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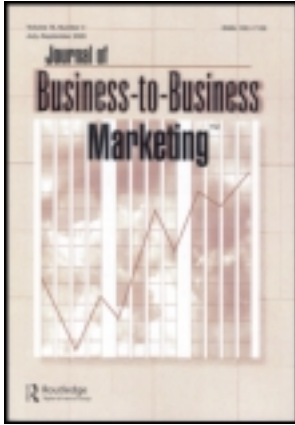
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Competitive Arena Mapping: Market Innovation Using Morphological Analysis in Business Markets

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Purpose: The authors argue that (1) marketing strategy should focus more on where to compete (rather than on how to compete); (2) making subjective market definitions or market innovations may be the key to growth; and (3) a starting point for business marketers wishing to outgrow their competitors is to increase the granularity of market definition to identify competitive arenas that are growing. The authors illustrate the use of morphological analysis for competitive arena mapping in a market definition and innovation context.

Methodology: Using action research, involving a group of twelve firms of various sizes from different industries over a period of three-and-a-half years, we applied morphological analysis in a competitive arena mapping procedure, which enables firms to systematically plot possible competitive arenas and use managerial judgment to select those which are growing and for which the firm has exploitation capabilities.

Findings: Competitive arena mapping allows firms to identify and investigate a large set of possible competitive arena configurations. The developed mapping method has certain characteristics: (1) it specifically focuses on the market boundaries and adjacencies, (2) it incorporates both exchange value and use value, and (3) it acts as a learning process that accelerates the practical application of the arenas in business strategy and practice.

Contribution: The article builds a bridge between the market definition literature in strategic management and the industrial market segmentation literature, by introducing a novel method for increasing the granularity of market definition, using

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morphological analysis. Furthermore, the paper responds to the lack of research addressing strategic segmentation processes by developing a six-step market definition process.

KEYWORDS *business markets, industrial market segmentation, morphological analysis, competitive arena, market definition, industrial marketing, business marketing*

The choices concerning which markets to serve and the resource allocation between markets are essential parts of strategy. Datta (1996) therefore argued that developing a good understanding of how the market works and how it can be segmented should be a central concern of top management. Varadarajan (2010) posited the existence of two layers of marketing strategy: a customer interfacing layer that focuses more on how to compete, and a layer that acts as a precursor to the customer interfacing layer, which focuses more on where to compete. Baghai, Smit, and Viguerie (2007) studied the performance of 100 of the largest U.S. corporations and showed that revenue growth is driven mainly by market growth in the markets where a firm competes. This is echoed by Bradley, Hirt, and Smit (2011) who posited that 80 percent of the variance in revenue growth is explained by choices where to compete, with only 20 percent explained by choices about how to compete (see also MacGahan and Porter, 1997, for a more comprehensive analysis).

The importance of where to compete is further heightened by Matthyssens, Vandenbempt, and Berghman (2006) who argued that firms must improve their market sensing capabilities and also explore the periphery of the market. This observation is congruent with Viguerie, Smit, and Baghai (2008), who called for the need for an increased granularity of market definition: Firms should spend more resources on understanding their markets to secure active presence in fast-growing arenas (i.e., growth pockets) where the firm has capabilities to compete effectively.

The notion of market innovations also creates new perspectives to the “where to compete” question. *Market innovation* is based on the premises that a market is not (only) a group of customers and that there are no given structures “out there” (Jenkins and MacDonald 1997), in which actors compete for positions. Researchers such as Granovetter (1992) and Krippner et al. (2004) argued that markets are socially constructed, implying that there is no objectively given market. Markets are what actors make them to be. They are socially constructed human artifacts, created by the actors who populate a specific context and link resources within this context. This approach gives rise to questions regarding the opportunities for individual market actors to subjectively define their market(s) and shape them in their favor.

Drawing on the above discussion, the working assumptions in this article are (1) marketing strategy should focus more on where to compete (rather than on how to compete); (2) making subjective market definitions (i.e., market innovations) may be the key to new growth and value; and (3) a starting point for business marketers wishing to outgrow their competitors is to increase the granularity of market definition in order to identify competitive arenas that are growing. This article seeks to address these issues using a mapping technique suitable for dealing with multidimensional inquiry, i.e., morphological analysis. Morphological analysis is developed for exploring all the possible solutions to a multidimensional parameter space where the parameters are linked by way of logical relationships (Ritchey 2006; Zwicky 1969).

Using an action research approach, the purpose of the research is to illustrate the use of morphological analysis for competitive arena mapping (CAM) in a market definition and innovation context. The article is structured as follows: First, we develop the competitive arena construct. Second, we describe the characteristics of CAM, building on literature on market definition and industrial market segmentation. Third, we describe the action research process and elaborate the background and application of morphological analysis. Fourth, we describe the empirical data collected in an action research process with twelve firms serving industrial markets. Finally, we discuss the theoretical contributions, and identify avenues for further research.

DEFINING MARKETS, SEGMENTS AND COMPETITIVE ARENAS

Markets can be defined using either supply-side or demand-side characteristics. Most of the marketing literature has adopted a demand-oriented view, i.e., by taking customers as the focal unit of analysis and defining market segments in terms of customers (see, e.g., Clarke and Freytag 2008; Sausen, Tomczak, and Herrmann 2005; Shapiro and Bonoma 1984). The predominant view on industrial market segmentation, drawing on the heritage of Wind and Cardozo (1974) and Bonoma and Shapiro (1983), is built on a break-down process, starting with the entire market (macro) and moving down toward more company-specific information (micro). Some researchers argue for a build-up process starting with data about individual customers (e.g., buying behaviors, etc.) and building segments of customers who share specific similarities (Clarke 2009; Freytag and Clarke 2001).

Jenkins and MacDonald (1997) critiqued this approach by proposing that market definition, particularly at a strategic level, is closely linked to specific supply characteristics, such as capabilities and the nature of the organization. According to Geroski (1998), supply-side market definitions end up in industry definitions (such as the elevator industry or the process

automation software industry), which have certain obvious benefits. They assist in identifying competitors, and they help firms that develop new technology to create a sense of identity, as this is more likely to be determined by the technology and not by the customers they are or will be serving. He also argued that market definitions focused solely on customers are fundamentally incomplete as market boundaries reflect supply side forces as much as they reflect demand side factors. We draw on Datta (1996) who argued for integrating demand and supply-side characteristics.

The competitive arena construct has been used in the literature in the context of defining the market, or its submarkets. Birkinshaw, Hood, and Young (2004: 228), defined a competitive arena as “a set of customers, suppliers, competitors and other actors that collectively shape the [firm’s] strategy.” Abell (1980: 24) argued that a competitive arena can be viewed as a “series of overlays of differently defined businesses intersecting with one another but not necessarily congruent with one another.” The competitive arenas can be viewed as “the smallest area within which it is possible to be a viable competitor” (Kay 1990: 3).

Whereas market segmentation is based on specific hierarchies of causal and/or quasi-causal relationships, competitive arenas in this article are built on an assumption of nonhierarchical and multidimensional connections between variables, thus combining demand and supply characteristics as well as macro and micro levels. The criteria used to assess segmentation solutions, such as measurability, substantiality, and relevance (Webster 1995), are also relevant for competitive arenas. One oft-cited requirement is for segments to be mutually exclusive, i.e., a given customer belongs to a single segment only. Competitive arenas can, however, overlap, depending on which parameters are used to create the specific competitive arenas. This means that for instance customers can be active in several arenas simultaneously (e.g., in a commodity product arena, as well as a solution arena).

Based on the above we define *competitive areas* as potentially overlapping submarkets subjectively defined by the focal actor, creatively combining supply and demand-side characteristics, as well as macro and micro levels.

CAM

By CAM, a firm systematically, comprehensively, and open-mindedly plots where to compete within the context of a business network. In addition to the multidimensional morphological integration of supply and demand side perspectives, a CAM approach has certain characteristics that differentiate it from traditional industrial market segmentation: (1) CAM will, in addition to dividing the existing markets, focus on the boundaries and adjacencies to identify opportunities for growth—a need identified by, e.g., Matthyssens

et al.(2006) and Zook and Allen (2003); (2) CAM focuses both on exchange value and use value and is thus oriented toward understanding customers' activity arenas and market spaces created by these (cf. Vandermerwe 2000); and (3) CAM is a learning process that accelerates the practical application of the arenas in business strategy and practice, as the creation of competitive arenas requires the involvement of key managers of the firm. We will next explicate these characteristics more closely.

