

The effect of global dynamic capabilities on internationalizing SMEs performance

Organizational culture factors as antecedents

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Effect of GDCs
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Abstract

Purpose – Based on a dynamic capability (DC) view, the purpose of this paper is to explore whether market orientation (MO) (external) and learning orientation (LO) (internal) facilitate internationalizing small- and medium-sized enterprises' (ISMEs) global dynamic capabilities (GDCs) – i.e., their global marketing and product-design capabilities – and promote firm performance.

Design/methodology/approach – Empirical data are randomly selected from Taiwanese ISMEs, yielding 206 valid responses. Informants' (CEOs, vice presidents, senior managers) knowledge about and shouldering of firm responsibilities are explored.

Findings – A significant increase in global marketing and product-design capabilities is found to affect firm performance. MO and LO positively influence GDCs, which increase firm performance. Furthermore, LO and MO support GDCs' development.

Research limitations/implications – The sample is reasonably diverse in terms of demographics including firm location, size, industry, and market type. Disaggregation results are generally robust regarding model parameters. However, future research should target different countries to assess result generalizability.

Practical implications – The findings reveal two practical implications for managers. First, successful GDCs help firms spread the costs of designing products or components across many contexts and to offer appealing products to consumers worldwide. Second, it is important that managers foster development of MOs and LOs.

Originality/value – The study contributes to the literature in two ways. First, by conceptualizing GDCs of ISMEs, DC literature is expanded based on a global context. Second, the complexity of extending DC literature into ISMEs may arise from the fact that ISMEs, as separate and living entities, devise their own organizational culture, which significantly affects their GDC development.

Keywords Learning orientation, Market orientation, Global dynamic capability

Paper type Research paper

Introduction

Departing from the dynamic capability (DC) view of firms, this study explores which organizational capabilities impact small- and medium-sized enterprises' (SMEs) performance (Knight and Cavusgil, 2004; Jantunen *et al.*, 2005). DCs comprise a critical factor that enables firms to seize opportunities in dynamic environments (Teece *et al.*, 1997; Ho and Tsai, 2006; O'Cass and Weerawardena, 2010). Firms that are unable to adapt to changing environments inevitably fail. Specifically, the emergence of the knowledge economy, intense global competition, and considerable technological advancements have made DCs increasingly important to international competitiveness. This suggests that a better understanding of the origins of capabilities is needed under a dynamic international context (Özsoyner and Simonin, 2004; Hsu and Chen, 2009).

To integrate the literature on DCs with international marketing literature, global dynamic capabilities (GDCs) are defined according to the responsiveness and efficiency of internationalizing firms' processes for maintaining existing customer value, and creating



value-adding products and market niches in response to foreign-market changes. Scholars define DCs as a firm's ability to integrate, build, and reconfigure diverse capabilities, both inside and outside the firm, in response to changing environmental conditions (Tece *et al.*, 1997). Unlike SMEs in other countries, those in Taiwan account for 95 per cent of the country's industrial development. This leads to an important question: why do DCs impact Taiwanese internationalizing SMEs (ISMEs)? Due to resource shortages and expansion limitations, SMEs maximize their resources for internationalization in order to access more markets and opportunities. Thus, DCs should be further differentiated. GDCs are conducive to ISMEs in that they enable SMEs' rapid response to customer demands from different markets as SMEs expand globally, and support them in creating customer value. Therefore, GDCs differ from DCs in terms of both the actors themselves and the target customers. While DCs are embedded within firms in general, GDCs are embedded within internationalizing firms. Moreover, the focus on foreign customer value distinguishes GDCs from DCs in general. Although abundant empirical studies have considered DCs, the lack of a solid empirical foundation for the effect of GDCs on ISMEs leaves a gap in the DC-related literature. Therefore, this study aims to outline the effect of GDCs on firm performance, and clarify which types of GDCs contribute most to SMEs' performance.

This study considers the following research areas. First, drawing upon the typology proposed by previous literature, it analyses how GDCs can be operationalized to best facilitate ISMEs' performance. Second, it investigates how internal and external factors contribute to improving and extending GDCs for SMEs' internationalization.

Although DC theory is cited in international marketing studies (Jantunen *et al.*, 2005; Knight and Cavusgil, 2004), few studies have attempted to conceptualize and operationalize GDCs and assess their direct effect on performance. Similar to DCs (Winter, 2003; Zahra *et al.*, 2006), GDCs are a high-order construct that includes various core capabilities, such as innovation, branding, operation, marketing, design, etc., in the global context. Chiarvesio *et al.* (2004) argue that globalization and the widespread diffusion of ICTs lead traditional SMEs to develop design and marketing capabilities that they previously would have been unable to foster. Though Day (1994) states that DCs can be classified in various ways in different research situations, most scholars divide DCs into explorative capabilities and exploitative capabilities (Eisenhardt and Martin, 2000; Fainshmidt *et al.*, 2016; March, 1991; Prange and Verdier, 2011; Zhan and Chen, 2013). However, most SMEs engage in internationalization through exportation. Identifying ways of marketing and designing products suitable for overseas customers is a major task. To make the GDC measurement more specific, this study focusses on capabilities of marketing (O'Dwyer *et al.*, 2009) and design (Cantamessa, 1999; Swan *et al.*, 2005) as crucial components of GDCs and potential key drivers of ISMEs' performance, since excellent embedded marketing and design capabilities can help firms respond to fast-changing demands from foreign customers and market opportunities through effective pricing, promotion, channel management, new product development, and high quality (Knight and Cavusgil, 2004). Particularly for ISMEs, handling the increasingly sophisticated demand of globalized customers and predicting fast-changing technological development are important factors of GDCs.

Alongside addressing how an SME's GDCs affect firm performance, this study aims to fill another research gap by addressing a second overarching question: how does an ISME develop its GDCs? Zollo and Winter (2002) cite the efficacy of capability-building supporting mechanisms as contingent upon the attribution of selectively assigning organizational tasks. However, scant empirical research focusses on internal and external supporting mechanisms that promote ISMEs' GDCs, such as market (Hooley *et al.*, 2005; Hult *et al.*, 2005; Ho and Tsai, 2006) and/or learning orientation (LO) (Baker and Sinkula, 1999) – which are considered the most important organizational cultures by Narver and Slater (1990) and

Baker and Sinkula (1999). Consistent with the path-dependent nature of capabilities (Schreyogg and Kliesch-Eberl, 2007; Wang and Ahmed, 2007), it is vital to examine the influence of organizational culture mechanisms (market orientation (MO), which refers to internal culture, and LO, referring to external culture) on GDCs through foreign-market growth and expansion of SMEs' internationalization. Evaluating these contributions clarifies organizational culture mechanisms regarding how and which GDCs are created and managed.

To achieve these objectives, this study first defines the broad theoretical context, and then explores the role of capability-building supporting activities and GDCs, and subsequent performance in ISMEs. This study contributes to existing research in three main ways. First, it investigates the phenomenon of internationalization among a unique breed of Taiwanese SMEs. Second, it emphasizes the importance of two key GDCs (global marketing capabilities (GMCs) and global product-design capabilities (GPDCs)) that SMEs leverage for superior performance. By exploring ISMEs in Taiwan, this study provides empirical evidence that GDCs positively drive SMEs' performance. This evidence forms a solid foundation for Teece *et al.*'s (1997) and Eisenhardt and Martin's (2000) contention about the importance of DCs, and contributes to international marketing literature by establishing SMEs' GDCs as a key determinant of superior performance. Finally, and more specifically, the study examines the critical linkages among MO, LO, and GDCs in SMEs' performance.

Literature review and research hypotheses

Studying SME internationalization

Internationalization is a continuous concept; this means that the degree of an SME's internationalization will deepen with the progress of its product lifecycle. Sandberg (2013) views internationalization as an incremental process driven by the interplay between learning about international business operations, and commitment to international markets that require market- or customer-specific knowledge. Through learning from international markets, SMEs can manage and control these markets and thus quickly analyse, segment, and interpret their actual demands to provide customers with the commodities they need (Cadogan *et al.*, 2009). Cadogan *et al.* (2009) state that the concept of internationalization covers two core elements: scope and scale. Scope refers to the fact that SMEs can adapt the products to potential international markets and collect consumption information derived from each market through market-oriented behaviours. Thus, SMEs can integrate, spread, analyse, interpret, and identify extensive information quickly, and absorb improvement suggestions to enhance current products and marketing methods for customers and competitors in international markets (Zhou *et al.*, 2009). Scale refers to the quantity and amount of SMEs' total sales in a specific region, city, or country. When total sales in a region increase, SMEs must seek cost-reducing methods through the learning process (Atuahene-Gima *et al.*, 2005). The larger the scale of internationalization, the more active SMEs will be in monitoring and responding to environmental changes (Slater and Narver, 1994), focussing on the characteristics of different customers, and learning to adapt to changing customer demands to reduce customer complaints and inventory costs. Therefore, exploring the development of SMEs' GDCs and the relationship between GDCs and performance is becoming increasingly important in internationalization theory.

