of network resources.

Innovation results from the recombination of knowledge held by the partners to the collaboration, and from the history of their collaboration. Innovation brings partners closer together, while at the same time the repetition of partnerships fosters trust and helps improving the outcome of each round of cooperation (Crowan, Jonard and Zimmermann, 2006). A technology-based firm would be pushed to the higher innovation condition through the transactional mechanism or the competitive process when the external organizations have improvement in technologies. In other words, technological opportunity is mainly fostered by the outside environment and brought about by the innovation activities of suppliers, customers and competitors define the industry-related part of the pool (Becker and Peters, 2005) and it represents that firms are dependant on know-how of other firms and institutions to get competitive advantages. This is in the line with network theory, in which organizational forms are characterized by repetitive exchanges among semi-autonomous organizations that rely on trust and embedded social relationships to protect transactions and reduce their costs (Powell, 1990).

High technology industries are featured with product technical standardisation and network scale. For example, among the mobile phone industry value chain of operating systems, brand firms and telecommunication providers, the operating system providers have the capability of competing in product technical standardisation, and when a certain operating system gains such advantage in the industry the outcome is that big gets bigger. If brand firms can collaborate with such operating system, their product technical support and early market share can be enhanced. Similarly, if brand firms can collaborate with global telecommunication providers such as the AT&T and Verizon in the U.S., Vodafone and T-Mobile in Europe and NTTDocMo and Softbank Mobile in Japan, a complementary network scale effect will thus be created and producing a positive feedback loop (Shankar and Bayus, 2003). The Korean mobile giants Samsung and LG remained unaffected during the global financial crisis in 2008, and even went on to successfully become two of the top five mobile phone firms in the world. This is due to their effective strategic partnerships with global telecommunications providers (IDC, 2009).

**Business model**

Business model describes how companies and firms transmit their values to customers in one or several market segments. Such values are jointly created, marketed and transmitted with their network partners, which eventually generate profit for the business and sustain its existence (Osterwalder et al., 2005). Afuad and Tucci (2001) state business models need to continuously innovate and remain dynamic to be proactive and avoid rivalry threats. Innovation is key to business profit and survival (Afuad, 2004). In short, business models include: 1. selecting clientele; 2. creating advisory values; 3. establishing collaborative network partners; 4. continuing dynamic innovation; and 5. sustaining the profit and survival of business.

Hamel (2000) proposes four innovative business models in The Future of Management, including management innovation, strategy innovation, industry innovation and business innovation, each of which will bring success of different extent; the higher the rank the higher the value creativity and competitive advantages. Based on the hierarchy point of view of strategic management, management innovation is a strategy this is at the level of the overall business and concerns how firms orientate themselves in the industry or market, while co-ordinating technology with outlook, objective, strategies and business organisation of the company to allow more swift response in the face of changing business environment (Osterwalder et al., 2005). Strategy innovation and product innovation relate to strategies at business level, and the kind of market strategy firms adopt to create customer values in target market and generate revenue (Rappa, 2004). Business innovation belongs to functional-level strategies, whereby firms adopt combined business strategies throughout departments such as production, marketing, finance, research and development and human resource management to achieve the performance of the company or business.

Summarising the above, business model is a combination of strategies at various levels, such as the company as a whole, business and functional, that firms adopt to create customer values, generate profit and sustain its operation to compete in the industry or market. In respect of the mobile phone industry, when a new manufacturer enters the competitive environment of the industry, how it achieves optimal efficiency, quality, innovation and customer response, thus sustaining its competitive advantages and profit generating ability, will depend on how it orientates itself, and whether its business focus is in one or several domains; or, according to the general competitive strategies of Porter (1985), its selection of strategies regarding cost leadership, differentiation and focus or strategies at functional level.

**Financial performance**

Based on the viewpoint central to the model of industry
organisation theory: structure – conduct – performance, industry structure influences the conduct of firms, which in turn influences their individual and overall performance (Scherer et al., 1990). This is why the choice of different industry or competition market will determine the influence firms have over product prices and whether they are able to generate generous profit.