CAM Explores Boundaries and Adjacencies

Geroski (1998: 693) proposed that "thinking about market boundaries is important for a firm because redefining market boundaries is a fundamental part of the process of innovation." Hamel and Prahalad (1994), on the other hand, argued that it is increasingly difficult to define precisely where an industry begins. They argued that unexploited market opportunities may be found by analyzing customer types that have not been served and/or customer needs that are yet articulated.

By systematically combining various supply and demand side characteristics, the CAM approach makes it possible for a firm to systematically track the periphery of the market and identify previously unidentified areas. When choosing possible dimensions for the morphological analysis, Zook and Allen's (2003) ideas addressing adjacencies can be used for guidance. He suggested that firms can expand along the value chain, enter new geographies, grow new products and services, use new distribution channels, move into the white space with a new business built around a strong capability, and/or address new customer segments, often by modifying a proven product or technology.

Adoption of CAM secures firms' analysis of their relevant market boundaries, as it produces a collection of possible market definitions, which also extend beyond the current market boundaries.

CAM Integrates Exchange Value and Use Value

Measurements and statistics about markets can often constitute "blindness" (Prahalad 2004) for firms using them, making it difficult to identify new opportunities for growth and creative strategies. Most existing industry statistics related to markets tend to focus on exchange value, which is measured based on the direct monetary exchange that happens when the provider sells and the customer buys a product. These commonly accepted exchange value-based measurements have, however, their shortcomings: If all firms in an industry use the same market definition and measurements, they may end up in single-minded head-to-head competition, increased commoditization, price wars, similar competitive moves, and mature markets.

Building on Storbacka and Nenonen (2011), we propose that in addition to exchange value, use value should also be considered when defining and measuring markets. *Use value* quantifies the value that is created when the customer consumes or uses a good or a service. Lichtenthal and Mummalaneni (2009) pointed out that customers are often considering cost-in-use, or total cost of ownership as more important than purchasing price, thus suggesting that use value may be of greater interest relative to exchange value. A focus on use value means that firms need to create a deeper understanding of the customer's business process in which they create value. The creation of value needs to be understood through the eyes of focal customers (Brady, Davies, and Gann 2005; Davies 2004), "examining all the activities the customer performs in using and maintaining a product throughout its life cycle, from sale to disposal" (Wise and Baumgartner 1999: 135).

Understanding use value requires a new mindset and "emancipation" from product-based biases. The customer situation and value creation need to be analyzed based on the notion that firms are extensions of customer processes and practices for resource integration, rather than customers being extensions of firms' production processes (Korkman, Storbacka, and Harald 2010). Taking a use value perspective to markets can open up new market opportunities. Vandermerwe's (2000) suggested that firms can expand their markets by exploring the customer activity cycle (i.e., customer's activities before, during, and after deciding on conducting a specific task) and by filling value gaps and bridging discontinuities during this cycle.

Building on the discussion above, it is crucial that the CAM process is executed in such a way that it acknowledges and explores both exchange and use value perspectives as both viewpoints are needed to identify suitable parameters for the CAM.

CAM as a Learning Process

The literature on market segmentation has been preoccupied with the choice of the variables, or the bases used for creating segments (Clarke 2009; Sausen, Tomczak, and Herrmann 2005; Piercy and Morgan 1993; Plank 1985). The biggest problems with industrial segmentation is, however, reported to be the application of selected segmentation bases or the implementation of selected segments in business and marketing strategy (Clarke 2009; Clarke and Freytag 2008; Sausen, Tomczak, and Herrmann 2005; Jenkins and MacDonald 1997; Kalafatis and Cheston 1997).

Several researchers (Henneberg, Mouzas, and Naudé 2010; Sausen, Tomczak, and Herrmann 2005; Söllner and Rese 2001; Jenkins and MacDonald 1997; Kalafatis and Cheston 1997; Pierce and Morgan 1993; Dibb and Simkin 1994) argue that most of the implementation problems stem from internal issues, such as (1) lack of clarity regarding the objectives and objects (i.e., unit of analysis) of the segmentation; (2) firms' reluctance to

engage in the comprehensive organizational changes required for strategic segmentation, relative to operational segmentation; (3) the tendency of many frameworks to ignore the organization's capability to implement a segmentation solution or the match between existing capabilities and the market opportunity; and (4) the fact that most segmentation does not take into account information about the whole network, including suppliers, indirect business partners, end-users, and competitors.

Goller, Hogg, and Kalafatis (2002) concluded that generalizations of segmentation models are questionable, due to the fact that segmentation bases are industry- and firm-specific. They argued that instead of finding general segmentation models, more research is needed on segmentation processes. Clarke (2009) is one of the few that has focused explicitly on describing segmentation from a process point of view. In her action research paper, she argued for cross-functional cooperation of key individuals as this built "psychological commitment to the segments; [. . .] the participants formed an attitude of ownership [. . .] and actively communicated their results to their peers" (Clarke 2009: 363).

As a consequence of the above, the CAM process was designed to (1) create firm-specific results, rather than attempt to create generic competitive arenas; and (2) actively involve key individuals on a multi-level and multi-functional basis in a learning process.

RESEARCH PROCESS

This research was carried out between January 2007 and June 2010 and involved a group of twelve firms of various sizes and from different industries: health care, software, equipment rental, piping systems and components, polystyrene, cast components, ICT service and hardware, plant breeding, forestry, aerospace, defense, and heat, water, and air-conditioning solutions (HWAC solutions). The firm characteristics are depicted in Table 1.

The research sample was defined based on three criteria. First, the involved firms had expressed their interest in exploring market definitions during the research period. Second, a special effort was made to involve firms from as many industrial contexts as possible. Third, the sample was limited by access issues. Strategy processes and market definitions are typically considered highly sensitive topics that are not disclosed freely to researchers. Thus, the research sample had to be limited to those firms that were willing to provide sufficient access to needed data.

Clinical Research: An Action Research Approach

We build on Piercy and Morgan's (1993) suggestion that segmentation on a strategic level is more likely to be qualitative and creative, and Jenkins

TABLE 1 Firm Characteristics

Firm	Industry	Size	Geographical scope	Intervention year
A	Health care	over 1bn€	One country (in Europe)	2007
B	Software	under 100m€	Global	2007
C	Equipment rental	100m€–1bn€	Europe and Russia	2010
D	Piping systems and components	100m€–1bn€	Global	2008
E	Polystyrene	under 100m€	Europe	2009
F	Cast components	100m€–1bn€	Europe	2007
G	ICT services and hardware	100m€–1bn€	One country (in Europe)	2007
H	Plant breeding	under 100m€	One country (in Europe)	2007
I	Forestry products	over 1bn€	Global	2010
J	Aerospace	100m€–1bn€	Europe	2007
K	Defense	100m€–1bn€	Global	2007
L	Heat, water, and air-conditioning solutions	100m€–1bn€	Europe and Russia	2009

Note. ICT = information and communications technology.

and MacDonald's (1997) notion that segmentation research needs to be exploratory, rather than prescriptive. The research process, which was carried out over three-and-a-half years, builds on a qualitative action research tradition that can be labeled *clinical research*, as described by Normann (1977) and Schein (1987, 1995).

Action research is distinguished from other forms of social research by active participation and collaboration between the researchers and the organization, the aim for holistic and systemic understanding, a focus on change and goals, the use of multiple types of data-gathering methods, and a systematic dialogue between action and reflection (Coughlan and Coughlan 2002; Gummesson 2000; Dickens and Watkins 1999). The key difference between consulting and clinical research is the regular focus on critical reflection and the more deliberate pursuit of understanding. Based on the experience from the interventions (interviews, reporting sessions, workshops, definition and implementation of new practices, etc.) the researchers spend time and energy on reflecting on the tensions between the initial framework (i.e., preunderstanding) and empirical reality, between researcher and representatives of the client organization. Reflection is a nonlinear, nonsequential, iterative process of systematic combination aimed to match theory with reality (Dubois and Gadde 2002). Within this process, the key is combining: The aim is to combine data gathering with data analysis, compare the evolving framework with existing literature-based theory, and match up the evidence and experiences from many simultaneous interventions to determine emergent patterns and sharpen the constructs used to describe reality (Eisenhardt 1989).

Clinical research focuses on creating change by using language, typologies, and metaphors as intervention tools. According to Schein (1987:

39) clinical research is focused toward the dynamics of change and improvement: "It is therefore normative in its orientation and requires underlying theories that provide normative direction—concepts of health, effectiveness, growth, innovation, integration, and the like." The key intervention tool of the clinician is language or metaphor development, by which the clinician tries to open new aspects of reasoning regarding the specific situation.