GDCs

Organizational capability pertains to an enterprise's ability to coordinate, integrate, and effectively apply resources in response to external competition (Lawson and Samson, 2001; Dutta *et al.*, 2003). In response to environmental changes, strategies should be adapted, integrated, and reconfigured to both internal and external skills and resources. Eisenhardt and Martin (2000) define DCs as a "firm's processes that use resources – specifically, processes to integrate, reconfigure, gain and release resources – to match and even create

market change” and “organizational and strategic routines by which firms achieve new resources and configurations as markets emerge, collide, split, evolve, and die” (p. 1107). Through these processes, firms integrate, reconfigure, renew, and recreate resources and capabilities (Morgan *et al.*, 2003) and, most importantly, upgrade and reconstruct core capabilities in response to the changing environment to attain and sustain competitive advantage (Wang and Ahmed, 2007).

Following Teece *et al.* (1997) and Eisenhardt and Martin’s (2000) definition of DC, previous studies highlight a positive relationship between DC and firm performance, stating that DCs entail a systematic change of efforts and cumulative efforts of capabilities over time (Hsu and Wang, 2012). Cadogan *et al.* (2002) suggest that local and global differences impact firm performance to a large extent. In this vein, few studies advance the notion that firms compete based on DCs in foreign markets (Prange and Verdier, 2011), especially multinational enterprises (MNEs), which typically face fast-moving environments and fierce global competition (Teece, 2007). Helfat and Winter (2011) state that the world is always changing; thus, if local thinking is used to observe global firm phenomena, it may mask important changes in an organization’s strategy or capabilities. Therefore, reviewing the structure and operation of DC from a global perspective will facilitate theory building in this field and develop more managerially relevant insights (Zhan and Chen, 2013).

In the internationalization context, Prange and Verdier (2011) define DCs as a firm’s learning, improving, changing knowledge, and routines to develop capabilities (including via “exploitation” vs “exploration”) in order to influence internationalization success (growth and survival). Augier and Teece (2007) suggest that, compared with firms operating locally, MNEs have more stringent requirements for quick innovation, adaptation and flexibility, co-specialized resources, getting “approvals” for non-routine activities, sensing business opportunities, and finding ways to deploy capabilities globally. Therefore, compared with DC, GDC focusses on the integration of non-repetitive resources and implicit knowledge to establish the firm’s propensity to sense opportunities and threats, and increase its timely and incentive-market-sensing competence. To integrate literature on DCs with internationalization theory, GDCs are defined here as responsiveness and efficiency of ISMEs’ processes for maintaining existing customer value and creating value-adding products and market niches in response to foreign-market changes.

GDCs can be distinguished from DCs in terms of their creation, implementation, and delivering of market values to foreign customers (Fang and Zou, 2009). First, GDCs reflect the speed of an organization’s cross-functional creation and delivery of customer value in response to foreign-market changes (Hult *et al.*, 2005). Second, GDCs are resource combinations that are difficult to imitate, including effective coordination among inter-organizational relationships, on a global basis, that generates a sustainable competitive advantage for the firm (Augier and Teece, 2007). Such abilities entail: developing systemic global coherence while recognizing unique features of each country’s environment to facilitate customization of an individual country’s strategies (Hsu and Chen, 2009); and adapting, integrating, and reconfiguring internal and external assets to match opportunities in global marketplaces (Chen and Jaw, 2009; Eisenhardt and Martin, 2000). To seize such opportunities, ISMEs must prepare to circumvent environmental uncertainties in foreign markets (Luo, 2000). GDCs enhance firms’ power in global relationships, coordination in inter-organizational activities, and response speed and flexibility regarding global competitors’ strategies (Eisenhardt and Martin, 2000; Teece *et al.*, 1997). Thus, GDCs require a strong base of established capabilities or resources, and the firms have to efficiently integrate and synthesize both internal resources and external information and apply them to competitive environments (Hsu and Chen, 2009). These efforts and capabilities are vital to SMEs’ survival and foreign-market growth (Prange and Verdier, 2011).

Bartlett and Ghoshal (2000) argue that firms need organizational capabilities to get better returns from leveraging their strategic strengths internally, rather than through external market mechanisms such as contracts or licenses, which explicitly specify needs for multidimensional GDCs. According to the definitions of DC and GDC, the processes for reconfiguring an organization's resources and operational routines create a strategic competitive advantage and sustainable economic value. To achieve both goals, this study takes Augier and Teece's (2007), Hsu and Wang's (2012), Prange and Verdier's (2011), and Zhan and Chen's (2013) suggestions to divide GDCs into GMCs and GPDCs, since both capabilities can help firms handle increasingly sophisticated demands of globalized customers and predict fast-changing technological development. The majority of studies (Teece *et al.*, 1997) agree that developed capabilities strengthen ISMEs' competitive advantage in turbulent environments.

Relationship between GDCs and firm performance

GMCs and firm performance. Marketing capability is usually seen as the capacity to coordinate and integrate internal resources and skills to address rapidly changing markets or customer needs. Operating marketing capability relies on internal routines and processes while integrating knowledge, skills, and resources (Morgan *et al.*, 2003). Morgan *et al.* (2009) empirically verify value-creation mechanisms of marketing capability as immobile, difficult to replicate, and largely non-substitutable (Vorhies and Morgan, 2005). Interrelated processes include the individual "marketing mix" (Vorhies and Morgan, 2005; O'Cass and Weerawardena, 2010), and marketing strategy development and execution (Morgan *et al.*, 2003). Some scholars provide a hierarchical framework of capabilities wherein marketing mix capabilities are lower-level capabilities, and marketing strategy development capabilities are higher-level capabilities (O'Cass and Weerawardena, 2010). Since implementing the former is necessary for the latter, this paper focusses on four marketing mix capabilities based on the 4Ps of marketing: pricing, product management, place (distribution), and promotion (marketing communication). These capabilities are chosen because they are addressed in extant literature (Vorhies and Morgan, 2005) and because the 4Ps are a prominent concept across countries at various stages of development or manifesting cultural properties (Özsoy and Simonin, 2004).

Different DCs could have varying strengths based on global context. Current literature assumes that possession of GDCs leads to organizational growth or survival (Prange and Verdier, 2011). In international business studies, evaluations of firm performance vary based on research objectives. Most studies measure overall firm performance based on performance attributes, including economic and non-economic performance. For example, Fang and Zou (2009) use financial performance as an indicator. Based on differences between economic and non-economic performance, this study refers to Vorhies and Morgan (2005) and operationalizes performance as a multidimensional construct, reflected by growth and profitability.

GMCs may be viewed at various levels in firms across different functional areas (Eisenhardt and Martin, 2000). However, capabilities relating to marketing resource deployment are usually linked to marketing function (Dutta *et al.*, 2003). These GMCs may be rare, valuable, non-substitutable, and inimitable sources of advantage (Dutta *et al.*, 2003; Vorhies and Morgan, 2005; Morgan *et al.*, 2009) that facilitate ISMEs to face foreign environmental changes through the creation and delivery of superior customer value, and thus enhance profitability (Fang and Zou, 2009). Additionally, GMCs decrease a product's time to market by reducing the time needed to adapt to local specifications (Morgan *et al.*, 2003). Oliver *et al.* (2009) indicate that international marketing standardization enables firms to exploit superior products and operations in multiple markets, for greater control over international operations. In particular, when international firms' marketing skills and

competencies are clearly established (Vorhies and Morgan, 2005), their success in foreign-market growth will be ensured (Fang and Zou, 2009). For example, firms with greater GMCs focus on global marketing communication activities related to building a strong brand identity, which extends and improves the product lifecycle to provide more value-adding products (Eng and Spickett-Jones, 2009). By accumulating experience and lessons, ISMEs learn how to avoid repeating mistakes, reduce production and/or transaction costs, and enhance mutual understanding and problem coordination and solving. Thus, an international SME with better GDCs in terms of GMCs is expected to have better growth and profitability in global marketplaces. Hence:

H1. GMCs are positively associated with firm profitability and growth.

GPDCs and firm performance. Product development and design are vital functions in expanding and utilizing firm knowledge, particularly in global competition (Slater and Narver, 1998). Accordingly, robust design capabilities offer greater potential to develop acceptable products to broader targeted segments, events, and/or conditions, with anticipated organizational benefits offsetting costs (Cantamessa, 1999). Implementation of robust design is expected to reduce the number of new components, parts, materials, and technologies across a product family over time. Such implementation means increasing product line variety, lowering manufacturing costs, speeding up technological improvement of products, expediting new-product marketing, and thereby increasing the number and size of target segments (Rindova and Petkova, 2007). Application of robust design in product development is somewhat evident in modular architectures. Robust products result from processes and knowledge for high versatility across uses, technologies, and situations (including geographies); however, lean products arise from optimized or invariant design for specific uses, with limited thought regarding possible changes in technology and usage.

