

Creating Organizational Capability in New Businesses: Building Sets of Complementary Capabilities

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ABSTRACT

Recent research into the development of organizational capability, has focused either upon particular aspects of the development process (e.g. learning, routinization, heuristics, bricolage) or on individual capabilities (e.g. new product development, project management, internationalization, acquisitions). Limited attention has been given to how firms create new systems of capabilities despite the fact that commercial viability requires firms to master multiple, complementary capabilities. Recent emphasis on the firm as a configuration of interdependent, complementary activities reinforces the view that the central management challenge for launching successful new business ventures is building an integrated system of capabilities. Through in-depth studies of four new e-commerce businesses, we tracked the creation and development of new systems of organizational capabilities, identifying commonalities in this process despite differences in firm type and sector. Our findings augment the existing literature by offering deeper and more detailed insight into the main components of the capability development. We identified a management-led process of capability building in which initial strategic intent was translated into *capability architecture*—an envisaging of the required functionality of the business both at systemic and component levels. Operationalizing capability architecture required the sourcing of relevant knowledge, the translation of capability architecture into organizational structure, and the establishment and development of organizational processes through patterns of routinization and codification.

INTRODUCTION

Over a decade ago Kazanjian and Rao (1999) observed that: "...there has been little discussion of how capabilities are actually created... much of the literature seems to assume that capabilities already exist within the firm." Since then a surge of theoretical and empirical research has addressed several aspects of capability development including: the role of organizational learning (Winter, 2000; Zollo and Winter, 2002; Kale and Singh, 2007); resource recombination (Adner and Helfat, 2003; Helfat and Peteraf, 2003; Sirmon, Hitt, and Ireland, 2007, Holcomb, Holmes, and Connelly, 2009); the role of managerial cognition (Tripsas and Gavetti, 2000; Gavetti, 2005); capability development through bricolage (Gong, Baker, and Miner, 2006; Baker and Nelson, 2005); the role of imprinting (Levinthal, 2003; Narduzzo, Rocco, and Warglien, 2000; Sapienza et al., 2006); capability sourcing through mergers, acquisitions, and alliances (Rothermael and Deeds, 2004; Kale and Singh 2007; Capron and Mitchell, 2009); and the nature of dynamic capabilities (Teece et al., 1997; Eisenhardt and Martin, 2000). At the micro level, research into organizational routines has investigated their micro structures and the role of intentionality in their operation and development (Pentland and Rueter, 1994; Feldman and Pentland, 2003).

Most empirical studies have focused upon specific capabilities. These include: R&D capability (Helfat 1997; Nerkar and Paruchuri, 2005); project management and customer relations capabilities (Ethiraj et al., 2005); acquisition capability (Ranft and Lord, 2002; Zollo and Singh, 2004; Arikian and McGahan, 2010); internationalization capability (Bingham and Eisenhardt 2005); engineering capability (Kazanjian and Rao, 1999); and installation and maintenance capabilities (Narduzzo, Rocco, and Warglien, 2001).

Yet, in order to survive and prosper, it is not enough for the new firm to develop a single capability or to master a single dimension of the capability development process. To meet customer needs and implement a viable business model, the new firm must create a whole system of organizational capabilities. This necessity is well recognized in the literature. The business history, innovation, and entrepreneurship literatures show that competitive advantage typically rests, not on some single "core competence", but upon an integrated system of organizational capabilities. In his studies of industrial development in Europe and the United States, Alfred Chandler observed: "The first firms to make the three-pronged investments in manufacturing, marketing, and management essential to exploit fully the economies of scale and scope quickly dominated their industries." (Chandler, 1992: 82). Similarly, firms that successfully appropriate the returns to technological innovation, support their core innovation by a whole system of complementary resources and capabilities (Teece, 1986).

Two streams of research have placed new emphasis on the firm as system of interrelated capabilities. Milgrom and Roberts' (1990) model of complementarity in management activities points to the role of complementary sets of capabilities rather than individual capabilities in driving overall firm performance. Secondly, complexity theory—NK modeling, in particular—shows the performance outcomes of interactions among firm attributes (Levinthal, 1997). The integration of these two streams has emphasized the firm as an "activity system" (e.g. Siggelkow, 2001; Porter and Siggelkow, 2008). These "activities" represent key elements of organizational capabilities.

Case research on capability development in individual firms (Kim, 1998; Raff, 2000; Rosenbloom, 2000; Montealegre, 2002) addresses the creation of multiple capabilities. However the findings of these studies have been highly firm specific and have not generated systematic view of how firms create particular combinations of capabilities in the first instance. As Narduzzo et al., (2000: 48) concluded in their meticulous study of capability development in cellular telephony: “We suggest that further exploring issues of complementarities among routines and architectural coherence would considerably enlarge our understanding of organizational capabilities.”