Financial performance is one manifestation of manufacturer’s competitiveness; it evaluates its current profit generating performance and reviews its business direction and adopted strategies. Venkatramam and Ramanujam (1986) propose in an article on strategies measuring business performance that three aspects should be considered when measuring businesses: organisational effectiveness, operational performance and financial performance. Organisational effectiveness and operational performance can be communicated through firms’ business strategies and financial performance, and their achievement in business strategies will be reflected on the financial performance. Hsin, Chang and Chang (2006) therefore suggest financial performance as the principal performance index for profit-generating standard of any firms. Fleisher and Bensoussam (2003) consider it more meaningful to compare financial ratios with historical figures of firms, industry average index or benchmark competitors. The measuring ratios frequently used in financial performance of firms, including return on assets (ROA), return on equity (ROE) and new profit margin (NPM), are explained below (Venkatraman and Ramanujam, 1986: Robinson, 1982; Galbraith and Schendel, 1983):

1. Return on assets (ROA): measures how firms use assets to generate more profit. Davies and Boczko (2006) regard ROA as one of the best methods to compare the performance of firms in the same industry and is the fundamental comparative index of profit generated by publicly listed companies. The measuring ratios frequently used in financial performance of firms, including return on assets (ROA), return on equity (ROE) and new profit margin (NPM), are explained below (Venkatraman and Ramanujam, 1986: Robinson, 1982; Galbraith and Schendel, 1983):

2. Return on equity (ROE): measures the effectiveness of firms creating value for their shareholders. That is, the profit generated from net assets demonstrates how firms effectively use the money invested by shareholders to generate and stimulate profit.

3. Net profit margin (NPM): measures the actual profit earning ability of firms each year. Davies and Boczko (2006) mention the NPM is frequently used to compare the profit-generating and cost-control abilities of different strategies adopted by different firms within the same industry.

METHODS

Historical data of HTC Corporation is analysed, and its financial ratios statically analysed and compared with those of mobile industry and market leader Nokia. Earlier case-study research was applied to the field of sociology, and according to scholars such as Yin (1994) and Stake (1995) such research methodology can be used in any scientific field of research through careful design or as an experimental or quasi-experimental research method (Stake, 1995). Taiwan HTC Corporation is chosen as the subject of study because it is the first Taiwanese mobile manufacturer to have successfully entered the global market as a brand firm and to have become the third largest smartphone manufacturer worldwide. In addition, it has topped the Taiwanese stock exchange for over 3 years as the most profitable listed company in Taiwan. The tools of analysis used in this research are based on those considered most useful as summarized in the book Strategic and Competitive Analysis by Fleisher and Benoussam (2003). An analysis structure (Figure 1) is constructed based on the literature review in the previous Section. The review demonstrates the establishment of competitive advantages of firms has extended from the independent ability of resources and capabilities building to a dynamic business model of dynamic capabilities and collaborative network of firms, thus sustaining competitive advantages and financial performance.

The study conducts an empirical analysis on the HTC Corporation using its historical attributes data and the analysis structure in Figure 1 to analyse its dynamic capabilities, collaborative network and business model. Its financial performance is also compared with the mobile phone industry and the industry leader Nokia by comparing financial ratios and statistical analysis to establish whether its financial performance reflects its capabilities and strategies.

Dynamic capabilities analyses

The aim is to uncover the necessary resources and capabilities of firms at difference stages of development. The study employs the analysis models of strategic group (SG) and product life cycle (PLC).

Hunt (1972) proposes the strategic group analysis model to depict the different competing positions occupied by firms in the industry and analyse the competitiveness and probable profit among groups in the industry, thus determining the orientation and competition strategies of firms.

Dean (1950) proposes the analysis model of product life cycle that divides industry or products into stages of development, namely entry period, growth period, mature period and recession period, which help firms to understand market dynamic and establishing strategies for different phases to maximise profit.

Collaborative network analyses

The aim is to understand the network established within the industry value chain at different stages of development of firms. The study adopts the model of value chain analysis (VCA).