The action research process described in this article involved interventions related to defining markets, as a part of a strategy process. Although the strategy processes were different for each firm, all market definition interventions used an identical set of intervention tools: the same language and framework, and the same method (i.e., morphological analysis).

Morphological Analysis

The approach used in this article comes within the broad ambit of morphological methods and is based on identifying parameter spaces that are linked by way of logical relationships (de Waal and Ritchey 2007; Ritchey 2006). Morphological analysis (MA) is a method for structuring sociotechnical systems pioneered by Fritz Zwicky. He used MA as a method for investigating the totality of relationships contained in multidimensional, usually nonquantifiable problem complex (Zwicky 1969). Over the years, MA has been used for problem-solving and as an idea-generation technique (e.g., Higgins 1996). Recent studies using MA focus on virtual organizations (Shekhar and Ganesh 2007), technology road mapping (Yoon, Phaal, and Probert 2008), handling of temporal data in B2C systems (Knolmayer and Borean 2010), and delineating store trade areas (Baray and Cliquet 2007).

According to Zwicky (1969), a morphological analysis is characterized as an ordered way of looking at things. Specifically, this is done by identifying and defining the most important dimensions pertinent to the situation or problem to be analyzed. Each dimension is then categorized into a range of possible and relevant values or conditions. Together, these dimensions and their categories make up the parameters that can be used to structure the problem. A key tool is to create a morphological box or morphological field (Ritchey 2006), constructed by setting the dimensions against each other in an n -dimensional matrix or configuration space. Each dimension forms parallel columns, and each column consists of the possible categories identified in this dimension. A *morphotype*, or particular field configuration is created by selecting a single category from each dimension. This configuration is a particular solution to the issue under study. An example of a morphological box that examines the potential configurations of clocks is provided in Table 2. The grey shaded categories indicate a specific morphotype selected.

The total number of possible configurations in Table 2 is 1,536, calculated by multiplying the options for each attribute ($4*4*2*4*3*4$). The

TABLE 2 Example of a Morphological Box and One Possible Morphotype—Grey Categories Combined (Meredith and Mantel 2005)

Categories	Dimensions						
	Energy source	Energy store	Motor	Regulator	Gearing	Indicator device	
1	Manual winding	Weight	Spring motor	Balance wheel	Pinion drive	Dial hands	
2	Vibration	Spring store	Electric motor	Pendulum	Chain drive	Slide marks	
3	Battery	Bimetallic coil		Tuning fork	Worm drive	Liquid quartz	
4	Solar	No store		Quartz		Light indicators	

The gray shaded categories indicate a specific morphotype selected.

number of alternatives can easily be even bigger, dependent of the number of dimensions and categories identified. Ritchey (2006) reported that a MA with 6–10 dimensions can contain between 50,000 to 5,000,000 formal configurations. Hence, a key to MA is to reduce the field by analyzing and selecting viable morphotypes for further investigation. This process of cross-consistency assessment weeds out the mutually contradictory categories. The inconsistencies can be (a) logical (i.e., specific combinations of categories are not possible); (b) empirical (i.e., the morphotypes are judged to be implausible on empirical grounds); or (c) normative (i.e., certain morphotypes are not permitted, for instance, as they are viewed as conflicting compared to the focal firms' strategy or values; Ritchey 2006; Yoon et al. 2008. In supporting the cross-consistency dialogue we also used Webster's (1995) criteria of measurability, substantiality, and relevance.

The need for cross-consistency analysis highlights a key aspect of morphological analysis: the need for facilitated group interaction with subject matter experts from the focal firm. Ritchey (2006: 7) argued that like all problem structuring methods that deal with "wicked problems" or "social messes," MA "requires strong, experienced facilitation, an engaged group of subject specialists and a good deal of patience."

The Intervention Process

All twelve interventions followed a highly interactive and iterative six-step process, which was initially developed before the first interventions, and gradually refined during the consecutive series of interventions (a procedure suggested by Couglan and Coghlan 2002). The first five steps deal with the establishment and analysis of the competitive arenas through morphological analysis (see also Ritchey [1998, 2006] and Higgins [1996] for their view of morphological analysis). The sixth step connects the CAM with the strategy process, thus securing the implementation of defined and selected arenas.

The six steps included (1) identifying and selecting competitive arena dimensions; (2) creating a morphological box by defining categories for each dimension; (3) configuring viable morphotypes, i.e., competitive arenas; (4) developing arena cards to describe and quantify each arena; (5) selecting a set of competitive arenas to focus on; and (6) implementation kick-off.

The five first steps took between three and sixteen weeks to execute, depending on the urgency of the strategy process and the availability of data and management resources. The content and length of the sixth step varied according to the strategy process applied in each firm. All steps were carried out together with firm representatives in various forms of workshop formats. These are described in greater detail in Table 3.

TABLE 3 The Intervention Process

Steps	Format	Input	Output	Facilitator/researcher role
1. Identifying and selecting competitive arena dimensions	Project meeting with CEO and 2–3 senior managers, preceded by a series of interview with key firm representatives (4–17 interviews)	<ul style="list-style-type: none"> • Documented information about firm, its customers, competitors and partners • Tacit knowledge of interviewees and project meeting participants 	<ul style="list-style-type: none"> • List of firm-specific competitive arena dimensions to be used (3–8 dimensions) 	<ul style="list-style-type: none"> • Creation of common language to discuss competitive arenas • First draft of possible competitive arena dimensions suggested by the facilitator; ensuring that both demand and supply side dimensions are proposed • Documenting and structuring the proposed arena dimensions • Ensuring that sufficient number of competitive arena dimensions is taken into account
2. Creating a morphological box by defining categories for each dimension	Cross-functional task force with project manager (typically a senior manager) and 1–5 other firm representatives	<ul style="list-style-type: none"> • List of firm-specific competitive arena dimensions • Tacit knowledge of participants • Facilitator's accumulated knowledge of firm 	<ul style="list-style-type: none"> • Firm-specific morphological box with 3–8 dimensions and 2–24 categories under each dimension 	<ul style="list-style-type: none"> • Reflecting on identified competitive arena dimensions: do they seem feasible based on facilitators' theoretical and practical experience? • First draft of morphological box by the facilitator • Promoting participants to reflect based on their experience, on the draft of the morphological box • Documenting and structuring the proposed morphological box

3. Configuring relevant competitive arenas	Cross-functional task force with project manager (typically a senior manager) and 1–5 other firm representatives	<ul style="list-style-type: none"> ● Firm-specific morphological box ● Tacit knowledge of participants ● Facilitator's accumulated knowledge of firm and morphological analysis 	<ul style="list-style-type: none"> ● List of firm-specific competitive arenas (11–68 arenas) 	<ul style="list-style-type: none"> ● Reflecting on the identified morphological box prior the next intervention: Does it seem feasible based on facilitators' prior theoretical and practical experience? ● First draft of the competitive arena list suggested by the facilitator ● Promoting participants to reflect based on their experience, on the draft competitive arena list ● Documenting and structuring the proposed competitive arena list
4. Developing arena cards to describe and quantify each arena	Arena card creation: cross-functional task force with project manager and 1–5 other firm representatives Quantification of arenas: teams of subject matter experts (2–9 teams of 2–7 persons) to collect the data	<ul style="list-style-type: none"> ● Facilitator's and participant's pre-understanding of relevant arena analysis topics ● Market data sources (firm's IT systems, market reports, etc.) ● Tacit knowledge of participants ● Facilitator's accumulated knowledge of firm and CAM 	<ul style="list-style-type: none"> ● Firm-specific arena card template outlining analysis topics and reporting styles ● Filled-in arena cards for identified competitive arenas (13–68 arenas) containing market information in a synthesized form (max. 3 pages per arena) 	<ul style="list-style-type: none"> ● Reflecting on the competitive arena list prior the next intervention: Does it seem feasible based on facilitators' prior theoretical and practical experience? ● First draft of the competitive arena card template suggested by the facilitator ● Documenting and structuring the proposed competitive arena card template ● Training the teams of firm subject matter experts to fill in the competitive arena cards with needed data ● Collecting the competitive arena cards from the teams ● Synthesizing the information provided by the teams

(Continued)

TABLE 3 (Continued)