Broadly, GPDCs for creating products, processes, and knowledge architectures that are robust across uses, technology changes, and contextual differences emerge. Swan *et al.* (2005) propose four types of capabilities contributing to firm performance: functional, aesthetic, technological, and quality related. Each functional area potentially has robust capabilities, either alone or in conjunction with other areas. By definition, robust functional product breadth capability involves designing products with similar technologies but with versatility or adaptability extended to a prominent family of variants that are concurrently usable or easily modifiable for domestic and foreign uses. Robust aesthetic product capability entails making products visually informative and desirable across domestic and/or multiple foreign markets. Robust technology capability comprises selecting core product technologies and materials that satisfy technical and customer requirements regarding both present and future product generations. Robust quality-based capacity comprises solving problems in the design stage (Kaynak, 2003) to proactively eliminate deviations from established requirements in multiple contexts (manufacturing, assembly, and customer usage situations) (Swan *et al.*, 2005).

Literature suggests that robust design capabilities support positive performance outcomes and faster marketing, which are important for several aspects of robust design, including its impact on variety. Reaching multiple segments through robust design expedites roll-out across national boundaries and uses. Functional capability typically enables firms to leverage resources and create sustainable competitive advantage through robust functional design, which contributes to market performance (Swan *et al.*, 2005). Swan *et al.* (2005) highlight the value of capabilities that promote aesthetic semantics; successful aesthetic capability promotes peripheral, visual, and interfacial innovations, which allow successful products to use core functionality while extending usages and environmental/cultural differences in other markets as they become known (Rindova and Petkova, 2007). Rapid improvement of operational performance depends on quick

accumulation and sustaining of different types and levels of “routines” and “innovative” technological capabilities. To differentiate GPDCs from general DCs, international firms must develop know-how in product design, and technical skills in new-product planning and development for broad foreign markets, to deliver high-quality and value-adding products (Eng and Spickett-Jones, 2009). In this way, demand elasticity will decrease, which enables firms to increase both prices and profits (Kaynak, 2003). Moreover, improvements in product quality reduce waste, rework, and scrap, while boosting productivity to a lower cost structure.

GPDCs as a source of competitive advantage are treated as a capacity for professional design (Cantamessa, 1999). Considering that winning a design award as a new and innovative form of competitive advantage requires exploitation of existing firm-specific design capabilities (Rindova and Petkova, 2007), GPDCs would be one prerequisite for winning such awards. GPDCs are generally embedded in routines of a firm’s design sector or unit, which mainly seeks to provide effective designs (Swan *et al.*, 2005). In global markets, where customer demands rapidly evolve, international firms may need to focus more on product innovativeness than on continuously improving quality (Chen and Jaw, 2009). Thus, international firms with superior GPDCs are expected to gain two advantages: innovative product design delivers sustainable growth of financial benefits for companies, and product quality is relative to customers’ perceptions of product value, hence extending to its success in the global marketplace. Thus:

H2. GPDCs are positively associated with firm profitability and growth.

Developing GDCs in ISMEs

Two causal mechanisms contribute to GDC development in ISMEs: MO and LO (Baker and Sinkula, 1999). Given capability-building support, managers can devise the organizational context, such as organizational structure and organizational culture, to enhance efficiency and responsiveness of resource integration, combination, and deployment (Hult *et al.*, 2005). Chen and Jaw (2009) claim that GDCs adapt, integrate, and reconfigure internal and external assets to match opportunities in a global context. SMEs implement series of support activities to pinpoint internal and external assets to be adopted, integrated, and reconfigured, where MO focusses on sensing external market information (Ho and Tsai, 2006; Teece, 2007; Wang and Ahmed, 2007) and LO on acquiring, assimilating, transforming, and applying internal knowledge (Eisenhardt and Martin, 2000; Zollo and Winter, 2002). This study considers a better way to build GDCs as facilitating adaptation of support activities for MO and LO (Baker and Sinkula, 2002).

Capability-building support activity: MO. Kohli and Jaworski (1990) and Narver and Slater (1990) suggest that actions, decisions, and attitudes of senior managers “trickle down” organizational levels to employees charged with implementing strategies. A strong (market-oriented) culture (Knight and Cavusgil, 2004; Hooley *et al.*, 2005; Hult *et al.*, 2005) entails pervasiveness and consistency of shared (customer-satisfaction-focussed) values, which foster open functional communications, frequent customer contact, enquiries into customer problems, and shared efforts to solve those problems. This study adopts Narver and Slater’s (1990) perspective, wherein MO includes three components: customer orientation, competitor orientation, and interfunctional coordination. Most authors agree that all three factors are key to offering a holistic view of firms’ ability to collect and use market information effectively (e.g. Narver and Slater, 1990).

Globalization facilitates customers to be better organized, better informed, and generally more demanding (Knight and Cavusgil, 2004). MO may be a particularly crucial capability-building supporting mechanism that highlights what information organizations should undertake, and how this should be handled to match market

conditions (Slater and Narver, 1995; Ho and Tsai, 2006). Based on the export venture context, Morgan *et al.* (2003) propose two types of export knowledge from knowledge-based theory: market information and experience-related knowledge. The former concurs with the KBV's conceptualization of "informational" ("declarative" or "know-what") knowledge of customers, competitors, and channels (Morgan *et al.*, 2009), and broader environmental data organized to give meaning. The latter is consistent with the KBV's conceptualization of "experiential" ("procedural" or "know-how") knowledge concerning accumulated skills that effectively and efficiently accomplish required tasks. Establishing market-oriented culture favours ISMEs in getting accesses to more overseas market information, such that they implement all marketing strategies and make product development decisions more accurately using extensive information about customers, competitors, and domestic markets (Morgan *et al.*, 2003). These enhance SMEs' GMCs and GPDCs. Additionally, though GMCs and GPDCs may result in low-level target overlap due to differences in business requirements, both aim to create superior customer value and satisfaction (Jantunen *et al.*, 2005; Menguc and Auh, 2008). While creative products are transferred to potential customers so that customer value can be created through GPDCs (Kaynak, 2003), through products with additional value created by the marketing mix, firms can meet customer demands with GMCs (Chen and Jaw, 2009; Hult *et al.*, 2005). To understand how internationalizing firms refine their foreign-market performance, MO highlights capability-building support activities to embed available informational and experiential knowledge (Baker and Sinkula, 2002; Knight and Cavusgil, 2004) in relevant GDCs. Likewise, within foreign markets, firms may seek more market knowledge compared to those in local markets, to select the most productive available resource combinations that enable them to be effective and efficient in marketing and product-design strategies (Morgan *et al.*, 2009). Thus:

H3a. MO positively correlates with GMCs.

H3b. MO positively correlates with GPDCs.

Capability-building support activity: LO. Baker and Sinkula (1999) view LO as a series of organizational values related to an exporter's tendency to create and use knowledge, as well as an advanced learning concept (double-loop learning). These values encourage organizations to perfect existing paradigms and facilitate paradigm transfer. LO also reflects exporters' attitudes and cognitive status to obtain knowledge or face organizational values in knowledge processing. Thus, LO can increase the heterogeneity and range of exporters' knowledge and upgrade organizational effectiveness. Sinkula *et al.* (1997) explain LO from three dimensions: commitment to learning, which is whether an organization is likely to promote a culture of learning and whether value placed on learning activity can be viewed as axiomatic; open-mindedness, linked to the notion of unlearning (i.e. continuously questioning long-held routines, assumptions, and beliefs); and shared vision (a focus on learning that fosters energy, commitment, and purpose among members of an organization). While LO as a set of organizational values entails an ability to create, disseminate, and utilize knowledge (Sinkula *et al.*, 1997), it goes beyond adapting to marketplaces changes, relating to knowledge-questioning values that induce generative learning (Sinkula *et al.*, 1997). Organizational learning culture will thus manifest in behavioural norms that affect market information development and processing.

GDCs can be obtained by mechanisms of LO, as well as of organizational internal knowledge integration (Baker and Sinkula, 1999, 2002). Liu (2005) proposes that competitive advantage is built by DCs via knowledge-learning procedures. Additionally, integrative learning mechanisms of internal knowledge promote DCs and enhance competitive advantage (Eisenhardt and Martin, 2000). Lumpkin and Lichtenstein (2005) propose that organizational learning

(e.g. improving practices and expanding into new arenas by creating new knowledge, building new understandings, and detecting and correcting misalignments) may bolster entrepreneurial efforts. Jantunen *et al.* (2005) cite value creation via recognition of entrepreneurial opportunities and proactive strategic orientation as crucial to the DC framework. Prior organizational learning research identifies abilities to leverage the existing knowledge base by transferring and combining knowledge to develop superior organizational capabilities as a driver of firms' success in adapting to environments regarding product and process innovation, managing competitive and regulatory risks, and utilizing resources efficiently. As GDCs centre on resource integration and alignment, a learning culture facilitates shared interpretation of knowledge, increases efficiency and speed of developing organizational routines within the international firm (Slater and Narver, 1995), and helps turn accumulated resources into GMCs and GPDCs (Fang and Zou, 2009). Thus, ISMEs with high LO will rely on learning activities to develop GDCs. Hence:

H4a. LO positively correlates with GMCs.