Porter (1985) proposes the value chain analysis model in his book Competitive Advantage, which dissect the industry as a whole based on industrial activities (Forrester, 1961). This, in turn, is used to analyse the strategies of firms in the industry value system, which helps to connect their internal skills with external competitive collaboration opportunity, thus creating customer values and business profit (Porter, 1985).
Business model analyses

The aim is to analyse the strategic business model moulded based on dynamic capabilities and collaborative network. The study employs the five forces analysis of firms in the industry (FFA) that Porter mentions in his books Competitive Strategy (1980) and Competitive Advantage (1985). The five forces include: potential entrants, rivalry among firms, substitutes, bargaining power of suppliers and bargaining power of customers, while integrating three key domains, namely industrial structure analysis, competitor analysis and industrial evolution analysis to analyse the competitiveness of firms in the industry.

Financial performance analyses

The aim is to analyse business models adopted by HTC and whether its effectiveness is reflected on the financial statements. The study adopts the financial ratio and statement analysis (FRSA) that uses financial ratios including the ROA, ROE and NPM found in the financial statements, and collects the finance data of HTC, the mobile phone industry and the industry leader Nokia within the last five years, to conduct financial ratio comparison and analysis.

Financial ratio and statement analysis primarily examines the financial decisions and business performance of companies. A comprehensive analysis must include financial ratios and historical finance data, while combining them with the business analysis of the industry. The application of ratio analysis on financial statements allows firms to determine their competitiveness, track of development, it performance in comparison to the industry or competitors. Fleisher and Bensoussan (2003) believe that the benchmark subjects of comparison should include the manufacturer's historical performance, specific competitors and the industry as a whole.

An illustrative case analyses of HTC

Established in May 1997, HTC Corporation is an affiliated company of VIA Technologies, Inc., Taiwan and is devoted to the design, manufacturing and marketing of the latest multifunctional smartphones. The corporation formally announced its entrance to the global mobile phone market under the brand HTC in 2007, and hoped to communicate its innovation and values to its clients through the brand HTC. This Section explores the key to the corporation's success looking at its historical data, including dynamic capabilities, collaborative network, business model and financial performance.

Dynamic capabilities

HTC Corporation is an equity investment made by VIA Technologies, Inc., Taiwan, which has been in the business of logic system and communication chip for a long period of time and is therefore familiar with the mobile phone industry. When the HTC Corporation was founded in 1997, it focused its business on business smartphones in the mobile phone industry. According to the strategic group model of analysis, business smartphones are high quality and high price products, and supported by the stable operating system of Windows.
Mobile, they have the competitive advantage of being widely adopted. Smartphones have gradually enter the mature phase within in recent years, and following the advancement of technology in general smartphones and the opening up of new operating systems, the HTC Corporation has announced in 2008 its adoption of Android, the operation system for general smartphones, developed by Google to expand its business field. The development strategies and core capabilities of HTC Corporation are analysed below based on product life cycle:

1. Research and Development Strategies and Capabilities: Research and development is core to the HTC Corporation and has helped the company to lead the industry by 6 months to a year in regards to its product technology (HTC, 2009). The research and development budget (R&D expenses/ business revenue) of the corporation is about 5%, and the number of engineers has increased from 70 in 1998 to 1140 in 2006 and to over 1800 in 2008. Furthermore, the corporation has fully exploited the innovative strategy. Although being innovative is key to research and development, to fully exploit the new technology in the industry will better optimise the effect of innovation. For example, the collaboration with Qualcomm to take advantage of its testing technology for 3G chips and the collaboration with Motorola to test its smartphone products, thus fully utilising the technology of the competitors to enhance its core capabilities.

2. Production Strategies and Capabilities: HTC adopts customised pull strategy that produces products based on client needs and at the same time build partnerships with distributors. The production of customised products on the same production platform allows the company to fast design products its clients’ demands, which in turn reduces its production costs.

3. Marketing Strategies and Capabilities: The study analyses the strategies of HTC based on the 4P of marketing strategies: in terms of product strategy, the company was initially an OEM and provided companies such as Qtek, Imate and AudioVox with product strategies and later introduced its own brand, HTC, in 2007. Regarding pricing strategy, HTC targeted high-end smartphones. HTC announced its entrance to the market of business smartphones. The study divides the business innovations of the company into two stages: the first being the stage of steady growth from the time the company entered the market in 1997 up until 2006; and the second being the period after 2007, when the market of smartphones became increasingly competitive and the company adopted integrated innovative business strategies. Its business strategies at corporate or business level and functional level are elaborated thus:

1. HTC Corporation operates single business products; its strategies are identical at both corporate and business levels. The first stage of its corporate or business-level strategies adopts that of differentiation focus and collaboration in conjunction with entry path and the business environment of the industry. The number of business smartphone competitors has increased after 2007 and the advancement in features of general consumer smartphones has the substitution effect, thus in addition to the abovementioned strategies the company also launched its namesake brand to enter the market of general consumer smartphones through product integration, feature innovation and cost reduction.