Steps	Format	Input	Output	Facilitator/researcher role
5. Selecting a set of competitive arenas to focus on	Strategy workshop with 8–32 participants, representing key functions in the firms.	<ul style="list-style-type: none"> • Filled-in arena cards • Excel-tool for comparing arenas in terms of different variables (e.g., growth rate, profitability, firm's competitive power) • Tacit knowledge of participants • Facilitator's accumulated knowledge of firm 	<ul style="list-style-type: none"> • Commonly agreed list of competitive arenas which the firm focuses on during the next strategy period (5–60 selected arenas) 	<ul style="list-style-type: none"> • Facilitating the presentation of competitive arena mapping results • Facilitating the dialogue on competitive arenas: both in creating shared understanding about the arenas and in selecting the arenas to focus on
6. Implementation kickoff	Strategy workshop with 8–32 participants, representing key functions in the firms.	<ul style="list-style-type: none"> • Commonly agreed list of selected competitive arenas • Tacit knowledge of the strategy workshop participants • Facilitator's accumulated knowledge of firm 	<ul style="list-style-type: none"> • List of development projects needed to ensure successful operations in selected arenas • First drafts of possible market entry strategies to enter entirely new competitive arenas 	<ul style="list-style-type: none"> • Facilitating the dialogue on the implications of selected competitive arenas: Is the firm's current business model suitable to all selected competitive arenas or are changes in the current business model and/or new parallel business models needed? • Facilitation of possible development projects to ensure successful operations in selected competitive arenas • Facilitating the creation of possible market entry strategies (for entirely new competitive arenas). • Reflecting on the entire intervention process with the context of the ongoing larger research process

EMPIRICAL RESULTS

In this section we will describe two cases in greater detail and provide a cross-case analysis of all the twelve cases. As the analysis and intervention covered strategically sensitive areas of the participating firms' strategies, we are unable to describe all case firms, their situations, or the outcomes in great detail. We have focused our analysis on the competitive arena dimensions, with the exception of the descriptions of two cases, where we have selectively opened up the dimensions' categories.

The Alfa and Beta cases were selected with the objective to illustrate the use of CAM in as different contexts as possible: Case Alfa illustrates the use of CAM in an independent subsidiary with over 1 billion euro annual turnover operating in a single European country, whereas case Beta demonstrates CAM in a globally operating firm with less than 100 million euro turnover. The CAM approach in Alfa was also different (see Table 6) compared to the other firms, as the work was divided into five growth directions from the onset.

The narrative used in the presentation of the results is a combination of findings from the interactions with the representatives of the participating firms and results from the frequent reflections the researchers engaged in. We have—because of the extent of the data—chosen to focus on presenting the final results of the research, as opposed to the intermediate results, or direct quotes and/or comments by the firms' representatives.

Case Alfa: A Wholesaler Seeking Growth and Increased Margins

Alfa is a European pharmaceutical wholesaler operating in several countries. The intervention process focused on one of Alfa's country units, which all have a considerably high degree of autonomy with respect to their operations and strategic decision-making.

The intervention process took place in 2007. At that time, the competitive situation in the country in question was very stable: There had been only one other pharmaceutical wholesaler in addition to Alfa for several years, and the oligopoly was unlikely to be challenged by new entrants in the near future because of relatively high entry barriers. Alfa was the market leader with slightly higher market share relative to its main competitor.

Alfa operates a double-sided business model: it serves both principals (i.e., firms producing the pharmaceutical products) and channel customers (e.g., pharmacies and hospitals). Until 2007, Alfa had defined their market as a drug distribution contract market, i.e., the main focus was in securing distribution contracts from the principals. Alfa generated its earnings by charging a percentage of each product distributed to the channel customers.

However, by 2007 it was evident that because of the decreasing pharmaceutical product prices, driven by the rise of generic drugs and

government actions designed to control the retail prices of pharmaceutical products, the current market definition and business model could not secure future growth. This was evident also from the business numbers: Alfa had experienced decreasing margins and modest sales growth for many consecutive years.

At the beginning of the intervention process, five distinct growth directions were identified for Alfa based on an adjacency analysis: distribution business with principals, distribution business with channel customers, other business support for principals, other business support for channel customers, and entering entirely new customer groups. After this, an individual morphological box was created separately for each of the five growth directions. When identifying competitive arena dimensions for each morphological box, particular attention was paid to include dimensions that reflected use value. The identified competitive arena dimensions for each growth direction were as follows:

- Distribution business with principals: principal type (4 categories within the dimension), product type (6), Alfa's role in the value network (6);
- Distribution business with channel customers: channel customer type (7), product type (3), Alfa's role in the value network (6);
- Other business support for principals: principal type (4), principals' main business processes (12), Alfa's role in the value network (6);
- Other business support for channel customers: channel customer type (7), channel customers' main business processes (8), Alfa's role in the value network (6); and
- New customer groups: new customer type (8), customers' main business processes (8), Alfa's role in the value network (6).

In Table 4, we have described in more detail the morphological box related to the growth direction "other business support for channel customers." In this particular example the dimensions "channel customer type" and "channel customers' main business processes" relate to the demand-side perspective, whereas the dimension "Alfa's role in the value network" focuses more on the supply-side perspective.

Considerable time and effort was used in cross-consistency assessments purported to identify viable competitive arenas to be analyzed. After the cross-consistency assessments, Alfa identified and analyzed five viable competitive arenas under the growth direction "distribution business with principals" (out of 144 possible combinations), six arenas under "distribution business with channel customers" (out of 126), eight arenas under "other business support for principals" (out of 288), nine arenas under "other business support for channel customers" (out of 336), and nine arenas under "new customer groups" (out of 384). As predicted by the competitive arena

TABLE 4 Morphological Box Alfa: Competitive Arena Dimensions and Categories for Growth Direction “Other Business Support for Channel Customers”

Categories	Dimensions		
	Current channel customers	Channel customers' main business processes	Alfa's role in the value network
1	Pharmacies	Category management	Importer/exporter
2	Hospitals	Purchasing	Marketer
3	Other medical treatment units	Inventory management	Wholesaler
4	Retail	Space management	Distributor
5	Natural product shops	Internal logistics	Service provider
6	Private health care providers	Dosing	Retailer
7	Personnel in health care units	Marketing	
8		Sales	

The gray areas together form one competitive arena.

definition proposed in this article, the identified viable competitive arenas were partially overlapping as the same customers could occupy multiple competitive arenas simultaneously. In addition, many of Alfa's services were present in various competitive arenas.

Whenever a potential morphotype was left outside the analysis, the decision was based on one of the five following reasons: (1) the morphotype was not logically possible (e.g., a majority of hospitals are public, and they are not interested, e.g., in marketing-related services; thus morphotype “Hospitals” + “Marketing” + “Service Provider” is not viable); (2) the morphotype was defined too narrowly, i.e. the actual competition took place in a competitive arena extending beyond this particular morphotype (e.g., the hospitals are not interested in pure inventory management service providers; therefore the viable morphotype had to include two categories under dimension “Alfa's role in the value network”: “Hospitals” + “Inventory management” + “Distributor and Service Provider”); (3) the morphotype described a competitive arena that was deemed too small to be of interest to Alfa; (4) the morphotype described a competitive arena that would require capabilities which Alfa did not possess; or (5) the morphotype described a competitive arena that resided outside Alfa's operating range (e.g., restrictions posed by the owners or current legislation). As shown in Table 4, some of the categories are grouped together, to create viable competitive arenas. This limited the number of possible morphotypes.

After the 37 competitive arenas had been identified, cross-functional teams analyzed all competitive arenas with the help of competitive arena cards: a one-page PowerPoint template that included eight predefined analysis topics. The template guided the teams to collect the available data and tacit knowledge and document it in a congruent format. In the analysis phase the teams collected information on the current size and profitability of the arena (exchange value), Alfa's current turnover and profit from the arena (exchange value), the main/most potential customers in the arena, Alfa's offering within the arena, the value of Alfa's offering to the identified customers (use value), current and prospective competitors in the arena, Alfa's competitive position in the arena, identified challenges and risks within the arena, identified opportunities within the arena, in addition to the fit of the arena with Alfa's strategic capabilities.

When collecting arena-specific information, all teams were faced with the same challenges. First, it was relatively difficult to get quantitative data about arena size and profitability as there were no external statistics that followed Alfa's competitive arena division—thus educated estimations were used extensively when generating quantitative arena information. Second, it was difficult to quantify the use value. Therefore, use value was most often analyzed in qualitative terms, focusing on identifying the customers' business drivers that Alfa's offering affected. Finally, reliably assessing the fit between the competitive arena and Alfa's strategic capabilities required tacit knowledge from cross-functional teams.

