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Managing coopetition to create opportunities for small firms

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Abstract

This article investigates how coopetition enables small and medium-sized enterprises (SMEs) to create entrepreneurial opportunities in fast-paced industries. We explore the managerial challenges SMEs face when collaborating with large powerful competitors, and examine how they balance this relationship to create and sustain business opportunities through coopetition. Based on three exploratory case studies in the information technology and telecoms industry, the article develops a theoretical model suggesting that SMEs can manage the liabilities of smallness and newness, and sustain independence in and balance coopetitive relationships with large firms if they develop alliance portfolio managing capabilities. We find that the ability to build legitimacy, enhance agility and create role flexibility plays an important role in balancing and navigating among different coopetitive relationships, thereby creating and sustaining opportunities.

Keywords

alliance portfolio management capabilities, coopetition, entrepreneurial opportunity creation, fast-paced industries, SME

Introduction

Small and medium-sized enterprises (SMEs) are able to create niche markets by commercialising pioneering technologies (Jacobides and Winter, 2007), given that the increased convergence and development of open innovation systems tends to loosen ties in vertically integrated value chains (Chesbrough, 2006; Sahaym et al., 2007). However, considerable challenges await such firms when they attempt to create and sustain new business ventures, given a lack of key resources, limited market presence and dependence upon narrow product or service lines on a niche customer base (Baum et al., 2000). In order to surmount these challenges and develop and sustain opportunities, SMEs develop coopetitive relationships. Since they face many of the same challenges and act within related markets, using similar or complementary resources through, collaboration strengthens their competence (Gnyawali and Park, 2009; Lechner and Leyronas, 2009).

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Many rapidly developing industries are dominated by large global firms: in order to enter into integrated horizontal value chains, SMEs need to develop coopetitive relationships with such large competitors. These relationships are asymmetric and challenging as a result of power disparities, so when new technological solutions become profitable, large firms might take measures to lock in suppliers within their value chain or find ways to replace products offered by small firms (Bengtsson and Johansson, 2011; Gnyawali and Park, 2011). Until now, the study of coopetitive relationships between small and large firms and their accompanying challenges has received little attention, so the key research question in this study is: 'How can SMEs develop and sustain opportunities in collaboration with large competitors?'

Therefore, the purpose of this study is to explore the managerial challenges that SMEs face when collaborating with large, powerful competitors, and to examine how they balance the relationship to create and sustain business opportunities through coopetition. This article is built on three exploratory case studies of SMEs in the information technology (IT) and telecom industry, which illustrate how small firms explore new opportunities through coopetitive relationships with large firms. In analysing these relationships and by drawing both on previous studies and case descriptions, a theoretical model is developed which suggests adoption of the strategic alliance portfolio perspective (Ahuja, 2000; Wassmer, 2010). This perspective suggests that firms can build and use alliance portfolios to shape the nature of competition (Lorenzoni and Lipparini, 1999) and provide technological and market capabilities that enhance new and entrepreneurial firm performance and reputation (Stuart, 2000). Our model suggests that SMEs must develop alliance portfolio management capabilities (Hoffmann, 2007; Kale and Singh, 2007) if they are to build and reconfigure their portfolios of relationships and thus, balance coopetitive relationships with large firms.

Using an alliance portfolio lens when examining SME coopetitive relationships with large firms offers a critical contribution to the extant literature on coopetition for two reasons. First, smaller firms in fast-paced industries often need to interact with large competitors (Gnyawali and Park, 2011); furthermore, they need the capability to manage these relationships to create and sustain opportunities. An understanding of how such relationships evolve and change in the context of alliance portfolio management capabilities advances previous research on coopetition. Second, managers of SMEs need to be aware of the dependencies and interrelationships within the alliance portfolio and how their interaction with partners can affect present and future coopetitive relationships. Developing alliance portfolio managerial capabilities will assist cooperation with the right competitors at the right time, and forge relationships to explore and sustain opportunities.

A further contribution made within this article is the specification of two challenges for SMEs in coopetition with large firms: specifically, how to manage the liabilities of smallness and newness, and how to sustain independence in and balance coopetitive relationships. Furthermore, we identify three interrelated capabilities of importance for a firm's ability to manage these challenges, and thereby create and sustain opportunities: the creation of legitimacy, agility and the ability to develop role flexibility.

Industrial changes creating new opportunities and challenges for small and medium-sized enterprises

Collaboration between competitors within rapidly developing and complex industries have implications for smaller firms. Technological convergence, market convergence (Bröring, 2010; Malhotra and Gupta, 2001) and the abundance of temporal relationships (Das, 2006) facilitate entrepreneurial actions (Santos and Eisenhardt, 2009). Not only do they increase the likelihood of coopetition among SMEs (Gnyawali and Park, 2009), but they also encourage collaboration with large competitors.

Exploring these issues, *technological convergence* is a result of increased specialisation and the development of complex modular systems with high interoperability among their parts; thus, technology from different industries can be combined (Sahaym et al., 2007). As firms from different industries cooperate and integrate their technological and strategic skills, technological platforms are developed (Bröring, 2010). The increased importance of specialised technical competencies makes it possible for smaller firms to participate in globally dispersed innovation systems. *Market convergence* includes socio-economic developments that integrate and homogenise demand structures. Hybrid products are developed that combine previously well-distinguished and non-competing products (Malhotra and Gupta, 2001). Global customers search for the best functionality and seek to satisfy different needs in one-product offers, combining subsystems from different suppliers (Davies et al., 2007). The search for 'best-of-breed' products enable small, specialised firms to market their products. Finally, *temporal relationships* develop if the time horizon or intended duration of relationships among competitors is short. Pressure for quick results and temporary strategies decrease the time horizon (Das, 2006). Chen et al. (2010) argue that the temporality of competitive advantages has increased in fast-paced environments, as firms constantly engage in novel competitive moves in new areas; thus, the time horizon tends to be short in these industries. This explains the increased temporality of relationships observed in many high-technology industries (cf. Ancarani and Costabile, 2010), and as relationships are exchanged frequently, it is easier for new firms to enter.

Taken together, convergence and temporality open up traditional competitive structures (Edelman and Yli-Renko, 2010). Pioneering, often small, technology-driven firms can enter into nascent markets to commercialise their technologies (Santos and Eisenhardt, 2009; Wirtz, 2001), but the development of opportunities in these markets is challenging for SMEs, as is sustaining them. Technological platforms and standards will define the direction of technological development in the future (Lei, 2003). Leading global firms can affect the development of platforms and standards to a larger extent than their smaller counterparts (Gnyawali and Park, 2011) and accordingly, have greater market power. Collaboration among SMEs has been seen to strengthen competitive power.

Coopetition as a strategy for small and medium-sized enterprises

Entrepreneurial small firms are challenged by the need for external resources, reflecting a 'liability of smallness' (Baum et al., 2000). This liability is expressed by their difficulty with obtaining capital and patents (Bessen and Meurer, 2008; Blackburn, 2003) and the need for complementary resources in order to bring new technologies to market (Libaers et al., 2010). This is related to the 'liability of newness' with a high risk of failure, especially in the early stages of the venture, when the start-up firm appears as an outsider with a sparse track record of patents and customer references (Aldrich and Auster, 1986; Stinchcombe, 1965). It is suggested that coopetition can compensate for such liabilities (Lechner and Dowling, 2003).