It is this issue that we address. With a focus on new ventures, our aim is to explore the creation of systems of capabilities with a view to answering the following question: *How do firms develop systems of organization capabilities?* Our focus is managerial: while recognizing the role of emergence in the development of capabilities and the routines which underlie them, our primary interest is the in the role of managers in initiating and guiding these processes.

To answer this question, we document the building of capabilities in four new business ventures spanning two different sectors (internet service providers and online brokerages) and two types of venture (start-ups and new in-company ventures). Focusing on new ventures allowed us to observe the creation of systems of capabilities from the outset: “New, emerging organizations provide a unique opportunity to assess how and why capabilities develop. As embryonic entities, they can be observed in their earliest cycles of resource allocation.” (Kazanjian and Rao, 1999: 126). A longitudinal perspective allowed us to understand both how capabilities are initially created and how they subsequently developed. Our methodology deployed the *abductive* approach to theory development proposed by Peirce (1940) and Locke et al. (2009). Guided by concepts and theories from the existing literature, we drew inferences from our case studies to construct a process theory of how systems of capabilities are created.

We begin by summarizing the existing literature on how organizational capabilities develop. This will allow us, first, to identify gaps in our knowledge and, second, to formulate more precisely our research questions.

LITERATURE SURVEY AND KNOWLEDGE GAPS

Capability development: from emergence to intentionality

Organizational capabilities are what organizations are able to do—or, more precisely, a “firm’s capacity to deploy resources for a desired end result” (Helfat and Lieberman, 2002: 725). Because organizational capabilities are defined in terms of performance outcomes, establishing how capabilities are created requires identifying the actions that give rise to capability. The early literature—both in the institutional sociology tradition (Selznick, 1957) and the evolutionary economics tradition (Nelson and Winter, 1982)—emphasized the emergent nature of organizational capability. However, the more recent literature recognizes the centrality of human intentionality in capability development—the role of managers in particular. Studies of capability development at individual companies—including Hyundai Motor (Kim, 1998), Barnes & Noble and Borders (Raff, 2000), NCR (Rosenbloom, 2000), Olivetti (Verona, 2010)—identify the role of management leadership in developing capabilities through establishing direction, allocating resources, conferring legitimacy, and designing organizational processes.

Micro level studies of organizational routines also point to centrality of human intentionality and judgment in routinized process (Pentland, 1992; Pentland and Reuter, 1994; Crowston, 1997; Narduzzo et al., 2001). Winter (2000) shows that capabilities develop both through the automatic accumulation of experiential knowledge (“covert learning”) and deliberate experimentation and problem solving (“overt learning”), where the balance between the two depends upon the characteristics of the particular routine (Zollo and Winter, 2002). Emphasis on intentionality points, first, to the role of cognition in guiding the development of capabilities (Gavetti, 2005) and, second, the potential for routines to become sources of flexibility and change (Feldman and Pentland, 2003).

The result has been progress at two levels. At the micro level, we have detailed knowledge of the structure, operation, and sources of change among the routines upon which capabilities are based. At the macro level—the level of the firm—we have a body of rich case research that investigates the development both of individual capabilities among multiple firms and multiple capabilities in individual organizations. While both areas of research point to the role played by managers in capability development, much of what we know relates to a particular dimension of managerial behaviour or cognition, a specific type of capability, or a development pattern that is unique to a single company. Although we lack an integrated view of the capability process at the firm level, the literature does allow us to identify the principal components of the capability development process.

The driving force of entrepreneurial aspirations: strategic intent

If we accept the central role of human agency—especially managerial intentionality—in the capability development process, how are these intentions manifested and what forces shape the initial creation of a firm’s capability set? During the founding stage of the capability lifecycle, Helfat and Peteraf emphasize the need for a team organised around a central objective “the achievement of which entails the creation of a new capability (Helfat and Peteraf, 2003: 1000). This points to the need for managerial leadership to span two domains: cognition and action. In the same

way that a firm's strategy "exists in managers' minds... [and] is embodied, reified in a firm's rules and routines." (Gavetti and Rivkin, 2007: 420), so too must organizational capabilities. This dual role of cognition and action in creating organizational capability is critical in the founding of a new business: the founders must envisage the required functionality of the new business and take the actions required to turn intentions into reality. The same duality drives the continuing development of capabilities: Narduzzo et al. (2000) identify an "interplay between such interpretive activity and actual behavior" in the development of organizational routines which they describe in terms of "representations" and "expressions".