The selection of the competitive arenas to focus on was done in a two-day strategy workshop involving 14 key individuals from different functions. The dialogue on competitive arenas was facilitated by an Excel tool, developed based on MacMillan, van Putten, and McGrath (2003), which enables a visual comparison of the competitive arenas by using arena attractiveness to Alfa, the competitive situation, and Alfa's competitive power as variables. After discussing each growth direction and their competitive arenas separately, Alfa selected 19 competitive arenas to focus on for the next three years.

The intervention process supported Alfa in finding and entering several new adjacent competitive arenas. Alfa broadened its market definition from drug distribution contracts to cover also other business support services to both principals and channel customers. In addition, Alfa decided to invest considerably to get a foothold into a new customer group, i.e., retail chains. The entry in these new adjacent competitive arenas also meant that Alfa departed from the industry standard market definition of "drug distribution contract market" and created their own subjective market definition with more focus on the overall health care and broader range of target customers and available services.

CAM also helped Alfa to create a new and common language needed to discuss markets and market dynamics. Additionally, CAM increased the

readiness of Alfa's management team to continuously question the current market definition and look for new business opportunities both within and outside the current market definition.

During the next three years after the intervention process, Alfa experienced steady sales growth and managed to turn around the past trend of diminishing margins. The CEO of Alfa has publicly stated that the increase in margins can largely be accredited to the new competitive arenas.

Case Beta: A Software Firm Seeking Strategic Clarity

Beta is a globally operating software firm, developing and providing specialist business process automation software for corporate and public sector customers in over 50 countries. The intervention process took place in 2007 and covered Beta's entire global operations, including all local subsidiaries. At that time Beta's competitive environment could be described as dynamic and highly competitive, i.e., similar software solutions were provided by other global providers and the pace of technological development was very rapid.

Unlike Alfa, Beta was experiencing strong growth and solid profitability. During the previous five years, Beta's annual sales growth had varied between 25 percent and 65 percent whereas the operating profit had varied between 5 percent and 15 percent. Therefore, Beta's strategic challenges did not lie in identifying growth or improving profitability. Rather, they were related to enhancing strategic clarity. Faced with highly complex markets Beta needed to clarify its market boundaries (i.e., where to compete in the near future). Further, an improved understanding of where to compete was also believed to help Beta to clarify how to compete—at the time Beta used an unmanaged mix of various go-to-market channels and earnings logics.

During the intervention process, the following six competitive arena dimensions were identified: Beta's capabilities (10 categories within the dimension), Beta's position within the value chain (6), geography (9), customer type (4), go-to-market logic (7), and earnings logic (4).

In Table 5, we describe Beta's morphological box in more detail. Similar to case Alfa, Beta's competitive arena dimensions covered both demand- and supply-side perspectives. Specifically, dimensions such as geography and customer type illustrate the demand-side of markets, whereas dimensions including Beta's capabilities and Beta's position within the value chain describe supply-side characteristics of markets. Because of confidentiality reasons, we are not able to disclose the specific categories of Beta's capabilities.

From this morphological box, 60,480 unique competitive arenas could be generated. However, through the cross-consistency assessments undertaken, the number of competitive arenas to be analyzed was reduced to 31. Even though the number of possible morphotypes was far greater with

TABLE 5 Morphological Box Beta: Competitive Arena Dimensions and Categories of Some Selected Dimensions*

Categories	Dimensions					
	Capabilities	Position in value chain	Geography	Customer	Go-to-market logic	Earnings logic
1	Cap A	Business consulting	Asia Pacific	Large companies	Global software houses	License fee
2	Cap B	Software developer	Benelux	Mid-sized companies	ERP integrator	Consulting fee
3	Cap C	Delivery services	France	Small companies	Business process outsourcing	SaaS (software as a service)
4	Cap D	Service center	Germany	Public sector	Imaging and capturing	Value based pricing
5	Cap E	Support services	Russia		ASP	
6	Cap F	Business process outsourcing	Scandinavia		Sales and marketing partner	
7	Cap G		Southern Europe		Direct sales	
8	Cap H		UK			
9	Cap I		USA			
10	Cap J					

Note. The gray areas together form one competitive arena. ERP = enterprise resource planning; ASP = application service provider.

*To secure confidentiality and anonymity of the case firm, the capability dimension's categories have not been explicated and generic descriptors are used instead.

Beta than it was with Alfa, the criteria used to eliminate unviable competitive arenas were similar to those applied to case Alfa (i.e., morphotypes were eliminated if they were (1) logically impossible, (2) defined too narrowly and described a competitive arena that was (3) too small to interest Beta, (4) required capabilities that Beta did not possess, or (5) resided outside Beta's operating range), with the only exception that legislation did not pose any restrictions to Beta's operating range. Also in this case, several of the categories, particularly in the geography dimension, were grouped, which limited the number of morphotypes.

After the relevant competitive arenas were configured, teams of two individuals started to gather information about the specific competitive arenas into the competitive arena cards (see Table 3), which in this case were one-page Word templates including six predefined analysis topics. In the analysis phase the teams collected information the current size of the arena (exchange value), Beta's current turnover from the arena (exchange value), current competitors in the arena, Beta's market position, Beta's current/target customers in the arena, specific challenges and risks within the arena, and specific arena-based opportunities. It is worth noting that Beta did not focus on use value in particular. This may be typical for firms in fast-growing dynamic markets, which may find it more relevant to create an organizational identity based on supply-side characteristics as predicted by Geroski (1998). The challenges faced by the teams were quite similar to those experienced by Alfa: There was almost no readily available quantitative information about arena size and Beta's turnover in each arena; hence extensive calculations and estimations were required to approximate the arenas in quantitative terms. Additionally, the teams of two individuals felt they would have benefited from more cross-functional viewpoints when assessing arena-specific risks and opportunities.

The selection of the focal competitive arenas was executed in a three-day strategy workshop involving nine key individuals from all relevant organizational functions. Similar to case Alfa, the dialogue on competitive arenas was facilitated by an Excel tool, which enabled visual comparisons of the competitive arenas by using arena attractiveness to Beta, competitor reactivity, and Beta's competitive power as the key variables.

As a result of the intervention process, Beta selected twelve competitive arenas to focus on during the next three years. Additionally, these twelve competitive arenas were categorized into three clusters, each with different offerings, channels, and target customers. Like Alfa, Beta selected some new adjacent competitive arenas: the new market opportunities were mainly found from new geographical markets and from broadening the offering in the core geographical markets and to selected global customers. However, the decision to focus only on twelve competitive arenas meant that Beta simultaneously narrowed down its definition of where to compete by stopping to conduct business in some arenas—a clear dissimilarity compared to

Alfa. Additionally, as the three competitive arena clusters were further elaborated into three distinct business models, Beta was also able to clarify how to compete in the competitive arenas selected. The resulting market definition was more subjective than the previous one as it moved Beta more clearly from the commonly accepted pure process automation software market to a automation solutions market advocated by Beta.

Similar to Alfa, Beta's competitive arenas were partially overlapping as the same customers could occupy multiple competitive arenas simultaneously and Beta provided the same products and services in various competitive arenas. Furthermore, Beta's competitive arena clusters and the subsequent differentiated business models surpassed the geographical area boundaries, leading into a situation in which two business models were effective in the majority of Beta's operating countries.

During the next three years after the intervention process, Beta continued to experience sales growth figures between 8 percent and 20 percent, despite the global economic downturn. Throughout this period Beta's operating profit also was over 10 percent. The three distinct business models identified have remained as the main guidelines for Beta's management since 2007, helping Beta to clarify both its operations and investor communications.

Cross-Case Analysis

The descriptions of Alfa and Beta show that market definitions are relevant both for incumbent firms seeking growth pockets in the adjacencies of a mature market, and for rapidly growing firms wishing to drive market development in fast-growing dynamic markets.

Based on these analyses, we conclude that learning is a key aspect of CAM: The process cannot be executed without the committed participation not only from key individuals across various firm functions, but from top management in particular. The process involves intensive sessions of analysis and debate, which require industry expertise, extensive experience, and the ability to exercise managerial judgment, in addition to the analytical work supporting the process. Through these interactions, key individuals gradually develop a granular view of the market and learn a new language to discuss growth opportunities. The learning materializes in their ability to make strategic decisions and take practical actions to realize the growth opportunities identified.