2. The corporate functional level strategies of HTC Corporation are co-ordinated with its strategies at both corporate and business levels. The strategies pursue competitive advantages of corporate business in terms of customer values, brand, efficiency and innovations, which are evident in the analysis of key internal value activities, including research and development, production and sales and marketing. With respect to research and development strategies, the first stage used 5% of the research budget each year and hired R&D engineers in great numbers, while adopting the strategy of “Me First” and fully exploiting the advanced technology of competitors. Stage two of the strategies focused on the creation of customer values in product R and D and the development of integrated devices with new features, so as to stimulate the value of user experience. In terms of production strategies, stage one employs customised pull
Table 1. HTC corporation business strategies and capabilities.

<table>
<thead>
<tr>
<th>Stage strategy</th>
<th>Stage one</th>
<th>Stage two</th>
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<tbody>
<tr>
<td>Corporate or business level</td>
<td>(i) Differentiation focus strategies</td>
<td>(i) Integrated innovative strategies</td>
</tr>
<tr>
<td></td>
<td>(ii) Collaborative strategies</td>
<td>(ii) Cost-reduction strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(iii) Collaborative strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(iv) Own brand strategies</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>(i) Own R&amp;D – 5% of the R&amp;D budget, good R&amp;D staff</td>
<td>(i) Research and develop integrated features</td>
</tr>
<tr>
<td></td>
<td>(ii) Me First strategies – fully exploit competitor technology</td>
<td></td>
</tr>
<tr>
<td>Production</td>
<td>(i) Customised pull strategy</td>
<td>(i) Improve production technology</td>
</tr>
<tr>
<td></td>
<td>(ii) Flexible production platform</td>
<td>(ii) Strategic supply chain management</td>
</tr>
<tr>
<td>Functional Level</td>
<td>(i) Product – OEM and provides Otek with own brand products</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(ii) Price – high-price business products</td>
<td>(i) Product - HTC’s own brand</td>
</tr>
<tr>
<td>Marketing</td>
<td>(iii) Promotion – done by distributors</td>
<td>(ii) Price - high-price business mobile phones</td>
</tr>
<tr>
<td></td>
<td>(iv) Place – collaboration with telecommunications providers from Europe, U.S and Japan</td>
<td>(iii) Promotion - HTC sense and media promotion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(iv) Place - expand collaboration with telecommunications providers in Korea and China to create own brand place</td>
</tr>
</tbody>
</table>

Data source: HTC (2009).

strategy and flexible production platform to produce products that satisfy customer needs and reduce production costs. The second stage emphasized the improvement in production technology and strategic supply chain management to promote business effectiveness. Regarding the 4P of sales strategy, stage one of product strategy adopts OEM and provided collaborative distributors Otek with own brands, and stage two involved actively developing HTC’s own brand. In terms of pricing strategy, the first stage employed high-price business product strategy, and the next stage was entering general smartphones markets, such as China, and adopting mid-range product pricing strategy. Stage one of promotion co-ordinated with OEM and was done by distributors, and during the next stage the media marketing of “HTC sense” was launched in conjunction with HTC’s own brand to build customer value towards the brand. The first stage of place strategy co-ordinated with the expansion of business smartphone market, and partnerships were gradually built with telecommunications providers in Europe, the U.S. and Japan. In addition to continuing to establish partnerships with telecommunications providers in Korea and China, place or HTC’s own brand was being developed.