H4b. LO positively correlates with GPDCs.

Building on the above arguments, the authors thus present Figure 1.

Methods

Sampling and data collection procedures

Most empirical studies correlate DCs with firm performance and/or examined success (or failure) of firms in developed nations, including the USA (Knight and Cavusgil, 2004; Swan *et al.*, 2005), Australia and New Zealand (O'Cass and Weerawardena, 2010), the UK (Morgan *et al.*, 2003), and Finland (Jantunen *et al.*, 2005). As the target population in the current study is Taiwanese SMEs, purposive sampling was adopted. Moreover, in emerging economies, firms typically grow both domestically and internationally to accommodate institutional peculiarities; indeed, in Taiwan ISMEs are key players. According to Blomstermo *et al.* (2004), to qualify as "internationalizing", SMEs must: have a contract with a new distributor or agent in a new country, have considerable international expansion of business conducted with an existing customer, conduct business with one or more new customers within an existing international market, enter new country markets with existing

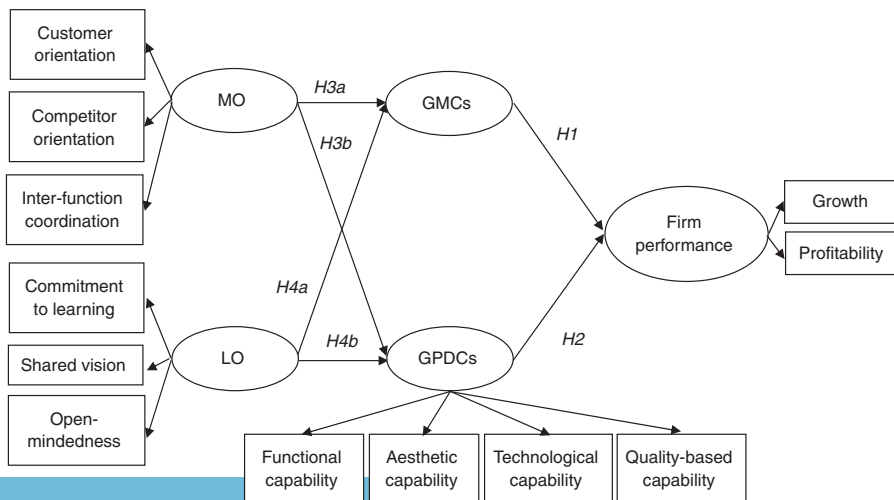


Figure 1. Conceptual framework

customers, and do business with new customers within a new international market. These features were reflected in the study questionnaire. Taiwanese ISMEs are thus appropriate for this research on the relationship between GDCs and firm performance. To enhance the primary data's variability and generalizability, a cross-sectional survey was conducted. Individual product-export-oriented SMEs were selected as the unit of analysis. Service and large firms were excluded from the sample because of their idiosyncratic international expansion patterns and performance characteristics (Morgan *et al.*, 2003). To differentiate DCs and GDCs, informants were asked to double-check their global context before reporting scale items of GMCs and GPDCs.

Here, SMEs were defined as firms having fewer than 500 employees. Pretest results indicated that potential respondents were positively disposed towards university-sponsored research, which improved trust and response rates (a critical concern when collecting product development and performance data). Subsequently, informants' (CEOs, vice presidents, senior managers) knowledge about and shouldering of firm responsibilities were measured. Top managers were selected as information providers as they can master most companies' businesses and are familiar with actual situations of internationalization, capability development, and company operations. Each survey package contained a covering letter explaining the survey purpose, the questionnaire, and a postage-paid envelope. The authors sent 1,000 questionnaires and received 224 responses (22.4 per cent response rate). After eliminating 18 invalid questionnaires, 206 valid ones remained (20.6 per cent effective response rate). Most respondents (82.73 per cent) were located in the electronics, electric appliance, metal, machinery, plastics, textiles, and automobile manufacturing industries; 20.6 per cent had been established for three to ten years, 32.8 per cent for 11-20 years, 21.9 per cent for 21-30 years, and 24.7 per cent for 31 or more.

Measures

Consistent with extant literature, MO was operationalized as a higher-order construct of customer orientation (six items), competitor orientation (four items), and interfunctional coordination (five items), as per Narver and Slater (1990).

Following Baker and Sinkula's (1999) study, LO is defined as a "higher-order construct composed of commitment to learning, shared vision, and open-mindedness" (p. 413), comprising four items for commitment to learning, five for shared vision, and another four for open-mindedness.

GMCs were measured with a seven-point measure developed by O'Cass and Weerawardena (2010) to capture firms' capacity to use marketing tools and reach target global markets effectively, by focussing on firms' capability to undertake key marketing functions in the global context.

A conceptual framework by Swan *et al.* (2005) was used to identify four dimensions to measure GPDCs. Functional capability was measured by the amount of time (total hours), resources (total dollars), relative time commitment, and relative resource commitment spent on designing products that could be easily stretched into a family of products usable across domestic and foreign markets. Aesthetic capability captured the amount of time, resources, relative time commitment, and relative resource commitment spent on designing products to be visually acceptable across domestic and multiple foreign markets. Technological capability was measured via the amount of time, resources, relative time commitment, and relative resource commitment spent on selecting core product technologies that both satisfy present requirements and apply to future product generations. Quality-based capability represented the amount of time, resources, relative time commitment, and relative resource commitment to solving problems in the design stage, which increases manufacturability, ease of assembly, usability, and reliability of products.

Firm performance was measured with eight formative-scale items (seven-point scale) suggested by Li and Atuahene-Gima (2001), and following Prange and Verdier's (2011) two key factors affecting firm performance: growth and profitability. Respondents indicated firm performance over the previous three years relative to firm objectives.

Control variables were as follows. First, firm size is an important factor affecting firm performance. The upper boundary for SMEs lacks consensus, but is commonly 499 employees (Hooley *et al.*, 2005). Employee numbers between 1 and 499 cover diverse resource endowments and behaviours, leading researchers to distinguish small (fewer than 100 employees) from medium-sized (100-499) firms. Thus, a cut-off of 100 is often used in prior research (Bonaccorsi, 1992) and is also applied here. Alongside international experience, marketing/advertising and R&D expenditures (Swaminathan and Moorman, 2009; Hsu and Chen, 2009) were included in the models because of their potential impact on GDCs' development and firm performance. Marketing/advertising expenditures were calculated via the amount of advertising and promotion expenditures as a percentage of the firm's total sales revenue. R&D expenditures were calculated via the amount of these expenditures as a percentage of the firm's total sales revenue.

Reliability and validity

All scales used in this study were found to be reliable, with Cronbach's α ranging from 0.536 to 0.939 (Table II). Although the Cronbach's α values for the "vision" and "open-mindedness" constructs were lower than 0.7, they were still considered to be within the acceptance range (Nunnally, 1967). Confirmatory factor analysis was used to verify the construct validity (both convergent and discriminant) of the scales. Hair *et al.* (1998) recommended convergent validity criteria as follows: standardized factor loading of higher than 0.5 (Table I); average variance extracted (AVE) above 0.5; and composite reliability above 0.5. The evaluation standard for discriminant validity is the square root of AVE for one dimension greater than the correlation coefficient with any other dimension(s). Regarding the scale's validity, this study eliminated distribution and promotion and advertising in the following analyses because the factor loadings of these items were lower than 0.5. Results showed that standardized loadings ranged from 0.52 to 0.98, and most exceeded 0.50 threshold value. As Tables I and II indicate, all three criteria for convergent validity were met.