All firms were looking for growth opportunities in the adjacency of their existing market definition. By analyzing the competitive arena dimensions used by all the firms (see Table 6) we can see that firms were intent to determine whether their capabilities could be used by new customer types, whether new geographies could be entered successfully, whether their position in the value chain or value network could be modified, whether

TABLE 6 Summary of Twelve Case Firms' Competitive Arenas

Firm	Industry	Competitive arena dimensions (# of categories identified)	Possible morphotypes	Arenas analyzed	Final market granularity
A	Health care	A1: Distribution business with principals; principal type (4); product type (6); role in the value network (6) A2: Distribution business with channel customers: channel customer type (7); product type (3); role in the value network (6) A3: Other business support for principals: principal type (4); principals' main business processes (12); role in the value network (6) A4: Other business support for channel customers: channel customer type (7); customers' main business processes; (8) role in the value network (6) A5: New customer groups: customer type (8); customers' main business processes (8); role in the value network (6) Capabilities (10); value chain position (6); geography (9), customer type (4); go-to-market logic (7); earnings logic (4) Geography (20); customer situation (5); building lifecycle (2) Geography (7); value chain position (3); segment/customer industry (4); customer type (2) Applications—grouped in three subgroups (15); performance sought (4); product features (6); customer type (6); geography (10) Customer segments (6); customer geography (4); applications (7); product technologies & materials (5); value chain position (7) Customer industry (8); customer size and geographical scope (4); service coverage (15); customer processes (11); use context/practices (4)	A1: 144 A2: 126 A3: 288 A4: 336 A5: 384 Σ : 1,278	5 6 8 9 9 Σ : 37	19
B	Software	Geography (7); value chain position (3); segment/customer industry (4); customer type (2)	60,480	31	12
C	Equipment rental	Customer segments (6); customer geography (4); applications (7); product technologies & materials (5); value chain position (7)	200	68	60
D	Piping systems and components	Customer industry (8); customer size and geographical scope (4); service coverage (15); customer processes (11); use context/practices (4)	168	19	10
E	Polystyrene	Applications—grouped in three subgroups (15); performance sought (4); product features (6); customer type (6); geography (10)	39,600	16	5
F	Cast components	Customer segments (6); customer geography (4); applications (7); product technologies & materials (5); value chain position (7)	5880	15	n/a
G	ICT services and hardware	Customer industry (8); customer size and geographical scope (4); service coverage (15); customer processes (11); use context/practices (4)	21,120	21	n/a
H	Plant breeding	Geography (6); plant category (13); end use of plant (3); value chain position (3); channel (3)	2106	13	13
I	Forestry products	Customer type (6); end use (8); building life cycle (3); customers' geography (24); offering scope (4); earnings logic (4)	55,296	N/A	N/A

(Continued)

TABLE 6 (Continued)

Firm	Industry	Competitive arena dimensions (# of categories identified)	Possible morphotypes	Arenas analyzed	Final market granularity
J	Aerospace	Customer segment (5); technology platform (11); service content (12); nature of service (5); earnings logic (6); asset ownership (4); geography (12); role in value network (5)	4,752,000	N/A	12
K	Defense	End customer (6); relationship with customer (7); service/earnings logic (9); geography (3); military capability area (18); technology (11); system level (4)	898,128	N/A	15
L	HWAC solutions	Business logic (4); customer type (10); site profile (11); offering content (4)	1760	17	N/A

Note. ICT = information and communications technology; HWAC = heat, water, and air conditioning.

they could move forward in the value chain by focusing on the end-user, whether their earnings logics could be altered by changing their asset structure and/or offering contents, or by focusing on their customers' use value (i.e., by understanding the customers' business processes or life cycle).

All the competitive arenas integrate supply-side dimensions (e.g., product/service type, technologies, and applications) with demand-side dimensions (e.g., geography, customer typologies, customer situations, and customer processes). Our aim was not to identify any generic or generalizable dimensions (as CAM was designed to create firm-specific results, with a specific focus on the process). It is, however, interesting to analyze the dimensions used by the twelve firms. The most commonly used dimensions included: Customer type/segment/situation (10/12), geography (10/12), offering/product/service content and technologies (9/10), value chain/network position (6/12), customer processes (6/12), earnings logic (4/12), end-use/life-cycle (4/12), and channel (3/12).

Table 6 also illustrates the need for a structured, facilitated process with a focus on managerial judgment. The possible morphotypes (or competitive arena permutations) can easily become overwhelming. To illustrate, the largest number of possible morphotypes, i.e., created in cases J (4,752,000) and K (898,128), are extensive—the numbers of morphotypes in the other cases are in line with the views of Ritchey (2006). The large numbers could possibly be explained by the dominantly analytical mindset present in the aerospace and defense industries. In both cases, however, the final market definition only contains 12 and 15 competitive arenas, respectively. In all of the cases some of the categories in many dimensions (particularly in geographies) were grouped (as illustrated in Tables 4 and 5), which lowered the number of actual possible morphotypes. This illustrates the need to involve managerial judgment at the onset of the process, which is well illustrated by case D, where the CEO was strongly involved in all stages of the CAM process (which produced 168 possible morphotypes and a granularity of market definition of 10 competitive arenas).

As emergent from Table 6, the final granularity of market definition was fairly low (most of the cases were between 5 and 19, with the exception of case C, which has a granularity of 60 arenas) compared to the possible morphotypes. For most of the firms this was still a major increase of granularity and opened up significant new growth opportunities.

In Table 7 we have identified the central growth opportunities and market innovations that some of the case firms identified as a result of the process (for confidentiality reasons we are able to portray only 8 of the 12 cases). Examples of these are “expansion into customer segments outside construction industry”; “focus on strategic customers in Asia;” “deeper cooperation with industrial customers (forward in value chain);” “repositioning in value network”; and “creation of new project business model (parallel business model).”

TABLE 7 Key Growth Directions and Market Innovations

Firm	Industry	Growth directions
A	Health care	Transforming channels into customers (pharmacies, hospitals) Entering new channel/customer type (retail) New value-added services
B	Software	Penetrate new geographical markets Selling broader offerings to customers in core markets Global customers
C	Equipment rental	Internationalization Expanding to 'new' customer segments outside construction industry
D	Piping systems and components	Focus on strategic customers in Asia After sales Ultra-large projects
E	Polystyrene	New processes at the customer New segments or applications New end-uses
F	Cast components	Current customers: more applications Current customers: new geographies New applications Expand technologies and materials
H	Plant breeding	Deeper cooperation with industrial customers (forward in value chain) Geographical expansion with selected products
L	HWAC solutions	Repositioning in value network Creation of new project business model (parallel business model)

Note. HWAC = heat, water, and air conditioning.

DISCUSSION

Our work responds to calls for research into the strategic marketing domain (Varadarajan 2010). Reibstein, Day, and Wind (2009: 1) argued that the “balkanization of academic marketing into quantitative modeling and consumer behavior has diminished research on strategic marketing issues” relevant to marketing practitioners. Specifically, they suggest that key domains to research are the “new fragmented marketspace” and “practices for achieving profitable growth.” The *MSI Research Priorities 2010–2012* also highlight a need for research on how to improve firms’ strategies by providing “timely and relevant information regarding opportunities for growth” as there are major differences in “sales growth rates and market potential across different industries, sectors, and markets” (Marketing Science Institute 2010: 3). Furthermore, our selected topic is relevant to management practice, as evidenced by a recent *McKinsey Quarterly* article, which suggested an important strategy test is to secure that strategy is built on a granular view of the market (Bradley et al. 2011).

This article contributes to the industrial marketing literature in several ways. First, it builds a bridge between the market definition literature in

strategic management (Geroski 1998) and the industrial market segmentation literature, by integrating specific supply- and demand-side characteristics (Datta 1996). This supports the suggestions by Henneberg et al. (2010) who argued for a segmentation of business networks instead of segmentation of only customers.

Second, it introduces a novel method for increasing the granularity of market definition, using morphological analysis to identify competitive arenas. The CAM process combines break-down and build-up thinking in creating arenas, by identifying parameter spaces that are linked by way of logical relationships. It allows firms to identify and investigate a large set of possible competitive arena configurations, which enables a systematic and comprehensive mapping of where to compete in the context of a value creation network. As the case analysis shows, the method is particularly suitable for mapping market adjacencies.

Finally, the article responds to the lack of research addressing strategic segmentation processes, as lamented by, e.g., Clarke (2009) and Jenkins and MacDonald (1997), who claimed that further research is needed to understand how organizations arrive at their selected market segments. The rich empirical data provided in this article covers a multitude of business-to-business firms and facilitates interpretations of how firms approach market definition and strategic market segmentation issues.