Traditionally, the literature on coopetition has focused on large firms, but Gnyawali and Park argue that 'the importance of coopetition seems to be even greater in the context of Small and Medium-sized Enterprises' (2009: 309). The concept of coopetition is based on the notion that cooperation and competition can coexist, and includes both value creation through cooperation and value appropriation through competition (Brandenburger and Nalebuff, 1996). Coopetition is defined as relationships between two firms that cooperate in some activities but compete in others (Bengtsson and Kock, 2000; Gnyawali and Madhavan, 2001). In the present study, coopetition is defined as a dyadic relationship, but one firm can be simultaneously involved in many collaborative relationships with competitors, suppliers and customers, etc.

Within the literature on coopetition as a strategy for SMEs there are four key focal areas. First, the drivers of coopetition: Gnyawali and Park (2009) argued that SMEs cooperate with their competitors to increase their ability to innovate, compete and strengthen their voice in the marketplace, and that coopetition is especially important if the time to market is short. Moreover, McCutchen and Swamidass (2004) showed that SMEs in the biotechnology industry collaborate with competitors to reduce the timespan for research and development (R&D). Second, the likelihood of coopetition: it has been argued that goal congruence, technological capability, resource complementarity and resource similarity increase the likelihood of coopetition (Gnyawali and Park, 2009). Third, communicating the outcome of coopetition: Gnyawali and Park (2009) suggested that coopetition makes it easier to create economies of scale, reduce uncertainty and risk and increase the speed of product development. In line with this reasoning, Morris et al. (2007) found evidence that coopetition made it possible for Turkish SMEs to mitigate risk and leverage resources. In their study of European biotechnology firms, Quintana-Garcia and Benavides-Velasco (2004) showed that coopetition with direct competitors contributes to both the development of product lines and technological diversity. Although coopetition has shown itself to be beneficial, such relationships are difficult to uphold and balance. Fourth, the role of coopetition for SMEs: this involves different strategies and how knowledge sharing in coopetitive relationships is enabled; Bengtsson et al. (2010) have argued that the advantages of coopetition cease to develop if either cooperation or competition becomes too strong.

From this overview we can conclude that competing SMEs can create value and strengthen their position of power through collaboration. Similar motives and outcomes also might exist in collaboration between small and large competitors, but this asymmetric relationship is more difficult to balance (Holmlund and Kock, 1996). Gulati and Sytch (2007) argue that asymmetry gives the stronger partner a power advantage, so that it obtains superior economic returns. SME relationships with large firms include risks as resources such as intellectual property, which can be easily misappropriated in the relationship. Small firms are less able to defend themselves once the relationship has been established (Katila et al., 2008). Thus, coopetition among small and large firms is a fruitful and interesting issue in the context of power asymmetries; yet we have only found one study that explores power asymmetry in a coopetitive context, where Czakon (2009) studied the impact of power asymmetry on the development of relationship between SME banks and franchisors. It was suggested that the potential to impose one's will on others is positive for the establishment of a relationship, but not for its development. However, there was no discussion regarding how SMEs manage the challenges and risks related to power asymmetry. The present empirical case study provides new insights into these issues.

Method

Sample and study design

In our exploration of the managerial challenges that SMEs encounter when they collaborate with large firms to develop and sustain opportunities, we have chosen an exploratory case study design for two reasons. First, such a design is suitable for exploring firm involvement in different relationships within an industry (Dubini and Aldrich, 1991; Lechner and Dowling, 2003). Second, qualitative case studies are suitable for understanding complex and context-dependent phenomena (Blackburn et al., 1990; Eisenhardt, 1989), especially the processes and dynamics of relationships which are not limited to structural conditions (Jack et al., 2010; Lechner and Dowling, 2003). The research setting is the IT and telecom industry, as it is a rich example of a converging industry (Dong et al., 2004) with nascent market niches (Santos and Eisenhardt, 2009), characterised by fast-paced changes and undefined and blurred industry structures.

The firms studied are Xelerated Ltd, Seamless Ltd and Digitata Ltd. All three have developed new opportunities, as expressed by their growth in number of employees and turnover. All three case companies have worked extensively in coopetitive relationships to enter global markets and sustain their independence. Descriptive data of the SMEs are provided in Table 1.

Data collection

In order to understand how entrepreneurs are creating opportunities through their collaboration with competitors, informant narratives were gathered about how different actions and events unfold during opportunity creation (cf. Maitlis, 2005). Like Dimov (2010), we agree that 'substantively, every single entrepreneur offers a fascinating story interweaving personal aspirations and social context. These stories offer a rich ground for identifying meaningful patterns' (2010: 62). Thirty interviews were conducted with entrepreneurs or chief executive officers (CEOs), mid-level managers, engineers and scientists within the SMEs. In addition, their customers and coopetitive partners were interviewed. These informants included executives and managers from different firms, levels and functions that were engaged in the coopetitive interactions. Informants were invited to speak candidly about cooperative and competitive interactions, relational content, processes, critical incidents and structures. They were asked about how issues had been handled and the effects of their actions. The interviews with Digitata and Seamless took place from January to December 2010. The interviews with Xelerated were conducted over a longer time period, from January 2004 to December 2010. Their process was followed from the start-up phase in 2000, retrospectively. Similarly, Digitata's and Seamless' development were captured from their start-up, both in interviews and through archival data such as industry and corporate reports, press releases and annual reports. Each interview lasted for one to two hours, was recorded and transcribed verbatim. Interview data was complemented and triangulated continuously with archival data. To ensure validity, the interview data were sent back to the informants for approval, comments, clarification and amendments (Guba and Lincoln, 1994). Informal feedback meetings and discussions were conducted also with key informants and managers.

Table 1. Descriptive data of the SMEs.

	Xelerated Ltd	Seamless Ltd	Digitata Ltd
Founding year	2000	2001	2006
Number of employees (2010)	65	36	60
Turnover (2010)	US$21.6m	US$7.5m	US$8m
ISIC code	72190 – Other science and technological R&D	61200 – Wireless telecommunication 62010 – Data Programming	N/A
Key innovation	Dataflow architecture for high-speed programmable network processing	Platform for pre-paid electronic distribution	Dynamic tariffing for network utilisation and usage optimisation through dynamic variation of tariffs

Data analysis

The data analysis relied upon constant comparison (Strauss and Corbin, 1990) to elicit meaning from data and develop theory about how asymmetric coopetitive relationships can be managed. To systematise the coding and categorisation of the data, the qualitative analysis software program Nvivo 9.0 was used. We based our theory on the distinction between first-order categories, second-order themes and overarching concepts (cf. Nag and Gioia, 2012). The analysis was an iterative process of going back and forth through the collected data and gathering descriptive codes by comparing the informants. This process resulted in the renaming of some categories and themes and the collapsing of others (Browning et al., 1995). In addition to developing empirically-based first-order categories, these were compared with concepts and theories from the literature. The findings of the first-order categories were synthesised into second-order themes (cf. Nag et al., 2007). These themes are theoretically distinctive concepts induced by the authors; however, informant expressions and words representing these theoretical concepts were applied (cf. Nag et al., 2007). These second-order themes were combined into the overarching concepts of industrial change, alliance portfolio management capability and opportunity development. In the appendices, the development of each overarching concept is shown in tables with representative quotes illustrating the second-order themes. An illustration of how the data were structured is presented in Figure 1.

One of the second-order themes, agility, pictures firm actions over time and how they are able to maintain independency by developing and exchanging relationships with competitor suppliers and customers. It is difficult to capture this theme in a few quotations; therefore, an important added step in the analysis was to describe their actions chronologically (presented in Tables 2, 3 and 4), illustrating both the motives and measures taken to balance the coopetitive relationship with large firms (cf. Bingham and Eisenhardt, 2011).