MO, LO and GPDCs are often higher-order constructs in nature, with items measuring them as indirect reflective measures of both second- and first-order factors associated with them, where the MO, LO, and GPDCs are umbrella terms for multiple sub-constructs. GPDCs are often conceptualized as a four-dimensional construct, MO as a three-dimensional construct, and LO also as a three-dimensional construct. In this study, these higher-order variables are reflective in nature, rather than formative, since Cadogan and Lee (2013) suggested that research should avoid developing and assessing a model containing a direct link from the antecedent variable to the aggregate endogenous variable. Using higher-order reflective variables in conceptual models is very dangerous, since one does not know the entity that one is modelling. Following Özturan *et al.* (2014), we preferred to use parcels for measure validation so that scales were comparable and consistent with the previous work. Parcels are averages of uneven and even numbered items in a scale. All factor loadings of item parcels were greater than 0.50 and significant at $p < 0.01$. Four measurement models fit well with the data, as seen in statistics for MO (RMSEA = 0.063, CFI = 0.966, NNFI = 0.952, GFI = 0.923), LO (RMSEA = 0.057, CFI = 0.966, NFI = 0.958, GFI = 0.934), GPDCs (RMSEA = 0.072, CFI = 0.946, NFI = 0.943, GFI = 0.930), and firm performance (RMSEA = 0.066, CFI = 0.963, NFI = 0.960, GFI = 0.935). Six constructs comprised the final model: firm performance, GMCs, GPDCs, MO, and LO. Fit indices greater than the 0.90 benchmark (GFI = 0.95, AGFI = 0.93, TLI = 0.98, and CFI = 0.98) indicated that the data fit the model. Similarly, levels of misfit were tolerable, with RMSEA = 0.076 and

Second-order factor	First-order factor	Items	Loading	
Market orientation	Customer orientation	1. We closely monitor and assess our level of commitment in serving customer's needs	0.93	
		2. Business strategies are driven by the goal of increasing customer value	0.87	
		3. Our competitive advantage is based on understanding customer needs	0.94	
		4. Our business objectives are driven by customer satisfaction	0.91	
		5. We pay close attention to after-sales service	0.94	
	Competitor orientation	6. We frequently measure customer satisfaction	0.95	
		7. Top management regularly discuss competitors' strength and weaknesses	0.90	
		8. We respond rapidly to competitive actions	0.86	
		9. Customers are targeted when we have an opportunity for competitive advantage	0.94	
		10. Our salespeople share information about competitors	0.86	
	Interfunctional coordination	11. Top management regularly visits important customers	0.89	
		12. Information about customers is freely communicated throughout our organization	0.89	
		13. Business functions within are integrated to serve the target market needs	0.75	
		14. Our managers understand how employees can contribute to value of customers	0.75	
		15. We share resources with other business units	–	
Learning orientation	Commitment to learning	1. The sense around here is that employee learning is an investment, not an expense	0.74	
		2. The basic values of this organization include learning as key to improvement	0.68	
		3. Learning in my organization is seen as a key commodity necessary to guarantee organizational survival	0.77	
		4. Managers basically agree that our organization's ability to learn is the key to our competitive advantage	0.75	
		5. All employees are committed to the goals of the organization	0.73	
	Shared vision	6. There is total agreement on our organizational vision across all levels, functions, and divisions	0.66	
		7. There is a commonality of purpose in my organization	0.67	
		8. Employees view themselves responsible for the direction of the organization	0.72	
		9. Employees view themselves as partners in charting the direction of the organization	0.63	
		Open-mindedness	10. Managers basically agree that it is important to accept diverse viewpoints	–
			11. We are not afraid to reflect critically on the shared assumptions we have made about our customers	0.76
			12. Our organization pays much attention to original ideas	0.73
			13. The culture in our organization emphasizes continuous innovation	0.69
How more does your company operate on global marketing mix (1 = limited and 5 = extensive)?				
Global marketing capability	1. Salespeople	0.63		
	2. Distribution	–		
	3. Promotion and advertising	–		
	4. Market research	0.77		

Table I.
Confirmatory
factor analysis

(continued)

Second-order factor	First-order factor	Items	Loading	Effect of GDCs on ISMEs performance	
Global product-design capability	Functional capability	5. Product differentiation	0.78	319	
		6. New product introduction	0.67		
		7. Marketing success	0.77		
		8. Marketing capability allows firm to compete	0.84		
			How satisfied does your company operate on global product-design activities (1 = very unsatisfied and 5 = very satisfied)?		
			1. Spent on designing this product to be easily stretched into a family of products usable across domestic and multiple foreign-market situations		0.77
			2. Spent on this capability vs the total time spent on the other three capabilities		0.97
			3. The relative resource commitment to R&D functional capabilities		0.97
		Aesthetic capability	4. Spent on designing this product to be visually acceptable across domestic and multiple foreign-market situations		0.95
			5. The relative time commitment to R&D aesthetic capabilities		0.98
			6. The relative resource commitment to R&D aesthetic capabilities		0.95
		Technological capability	7. Spent on selecting core product technologies that satisfy not only present requirements but are applicable to future product generations		0.95
			8. The relative time commitment to R&D technological capabilities		0.98
		9. The relative resource commitment to R&D technological capabilities	0.97		
	Quality-based capability	10. Spent on solving problems in the design stage that proactively eliminate deviations from established requirements in manufacturing and assembly	0.95		
		11. Spent on solving problems in the design stage that increase the usability and durability of the product in diverse customer usage situations	0.97		
		12. The relative time commitment to R&D quality capabilities	0.97		
		13. The relative resource commitment to R&D Quality Capabilities	0.97		
Firm performance	Profitability	How satisfied does your company perform over past three years (1 = very unsatisfied and 5 = very satisfied)?			
		1. Profitability	0.87		
		2. Return on investment	0.78		
		3. Return on sales	0.66		
			4. Return on assets	0.88	
			5. Cash flow from operations	0.52	
		Growth	6. Profit growth	0.79	
			7. Sales growth	0.77	
	8. Market share growth		0.59		

Table I.

RMR = 0.053 – i.e., below the relevant benchmark of 0.08. Additional tests conducted to support construct validity included normed χ^2 of 2.78 (less than the benchmark of 5) and SRMR = 0.035 (less than the benchmark of 0.08).

In addition, as Table II shows, most correlation coefficients were less than the square root of the AVE. Applying criteria that are more stringent, we believe that the “acceptable” discriminant validity reasonably accurately captures the level of fit that has been obtained here. In this study, we calculated the confidence interval of plus or minus two standard

Table II.
Measurement validity

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
MO ($\alpha = 0.938$)	5.13	0.88													
1. Customer orientation	5.23	0.96	(0.92)												
2. Competitor orientation	5.07	1.01	0.86*	(0.89)											
3. Interfunctional coordination	5.04	0.94	0.67*	0.67*	(0.82)										
LO ($\alpha = 0.867$)	5.01	0.82													
4. Commitment to learning	4.89	1.20	0.27*	0.27*	0.31*	(0.74)									
5. Shared vision	5.05	0.78	0.29*	0.22*	0.40*	0.60*	(0.73)								
6. Open-mindedness	5.12	0.94	0.22*	0.17**	0.39*	0.45*	0.73*	(0.73)							
7. GMCs	5.34	0.87	0.71*	0.61*	0.57*	0.30*	0.48*	0.39*	(0.75)						
GPDGs ($\alpha = 0.948$)	5.23	0.92													
8. Functional capability	5.41	0.97	0.65*	0.57*	0.49*	0.39*	0.45*	0.30*	0.84*	(0.91)					
9. Aesthetic capability	5.27	1.06	0.67*	0.59*	0.53*	0.20*	0.30*	0.22*	0.88*	0.82*	(0.96)				
10. Technological capability	5.28	1.04	0.58*	0.70*	0.51*	0.31*	0.32*	0.22*	0.74*	0.83*	0.78*	(0.96)			
11. Quality-based capability	5.01	0.99	0.51*	0.60*	0.56*	0.51*	0.45*	0.34*	0.72*	0.78*	0.72*	0.79*	(0.96)		
Firm performance ($\alpha = 0.907$)															
12. Profitability	5.42	1.05	0.73*	0.68*	0.60*	0.36*	0.43*	0.33*	0.78*	0.73*	0.67*	0.66*	0.59*	(0.72)	
13. Growth	5.26	1.18	0.71*	0.73*	0.65*	0.26*	0.29*	0.20*	0.72*	0.59*	0.73*	0.66*	0.60*	0.63*	(0.76)
Cronbach's α	-	-	0.914	0.823	0.811	0.939	0.536	0.610	0.838	0.875	0.885	0.820	0.821	0.895	0.823
CR	-	-	0.97	0.94	0.89	0.83	0.85	0.77	0.88	0.93	0.97	0.98	0.98	0.76	0.87
AVE	-	-	0.85	0.79	0.68	0.54	0.53	0.53	0.56	0.82	0.92	0.93	0.93	0.52	0.57

Notes: Numbers in italic denote the square root of AVE. * $p < 0.01$; ** $p < 0.05$

errors around the correlation between the factors, wherein if this interval does not include 1.0, discriminant validity is demonstrated (Anderson and Gerbing, 1988). Our results show that this criterion was met.

Results

The hypotheses were tested using hierarchical regression analysis. This analyses the proportion of variance shared exclusively with each additional variable. Table III shows the results of the models' main effect, which indicated that GMCs (*H1*) and GPDCs (*H2*) had significant positive influences on firm performance. The results indicated that a significant increase in GMCs increased firm profitability ($\beta = 0.167, p < 0.05$) and growth ($\beta = 0.319, p < 0.01$), which supports *H1*. Likewise, GPDCs significantly improved firm profitability ($\beta = 0.636, p < 0.01$) and growth ($\beta = 0.445, p < 0.01$), which fully supports *H2*. These findings suggest two key GDCs – GMCs and GPDCs – as central factors in explaining ISMEs' firm performance, including profitability, and growth.