Further Research Avenues

Our work assumes that market actors will make subjective market definitions by identifying the network(s) to participate in—both in terms of exploiting existing opportunities and exploring new ones (March 1991). This resonates with discussions addressing market driven versus market driving strategies (Jaworski, Kohli, and Sahay 2000; Kumar, Scheer, and Kotler 2000; Varadarajan 2010). Jaworski et al. (2000) defined *market driving strategies* as changing the configuration and/or behavior of actors in a market. Firms applying market driving strategies need to start with their own subjective view on which market(s) to drive. A firm wanting to become market driving can do so by engaging in processes aimed at influencing the existing market practices (Kjellberg and Helgesson 2006). Storbacka and Nenonen (2011: 251) termed this *market scripting*, defined as “conscious activities conducted by a single market actor in order to alter the current market configuration.” The interdependence of actors in a network brings with it issues related to influencing and being influenced (Håkansson and Ford 2002). As the market is performed by all actors in the network, it will reflect consequences of firms’ actions and, likewise, a firm’s actions are the consequence of the market configuration. Furthermore, different market actors will have different levels of clout to enforce their view or influence other actors (MacMillan et al. 2003). We suggest that further research is needed to better understand how

single market actors can engage in market driving strategies, how they can influence the existing market practices, and the factors determining specific actors' level of clout, or market shaping strength.

The market view in this article integrates supply-side and demand-side characteristics, and exchange value and use value. This approach generates research issues related to market measurement both in monetary and non-monetary terms, both short-term and long-term. Existing practices in most industries generate commonly used statistics for product markets—not for the measurement of use value. Furthermore, most firms use (product) market share growth as a key measure of performance. Redefining markets to include use value will necessitate firms to develop new measurements. Managerial applications exist for measuring customer share or “share of wallet,” although these usually measure exchange value. What is needed is further research on practices covering how to measure value created in the customer's processes and aggregated value in a market.

During the research process it became evident that research comparing firms in mature markets with firms in fast-growing or dynamically changing markets would be valuable. As discussed earlier, it seems that firms in fast-growing markets are focused more on supply-side characteristics in defining their market, whereas firms in mature markets use both supply-side and demand-side characteristics, with a special focus on generating deeper understanding of use value. Interesting research covering the segmentation of markets in the making conducted by Harrison and Kjellberg (2010) provided insights into market definition and how market segmentation can be used as a market-driving tool. Further research should focus on developing a typology of different market conditions, and possibly search for evidence of emerging generic dimensions in defining competitive arenas.

Finally, one of the key areas of concern, which constitutes both a limitation of the present research and a valuable future research avenue, is the lack of longevity in the analysis. During the three-and-a-half-years of the research process several changes have occurred within the respective firms, their competitive situations, and the general market conditions (including a global recession). These dynamics will naturally have an impact on managerial judgment and executive action, resulting in what Jenkins and MacDonald (1997) referred to as “market drift.” Hence, a very promising research avenue would be a longitudinal study on a single case firm to better understand the organization's reaction to specific market dynamics and, as a result, how these may modify the market definition employed.

IMPLICATIONS FOR BUSINESS MARKETING PRACTICE

The choices concerning markets to serve and the allocation of resources between markets is an essential part of strategy. A recent *McKinsey Quarterly*

article suggests that that 80 percent of the variance in revenue growth is explained by choices where to compete, whilst a mere 20 percent is explained by choices about how to compete. It is easier to grow in a growing market!

This research posits there are no objective markets “out there” in which firms compete for positions and/or market share. Rather, markets are what actors make them to be. They are “socially constructed,” created by the firms who populate a specific value creation network. Firms can make subjective market definitions or market innovations by identifying the relevant network(s) to participate in, both in terms of exploiting existing opportunities and exploring for new ones.

This approach necessitates firms to develop market driving strategies, i.e., strategies that aim at shaping markets in their favor. Firms wishing to engage in market innovation must improve their market-sensing capabilities and explore for opportunities in the “periphery of the market.” Firms are required to spend more resources on understanding the dynamics of the market to secure their active presence in possibly adjacent, fast-growing competitive arenas (‘growth pockets’) where the firm has capabilities to compete effectively.

In this research we developed a process for competitive arena mapping (CAM), which enables a firm to systematically plot various possible competitive arenas, and use managerial judgment to select arenas that are characterized by growth opportunities and within which the firm has the relevant exploitation capabilities. By creatively combining supply-side characteristics (e.g., product, price, and technology) and demand-side characteristics (e.g., customer types, end-use, and customer’s business processes), using a well-documented technique termed *morphological analysis*, a firm can track the core and the periphery of the market and identify possible white spots that were previously missed. CAM secures that firms analyze their market boundaries, as it produces a collection of possible market definitions, which extend the current market boundaries.

The CAM process was designed to (1) create firm-specific results, rather than attempting to create generic competitive arenas; (2) actively involve key individuals on a multilevel and multifunctional basis; and (3) foster out-of-the-box thinking.

Before applying CAM a firm needs to agree on the objectives of the exercise, as the result may lead to major changes in extant strategies. The CAM process comprises six steps, including (1) identifying and selecting competitive arena dimensions, (2) creating a so-called morphological box (i.e., matrix) by defining categories for each dimension, (3) configuring viable competitive arenas, (4) developing arena cards to describe and quantify each arena, (5) selecting a set of competitive arenas to focus on, and (6) implementation kickoff.

The CAM approach was applied in twelve firms from different industries. The experience illuminates a number of managerial issues. First, we conclude that learning represents a key aspect of CAM: The process requires the committed participation not only from key representatives of various firm functions, but top management in particular. Through intensive sessions of analysis and debate, key organizational individuals gradually develop a new granular view of the market and a new language to discuss specific growth opportunities. The learning led to an ownership of the competitive arena solution, which materialized in managers' ability to make strategic decisions and take practical actions to realize the identified growth opportunities.

Second, the market view proposed in this article suggests that opportunities are not precursors of strategy; rather they are outcomes of deliberate market driving efforts. If firms define their markets in the same way, they will also define their products in the same way, and face the bleak reality of trying to locate a competitive position in an increasingly narrow competitive space. Many end up in a zero-sum game, fighting for every little share of the market. However, as firms engage in market driving activities, opportunities occur and firms need to be nimble at capturing the value emergent from these. The focus of strategy should not be so much on competing against competitors. Instead, the focus should be on securing the firm's value to customers, and its readiness to make adjustments to its business model when required.

Third, a key issue in market innovation is the focus on use value. The traditional view considers that value is created when the provider sells and the customer buys a product (i.e. exchange-value). Hence, markets are typically defined around products, and market size is defined based on exchange value. However, in the perspective presented in the article, value creation is assumed to occur in various practices when the customer interacts with and/or uses the provider's offering (i.e., use-value). Unfortunately, most industrial statistics focus on exchange value, which means that understanding use value is difficult. Managerial applications exist for measuring "customer share" or "share of wallet," but these usually also measure exchange value. The implication is that firms wanting to develop subjective market definitions involving "forward-in-the-value-chain" strategies (e.g., developing a service business, focusing on solution selling, offering systems instead of components, engaging in outsourcing) need to create a measurement infrastructure as a foundation for dialogue about new market opportunities.

Finally, engaging in market driving strategies pinpoints the need for new capabilities related to a firm's ability to influence other market actors in such a way that its subjective definition of a market becomes commonly accepted in the market network, specifically among customers. This can be termed *market scripting*, i.e., activities carried out by the firm to alter the market configuration in its favor. Market scripting emphasizes boundary

spanning roles. As a result, many of the traditionally rather operationally oriented functions such as marketing, sales, and supply will become strategic.