Finally, the linkages between the second-order themes within the overarching concepts were investigated. This analytic work enabled the study to develop a theoretical model (presented in Figure 2) linking the empirically generated themes with existing theories. The model's theoretical logic is constituted from a blend of arguments and notions taken from case evidence, our own logic and existing research and theory (Eisenhardt and Graebner, 2007).

Theoretical model

Convergence and temporal coopetitive relationships. The industrial context of IT and telecom needs to be explored in depth to understand both the possibility to create opportunities and the challenges that the three firms needed to manage. Complexity within the industry with firms that are collaborating and competing has increased as a result of technological convergence. Technologies from IT and telecom and other related industries are combined into multi-technological products, platforms and systems. Open standards are used also to a larger extent, challenging firms such as Ericsson, which traditionally have built their business on embedded products and integrated value chains. Leading firms such as Ericsson adapt and integrate open-source Linux and MySQL. Convergence and the increased use of more open systems have forced large firms to decouple system platforms, software and applications to make them flexible to changing demands. This new openness has made it possible for small firms to communicate with, and offer their solutions directly to, mobile network operators.

Market convergence is another important reason for this development. Global customers (i.e. mobile telecom operators) want to choose 'best-of-breed' products for their customised solutions

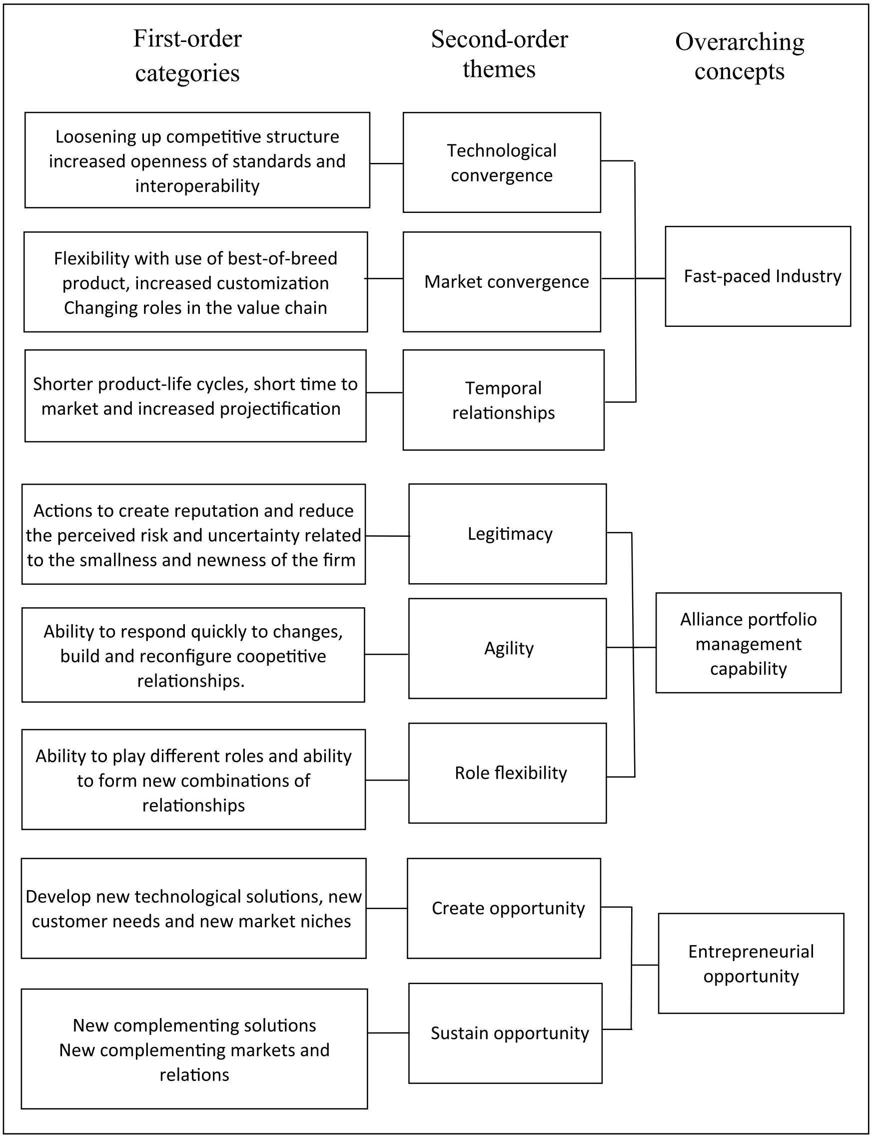

Figure 1. Structuring data into first-order categories, second-order themes and overarching concepts.

and offer cutting-edge technology. Customers have become increasingly active in decisions regarding which products and functions should be included in systems. Value co-creation takes place in the customer interface, where competitors compete and cooperate intensively to be included in new solutions and capture part of the value. Demand-driven customisation poses a strategic challenge for firms, particularly in the telecom industry. Traditionally, services have been developed within the IT sector, but due to convergence it has become necessary for firms from the telecom sector to transform their business model and become more service-oriented. The search for 'best-of-breed' products and increased customer influence enable small firms to enter the market.

Table 2. Xelerated's chronologies of motives and measures taken to balance the coopetitive relationship with large firms.

Year	Company	What	Why	Type	1 Legitimacy	2 Role-flexibility	Representative quotes
2011	Huawei	Develops next-generation network processors internally	Competes with Xelerated	Asymmetric		O	
2010	Huawei	Recognizes Xelerated as a core competence partner	Building credibility	Asymmetric	O		'This is a very strong card in our negotiation with Ericsson and other large customers' (Chief operating officer, Xelerated)
2009	Broadcom	Acquires DUNE Network	Competitive acquisition	Asymmetric		O	'We will see where this will lead us' (Chief operating officer, Xelerated)
	ADVA Optical Networking	Selects Xelerated's product for next-generation networks	Broaden the relationship portfolio	Asymmetric		O	'Having been selected by one of the leaders in Carrier Ethernet deployment further demonstrates our position in the market' (Founder and CEO, Xelerated)
	Alloptic	Selects Xelerated's product for next-generation networks	Broaden the relationship portfolio	Asymmetric		O	'We are excited to be serving one of the global leaders in EPON as they produce the next generation needs of their customers' (Vice-president, sales, Xelerated)
2008	DUNE Networks	Secures interoperability	Broaden product scope	Symmetric	O		'We have an extremely successful partnership with Dune' (Founder and vice-president, business development, Xelerated)
	Broadcom	Xelerated launch a product line in competition	Strengthen the competitive position	Asymmetric		O	'We don't have to compete on cost against Broadcom We're absolutely competing on functions' (Founder and vice-president, business development, Xelerated)
2007	Fujitsu	Selects Xelerated's product for next-generation networks	Broaden the relationship portfolio	Asymmetric		O	'Being selected by one of the leaders in Metro systems for worldwide deployment is an important milestone for us' (Founder and CEO, Xelerated)
2006	ZTE	Selects Xelerated's product for next-generation networks	Broaden the relationship portfolio	Asymmetric		O	'We are very pleased to have been chosen by ZTE on this vital platform' (Vice-president, sales, Xelerated)
	Huawei	Selects Xelerated's product for next-generation networks	Broaden the relationship portfolio	Asymmetric		O	We are very pleased to have been chosen by Huawei on this vital, high-volume platform'(Vice-president, sales, Xelerated)
2005	Atrika (NSN)	Selects Xelerated's product for next-generation networks	Broaden the relationship portfolio	Asymmetric	O		'This puts Xelerated in a position to be a substantial player in this high-growth market' (Analyst, Infonetics Research)

(continued)

Table 2. (continued)