Table IV shows that all proposed correlations were significant. Coefficients of correlation between MO and GMCs and between MO and GPDCs were 0.631 ($p < 0.01$) and 0.611 ($p < 0.01$), respectively. These positive relationships support *H3a* and *H3b*. For *H4a* and *H4b*, LO was predicted to support the development of both GMCs and GPDCs. Table IV shows that LO had a positive influence on GMCs ($\beta = 0.215, p < 0.001$) and GPDCs ($\beta = 0.223, p < 0.001$), supporting *H4a* and *H4b*.

This study also examined the mediating role of GDCs on the relationship between support activities (MO and LO) and firm performance (profitability and growth). To test the mediating effect of GDCs, Baron and Kenny's (1986) procedure was followed. First, as shown in Models 1 and 2 of the regression analysis results (Table IV), MO ($\beta = 0.631^{***}$ and 0.611^{***}) and LO ($\beta = 0.215^{***}$ and 0.223^{***}) had significant positive effects on GMCs and GPDCs. Second, as per Table III, MO ($\beta = 0.686^{***}$ and 0.763^{***}) and LO ($\beta = 0.178^{***}$ and 0.016) had significant positive effects on profitability and growth. In Models 3 and 6 (Table III), in which GMCs and GPDCs were added, GMCs ($\beta = 0.030$ and 0.185^{**}) and

	Dependent variables					
	Model 1	Profitability Model 2	Model 3	Model 4	Growth Model 5	Model 6
<i>Main effects</i>						
MO	0.686***		0.387***	0.763***		0.497***
LO	0.178***		0.076*	0.016		-0.078*
GMCs		0.167**	0.030		0.319***	0.185**
GPDCs		0.636**	0.445***		0.445***	0.243***
<i>Control variables</i>						
Firm size	0.017	0.034	0.037	0.018	0.018	0.038
Organizational slack	0.004	-0.035	-0.023	-0.129*	-0.157**	-0.150***
Expenditures of marketing	-0.008	0.039	0.022	0.108*	0.138**	0.125**
Expenditures of R&D	-0.076	-0.045	-0.053	-0.037	-0.003	-0.023
Internationalized experience	0.110*	0.066	0.084*	0.067	0.004	0.050
<i>Overall model</i>						
R^2 (adj. R^2)	0.599 (0.585)	0.621 (0.608)	0.697 (0.683)	0.599 (0.585)	0.554 (0.538)	0.671 (0.656)
F-statistic	42.32***	46.37***	50.017***	42.29***	35.12***	44.364***

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table III.
Tests for the impact
of global dynamic
capabilities on firm
performance

Table IV.
Tests for the impact
of capability-building
support activity on
global dynamic
capabilities

	Dependent variables			
	GMCs		GPDCs	
	Model 1	Model 2	Model 1	Model 2
<i>Main effects</i>				
MO		0.631***		0.611***
LO		0.215***		0.223***
<i>Control variables</i>				
Firm size	-0.074	-0.051	-0.030	-0.007
Organizational slack	0.068	0.057	0.031	0.018
Expenditures of marketing	0.065	0.058	0.044	0.038
Expenditures of R&D	-0.043	-0.066	0.020	-0.003
Internationalized experience	-0.099	-0.042	-0.110	-0.056
<i>Overall model</i>				
R^2 (adj. R^2)	0.019 (0.006)	0.556 (0.540)	0.017 (0.007)	0.533 (0.517)
F-statistic	0.768	35.377***	0.695	32.336***
Note: *** $p < 0.001$				

GPDCs ($\beta = 0.445***$ and $0.243***$) exerted a significant positive effect on profitability and growth. However, β values of MO and LO decreased from 0.686, 0.763, and 0.178 to 0.387, 0.497, and 0.076, respectively. In sum, for individual variables, GDCs satisfy the verification conditions provided by Baron and Kenny (1986) for the partial mediating role between LO and firm performance, and MO and firm performance.

Discussion and implications

One major contribution of this study to the literature is that it establishes that GDCs improve firm performance. The overall model has high explanatory power of the key variables and provides broad support for the DC view. Two GDCs – GMCs and GPDCs – are key factors in explaining firm operations, as also confirmed in a global context by prior studies.

Two capability-building activities, MO and LO (Baker and Sinkula, 1999), support two key GDCs. This finding is consistent with Hooley *et al.* (2005), who found a positive relationship between MO and market-related capabilities. MO strongly influences GMCs and GPDCs. For effective GDCs, SMEs must access creative, market-sensing processes associated with MO, but also closely control disciplined, structured learning management processes.

Sirmon *et al.* (2007) call for the use of various resource processes, such as acquiring (obtaining resources from strategic factor markets), accumulating (developing internal resources), and divesting (getting rid of resources controlled by manufacturers). LO in this study means creating competitive advantage through intangible value-added assets for SMEs, such as knowledge acquisition by employees. This concept promotes resource development and accumulation in an internal organization, which is in line with Sirmon *et al.* (2007) in terms of accumulation. Additionally, MO means acquiring resources in external markets, which also echoes the study of Sirmon *et al.* (2007). This study regards MO and LO as two important factors in building GDCs, which means that no matter whether organizations use internal or external relationships to realize resource accumulation and acquisition, they must query and recombine the channel in order to equip themselves with unique GMCs. That is, LO shapes an organization's attitude to querying and screening resources, which concurs with the "divesting" concept of Sirmon *et al.* (2007) (SMEs should assess resources and divest parts with less value). This research focusses on correlations among capability, MO, and LO. A business combines resources via accumulating and acquiring resources via MO, and screening via LO.

The results suggest that GDCs (GMCs and GPDCs) improve firm performance (profitability and growth). This is instructive in three ways. First, SMEs may have a high initial level of robustness in GDCs that will lessen the necessity for capabilities changes. Second, SMEs may have a higher response curve and develop capabilities quicker than competitors. The former entails risks of developing costly capabilities that do not fit needs, while the latter entails risks of not having capabilities when needed. Where products are the dominant offering from the respondent firms, the impact of services was not explored. It is critical to glean information about specific product markets (generational products, standards-based, mark-ups, brand-oriented) and determine whether emphasis on certain capabilities over others (marketing, distribution, supply chain) is consistent with product market characteristics. Third, the effect of MO and LO on performance is partially mediated by GDCs. The findings suggest that MO and LO resulting in GDCs accumulation strongly contributes to performance. The fact that MO and LO must be involved in GDCs, particularly for GMCs and GPDCs, which in turn impacts firm performance, constitutes an important managerial implication.

Moreover, this study investigates the degree to which ISMEs emphasize and allocate resources to GMCs and GPDCs, which influences SMEs' performance. The empirical results showed that GPDCs significantly positively influence firm performance in Model 2, indicating that Taiwanese ISMEs place greater emphasis on design but devote relatively few resources to GMCs. They tend to emphasize design items of efficiency and compatibility, which have consistently been areas of strength for such firms. Mixed effects were found for the hypothesized indirect and direct effects for various paths of the study's framework. The results indicated that the total effect of MO → GPDCs → Profitability and MO → GPDCs → Growth was higher than the other paths. As MO increases, GPDCs are associated with relative firm performance. Specifically, if ISMEs use valuable resources to improve communication, collaboration, and coordination in pertinent customer and competitor information, they will be able to understand the ideal method of designing and producing a product, which creates opportunities to increase the number of target market segments.

Theoretical implications

By examining 206 Taiwanese SMEs, this study investigated the development of GDCs in ISMEs to isolate the effect of GDCs on ISMEs' performance. The study fills gaps in the literature by defining GDCs, specifying two cultural support mechanisms of building GDCs, and hence providing unequivocal empirical support for GDCs' significant effects on ISMEs' performance. This study contributes to the literature in several notable ways. First, by conceptualizing GDCs of ISMEs, DC literature based on a global context is extended. This extension is complex and critical, since few studies on DCs differentiate global from local contexts, and recognize DC operationalization in international SMEs. Moreover, previous literature on DCs contains preliminary and conceptual discussions on how DC facilitates adaptation to changes in markets and technologies, but seldom clearly delineates these capabilities. Although the authors agree with the claim of Griffith and Harvey (2001) that GDCs are contingent, to a degree, on a firm's power, the important thing is emphasizing sensitivity to overseas market opportunities and market-information-absorbing ability (Chen and Jaw, 2009).

Based on ISMEs' current conditions, this study differentiates GDCs from DCs as it focus on adjusting internal resources (Helfat and Winter, 2011; Hsu and Wang, 2012), which boosts business models through external environmental factors and can be divided into GMCs and GPDCs. The results show that both types of GDCs significantly enhance ISMEs' performance. Developing multidimensional GDCs comes down to allocation of organizational resources. Unlike large firms with extensive resources, SMEs must optimize limited resources to enhance specific capabilities. This research adds a two-sided concept to the GDC framework, with complementary functions of GMCs and

GPDCs – namely, “fit as moderating” – to bolster DC theory. Second, the complexity of extending DC literature into ISMEs may arise from the fact that ISMEs, as separate and living entities, devise their own organizational culture, which significantly affects their GDC development. This perspective, which looks inside ISMEs, is a major extension of the DC literature. Specifically, the findings suggest that MO, as well as LO – two important dimensions of organizational culture – positively influence the development of ISMEs’ GDCs.