Helfat and Peteraf's (2003) emphasis on the role of objectives in driving capability development is supported by a broad literature that points to the motivation and direction provided by the pursuit of strategic goals. Different terminology has been used to describe the goal-directed behavior that motivates and shapes organizational capabilities. We adopt the term *strategic intent* that was used by Hamel and Prahalad (1989) to refer to the combination of strategic vision and performance aspirations which "envisions a desired leadership position and establishes the criterion the organization will use to chart its progress," (ibid: 64). In Lovas and Ghoshal's (2000) "guided evolution" model, strategic intent is the principal means through which top management shapes the future position of the firm. The implications for capability development are that: "...strategic intent creates an extreme misfit between resources and ambitions. Top management then challenges the organization to close the gap by building new competitive advantages." (Hamel and Prahalad, 1989: 66). The same principle drives Winter's (2000) satisficing model of capability development: when aspirations exceed actual performance, overt learning is reignited.

The role of strategic aspirations in driving capability building is apparent in almost all case studies of capability development among individual firms¹ and is a common theme in the practitioner literature--for example, Collins and Porras (1996) emphasize the role of an "envisioned future" articulated as "big, audacious, hairy goals" as essential to building outstanding firm capabilities. Yet, despite its leading role in providing top-down motivation and direction for capability development, we have little understanding of the characteristics of strategic intent and its linkage with capability development. In order to understand how aspirations drive capability development we need, first, to identify the characteristics of strategic intent which could be used as general descriptors, second, to see how these characteristics influence the types of capabilities developed and their level of development.

***Research question #1:** How is strategic intent conceptualized by firms and how does it influence the development of organizational capabilities?*

The structure of capability systems: capability architectures

The notion of the firm as a configuration of linked organization capabilities has been common to several conceptualizations of capabilities. In their "core competence" framework, Prahalad and Hamel (1990) view the firm as a tree: competences form the roots, core products are the trunk and limbs, and end products are the flowers. Chandler conceived of firms' organizational capabilities as a vertical chain extending from R&D and raw material sourcing to marketing, sales, and distribution. However, the predominant conceptualization of capability systems has been that of

hierarchy. In the organizational routine literature: “The notion of a hierarchy of organizational routines is a key building block under our concept of core organizational capabilities.” (Nelson, 1991: 68). Within the knowledge-based view of the firm, organizational capabilities have been positioned within a hierarchy of knowledge integration where task related capabilities combine to form functional capabilities and functional capabilities combine to form cross-functional capabilities (Grant, 1996). Notions of hierarchy are also present within the dynamic capability literature. Dynamic capabilities have been seen as overlaying operational capabilities and guiding their adaptation, restructuring and replacement (Zollo and Winter, 2002).

We follow Jacobides (2006) in referring to the structure of capabilities within the firm as its “capability architecture”. However, in common with other conceptualizations of the structure of organizational capabilities, Jacobides, capability architecture is an abstract rather than an empirically based construct. Empirical evidence of capability architectures is apparent in two types of observation. First, several studies have identified clusters of complementary capabilities among firms. For example, Borders developed an integrated set of organization capabilities comprising organizing the book stock, tracking inventory, estimating demand, ordering, and order fulfilment (Raff, 2000). Second, in relation to longitudinal structure, studies of Hyundai Motor (Kim, 1998), Sony and Canon (Helfat and Raubitschek, 2000), and Bolsa de Guayaquil (Montealegre, 2002) reveal temporal sequences of capability development.

Overall, however, neither the theoretical nor the empirical literature offers much guide to the content or role of capability architecture. To the extent that organizational capabilities are the result of management intention, then capability architectures have their roots in the world of managerial cognition. Cognitive approaches to strategy have emphasized the role of cognitive representations of strategy as “schemas” (Huff, 1982; Nadkarni and Narayanan, 2007), “recipes” (Spender, 1989) and “maps” (Fiol and Huff, 1992). Such cognitive conceptions of strategy presumably have implications for the capabilities needed for their enactment. For example, Lycos’s early strategy was guided by the management team cognitive representation of Lycos as a “technology company” (in contrast to Yahoo which regarded itself as a “media company”). This implied a strong initial orientation towards technological capabilities in relation to internet search. (Gavetti and Rivkin, 2007)

Therefore, within the context of a managerially-led process of capability development, representations of capability configurations—what we refer to as “capability architectures”—have the potential to form a key linkage between strategic intent and observed combinations of firm capabilities. Our challenge is to identify the characteristics and role of such configurations. Hence:

***Research question #2:** How do configurations of organizational capabilities emerge in new businesses and, in particular, what are the structural dimensions of the “architecture” of these configurations?*