Year	Company	What	Why	Type	1 Legitimacy	2 Role-flexibility	Representative quotes
2004	DUNE Networks	Strategic alliance	Building an ecosystem around the product	Symmetric	O		'Our joint customers want to leverage their development investment across entire product families rather than point products' (Founder and CEO, Xelerated)
	Broadcom	Launches joint product package	Building credibility and access markets	Asymmetric	O		'I am very pleased to announce this solution together with Broadcom' (Founder and vice-president, business development, Xelerated)
	Infineon	Strategic alliance	Building credibility and access markets	Asymmetric	O		'Our joint efforts have already paid off and by working with Infineon's worldwide sales force we will be able to go after an even larger customer base' (Founder and CEO, Xelerated)
2002	Infineon	Distribution agreement	Building credibility and access markets	Asymmetric	O		We are very pleased to have Infineon join us as a partner in our partnership program' (Founder and vice-president, business development, Xelerated)
	PMC-Sierra	Securing interoperability	Building an ecosystem around the product	Symmetric	O		Demonstrating interoperability at high-speeds is a significant milestone that clearly shows Xelerated is on track and delivering on its promises' (Analyst, The Linley Group)
	IDT, Integrated Device Technology	Strategic alliance	Building an ecosystem around the product	Symmetric	O		'IDT is solidly positioned in the packet processing market the partnership enables the development and deployment of system solutions that meet the rigorous demands for new generation' (Vice-president, strategic marketing, IDT)
2001	NetLogic Microsystems	Partnership agreement	Building an ecosystem around the product	Symmetric	O		'Having a best-in-class network search engine supplier like NetLogic is critical to our success' (Founder and CEO, Xelerated)
2000		Xelerated is founded					

Table 3. Digitata's chronologies of motives and measures taken to balance the coopetitive relationship with large firms.

	Company	What	Why	Type	1 Legitimacy	2 Role flexibility	Representative quotes
2012	MTN Swaziland	Launch of an end-to-end solution	Broaden the relationship portfolio	Asymmetric		O	'Launching this commercial solution is a significant achievement and one that Digitata is proud to be a global leader in' (CEO, Digitata)
	Transwell	Digitata invests in the company	Broaden the relationship portfolio	Symmetric		O	'A step required for the benefits of mobile transaction control' (CEO, Digitata)
2011	Globacom	Selects Digitata's product	Broaden the relationship portfolio	Asymmetric		O	
2010	Concurrent Systems	Rorotika invests in the company	Broaden the relationship portfolio	Symmetrical		O	'This new relationship will provide us with access to signalling channels to customer, allowing the development of new product lines' (CEO, Rorotika)
2008	MTN Group	Integrates Digitata's technology	Strengthen relationship with the customer	Asymmetric		O	'In terms of product uptake this is the best performing in the history of any product' (Chief operating officer, MTN Uganda)
	Ericsson AB	Integrates Digitata's technology	Building credibility and access markets	Asymmetric	O		'We have invested quite extensively on the Ericsson channel and I believe we have invested wisely' (CEO, Digitata)
		Digitata is incorporated in Rorotika	To commercialize the technology				
	MTN Guinea Bissau	Licence agreement	Broaden the relationship portfolio	Asymmetric	O		
	MTN Swaziland	Licence agreement	Broaden the relationship portfolio	Asymmetric	O		
2007	Ericsson, Sub-Saharan division	Initiating a collaboration agreement	Building credibility and access markets	Asymmetric	O		'We closed the deal with MTN and to source more widely we agreed that the account would be transferred to Ericsson' (CEO, Digitata)
	MTN Swaziland	Setting up a trial system	To reach a partnership agreement with MTN	Asymmetric	O		'Trial showed to be successful, it did not erode their revenues and on the basis on that they agreed to extend' (CEO, Digitata)
2006		Rorotika founded	Spin off from MTN				'We started with a very solid connection with MTN'(CEO, Digitata)

Table 4. Seamless's chronologies of motives and measures taken to balance the coopetitive relationship with large firms.

	Whom	What	Why	Type	1 Legitimacy	2 Role flexibility	Representative Quotes
2011	LETEL, Latvia	Seamless acquire its distributor	Strategic step up in the value chain	Symmetric		O	'The acquisition means that we make an aggressive expansion of our operations' (CEO, Seamless)
	MTN Western Africa	Order to scale up MTN's system for mobile payment	Broaden the relationship portfolio	Asymmetric		O	'The demand for these forms of solution is huge, especially in developing countries where people do not have a bank account' (CEO, Seamless)
	MTN Rwanda	Seamless is announced as a preferred partner	Strengthen relationship with the customer	Asymmetric		O	'We are very pleased to take another step further into consolidating our relationship and foothold in MTN as their preferred partner' (CEO, Seamless)
2010	MTN Afghanistan	Service and maintenance agreement	Broaden the relationship portfolio	Asymmetric		O	
	Independent Service Provider, Zimbabwe	Long-time cooperation based on revenue share	Broaden the relationship portfolio	Asymmetric		O	
2009	MTN, Afghanistan	MTN extends its prepaid distribution network	Broaden the relationship portfolio	Asymmetric		O	'For MTN customer care is vital, and this investment makes it easier and more convenient for our subscribers' (CIO, MTN Afghanistan)
2008	MTN Group	MTN selects Seamless for their technology	Broaden the relationship portfolio	Asymmetric		O	'It will be most stimulating to develop new features in close cooperation with MTN, and we look forward to expand together in new areas' (CEO, Seamless)
	MTN Group	Customer order of a dynamic solution	Building credibility and access markets	Asymmetric	O		'It was an impossible delivery target but the deadline was very, very important for the customer' (Head of product delivery, Seamless)

(continued)

Table 4. (continued)

	Whom	What	Why	Type	1 Legitimacy	2 Role flexibility	Representative Quotes
	MTN Group	Customer order in Sub-Saharan African country	Building credibility and access markets	Asymmetric	O		'This is an example of fine collaboration with one of our global partners with true benefits for both of us' (CEO, Seamless)
2007	Ericsson	Global partnership agreement	Building credibility and access markets	Asymmetric	O		'Our relationship with Ericsson is an enhanced business opportunity, as mobile operators in 150 countries now can be offered our solution' (CEO, Seamless)
2005	Ericsson	Starts to collaborate in selected markets	Building credibility and access markets	Asymmetric	O		
	Sagem Orga	Presents top-up solutions at the GSM Americas	Building credibility	Asymmetric	O		
2004	Brightpoint Scandinavia	Expands in Denmark and Norway	Building credibility and access markets	Symmetric	O		'Over the last few months retail sales have developed quickly and several large convenience store chains and other retail customers are now on board' (CEO, Seamless)
	Brightpoint, India	Expands in India	Building credibility and access markets	Symmetric	O		'The Indian market is one of the fastest growing mobile markets and we foresee very interesting developments in digital distribution of mobile prepaid' (Founder and CEO, Seamless)
2002	Brightpoint, France	Long-term licence agreement	Building credibility and access markets	Symmetric	O		
2001		Seamless founded					

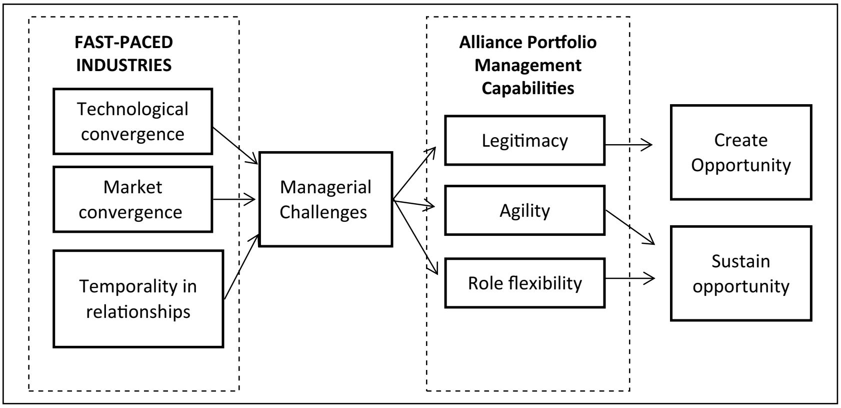

Figure 2. Conceptual model of how coopetition is managed by SMEs to create and sustain opportunities in fast-paced industries.