Collaborative network

According to the value chain model proposed by Porter (1985), the business success of smartphones depends on its relational bonds with developing industry value chain, and collaboration between operating systems, production and telecommunications providers are necessary. Social capital theory advocates that a long-term relationship of mutual trust must be established with both upstream and downstream manufacturers. As a product manufacturer, HTC Corporation adopted collaborative strategies and entered the business smartphone market in strategic collaboration with firms of Windows Mobile operating systems in 1997. Due to the global financial crisis in 2008, the mobile phone market shrank while technical features of general smartphones advanced, the company decided to enter the general smartphone market and expanded its collaboration with the Android operating system by Google.

Between 2001 and 2003, HTC collaborated with European telecommunication providers, including Vodafone, T-Mobile, Orange, mmO2 plc, Virgin and Telisonera. The company entered the U.S. market in 2005 and collaborated with providers such as AT and T, Sprint, Verizon, Cingular and T-Mobile. It entered the Japanese market in 2006 and collaborated with providers including NTT DoCoMo and Softbank Mobile, while in 2008 it collaborative with SK Telecom to enter the Korean market, and signed an agreement with China Mobile in August the same year to pave the way for entering its market of 3G communications. HTC Corporation orientates itself as the pioneer in business smartphones and
and adopts the strategy of collaborating with operating systems in the upstream and telecommunications providers in the downstream, thus consolidating its position in the market of smartphones. It continues to expand its scope of collaboration following business development and changes in product technology.

Overall, Table 2 is a summary of the industry value chain built upon the collaborative network of HTC Corporation. It is through such chain that the company collaborated with firms from both upstream and downstream to create customer and corporate values.

### Business model

HTC Corporation claims to be the pioneer in smartphones (HTC, 2009). First of all, the study uncovers its business strategies using the five forces analysis suggested by Porter. The corporation entered the business smartphone group before others and chose Microsoft’s Windows Mobile operating system as its strategic alliance, before progressing to collaborative with telecommunications providers in advanced markets, including Europe, the U.S. and Japan. Its parent company, VIA Technologies, Inc., is equipped with technologies such as chip and software development, HTC therefore regards its technology to be at least a year ahead of its competitors and to have competitive advantages over business smartphones competitors, potential competitors and substitutes. In terms of the bargaining power of suppliers, its capability to bargain with suppliers is enhanced because of its stable collaborative relationship in operating system with Microsoft. Regarding customers and distributors, the company has collaborative relationships with telecommunications providers in Europe, the U.S. and Japan, providing business customers with high-end smartphone products, which distinguishes its products from other mobile phone firms and strengthened its capability to negotiate with customers or distributors. Summarising the above, HTC Corporation adopts primarily differentiation focus strategy and collaborative strategy; the former focuses on providing business users with multifunctional high-end smartphone products, whereas the latter the strategic alliance with operating system firms in the upstream to consolidate the continuous technical development of its

### Table 2. Summary of HTC Corporation’s collaborative network.

<table>
<thead>
<tr>
<th>Collaborator</th>
<th>Stage One (2001 to 2006)</th>
<th>Stage Two (Post to 2007)</th>
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<tbody>
<tr>
<td>Operating system firms in the upstream</td>
<td>Windows mobile system by Microsoft</td>
<td>Windows mobile system by Microsoft</td>
</tr>
<tr>
<td>Telecommunications providers in the downstream</td>
<td>Europe: Vodafone, T-Mobile, Orange, mmO₂, Virgin and TeliaSonera</td>
<td>Europe: Vodafone, T-Mobile, Orange, mmO₂, Virgin and TeliaSonera</td>
</tr>
<tr>
<td></td>
<td>Japan: NTTDocMo and Softbank Mobile</td>
<td>Japan: NTTDocMo and Softbank Mobile</td>
</tr>
</tbody>
</table>

Data source: HTC (2009).