Sources of knowledge for creating organizational capability

The empirical literature on entrepreneurship, industry evolution, and organizational capability has found that the knowledge upon which organizational capabilities are created is sourced initially

from outside the new business. In new industries, the ability of entrants from related industries (“*de alio*” entrants) to outperform new start-ups (“*de novo*” entrants) suggests the transfer of capabilities from existing to new businesses (Carroll et al., 1996; Klepper and Simons, 2000; Khessina and Carroll, 2001; Klepper, 2002; Buenstorf and Klepper, 2005). For start-ups, the primary source of inherited knowledge is the prior employment of the founders. A high proportion of start-ups are founded by entrepreneurs that were formerly employees of firms in similar lines of business (Kaplan, 1999; Romanelli and Schoonhoven, 2001: 47). In the early development of the US auto industry, the best performing firms were new start-ups whose founders had prior experience in the auto industry (Klepper, 2002). The tendency for the performance of new law firms to be positively related to the performance of the founding partner’s previous firm is also plausible evidence that superior capabilities are being transferred (Philips, 2002).

The form and mechanisms of such transferred knowledge remains unclear. Gong et al. (2006) point to the direct transfer of routines—a process they call “genealogical bricolage.” Narduzzo et al. (2000) found that technical supervisors in Omnitel Pronto Italia replicated operating routines and HR practices from their previous employer. However, experience may also be transferred through concepts and models: Gavetti et al. (2005) refer to the “power of analogy.” Hence:

Research Question #3: What types of knowledge do new businesses require to build organizational capabilities and from where is that knowledge sourced?

Routinization and codification in the development process

Our understanding of how organizational capabilities develop once they have been initially established has been heavily conditioned by the evolutionary economics literature that emphasizes the dominant role of routinization. By contrast, Nonaka (1994) offers a more complex view of capability development involving a “knowledge spiral” driven by “knowledge conversion” between tacit and explicit modes and between individual and organizational levels. In subsequent literature, attention has focused upon a single component of this knowledge conversion: the transfer of routinized, experiential knowledge into explicit knowledge that can be more readily scaled and replicated.

This articulation of tacit knowledge in the form of language and imagery (Nonaka emphasizes metaphor and analogy) facilitates diagnosis, search, and experimentation. In particular, articulation permits “cognitive search” and the creation of mental models of the linkages between actions and outcomes that allow firms to achieve rates of performance improvement that exceed those achieved by experiential learning based upon trial-and-error that limits firms to local search and the risks of “competency traps” (Gavetti & Levinthal, 2000).

If articulation can liberate organizations from the constraints of learning-by-doing, *codification*—“the process of knowledge being transformed into information...in the form of messages, or sets of identifiable rules and relationships” (Prencipe & Tell, 2001: 1379)—opens whole new vistas. Zollo and Winter (2002) argue that knowledge articulation is only the first stage in the translation of semi-automatic stimulus-response processes and accumulation of experience into explicit knowledge. While articulation permits discussion and analysis of routines, codification

into manuals, blueprints, spreadsheets, standard operating practices, project management software, new product development systems, and best-practices databases facilitated automation, simulation, and replication. The greatest benefits of codification are for tasks that are heterogeneous, low frequency and subject to significant causal ambiguity (Zollo and Winter 2002). However, since this conversion of knowledge into information involves the “reconstitution” of knowledge (Cohendet & Meyer-Krahmer, 2001), there are difficulties in codifying some types of knowledge (Argote and Darr, 2000).

The empirical literature offers only limited support for the widely assumed sequence from emergent routinization to articulation and codification. Certainly for some new firms and for certain capabilities, conventional patterns of experimentation, routinization, and eventual articulation and codification have been apparent (Narduzzo et al, 2002; Schreyogg & Kliesch-Eberl, 2007). However much depends upon the type of capability. Ethiraj et al (2005) observe that among software firms, customer relations capabilities were developed through routinization and learning-by-doing; project management capabilities were systemized and partially codified at the outset. Overall, there is little evidence of a standard sequence leading from tacit to codified knowledge. Several studies identify capability development processes where explicit learning (involving search, cognition, and heuristics) precedes routine-based, experiential learning (Pisano 1994; Gavetti & Levinthal 2000; Bingham & Eisenhardt, 2005). Pisano (1996) refers to this as “learning-before-doing”. Meanwhile, Gong et al (2006) identify capabilities that result from improvisation without either routinization or systematization.