Temporality has increased in relationships due to shorter product life cycles, shorter time to market and increased projectification. The time windows for entering the market with new products, as well as the time window for specific customer projects, have shortened. Firms need to develop new services and products continuously and identify potential customer needs, as markets for new products are maturing rapidly. Therefore, it is vital to cooperate with competitors which have specialised knowledge in certain technological areas or markets. Firms form relationships with their competitors that are short term and organised around specific customer projects, implying that firms are involved in as many relationships as there are customer projects. Accordingly, the roles that different firms play in relation to each other are unclear and changing.

The industry has developed gradually from proprietary business models to more open models with horizontal cooperation among specialised firms. This has loosened previously strong ties in vertically integrated value chains, and to a greater extent value is created in loosely coupled networks and coopetitive relationships. This increased openness and customisation have changed the role of both mobile operators and telecom providers in the decision-making process, making it possible for SMEs to enter the market. SMEs can approach mobile operators directly, which increases the elements of coopetition between large and small firms. However, at the same time, large firms are acquiring many small advanced firms so measures are being taken to lock in or control the value chain. All the three firms studied here faced two challenges as a result of the changes within the industry as they all started as spin-offs from larger firms to develop and commercialise their pioneering technological solutions. The first was to overcome the liability of their smallness and newness in order to establish themselves in a market dominated by global system providers and global mobile telecom operators. The second was in balancing the coopetitive relationships with their large collaborator and in striving for power leverage.

Based on analysis of the case studies a theoretical model is proposed (Figure 2) showing that convergence and temporality not only create opportunities but also challenges for SMEs. This study explores how SMEs manage these challenges to create and sustain business opportunities. From the data, three interrelated capabilities are identified that SMEs need to manage coopetition and deal with these challenges: building legitimacy, agility in responding to opportunities and role flexibility. These capabilities are intertwined, so they must be examined simultaneously. The core concepts and suggested relations among them will be developed by the case descriptions. We will discuss the capabilities that the firms developed and examine how these contributed to the resultant entrepreneurial opportunities.

The managerial challenges that pertain to creating opportunity are different from those that pertain to sustaining opportunity. On this basis we have distinguished between these two categories of entrepreneurial opportunity for SMEs. The following section describes the actions that were central to the development of the three firms and illustrates their capabilities.

Findings

Building legitimacy in the initial creation of opportunities

Xelerated was founded in 2000 by four entrepreneurs who previously had worked at Ericsson, Switchcore and other prominent firms; their innovative idea focused upon the control of dataflow in networks and invented architecture for programmable network processing at very high speed. The entrepreneurs were not allowed to develop this architecture within Switchcore, as it was perceived to be too radical. Xelerated launched the product that now is patented and recognised worldwide as a leading technology for high-speed network processing. In order to reach that status, Xelerated needed 'big brother agreements' with larger firms to build credibility and acceptance from global customers such as Huawei and Ericsson. Xelerated initiated a distribution agreement with Infineon, a competitor and a large supplier of semiconductor chips. Via this collaboration Xelerated acquired access to Infineon's market channels. Infineon had production rights that could be used if Xelerated were unable to deliver its product, which reduced the perceived risk from a large customer doing business with a small firm. Xelerated benefited from Infineon's credibility and legitimacy as a large firm in its negotiations with global customers, which in turn enhanced its credibility and supported its development and growth.

As a result, Xelerated developed close relationships with Huawei, characterised by personal relationships and close communication. Xelerated assisted and supported Huawei in issues related to software and application in its network processor, and in communication with Huawei's customers. In 2010, Huawei recognised Xelerated as its best supplier, with IBM and Xilinx; shortly after, Xelerated was recognised as a core competence partner within a network of 100 companies. This strong recognition increased its legitimacy in negotiations with other large telecom providers. However, later its relationship with Huawei became coopetitive.

Rorotika was a spin-off from MTN, the leading mobile network operator in Africa and the Middle East. The founders had the idea to develop a dynamic tariffing solution for mobile telecom that could enable subscribers to view the cost of a phone call and to make phone calls when the rate is low. The solution optimised mobile operator network capacity by reducing the need to increase such capacity to the same extent as the increase in subscribers. Rorotika also interacted with larger actors to gain legitimacy and access to the market, and began to cooperate with MTN Swaziland, a subsidiary of MTN Group, in 2007. During the initial phase, all issues regarding intellectual property rights were resolved. In order to reach a partnership agreement, Rorotika installed a trial system on a no-cost basis. MTN Swaziland launched the dynamic discount system in August 2007 and embarked on a full national launch in June 2008. Digitata, an affiliated company, was incorporated in the venture in 2008 to commercialise the technology. Digitata and MTN Swaziland negotiated a leasing agreement where the customer bought the right to use the solution from MTN. These agreements reduced the perceived risk of doing business with a small firm. Similar agreements were signed later in their cooperation with MTN in Guinea Bissau but with better revenues, since Digitata had proven its ability to manage the affair. The project was a success, attracting 40,000 new subscribers within three months.

In July 2008, MTN successfully launched its dynamic discount service 'MTN Zone', MTN on a larger scale, and markedly registered 800,000 customers for the service just within five days. Digitata's solution was recognised as a 'best-of-breed' solution that signalled a strong market position within its own niche. At that point, Digitata had established an informal relationship with Ericsson and MTN's subsidiary in Uganda. MTN bought the solution through Ericsson, but as it had not developed this technology on its own, it had to rely on the deployment and support offered by Digitata. Ericsson guaranteed Digitata access to its market channels in return for having access to Digitata's 'best-of-breed' solution. MTN also wanted to buy such a potential revenue-impacting product from a larger firm particularly at the time of expanding its market, 'Dynamic Discount'.

Seamless was founded in 2001 by an entrepreneur who saw an opportunity to rationalise the handling of all pre-paid distributions by making it possible for users to 'top up' (i.e. credit) their mobile account electronically. The entrepreneur created a new market for this pioneering technology. With a team of five software developers, an intensive product development process was initiated. Seamless developed legitimacy by building alliances with larger firms. For example, it developed a product platform, ERS 360, in close cooperation with a global distributor, Brightpoint; and to strengthen its credibility, it entered into a global partnership agreement with Sagem Orga, a leading telecom provider of real-time charging and billing solutions. In addition, a global partnership agreement was signed with Ericsson in 2007, enabling Seamless to reach global mobile telecom operators, and the reputation of the company and credibility of its solution were strengthened. Seamless's platform became part of Ericsson's product platforms for pre-paid solutions; thereby reaching MTN, the leading mobile operator in Africa and Middle East and critical markets for the Seamless solution. The first number of orders from MTN was received in collaboration with Ericsson. These alliances helped the Seamless solution to rapidly grow internationally. Seamless was very successful and converted the entire market of pre-paid distribution to electronic mobile account crediting within two years.