### Table 3. Financial ratios of mobile industry, Nokia and HTC Corporation.

<table>
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<tr>
<th>Distinction</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile industry</td>
<td>ROA (%)</td>
<td>24.50</td>
<td>15.50</td>
<td>7.44</td>
<td>8.30</td>
<td>7.40</td>
</tr>
<tr>
<td></td>
<td>ROE (%)</td>
<td>32.20</td>
<td>20.00</td>
<td>14.39</td>
<td>14.48</td>
<td>11.25</td>
</tr>
<tr>
<td></td>
<td>NPM (%)</td>
<td>18.40</td>
<td>13.20</td>
<td>12.34</td>
<td>9.09</td>
<td>9.47</td>
</tr>
<tr>
<td></td>
<td>ROA (%)</td>
<td>14.15</td>
<td>16.22</td>
<td>19.04</td>
<td>19.20</td>
<td>5.24</td>
</tr>
<tr>
<td>Nokia</td>
<td>ROE (%)</td>
<td>22.52</td>
<td>29.75</td>
<td>35.70</td>
<td>48.80</td>
<td>27.50</td>
</tr>
<tr>
<td></td>
<td>NPM (%)</td>
<td>11.00</td>
<td>10.60</td>
<td>10.50</td>
<td>14.10</td>
<td>7.90</td>
</tr>
<tr>
<td></td>
<td>ROA (%)</td>
<td>20.00</td>
<td>38.00</td>
<td>48.00</td>
<td>37.00</td>
<td>28.00</td>
</tr>
<tr>
<td>HTC Corporation</td>
<td>ROE (%)</td>
<td>41.00</td>
<td>69.00</td>
<td>77.00</td>
<td>59.00</td>
<td>49.00</td>
</tr>
<tr>
<td></td>
<td>NPM (%)</td>
<td>11.00</td>
<td>16.00</td>
<td>24.00</td>
<td>24.00</td>
<td>19.00</td>
</tr>
</tbody>
</table>

products as well as collaboration with telecommunications providers in the downstream to provide customised products to customers or providers, thus accumulating user experience for its products.

Further to the analysis above, the overall business model of HTC Corporation evolves dynamically, which follows the technological development of smartphone and market growth. Among its market competitors and following the rapid development of substituting products, HTC extended its business model that focuses on business smartphones to gradually include general consumer smartphones from 2007. In respect of its collaborative strategies concerning operating systems in the upstream, it expanded its collaboration with Windows Mobile for business products by Microsoft to include Android by Google for general products. As to collaboration with distributors in the downstream, it continues to find foreign partners while developing its own place.

Secondly, with respect to corporate functional strategies, in particular the research and development strategies, the company aims to gain a competitive edge through the development of integrated devices with innovative features, which makes its products more compatible with telecommunication providers’ and user-end applications and content. In terms of production strategies, the company continues to improve its overall business efficiency, including technology, manufacturing and strategic supply chain management to promote mid-range smartphone products. Regarding marketing strategies, the products shift from high price to mid price and from ODM and OEM to HTC’s own brand, with intensive campaigns to promote the “HTC sense” while gradually building its own brand place.

Financial performance

Financial performance reflects the firms’ competitiveness and evaluates their business direction, strategies and profit. The study uses financial ratio analysis from financial statements to determine the track of development of HTC Corporation and its competitiveness, and compares its performance with the mobile phone industry and the industry leader. The financial ratio statistics are as illustrated in Table 3. First of all, with reference to the financial ratios of HTC Corporation in Table 3, over the last five years (2004 to 2008), its average net profit margin is 18.8%, return on assets 34.2% and return on equity 59%, and the earnings per share (EPS) are 13.49, 32.81, 56.97, 50.48 and 36.64 respectively. The company is highly competitive and profitable as a whole. However, judging from its EPS and financial ratios over the last five years, there is a clear indication of decline since 2007, which, upon exploration, is primarily due to: 1. More firms competing in the market of smartphones; 2. The erosion of business smartphones as a result of advancement in features of general smartphones, which gradually takes away the high-price advantage of the former; and 3. The effect of global financial crisis in 2008.

Secondly, comparing the financial ratios of HTC Corporation and Nokia in Table 3, the former excels the latter within the last five years in regards to average net profit margin, return on assets, return on equity as well as growth rate. Further to that, HTC Corporation was less affected by the global financial crisis in 2008 in comparison, which demonstrates that the business strategy of focusing on smartphones has given the company an edge in competitiveness and profitability over Nokia, which adopts the strategy of diverse products in the mobile phone industry. According to statistics data from Gartner (2008) regarding smartphones, the market share of HTC Corporation up until the second quarter of 2008 was 4.1%, an increase of 119.6% over the same period last year, whereas the market share of Nokia in the second quarter of the same year was 47.5%, a decrease of 8.1% in relation to the same period last year (MIC, 2008). This illustrates the relative market share of HTC Corporation is better than Nokia and it has advantages in both business and profitability.