With a few exceptions, the literature points to routinization and codification as the most important processes through which organizational capabilities develop. However, little consensus has emerged as to whether organizational capabilities follow a typical development pattern and, if so, what the principal phases and drivers of that pattern are. Hence:

Research Question #4: *Is there a pattern to routinization and codification in the capability development process?*

METHODOLOGY

The purpose of our study was to develop a model of how firms build systems of organizational capabilities. By “model” we mean “an instrument for linking theory with data” (Van De Ven, 2007: 144). Thus, a model of the capability development process would incorporate both theoretical relationships between different concepts as well as a generalized description of an observed phenomenon that abstracts from the details and idiosyncrasies of specific cases (Baden-Fuller & Morgan, 2010). Our model would represent *process* theory rather than a *variance* theory: its concern was with “how” rather than “what” (Van De Ven, 2007: 147-158). As such our data comprised *narrative* that was characterized by sequence, focal actors (the management team of each business), narrative voices (the interviewees), and context (Pentland, 1999).

Our model building was further distinguished by two features of our methodology: instrumentalism and the use of an abductive logic to link empirical observation to theoretical generalization.

Our incremental approach is apparent from the starting point of the research: we began with concepts and theories drawn from the existing literature with a view to extending and developing understanding of how firms develop sets of complementary capabilities. Our basis for extending existing theory was empirical observation. However, our approach departed from the inductive, grounded theory approach proposed by Glaser and Strauss (1967) and from the case-based methodology outlined by Eisenhardt (1989) in which "...theory-building research is begun as close as possible to the ideal of no theory under consideration and no hypotheses to test." (p. 536). In using existing theory to guide our research questions, we followed Suddaby's (2006:635) suggestion that "...researchers may shoot for the elaboration of existing theory rather than untethered new theory," and in so doing "...achieve a practical middle ground between a theory-laden view of the world and an unfettered empiricism". Our approach paralleled that of Danneels' (2002) study of product innovation capabilities which "uses empirical data gathered through case study to reconceptualize and extend theory (p. 1101).²

Our choice of an abductive over an inductive method was influenced by the nature of the constructs we were researching. Organizational capabilities are idiosyncratic phenomena shaped by multiple influences that interact in complex ways (Rouse and Daellenbach, 1999; Siggelkow, 2007). As a result, the need to limit empirical research to small sample, in-depth, case studies means that pure induction can never, on its own, offer the generality necessary to support theorizing (Chamberlain, 2006). The essence of the abductive method is to combine empirical discovery with imagination and intuition in order to create plausible explanations for observed events (Locke et al 2008). Inevitably, abduction offers a weaker basis for theorizing than induction: abduction is suggestive rather than conclusive and the theoretical inferences drawn do not exclude alternative explanations. However, if the nature of the data precludes genuine induction, then generalization about causes and effects inevitably deploy an abductive logic, whether or not it is explicitly acknowledged.

Data collection

Our choice of small sample of case studies was dictated by the need for rich, longitudinal data. The challenge of data collection was exacerbated by the difficulty of observing our key constructs, including organizational capabilities, strategic intent, knowledge sources, and routinization. To facilitate observation of the development of organizational capabilities, we focused upon new businesses. E-commerce offered a particularly attractive sector: its dynamism and competitive intensity (Porter, 2001) meant that firms had to develop organizational capabilities at an unprecedented pace in order to "compete on internet time" (Yoffie and Cusumano, 1998). These compressed time scales also reduced the problems of recall and retrospective bias among our interviewees

Our sample selection was theoretically-driven (Eisenhardt, 1989; Yin 2003; Eisenhardt and Graebner, 2007). Since our objective was to identify common patterns of capability development rather than to investigate variance and covariance between dependent and independent variables, we selected cases that represented distinctively different categories with regard to sectoral characteristics and firm characteristics. By incorporating diversity within our sample we established

a demanding empirical context for deploying abductive reasoning that would add credibility to our ability to generalize beyond the limits of our sample.

Our choice of two sectors, internet service providers (ISPs) and on-line stockbrokers, corresponded to two types of innovation (Teece, 2000). ISPs represented an entirely new market involving *systemic innovation* in the form of a new business model, while on-line stockbroking involved *autonomous innovation* in the form of adding a new customer interface (the internet) to an existing business system. Even where linkages to an existing business model are retained, however, such as with autonomous innovation, the challenge of developing a new capability architecture remains. At the firm level, variation is likely to exist across new and established firms given the widely acknowledged role of path dependence in capability development. Hence, we chose one start-up business (“de novo” entrant) and one extension of an existing firm (“de alio” entrant) within each sector.

Data was collected in 2002 through semi-structured interviews of between one and two hours’ duration with senior managers across key functional areas. Respondents were selected on the basis of two criteria, first their role as initial founders, second, their role in overseeing the development of a core functional area. At each firm, at least four senior individuals were interviewed, typically the CEO and at least two functional heads, the approach followed that of Rindova and Taylor (2003). The use of multiple respondents within each firm permitted the validation of general findings together with access to the detailed development of specific functional capabilities. All interviews were recorded; in addition interviewees were asked to corroborate factual data and comment on our interpretations of the interview transcripts. Although data collection was retrospective, the short histories of the businesses meant that our interviewees were not asked to recall events more than four years previous. To minimize the biases and errors inherent in retrospective accounts, we were guided by Golden (1992).