The main challenge encountered by all three firms in the initial phase was their liability of smallness and newness. Their primary goal was to enter the market, and Digitata achieved this by collaborating with a large mobile network operator; however, to get into global markets it was necessary to collaborate with a large competitor. Ericsson was seen as a safeguard that reduced the risk related to the firms' smallness and newness. The other two firms started to collaborate directly with large competitors, and thereby got access to the market. One reason for all three firms to engage in coopetition was the need to create legitimacy, which they did by cooperating with larger partners. Through their initial collaboration strategies they gained legitimacy and the status of 'best-of-breed' product providers in the market.

Role flexibility and agility to sustain opportunities

Agility is about speed in developing and exchanging relationships, whereas role flexibility is about managing many and different relationships simultaneously and balancing different roles and relationships infused with tensions and contradictions. These two capabilities are closely related; as firms develop simultaneous capabilities for flexibility and undertaking different roles in relations with competitors and customers, and to be agile in building and reconfiguring their relations over time, in order to sustain their opportunities. As mentioned previously, by developing these capabilities they manage the challenge related to large firm tendencies to lock in or control successful small suppliers and balance the coopetitive relationship. Tables 2, 3 and 4 show the actions that were central to the three development of the three firms. The reason for the actions is specified along with the capabilities expressed through the measures, and quotations illustrating some of the activities are provided. Agility is shown by the number and type of actions taken over time, as this signifies the firms' ability to develop and replace relationships over time.

Xelerated began to cooperate with its competitor Broadcom in 2004. Both launched a product package together that broadened their product lines and markets and made customer systems more cost-efficient and flexible. This cooperation also provided Xelerated with the opportunity to access technical and market information in a new segment and afforded contacts with new individuals and customers, such as Siemens in Germany and Marconi in Italy.

The firms still sold their own products separately and thus, were competing with each other. In 2008, in direct competition with Broadcom's products, Xelerated released a new line of chips with more functionality for the access segment. This strengthened its competitive position, but consequently the cooperation between them was reduced. In 2009, Broadcom acquired Xelerated's strategic partner DUNE Network, which meant that the cooperation again increased, as Xelerated collaborated with DUNE Networks in almost all their product and market niches. Managers at Xelerated expressed a tension in the relationship with Broadcom as they distrusted each other, which reduced information sharing. Over time, Xelerated has built alliances with almost all the large telecom providers globally, but has encountered challenges in managing these relationships due to rapid changes and competitive moves in the industry. For example, its largest customer, Huawei, developed the next generation of network processors singlehandedly in competition with Xelerated. To compete with Huawei and avoid being outperformed, Xelerated set up system solutions with Huawei's competitors such as Alcatel-Lucent, Ericsson, Nokia-Siemens Networks and ZTE.

A similar development was observed in the relationship between Digitata and Ericsson. Ericsson delivered Digitata's products initially, but eventually integrated Digitata's solution into its own systems. Ericsson needed the 'best-of-breed' product given its global customers' demand, but at the same time tried to control the product. Digitata extended its markets through its direct relationship with MTN Group and established sales contracts with a number of second-tier mobile operators in developing countries. Digitata needed to develop a portfolio of relationships and intense R&D in order to balance the coopetitive relationships and sustain its opportunities. In 2011, Digitata's R&D team worked to expand its dynamic tariffing platform to include mobile data services, in the hope of entering the high-potential, mobile money market. The same year, Digitata invested in Tranwill, a progressive company operating in the mobile money segment, offering transaction control solutions to banks, consumers and merchants. In May 2012, Digitata released an extended solution of its dynamic tariffing to offer customers control over their data spending. This launch was undertaken with Digitata's first partner, MTN Swaziland. In 2012, Digitata was involved in 28 deployments through its alliance portfolio around the world, out of which 22 were based on Digitata's standalone solution. It has integrated its solution with Oracle, Huawei, Alcatel-Lucent and ZTE. By collaborating independently with other firms, Digitata competed with Ericsson in different customer projects and had a coopetitive relationship with MTN, while cooperating with MTN's competitors.

Seamless' coopetition with Ericsson included activities in several product niches. In the niche where it initially began to collaborate, Seamless increased its independence when in 2008, MTN Group selected their solution for top-up technology after pursuing a worldwide selection process that included most competitors. Because of this, Seamless could act independently with its product platform, ERS 360, as a standalone solution and also strengthened its position within the related segment of managed operations to support mobile operator systems in a global reach.

Seamless invested strategically in new product development and launched ‘The Mollet’, followed by SEQR, a solution interfacing directly with consumers in smartphones, in order to enter the mobile money segment. In this segment, Seamless and Ericsson became competitors, as Ericsson invested in its own mobile money solution through a strategic alliance with Western Union. Ericsson’s decision to develop the solution was based on the high potential for growth in this nascent market. Seamless entered into a revenue-sharing agreement with other partners to broaden its alliance portfolio and balance the coopetitive relationship. It continued to strengthen its market position in 2011, when it made an agreement with MTN Western Africa to scale up its system for mobile payment. Seamless was then chosen as a preferred partner to MTN Rwanda. These actions were in competition with Ericsson, and Seamless had to play the role of partner and competitor at the same time. Since only four of 22 global customer cases are conducted through Ericsson’s market channels, Seamless has gradually decreased its dependence on the large firm. As mentioned previously, in 2011 Seamless launched its patented product, SEQR. Within the mobile money segment Seamless and Ericsson compete intensively, but they are still cooperating partners with their pre-paid solutions.

All three firms needed to collaborate with either customers or competing firms to balance their coopetitive relationships with their large competitor. They also needed to penetrate new market niches and create new relationships in these niches to balance the relationship. Xelerated differed from Digitata and Seamless, as primarily it balanced its coopetitive relationship with Huawei by integrating its product into other competitors’ systems. The other firms, to a larger extent, balanced the relationship by collaborating with customers. One explanation is that Xelerated produced chips and processors that could not be marketed directly to operators, whereas the other two firms produced products with clear service applications. Moreover, the development of new product niches was more restricted in the semiconductor industry, therefore Xelerated had fewer possibilities to build and reconfigure the portfolio of relationships. Digitata’s and Seamless’ collaboration with customers became coopetitive, as they collaborated with firms that delivered products to the customers’ competitors and directly to their competitors. This increases the complexity in their portfolio of relationships.

Agility was an important factor for the progression. The tendency of large firms to acquire or form alliances with pioneering SMEs to control new, important technologies is challenging for smaller firms who want to sustain their competitive advantages and act independently. The SMEs studied used a number of strategic actions to manoeuvre and advance their position, in order to avoid being controlled by large firms. Table 2 demonstrates that the firms rapidly advanced into new relationships or market niches to increase their strength and balance large partner attempts to either control the products and technology, or to develop their own solutions in direct competition. Managers within Ericsson and the mobile telecom operators reported that SMEs use new innovative business models of revenue share or equal investments to strengthen their position and enter into new market segments. Ericsson’s managers saw this as a new phenomenon within telecommunication, which previously relied upon closed business models and integrated value chains where large mobile operators never interacted directly with SMEs. Using strategies to manoeuvre and innovative business models, SMEs could be agile enough to co-opt their customers and advance their own positions, and they often acted more rapidly than their large partner.