Comparing the financial ratios of HTC Corporation and the mobile industry in Table 3, those of the former distinctly surpass the latter over the last five years. While according to the technical data of smartphones by Gartner (2008), with the growth rate of 119.6% in the second quarter in 2008, HTC Corporation far excels the 15.7% of other smartphone groups (MIC, 2008). Whether it is among the mobile phone industry or the smartphone groups, it is clear that HTC Corporation performs well in its business and profitability.

CONCLUSIONS AND IMPLICATIONS

Based on the case study of HTC Corporation in the previous Section, the correlation between the development of dynamic capabilities and collaborative network as well as its business model and financial performance is elaborated below based on research findings:

1. According to the analysis on the dynamic capabilities and collaborative network of HTC Corporation, the company consolidated its business success by focusing on the popular products within the business smartphone group. It created competitive advantages that are superior in value, quality, effectiveness and innovation than its competitors through the development of dynamic capabilities at different stages and the establishment of a collaborative network with upstream and downstream industries.

2. It is also discovered in the financial performance analysis that the company has competitive advantages in terms of market growth rate, relative market share, net profit margin, return on assets and return on equity. Its ratios, overall, excel that of the mobile phone industry,
Management implications

The results of the case analysis has following implications on corporate business management:

1. Wheeler (2002) states that the decreasing life cycle of high-tech products are making market competitions increasingly dynamic and unpredictable. The advent of hypercompetition era means the weight of organisational competition guiding principles is gradually shifting. Carlsson (2004) considers the conventional resource-based theory inadequate in the hypercompetitive era of high-tech products, as it advocates the building of unique capabilities through internally controlling rare and valuable resources and capabilities. Theory of dynamic capabilities should be incorporated, with emphasis on the capabilities to develop phasic products swiftly and attract social capital. The theory focuses on industry value chain of strategic partnerships among firms to acquire sustainable competitive advantages in the market. The empirical analysis of HTC Corporation by the study conforms to the arguments of Wheeler (2002) and Carlsson (2004).

2. Dynamic technical resources and business management of enterprises are crucial determinants to their success. HTC Corporation is a new business of VIA Technologies, Inc., Taiwan, and has R&D personnel and technology. Its business management capability in the information and communication industry allows fast and good performance in the mobile phone industry. More importantly, the phasic development of the company maintains the innovation in its capabilities and functional strategies in research and development, production and marketing.

3. A strategic partnership between firms in the upstream, midstream and downstream in the business environment of hypercompetition and dynamism, is one of the major factors in the successful establishment of business model of sustainable competitive advantages. The strategic alliance that HTC Corporation built with its operating system firms in the upstream stabilises the R&D of its product technology, while its collaboration with telecommunications providers in the downstream expands the business market.

4. Companies must continuously innovate its business strategies at corporate level in response to market competitions in the industry or strategic groups and changes to product life cycle. The business model of HTC Corporation follows the condition of competition in the smartphone market and undertakes phasic innovations. It adopted the differentiation focus and targeted the most profitable business in the Taiwanese mobile phone industry. However, following the changes in business environment and product competition, HTC Corporation is faced with the crises of decreased profit and an erosion in the market of original products, and has now gradually expanded its business to include the market of general consumer smartphones.

RESEARCH LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

The subject of this study is the high-tech mobile phone industry and is based on the case-study research methodology. Due to limitations on resources, manpower and time, research and investigation of a greater scope are not being able to be carried out. Furthermore, the scope of application of research findings is restricted as, unlike business models of conventional industries, high-tech industry is fast changing, highly competitive and has shorter product life span. Different manufacturer or product in such industry also has different business model and strategies.

Finally, the research analysis framework and individual business models established by the study can be used in future research or applied to actual practices. In the era of globalization and hypercompetition, the definition and scope of high-technology industry will gradually expand.
and become blurred. General business models and related subjects of debate concerning the industry are worth further studies by scholars of the field.

REFERENCES