The companies

Freeserve (ISP; extension)

Freeserve was launched in September 1998 as an ISP pioneering a free internet connection service. It was established as an independently–managed subsidiary by Dixons plc, Britain’s leading consumer electronics retailer. The new service experienced explosive growth: after only 10 months it had a 25% market share (leaving AOL a distant second) and by the time of our study it had 2.4 million customer accounts. In July 1999, an initial public offering of 20% of Freeserve plc was made. Subsequently, Freeserve was acquired by the France Telecom and renamed “Wanadoo.” Since 2006, it has operated under the “Orange” brand in the UK.

Aviators (ISP, start-up)

Aviators Ltd. was an early start-up entrant in the UK ISP market. It was founded in 1994 to offer real-time information to pilots. With the ensuing dominance of the industry revenue model favoring the providers of access over the providers of information, the firm soon switched direction to become a full service ISP. The firm has remained relative small in size with less than ten full and part-time employees at the time of the study, although the firm offers a wide range of access and other services to a business and consumer client base.

NatWest Stockbrokers (on-line broker, extension)

NatWest Stockbrokers (NWS) was established in 1985 as the stockbroking arm of NatWest Bank, a leading UK commercial bank that was acquired by the Royal Bank of Scotland in 2000. Its on-line brokerage service was launched in January 2000. By 2001, NWS was the third largest broker in the UK with over 350 employees, 55,000 active customers, and executing around one million transactions annually—13% of all retail deals in the UK. The on-line trading system followed two previous pilot schemes and was configured as an extension to the branch-based, automated trading system (“SHADE”) developed in 1986.

Selftrade (on-line broker, start-up)

Selftrade Ltd. was an online brokerage company launched in the UK in May 2000. Although a subsidiary of the French-based, Self Trade SA (established in 1998), Selftrade Ltd. was, to all intents and purposes a UK-based start-up since the business was set up from scratch by its small founding team and most aspects of the UK business were developed independently of the French online brokerage business. Market penetration was rapid: during 2001 Selftrade accounted for nearly half of all new on-line accounts registered in the UK. By the end of 2001 it had 65,000 customer accounts. In October 2000 Selftrade was acquired by the German-based DAB Bank Group; subsequently it was acquired by the French bank, Societe Generale.

THE FINDINGS

Overview

In all four of our case studies we were able to identify a management-led process of capability development where the central challenge in getting the business operational was establishing an integrated set of capabilities. In each of the businesses we were able to identify a management team that acted as architect and builder of these capabilities.

We observed that the process of establishing these integrated sets of capabilities involved the four components identified in our literature survey:

- *Strategic intent* was the primary driver behind the creation of organizational capabilities in all of the new businesses.

- *Capability architecture* provided the critical linkage between initial strategic intent for the business and the creation of overall business functionality. Capability architecture comprised both a cognitive framework shared among the founding team and its operational analogue that was manifest in organizational structure.

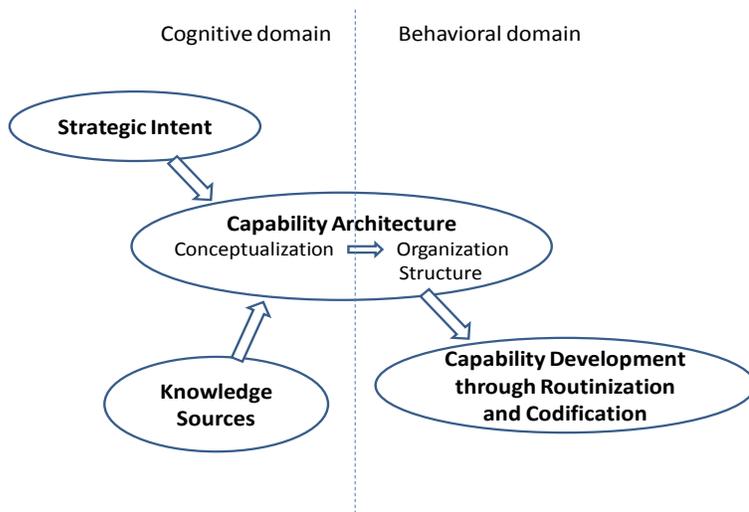
- Much of the *knowledge* for the initial creation of organizational capabilities was sourced from established firms and by the movement of the personnel into the new business.

- *Routinization* and *codification* were the key processes through which capabilities, once established with a basic level of functionality, were developed and replicated.