Managerial implications

This study highlights diverse ways for managers to nurture GDCs in global SMEs, create and deliver customer value, and attain competitive advantage and superior performance. First, successful GDCs help firms spread product and component design costs across many contexts and offer appealing products to consumers worldwide (e.g. greater flexibility and efficiency when pursuing a multi-domestic strategy, with distinct or customized products developed for each market). Once firms determine the context of their product offering, relevant capabilities are stressed. On the one hand, competitive intensity makes it difficult to develop new capabilities in a timely manner after product context is determined – capabilities need to be resident. On the other hand, GMCs and GPDCs succeed in multiple contexts, as demonstrated by this study. The coalescence of at least some capabilities is critical to relative firm performance and speed to market. Hogeforster’s (2014) research on SMEs in the Baltic Sea Region found that 47.57 per cent of innovative SMEs were active in the international market – this proportion is higher than that of Taiwan. Therefore, this study suggests that SMEs in the Baltic Region should establish and maintain GDCs to expand their markets and businesses, and enrich their GMCs to: develop close relationships with customers, be sensitive to subtle foreign environment changes, and ensure superior financial performance and growth.

Second, it is important that managers foster development of MO and LO. MO focusses on processing both market and competitor information, especially that related to consumers, and emphasizing the creation of customer value. Hence, if firms can establish communication and contact channels with customers, such as through marketing, they can acquire ideas and thoughts on products and augment product functions or customer-preferred products. Mobile phone manufacturers like Apple, HTC, and Samsung establish consumer experience stores not only as service platforms, but also to consult directly with clients in order to collect customer feedback. Moreover, LO is conducive to integrating ISMEs’ resources into GDCs, leading to more responsive and efficient cross-departmental processes. More specifically, establishing a stronger multi-culture within organizations by top managers may support decisions for the development of specific capabilities in specific contexts, such as certain stages of internationalization. Additionally, MO has more influence on GDCs than does LO, which suggests that ISMEs should consider foreign market information that aligns over time and is conducive to developing GDCs and performance.

Limitations and future research

Prior studies on antecedents of DCs mainly focus on internal mechanisms of organizations, and few explore external factors. Aside from MO and LO, there exist many other pivotal capability-building support activities, such as coordination and long-term relationships. Future studies should investigate the impacts of these on GDCs.

The study’s sample is reasonably diverse in terms of demographics including firm location, size, industry type, and market type. Disaggregation tests generally showed robust results in terms of model parameters; however, sub-sample sizes are small. Larger sub-samples, including studies limited to one sub-sample (manufacturing or information technology), might yield different outcomes.

Likewise, this study was restricted to Taiwan; however, variables such as MO may play a different role in other countries. Similarly, the study suggests GMCs and GPDCs as dominant GDCs. Would similar results appear in other countries? Other country contexts should be further explored.

This study was restricted to micro SMEs. Future research can investigate whether larger firms can use similar strategies to develop their GDCs and enhance performance. Because the authors developed a concept and measurement of GDCs, another direction for future inquiry would be to conceptualize and measure other types of global DCs and investigate their effects on firm performance.

References

- Anderson, J.C. and Gerbing, D.W. (1988), "Structural equation modeling in practice: a review and recommended two-step approach", *Psychological Bulletin*, Vol. 103 No. 3, pp. 411-423.
- Atuahene-Gima, K. (2005), "Resolving the capability – rigidity paradox in new product innovation", *Journal of Marketing*, Vol. 69 No. 4, pp. 61-83.
- Augier, M. and Teece, D.J. (2007), "Dynamic capabilities and multinational enterprise: penrosean insights and omissions", *Management International Review*, Vol. 47 No. 2, pp. 175-192.
- Baker, W.E. and Sinkula, J.M. (1999), "The synergistic effect of market orientation and learning orientation", *Journal of the Academy of Marketing Science*, Vol. 27 No. 4, pp. 411-427.
- Baker, W.E. and Sinkula, J.M. (2002), "Market orientation, learning orientation and product innovation: delving inside the organization's black box", *Journal of Market Focused Management*, Vol. 5 No. 1, pp. 5-25.
- Baron, R.M. and Kenny, D.A. (1986), "The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations", *Journal of Personality and Social Psychology*, Vol. 51 No. 6, pp. 1173-1182.
- Bartlett, C.A. and Ghoshal, S. (2000), "Going global lessons from late movers", *Harvard Business Review*, Vol. 78, pp. 133-142.
- Blomstermo, A., Erikssona, K., Lindstrandb, A. and Deo Sharma, D. (2004), "The perceived usefulness of network experiential knowledge in the internationalizing firm", *Journal of International Management*, Vol. 10 No. 3, pp. 355-373.
- Bonaccorsi, A. (1992), "On the relationship between firm size and export intensity", *Journal of International Business Studies*, Vol. 23 No. 4, pp. 605-635.
- Cadogan, J.W. and Lee, N. (2013), "Improper use of endogenous formative variables", *Journal of Business Research*, Vol. 66 No. 2, pp. 233-241.
- Cadogan, J.W., Diamantopoulos, A. and Siguaw, J.A. (2002), "Export market-oriented activities: their antecedents and performance consequences", *Journal of International Business Studies*, Vol. 33 No. 3, pp. 615-626.
- Cadogan, J.W., Kuivalainen, O. and Sundqvist, S. (2009), "Export market-oriented behavior and export performance: quadratic and moderating effects under differing degrees of market dynamism and internationalization", *Journal of International Marketing*, Vol. 17 No. 4, pp. 71-89.
- Cantamessa, M. (1999), "Design best practices, capabilities and performance", *Journal of Engineering Design*, Vol. 10 No. 4, pp. 305-328.
- Chen, C.L. and Jaw, Y.L. (2009), "Building global dynamic capabilities through innovation: a case study of Taiwan's cultural organizations", *Journal of Engineering and Technology Management*, Vol. 26 No. 4, pp. 247-263.
- Chiarvesio, M., Maria, E.D. and Micelli, S. (2004), "From local networks of SMEs to virtual districts?: evidence from recent trends in Italy", *Research Policy*, Vol. 33 No. 10, pp. 1509-1528.
- Day, G.S. (1994), "The capabilities of market-driven organizations", *The Journal of Marketing*, Vol. 58 No. 4, pp. 37-52.

- Dutta, S., Zbaracki, M.J. and Bergen, M. (2003), "Pricing process as a capability: a resource-based perspective", *Strategic Management Journal*, Vol. 24 No. 7, pp. 615-630.
- Eisenhardt, K. and Martin, J. (2000), "Dynamic capability: what are they?", *Strategic Management Journal*, Vol. 21 Nos 10-11, pp. 1105-1121.
- Eng, T.Y. and Spickett-Jones, J.G. (2009), "An investigation of marketing capabilities and upgrading performance of manufacturers in mainland China and Hong Kong", *Journal of World Business*, Vol. 44 No. 4, pp. 463-475.
- Fainshmidt, S., Pezeshkan, A., Frazier, M.L., Nair, A. and Markowski, E. (2016), "Dynamic capabilities and organizational performance: a meta-analytic evaluation and extension", *Journal of Management Studies*, Vol. 53 No. 8, pp. 1348-1380.
- Griffith, D.A. and Harvey, M.G. (2001), "A resource perspective of global dynamic capabilities", *Journal of International Business Studies*, Vol. 32 No. 3, pp. 597-606.
- Fang, E. and Zou, S. (2009), "Antecedents and consequences of marketing dynamic capabilities in international joint ventures", *Journal of International Business Studies*, Vol. 40 No. 5, pp. 742-761.
- Hair, J.F., Anderson, R.E., Tatham, R.L. and Black, W.C. (1998), *Multivariate Data Analysis*, 5th ed., Prentice Hall International, Prentice Hall, Upper Saddle River, NJ.
- Helfat, C.E. and Winter, S.G. (2011), "Untangling dynamic and operational capabilities: strategy for the (N) ever-changing world", *Strategic Management Journal*, Vol. 32 No. 11, pp. 1243-1250.
- Ho, Y.C. and Tsai, T.H. (2006), "The impact of dynamic capabilities with market orientation and resource-based approaches on NPD project performance", *Journal of American Academy of Business*, Vol. 8 No. 1, pp. 215-228.
- Hogeforster, M. (2014), "Future challenges for innovations in SMEs in the Baltic sea region", *Procedia – Social and Behavioral Sciences*, Vol. 110, pp. 241-250.
- Hooley, G., Greenly, G., Cadogan, J. and Fahy, J. (2005), "The performance impact of marketing resources", *Journal of Business Research*, Vol. 58 No. 1, pp. 18-27.
- Hsu, C.W. and Chen, H. (2009), "Foreign direct investment and capability development: a dynamic capabilities perspective", *Management International Review*, Vol. 49 No. 5, pp. 585-605.
- Hsu, L.C. and Wang, C.H. (2012), "Clarifying the effect of intellectual capital on performance: the mediating role of dynamic capability", *British Journal of Management*, Vol. 23 No. 2, pp. 179-205.
- Hult, G.T.M., Ketchen, D.J. Jr and Slater, S.F. (2005), "Market orientation and performance: an integration of disparate approaches", *Strategic Management Journal*, Vol. 26 No. 12, pp. 1173-1181.
- Jantunen, A., Puumala-Önen, K., Saarenketo, S. and Kylahe-Öko, K. (2005), "Entrepreneurial orientation, dynamic capabilities and international performance", *Journal of International Entrepreneurship*, Vol. 3 No. 3, pp. 223-243.
- Kaynak, H. (2003), "The relationship between total quality management practices and their effects on firm performance", *Journal of Operations Management*, Vol. 21 No. 4, pp. 405-435.
- Knight, G.A. and Cavusgil, S.T. (2004), "Innovation, organizational capabilities, and the born-global firm", *Journal of International Business Studies*, Vol. 35 No. 2, pp. 124-141.
- Kohli, A.K. and Jaworski, B.J. (1990), "Market orientation: the construct, research propositions, and managerial implications", *Journal of Marketing*, Vol. 54 No. 2, pp. 1-18.
- Lawson, B. and Samson, D. (2001), "Developing innovation capability in organisations: a dynamic capabilities approach", *International Journal of Innovation Management*, Vol. 5 No. 3, pp. 377-400.
- Li, H. and Atuahene-Gima, K. (2001), "Product innovation strategy and the performance of new technology ventures in China", *Academy of Management Journal*, Vol. 44 No. 6, pp. 1123-1134.
- Liu, Y.J. (2005), "Comparative advantage and industrial upgrading", *Finance and Economics*, Vol. 5, pp. 45-48.
- Lumpkin, G.T. and Lichtenstein, B.B. (2005), "The role of organizational learning in the opportunity recognition process", *Entrepreneurship Theory and Practice*, Vol. 29 No. 4, pp. 451-472.
- Luo, Y. (2001), "Dynamic capabilities in international expansion", *Journal of World Business*, Vol. 35 No. 4, pp. 355-378.