The case study firms expressed tensions in their relationships with large firms due to their size and ‘bureaucratic’ organisations. Digitata described the the difficulty of working with an organisation as big as Ericsson; when discussing the possibility of including more of Digitata’s components to bring a more flexible solution to the market, Ericsson objected as it would force the company to compete with other suppliers. Digitata argued that Ericsson had the opportunity to be more flexible in meeting customer needs if it accepted their suggestions. Similarly, other firms described the inertia inherent in the bureaucratic structure of large organisations. Business deals were sometimes delayed with potential damage for the SME's vulnerable financial situation and ability to manage support and customers. As a result of this inertia, the SMEs built coopetitive relationships with other actors to realise their visions and ambitions. Seamless entered into a revenue share agreement with an independent service provider in Zimbabwe in order to broaden its alliance portfolio and lower its dependency on MTN and Ericsson. This agreement was the breakthrough order for Seamless' standalone solution within the high potential segment of mobile money solutions. In addition to the aforementioned SEQR launch in 2011, Seamless also acquired Lettel, a previous distributor of its e-top-up. These agile moves were important strategic steps to create a position higher up the value chain: they are examples of SME agility and how they created new coopetitive relationships to balance one coopetitive relationship with a large competitor and thereby sustain their business.

The case study presented in this article shows how these three SMEs used portfolios of relationships to sustain the opportunities created. The firms were involved in multiple relationships in order to avoid being locked into the vertical supply chains of large firms, or being locked out of the market through competitors' actions. The data also reveal how all three SMEs developed new niches for their products for the same reason. The capabilities needed to manage their portfolios of relationships were for flexibility, the ability to accept rules of coopetition and the need to uphold many contradicting relationships simultaneously, and the agility to build and reconfigure relationships rapidly using innovative business models.

Discussion

This study examines how SMEs can develop and sustain opportunities through collaboration with large competitors. The study shows that it was possible for the three case study firms to create opportunities as convergence within the industry and the increased temporality of relationships opened up the competitive structure within the IT and telecom industry. To achieve this, the firms needed to reduce the challenges related to their smallness and newness and avoid being locked into other companies' value chain to create and sustain opportunities. In previous research on coopetition in the SME context, it has been argued that such firms collaborate with each other to innovate, reduce the timespan for R&D and enable market entry (Gnyawali and Park, 2009; McCutchen and Swamidass, 2004). The firms studied here collaborated with other small firms in their effort to innovate, but not to the same extent for market entry; instead, they had to establish coopetitive relationships with large customers and competitors to overcome the liability of their smallness and newness related to their pioneering technologies (Baum et al., 2000; Stinchcombe, 1965). This can be explained by the nature of the products and the industry. The products are integrated in globally dispersed systems and large firms are dominant in the integration and creation of these systems. New and entrepreneurial firms must manage the challenge to fit in and stand out to survive in the coopetitive relationship with large firms (De Clercq and Voronov, 2009). Furthermore, large telecom operators provide the link to the final customer; therefore, collaboration with these large firms is needed to enter the market.

In line with previous research, the present study demonstrates that legitimacy is needed (De Clercq and Voronov, 2009). Seamless and Digitata collaborated with customers to enter the market and build legitimacy. The mobile telecom operators became 'gate openers', enabling them to enter into the industry; this was possible as the SMEs provided services to the end-consumers of interest for mobile telecom operators. Xelerated's products did not directly apply to consumers, and so it needed to develop coopetitive relationships with its competitors from its inception. However, Digitata and Seamless also had to collaborate with large competitors to be able to extend its market reach and as potential revenue increased. As the business and market reach grew, it became more important for the mobile operators to involve a significant provider as a safeguard, justifying the legitimacy of the firms (cf. Dacin et al., 2007; Perrow, 1961). Lounsbury and Glynn (2001) argue that legitimacy is especially important in ambiguous and complex contexts, as established firms need to attend to the highest-potential opportunities in order to prosper. Converging industries and temporal relationships are both ambiguous and complex; thus, SMEs must search for status or reputation in order to launch pioneering technology in cooperation with other, often competing firms (Podolny, 1994).

As mentioned previously, once the firms had created an opportunity and entered the market, they needed to sustain this success as an independent venture. They needed to balance the coopetitive relationships with the large firm to avoid being locked into their value chain or outcompeted by them (cf. Bengtsson and Johansson, 2011; Gnyawali and Park, 2011). The cases in the present study demonstrate how the firms built and reconfigured their relationship portfolios to balance the coopetitive relationships with large firms. It is argued that firms develop portfolios of alliances to reduce risk and uncertainty (Hoffmann, 2007), to increase their resource stock and their ability to earn relational rent (Gulati, 2007; Lavie, 2006), and to shape the competitive dynamics on an industrial level (Gimeno, 2004). From the present study we claim that the striving to balance coopetitive relationships with large firms can be a motive to build and reconfigure alliance portfolios.

Most studies on alliance portfolio configuration focus on the structural dimensions of the portfolio (Sarkar et al., forthcoming, 2012); however, few studies have explored how alliance portfolios are reconfigured over time. For example, Hoffmann (2007) discussed changes in configuration of the alliance portfolio related to strategies both to explore or exploit and to the uncertainty within the industry; Dittrich et al. (2007) studied how IBM repositioned itself to become a software firm by creating new relationships and terminating old ones. Both studies focused on large firms and how they increased their competitiveness by reconfiguring their alliance portfolios to shape the competitive dynamics within the industry. The present study suggests that small firms can sustain and increase their competitiveness as well by reconfiguring their alliance portfolio, but shaping the industry (Hoffmann, 2007) is not the motive. Instead, an important motivation is to be able to balance the coopetitive relationship with large competitors and sustain their independence. The way in which portfolios can be used to balance power asymmetries in the different alliances have not been discussed, but this study gives important insights into this issue.

The question raised here is how SMEs can develop and sustain opportunities through coopetition with large firms. One answer is related to alliance portfolio management capability. Wassmer (2010) argues that further research is needed to develop a more complete view of alliance portfolio capability. Heimeriks and Duysters (2007) describe alliance portfolio capability as a learning capability, or as mechanisms that foster knowledge transfer between alliances. However, in both studies of the reconfiguration of alliance portfolios it was pointed out that flexibility matters. Hoffmann (2007) notes the importance of quickly acquiring new technology, and Dittrich et al., (2007) cite the importance of being able to terminate alliances and create new ones that provide the technology needed over time. The present study also demonstrates that flexibility is important, and has distinguished between the ability to maintain many relationships simultaneously and accept the rules of coopetition and agility: the ability to create new relationships and whilst preserving existing ones.

This study contributes to the alliance capability research in the context of SME coopetition by demonstrating the importance of role flexibility and agility.

Role flexibility is related to the mindset needed to meet different sets of expectations and the capability to uphold different roles, sometimes with conflicting role expectations (Bengtsson et al., 2010; Zeng and Chen, 2003). The SMEs collaborated with other firms to offer a standalone product, or to develop new market niches together to strengthen their position. They played several roles at the same time, and the likelihood of tension and conflict was high in such situations (Bengtsson et al., 2010; Das and Teng, 2002). If the competitive part of a relationship increases too much, the relationship between two firms ends which was almost the case between Xelerated and Broadcom. If the cooperative element increases, there is an increased risk that a large firm will take over their partner or the product; therefore, it was important to convince the large firm of the advantages provided by the collaboration while strengthening competitive power at the same time. Both partners need to develop a mindset that makes simultaneous cooperation and competition possible, which has been observed in coopetitive relationships between large firms. Gnyawali and Park (2011) use the term ‘coopetitive capability’ to refer to a giant firm’s mindset which makes it easier for them to accept that they are involved in both cooperation and competition. Based on the present empirical study, we argue that both small and large firms in a coopetitive relationships need to accept the rules of the game to make it possible for SMEs to sustain their opportunities.