The process of capability development that we identified is represented in Figure 1. A key feature of this system of capability development is that it spanned two distinct spheres of activity: the cognitive and the behavioural—with capability architecture playing a central role in linking the two.

However our findings go beyond confirming and systematizing elements of the capability development process that have already been present in the literature. Our case study evidence allowed us to extend our understanding of these four components of capability development through filling some of the key knowledge gaps that we identified in the literature. Our findings permitted deeper and more detailed insight into the nature and role of each of the four components of the capability development process—particularly in relation to the development of the combinations of capabilities needed to support overall business functionality. More specifically, our empirical evidence illuminated parts of the capability development process that have received limited attention in previous contributions to the literature—particularly in revealing the structure of capability architecture and its role in linking strategic intent to the managerial actions needed to create and develop systems of organizational capabilities.

Figure 1. The capability development process

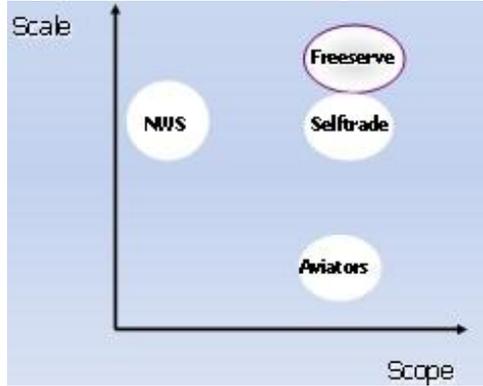


Strategic intent

At all four of our case study businesses, the interviewees reported that their businesses had begun with expectations of the customer offering to be developed, conceptualization of the underlying business model, and performance aspirations in terms of functionality, customer experience, and desired market position. Within each business there was a high degree of consistency among interviewees in relation to these intentions and aspirations. These corresponded closely to the concept of *strategic intent*: “long-term goals that reflect the preferred position of the firm as articulated by its top management” (Lovas & Ghoshal, 2000: 885). Initial strategic intent existed as a consensus among the founding team of the new venture. This founding team numbered between three and five individuals.

The expressions of strategic intent by our interviewees could be described in terms of two dimensions: the *scope* of intent with regard to the breadth and innovativeness of strategic ambition and the *scale* of intent in relation to the market share and market position envisaged. Figure 2 shows a stylized depiction of the aspirations of each of the four organizations in relation to market share (scale) and the range of products and services (scope).

Figure 2. The scale and scope of strategic intent



At both Freeserve and Selftrade our interviewees identified initial intentions that were ambitious in both scope and scale. Within the ISP sector, Freeserve pioneered a “free” ISP service—a clear departure from the established business model within the ISP sector—which encompassed internet connection and a portal offering a broad range of content. In terms of scale, Freeserve targeted UK market leadership leveraging its parent’s nationwide retail network to distribute CDs containing its operating software. Selftrade also envisaged a broad market presence—offering not just online self-service securities trading, but also a wide range of financial services. In terms of scale, Selftrade also targeted UK market leadership—and, through its affiliates in other countries—European market leadership too.

‘We were very [*customer*] acquisition-focused, we realised we had to build one of the best end-to-end brokers.’ (Director of Communications, Selftrade)

By contrast, the scale of Aviators’ strategic ambitions was modest—its intended market was initially a niche market for pilots and flying enthusiasts. However, its intent was broad in scope: it would offer a wide range of online services and would be a technological innovator.

‘I was a part-time pilot and there was an obvious need from the discussion of UK pilots on the internet—the UK pilots spent most of their time whingeing about the lack of facilities compared to America. I did an online survey ...and so Aviators Network was born... There has been a certain undeniable vision...using minimal technology to participate in a total revolution to distribute information, how could you not take advantage of such an opportunity?’ (Owner and founder of Aviators)

NWS strategic intent was limited in scope: its on-line dealing service was launched mainly to counter the threat from new low-cost, internet-based new entrants—and was designed to offer an on-line transactions medium for existing customers. Hence, in terms of scale, the firm was more ambitious in its intention to at least maintain its existing market position through its dual offering.