- March, J.G. (1991), "Exploration and exploitation in organizational learning", *Organization Science*, Vol. 2 No. 1, pp. 71-87.
- Menguc, B. and Auh, S. (2008), "The asymmetric moderating role of market orientation on the ambidexterity-firm performance relationship for prospectors and defenders", *Industrial Marketing Management*, Vol. 37 No. 4, pp. 455-470.
- Morgan, N.A., Vorhies, D.W. and Mason, C. (2009), "Market orientation, marketing capabilities, and firm performance", *Strategic Management Journal*, Vol. 30 No. 8, pp. 909-920.
- Morgan, N.A., Zou, S., Vorhies, D.W. and Katsikeas, C.S. (2003), "Experiential and informational knowledge, architectural marketing capabilities, and the adaptive performance of export ventures", *Decision Sciences*, Vol. 34 No. 2, pp. 287-321.
- Narver, J.C. and Slater, S.F. (1990), "The effect of a market orientation on business profitability", *Journal of Marketing*, Vol. 54 No. 4, pp. 20-35.
- Nunnally, J.C. (1967), *Psychometric Theory*, 1st ed., McGraw-Hill Inc., New York, NY.
- O'Cass, A. and Weerawardena, J. (2010), "The effects of perceived industry competitive intensity and marketing-related capabilities: drivers of superior brand performance", *Industrial Marketing Management*, Vol. 39 No. 4, pp. 571-581.
- O'Dwyer, M., Gilmore, A. and Carson, D. (2009), "Innovative marketing in SMEs: an empirical study", *Journal of Strategic Marketing*, Vol. 17 No. 5, pp. 383-396.
- Oliver, S., Martin, R. and Jacquelyn, T. (2009), "When does international marketing standardization matter to firm performance?", *Journal of International Marketing*, Vol. 17 No. 4, pp. 24-46.
- Özsomer, A. and Simonin, B.L. (2004), "Marketing program standardization: a cross-country exploration", *International Journal of Research in Marketing*, Vol. 21 No. 4, pp. 397-419.
- Özturan, P., Özsomer, A. and Pieters, R. (2014), "The role of market orientation in advertising spending during economic collapse: the case of Turkey in 2001", *Journal of Marketing Research*, Vol. 51 No. 2, pp. 139-152.
- Prange, C. and Verdier, S. (2011), "Dynamic capabilities, internationalization processes and performance", *Journal of World Business*, Vol. 46 No. 1, pp. 126-133.
- Rindova, V.P. and Petkova, A.P. (2007), "When is a new thing a good thing? Technological change, product form design, and perceptions of value for product innovations", *Organization Science*, Vol. 18 No. 2, pp. 217-232.
- Sandberg, S. (2013), "Emerging market entry node pattern and experiential knowledge of small and medium-sized enterprises", *International Marketing Review*, Vol. 30 No. 2, pp. 106-129.
- Schreyogg, G. and Kliesch-Eberl, M. (2007), "How dynamic can organizational capabilities be? Towards a dual-process model of capability dynamization", *Strategic Management Journal*, Vol. 28 No. 9, pp. 913-933.
- Sinkula, J., Baker, W. and Noordewier, T. (1997), "A framework for market-based organizational learning: linking values, knowledge, and behaviour", *Journal of the Academy of Marketing Science*, Vol. 25 No. 4, pp. 305-318.
- Sirmon, D.G., Hitt, M.A. and Ireland, R.D. (2007), "Managing firm resources in dynamic environments to create value: looking inside the black box", *Academy of Management Review*, Vol. 32 No. 1, pp. 273-292.
- Slater, S.F. and Narver, J.C. (1994), "Does competitive environment moderate the market orientation-performance relationship?", *The Journal of Marketing*, Vol. 58 No. 1, pp. 46-55.
- Slater, S.F. and Narver, J.C. (1995), "Market orientation and the learning organization", *Journal of Marketing*, Vol. 59 No. 3, pp. 63-74.
- Slater, S.F. and Narver, J.C. (1998), "Customer-led and market oriented: let's not confuse the two", *Strategic Management Journal*, Vol. 19 No. 10, pp. 1001-1006.
- Swaminathan, V. and Moorman, C. (2009), "Marketing alliances, firm networks and firm value creation", *Journal of Marketing*, Vol. 73 No. 5, pp. 52-69.

- Swan, K.S., Kotabe, M. and Allred, B.B. (2005), "Exploring robust design capabilities: their role in creating global products, and their relationship to firm performance", *Journal of Product Innovation Management*, Vol. 22 No. 2, pp. 144-164.
- Teece, D.J. (2007), "Explicating dynamic capabilities: the nature and micro-foundations of (sustainable) enterprise performance", *Strategic Management Journal*, Vol. 28 No. 13, pp. 1319-1350.
- Teece, D.J., Pisano, G. and Shuen, A. (1997), "Dynamic capabilities and strategic management", *Strategic Management Journal*, Vol. 18 No. 7, pp. 509-533.
- Vorhies, D.W. and Morgan, N.A. (2005), "Benchmarking marketing capabilities for sustained competitive advantage", *Journal of Marketing*, Vol. 69 No. 1, pp. 80-94.
- Wang, C.L. and Ahmed, P.K. (2007), "Dynamic capabilities: a review and research agenda", *International Journal of Management Reviews*, Vol. 9 No. 1, pp. 31-51.
- Winter, S.G. (2003), "Understanding dynamic capabilities", *Strategic Management Journal*, Vol. 24 No. 10, pp. 991-995.
- Zahra, S.A., Sapienza, H.J. and Davidsson, P. (2006), "Entrepreneurship and dynamic capabilities: a review, model and research agenda", *Journal of Management Studies*, Vol. 43 No. 4, pp. 917-955.
- Zhan, W. and Chen, R.R. (2013), "Dynamic capability and IJV performance: the effect of exploitation and exploration capabilities", *Asia Pacific Journal of Management*, Vol. 30 No. 2, pp. 601-632.
- Zhou, K.Z., Brown, J.R. and Dev, C.S. (2009), "Market orientation, competitive advantage, and firm performance: a demand-based view", *Journal of Business Research*, Vol. 62 No. 11, pp. 1063-1070.
- Zollo, M. and Winter, S.G. (2002), "Deliberate learning and the evolution of dynamic capabilities", *Organization Science*, Vol. 13 No. 3, pp. 339-351.

Further reading

- Lee, N. and Cadogan, J.W. (2013), "Problems with formative and higher-order reflective variables", *Journal of Business Research*, Vol. 66 No. 2, pp. 242-247.
- Teece, D.J. and Pisano, G. (1994), "The dynamic capabilities of firms: an introduction", *Industrial and Corporate Change*, Vol. 3 No. 3, pp. 537-556.

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