Moreover, agility is needed: entrepreneurial activeness, alertness and rapid responsiveness are crucial abilities for SMEs to create and sustain opportunities (Kirzner, 1997; Shane, 2000). The case study firms’ agility comprised three interrelated capabilities: customer agility, partnering agility and operational agility (cf. Sambamurthy et al., 2003). Customer agility is the capability to co-opt customers. Partner agility is the capability to leverage partner resources, knowledge and competences, as well as to build and utilise network ties to exploit opportunities. Operational agility is related to an internal capability to accomplish speed, accuracy and cost-efficiency. In their study of high-tech firms, Chen and Chiang (2011) show that these network capabilities have a positive effect on firm performance. Gnyawali et al. (2010) also argue that agility is vital for firms situated in a competitive context with intensity and diversity of competitive moves. Firms need to be able to select, establish, maintain and end relationships with competitors and partners, depending on whether the interaction contributes to or constrains the creation of opportunities. We argue that SMEs need to establish portfolios of relationships in order to respond quickly to change and upcoming opportunities, and thereby balance their asymmetric power relationships with large competitors.

Conclusion

Anchored in the perspective of SME coopetitive relationship, the present empirical study suggests a theoretical model which not only advocates how SMEs manage coopetitive relationships with large firms, but also informs developing and sustaining opportunities via this relationship. We draw some important conclusions from the study. First, given that SMEs operate in an industry that is globally integrated and dominated by large firms, they need to interact with such organisations in order to access integrated systems and enter the market. In so doing, the first challenge lies in reducing the liabilities related to smallness and newness; this challenge is overcome by dint of attaining legitimacy through collaborating with large firms. While a few empirical studies have explored the collaborative relationship among competing SMEs (cf. Levy et al., 2003; Morris et al., 2007), collaborative relationships between SMEs and large firms have been afforded very little attention. Thus, the present study contributes to understanding why SMEs collaborate with large firms and how they manage such relationships.

Second, this study has demonstrated the usefulness of alliance portfolio literature in understanding coopetitive dyadic relationships. Many scholars have worked on dyadic coopetitive relationship, its drivers and outcomes (Gnyawali and Park, 2009, 2011; Padula and Dagnino, 2007; Ritala, 2012), but how this relationship is affected by other relationships in the portfolio has been largely ignored. We have specifically pointed out that role flexibility and agility are essential measures of SMEs alliance portfolio management capability. Both role flexibility and agility are needed to balance the asymmetric coopetitive relationship between SMEs and large firms, so that the former can avoid being locked into the latter's value chain, and be able to capture the value initially created.

Third, we have developed a link between research on SMEs' coopetition and research on entrepreneurial opportunities by showing how asymmetric coopetitive relationships can be balanced to create and sustain opportunities. In this vein, the theoretical model presented here gives promising insights that can influence future research regarding the challenges in fast-paced industries, the management of coopetitive relationships and opportunity creation in this context. In addition, these insights can be beneficial for managers who are active in these coopetitive contexts.

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Appendix 1. Representative quotes underlying second-order themes for the overarching concept fast-paced industry.

First-order categories	Second-order theme: technological convergence
Loosening up competitive structure	'Something is happening in the business landscape today. It is no longer a showstopper to be a small firm. If you go back a few years these small players did not exist on the global market. Large customers did not do business with small firms'(Director of sourcing, Ericsson)
Open standards and interoperability	'What is about to happen now when telecom becomes a IT sphere is much more standards, architectures and interoperability, which makes it less dramatic to take in these small firm with a niche technology or service' (Director of sourcing, Ericsson)
First-order categories	**Second-order theme: market convergence**
Flexibility with 'best-of-breed' products	'The trend in the industry has become to work with suppliers that have been recognised to have best-of-breed products' (Director of global services, Ericsson)
Increased customization	'We have situations looking at the supplier and saying to our customers, no, we do not like this technology or this company – but sometimes we are forced to cooperate with them as it is already decided by our customer' (Vice-president, sourcing, Ericsson)
Changing roles in the value chain	'Everyone is forwarding their positions: today we can do a system integration that previously was managed by our customer, a telecom system provider such as Ericsson' (Founder and vice-president, Xelerated)
First-order categories	**Second-order theme: temporal relationships**
Short product life cycles	'The time window of a customer tender is not open long … speed is the main challenge today' (Head of operations, Ericsson)
Short time to market	'The market is maturing quickly and to survive and continue to be profitable we have to explore new niches' (CEO, Seamless)
Increased projectification	'SMEs go with us as a prime integrator, they go with our competitor and they can go themselves as a prime in a tender from a mobile telecom operator' (Director of sourcing, Ericsson)

Appendix 2. Representative quotes underlying second-order themes for the overarching concept opportunity development.

First-order Categories	Second-order theme: opportunity creation
New technical solution	'The idea was at the initial stage very undeveloped, now we can show that it worked and our technology is presented in student textbooks as a successful innovation … we are well established on the market with leading technology' (Founder and chief operating officer, Xelerated)
New customer needs	'We pioneered with the product and the concept of "Dynamic Discount", we started with a very solid connection with MTN. Today we are operating standalone and on a very solid ground'(CEO and chairperson, Digitata)
New market niches	'We started the journey to rationalise the handling of the pre-paid distribution … we presented the concept to the leading players in the market field … in less than two years we have basically converted the whole market to electronic distribution' (CEO, Seamless)
First-order Categories	**Second-order theme: sustained opportunities**
New complementing solutions	'We can now point to about 28 solutions running at the market. We can point at three years of consulting and supporting the solution. So we are quite comfortable that we can convince the second-tier mobile operators that they would go with us, even if the competition is in the lights of Ericsson' (Chairperson and CEO, Digitata)
New complementing markets and relations	'We don't have to compete on cost against Broadcom. We're absolutely competing on functions.' (Vice-president, business development and marketing, Xelerated)
	'For e-top-up, yes we have a complete solution today. We are one of the market leaders, we are present in 22 countries, and today four of them are with Ericsson' (CEO, Seamless)

Appendix 3. Representative quotes underlying second-order themes for the overarching concept alliance portfolio management capability.

First-order Categories	Second-order theme: legitimacy
Credibility	'We communicated with a customer in the first quarter of 2004 but nothing happened. They called us the other week and wanted circuits in November. They have heard the buzz about Infineon and felt safer with us.' (CEO, Xelerated)
Reputation and status	'At that stage Ericsson did not have the technology, so what they sold was 100 percent our solution – and we subsequentially jointly developed a solution which includes Ericsson architecture' (Chairperson and CEO, Digitata)
	'Ericsson's competence and position as the leading telecoms company makes this partnership very important to Seamless' (CEO, Seamless)
	Second-order theme: agility
Building and reconfiguring relationships	'The trial showed to be successful, it did not erode their revenues and on the basis that they agreed to extend the pilot country-wide' (Chairperson and CEO, Digitata)
	'I do believe this is true for anyone having some kind of frustration. We are a small company, we are a lot more agile and getting the big machine to work is much slower than we would like' (Chairperson and CEO, Digitata)
	'They [SMEs] know they could have taken the deal by themselves as well or they could have taken it together with someone else' (Vice-president, sourcing, Ericsson)
	Second-order theme: role-flexibility
Changing and blurring of roles	'We cannot go alone with our product – we have to go with a number of integrated partners to offer a solution to a customer … sometimes we cooperate and sometimes we meet in competition' (Vice-president, business development, Xelerated)
	'The flexibility is much larger, which leads to the question: are we competitors or partners? We are not one thing or another, we are everything' (Director of sourcing, Ericsson)
	'Suddenly we have a competitive relationship with the supplier … There is always a tension or friction in the relationship. In some cases, we are forced to do a job we did not expect to do' (Director of sourcing, Ericsson)