REFERENCES

- Abell, D. F. (1980). *Defining the business: The starting point of strategic planning*. Englewood Cliffs, NJ: Prentice-Hall.
- Baghai, M., S. Smit, and S. P. Viguierie (2007). The granularity of growth. Accessed February 9, 2011 from http://www.mckinseyquarterly.com/the_granularity_of_growth_1993.
- Baray, J. and G. Cliquet (2007). Delineating store trade areas through morphological analysis. *European Journal of Operational Research* 182: 886–898.
- Birkinshaw, J. M., N. Hood, and S. Young (2005). Subsidiary entrepreneurship, internal and external competitive forces, and subsidiary performance. *International Business Review* 14: 227–248.
- Bonoma, T.V. and B. P. Shapiro (1983). *Industrial market segmentation: A nested approach*. Marketing Science Institute, Report No 83–100.
- Bradley, C., M. Hirt, and S. Smit (2011). Have you tested your strategy lately? Accessed February 9, 2011 from http://www.mckinseyquarterly.com/have_you_tested_your_strategy_lately_2711
- Brady, T., A. Davies, and D. Gann (2005). Creating value by delivering integrated solutions. *International Journal of Project Management* 23: 360–365.
- Clarke, A. H. (2009). Bridging industrial segmentation theory and practice. *Journal of Business-to-Business Marketing* 16(4): 343–373.
- Clarke, A. H. and P. V. Freytag (2008). An intra- and inter-organisational perspective on industrial segmentation: A segmentation classification framework. *European Journal of Marketing* 42(9/10): 1023–1038.
- Coughlan, P. and D. Coghlan (2002). Action research for operations management. *International Journal of Operations & Production Management* 22(2): 220–240.
- Datta Y. (1996). Market segmentation: An integrated framework. *Long Range Planning* 29(6): 797–811.
- Dibb, S. and L. Simkin (1994). Implementation problems in industrial market segmentation. *Industrial Marketing Management* 23: 55–64.
- Dickens, L. and K. Watkins (1999). Action research: Rethinking Lewin. *Management Learning* 30(2): 127–140.
- Dubois, A. and L.-E. Gadde (2002). Systematic combining: an abductive approach to case research. *Journal of Business Research* 55(7): 553–560.
- Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review* 14(4): 532–551.
- Freytag, P. V. and A. H. Clarke (2001). Business to business market segmentation. *Industrial Marketing Management* 30(6): 473–486.
- Geroski, P. A. (1998). Thinking creatively about markets. *International Journal of Industrial Organization* 16(6): 677–695.
- Goller, S., A. Hogg, and S. P. Kalafatis (2002). A new research agenda for business segmentation. *European Journal of Marketing* 36(1/2): 252–271.
- Granovetter, M. (1992). Economic institutions as social constructions. *Acta Sociologica* 35(1): 3–11.

- Gummesson, E. (2000). *Qualitative methods in management research*, 2nd ed. Thousand Oaks, CA: Sage Publications.
- Håkansson, H. and D. Ford (2002). How should companies interact in business networks? *Journal of Business Research* 55(2): 133–139.
- Hamel, G. and C. K. Prahalad (1994). *Competing for the future*. Cambridge, MA: Harvard Business School Press.
- Harrison, D., and H. Kjellberg (2010). Segmenting a market in the making: industrial market segmentation as construction. *Industrial Marketing Management* 39(5): 784–792.
- Henneberg, S. C., S. Mouzas, and P. Naudé (2009). Going beyond customers: A business segmentation approach using network pictures to identify network segments. *Journal of Business Market Management* 3(2): 91–113.
- Higgins, J. M. (1996). Innovate or evaporate: Creative techniques for strategists. *Long Range Planning* 29(3): 370–380.
- Jaworski, B., A. K. Kohli, and A. Sahay (2000). Market-driven versus driving markets. *Journal of the Academy of Marketing Science* 28(1): 45–54.
- Jenkins, M. and M. MacDonald (1997). Market segmentation: Organizational archetypes and research agendas. *European Journal of Marketing* 31(1): 17–32.
- Kalafatis, S. P. and V. Cheston (1997). Normative models and practical applications of segmentation in business markets. *Industrial Marketing Management* 26: 519–530.
- Kay, J. (1990). Identifying the strategic market. *Business Strategy Review* 1(1): 1–24.
- Kjellberg, H. and C.-F. Helgesson (2006). Multiple versions of markets: Multiplicity and performativity in market practice. *Industrial Marketing Management* 35(7): 839–855.
- Korkman, O., K. Storbacka, and B. Harald (2010). Practices as markets: Value co-creation in e-invoicing. *Australasian Marketing Journal* 18: 236–247.
- Knolmayer, G. F. and A. Borean (2010). *A morphological box for handling temporal data in B2C systems*. Working Paper No. 233, Institute of Information Systems, University of Bern.
- Krippner, G., M. Granovetter, F. Block, N. Biggart, T. Beamish, Y. Hsing, G. Hart, G. Arrighi, M. Mendell, J. Hall, M. Burawoy, S. Vogel, and S. O’Riain (2004). Polanyi symposium: A conversation on embeddedness. *Socio-Econometric Review* 2(1): 109–135.
- Kumar, N., L. Scheer, and P. Kotler (2000). From market driven to market driving. *European Management Journal* 18(2): 129–142.
- Lichtenthal, J. D. and V. Mummalaneni (2009). Commentary: Relative presence of business-to-business research in the marketing literature: Review and future directions. *Journal of Business-to-Business Marketing* 16(1): 50–54.
- MacMillan, I. C., A. B. van Putten, and R. G. McGrath (2003). Global gamesmanship. *Harvard Business Review* 81(5): 62–71.
- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science* 2(1): 71–87.
- Marketing Science Institute (2010). *MSI research priorities, 2010–2012*. Boston: Marketing Science Institute.
- Matthyssens, P., K. Vandenbempt, and L. Berghman (2006). Value innovation in business markets: Breaking the industry recipe. *Industrial Marketing Management* 35(6): 751–761.

- Normann, R. (1977). *Management for growth*. New York, John Wiley & Sons.
- Piercy, N. F. and N. A. Morgan (1993). Strategic and operational market segmentation: a managerial analysis. *Journal of Strategic Marketing* 1: 123–140.
- Plank, R. E. (1985). A critical review of industrial market segmentation. *Industrial Marketing Management* 14:79–91.
- Prahalad, C. K. (2004). The blinders of dominant logic. *Long Range Planning* 37(2): 171–179.
- Reibstein, D. J., G. Day, and J. Wind (2009). Guest editorial: Is marketing academia losing its way? *Journal of Marketing* 73(4): 1–4.
- Ritchey, T. (1998, July). Fritz Zwicky, 'morphologie' and policy analysis. Paper presented at the 16th Euro Conference on Operational Analysis, Brussels. Accessed February 10, 2011 from <http://www.swemorph.com/pdf/gma.pdf>
- Ritchey, T. (2006). Problem structuring using computer-aided morphological analysis. *Journal of the Operational Research Society* 57: 792–801.
- Sausen, K., T. Tomczak, and A. Herrmann (2005). Development of a taxonomy of strategic market segmentation: A framework for bridging the implementation gap between normative segmentation and business practice. *Journal of Strategic Marketing* 13: 151–173.
- Schein, E. H. (1987). *The clinical perspective in fieldwork*. Newbury Park, CA: Sage.
- Schein, E. H. (1995). Process consultation, action research and clinical inquiry: Are they the same? *Journal of Managerial Psychology* 10(6): 14–19.
- Shapiro, B. P. and T. V. Bonoma (1984). How to segment industrial markets. *Harvard Business Review* May–June: 104–110.
- Shekhar, S. and L. S. Ganesh (2007). A morphological framework for virtual organizations. *IIMB Management Review* December: 355–364.
- Storbacka, K. and S. Nenonen (2011). Markets as configurations. *European Journal of Marketing* 45(1/2): 241–258.
- Söllner, A. and M. Rese (2001). Market segmentation and the structure of competition: applicability of the strategic group concept for an improved market segmentation on industrial markets. *Journal of Business Research* 51: 25–36.
- Vandermerwe, S. (2000). How increasing value to customers improves business results. *Sloan Management Review* 42(1): 27–37.
- Varadarajan, R. (2010). Strategic marketing and marketing strategy: Domain, definition, fundamental issues and foundational premises. *Journal of the Academy of Marketing Science* 38: 119–140.
- Viguerie, P., S. Smit, and M. Baghai (2008). *The granularity of growth: How to identify the sources of growth and drive enduring company performance*. Hoboken, NJ: John Wiley & Sons.
- de Waal, A. and T. Ritchey (2007). Combining morphological analysis and Bayesian networks for strategic decision support. *OriON* 23(2): 105–121.
- Webster, F. E. Jr. (1995). *Industrial marketing strategy*. Hoboken, NJ: Wiley & Sons.
- Wise, R. and P. Baumgartner (1999). Go downstream: the new profit imperative in manufacturing. *Harvard Business Review* 77(5): 133–141.
- Yoon, B., R. Phaal, and D. Probert (2008). *R&D Management* 38(1): 51–68.
- Zook, C. and J. Allen (2003). Growth outside the core. *Harvard Business Review* 81(12): 66–73.
- Zwicky, F. (1969). *Discovery, invention, research through the morphological approach*. Toronto: Macmillan.