‘For the RBS Group, NWS is the dealing hub for the group. It has been our client market moving rather than us... We knew we needed to have an internet presence, although the reason we kept it simple, rather than throwing loads of money at it, was because we weren’t convinced that the internet revolution in share dealing was quite as big or moving quite as fast as everyone else was saying.’ (Head of Dealing Service, NWS)

Table 1. Initial Strategic Intent

Organization	Initial Strategic Intent
Freeserve	No. 1 ISP in the UK The creation of a free internet service where Freeserve would be remunerated through sharing telephone connection charges. In pioneering a free service, the firm would grow its customer base quickly to become the no. 1 ISP in the UK. Customer numbers would create traffic for Freeserve’s portal providing revenue from a broad range e-commerce services and advertising.
Aviators	Technological Innovator Internet access and information services tailored to meet the needs of the aviation community (private pilots in particular) supported by leading edge technology that would allow highly automated provision of customer services.
NWS	Integrated Dealing System Defence of existing brokerage business by adding an on-line share dealing facility to complement the existing telephone-based system. New system to be integrated with the existing share dealing system from both operational and customer perspectives. Key goals for the new service were: (1) orders should be subject to straight-through processing, and (2) a guaranteed pricing feature should be built into the service.
Self Trade	Market Share Original aspirations to be a leading on-line broker in the UK market. (Set-up and marketing costs for the UK launch were financed out of the proceeds of the French parent’s IPO in March 2000). In order to appeal to as many client segments as possible, it aimed to launch a comprehensive range of products (including share dealing, savings products and a fund supermarket).

Capability architecture

A critical linkage between strategic intent and capability creation is the conceptualising of intent in terms of the required functionality of the business. At all four of the case studies, our interviews revealed a consensus among the managers most closely involved in the founding of the new business concerning the capabilities that the business would need to develop. This conceptualization corresponded to the concept of “capability architecture” that we observed in the literature.

The process through which the capability architecture emerged and the extent to which it was made explicit varied between the businesses. At Aviators, the capability architecture existed primarily in the head of the founder Monu Ogbe; at Selftrade and Freeserve it emerged through interactions among the founding team. Thus, during the first few months of Selftrade’s existence the management team met in a small rented office in central London. At Freeserve, the strategic

architecture resulted from discussions among the “Freeserve Four” comprising Ajaz Ahmed, Rob Wilmot, Mark Danby, and CEO John Pluthero. At NWS capability architecture was developed by a committee established to plan the new initiative.

Although our interviewees’ descriptions of the required functionality of their businesses varied, the descriptions focused upon three structural dimensions of capability architectures that were common to the four businesses: a distinction between broad, systemic capabilities and more specialized functional capabilities, choices between internal development and outsourcing, and priorities for development.

Systemic capabilities

The companies conceived of their capabilities as a hierarchy comprising two major levels. At the upper level there was a conceptualizing of overall functionality framed in terms of what the business needed to be able to do—we describe these as “systemic capabilities”. At three of our business ventures, interviewees pointed to a single systemic capability:

- For NWS the overall task was the recreation of the company’s existing business model in a technology-based, online environment: ‘NWS is a full service model and very much used to doing business in older, more established ways. It’s built up a capability in that area over a large number of years. From an on-line perspective, it was a huge change to make from perceptions of how people dealt with it. And also, from a technology perspective, lots of new areas needed to be looked at.’ (Head of IT, NWS)

- Selftrade pointed to a similar overall capability in online trading. This was to be achieved by seamlessly integrating the “front end of the business” (the customer interface) with the “back office” (order processing) which had to meet the regulatory and other requirements operating in the UK securities market. ‘Understanding broadly speaking what we had to do was relatively easy... And we had a 15reenfield site so it was relatively easy to learn from all of our experiences.’ (Director of IT & Operations, Selftrade)

- For Aviators, the overall systemic capability was a fully automated online information system providing an array of specialized information to amateur pilots.

In the case of Freeserve, our interviewees described two system-wide capabilities which corresponded to the two components of Freeserve’s business model. The first was its free ISP service which required development of a system for distributing software, signing up subscribers, and delivering dial-up internet access. The second was the portal function: Freeserve’s goal was to leverage its ISP subscriber base by finding ways to “monetize” the traffic through its portal by offering a variety of content through the website.

‘We are an audience aggregation mechanism. We are a gateway that you pay us to get on and then we take this audience and sell it off...’ (Director of Channels, Portal Division)

The level of performance ambition of each venture’s systemic capability was reflected in the dimensions of scale and scope of the venture’s strategic intent. For example, NWS’s overall systemic capability was an incremental development of its existing business system. Despite the fact that ‘It was quite a sea change for everyone really when we started to look at what an online model of full service would involve...’ (NWS, Head of IT), the fact remained that: ‘It mirrors exactly the business that was already there.’ (NWS, Head of Dealing Services). Conversely, Selftrade, Aviators,

and Freeserve, envisaged the development of systemic capabilities that extended well beyond the functionality and integration of existing practices. While the overall systemic capability required by Selftrade was similar to that of NWS, Selftrade's challenge was to build an entire UK-based online brokerage from scratch. In the case of both Aviators and Freeserve, they were engaged in building an entirely new type of business. In Freeserve's case, the business model of a free ISP to drive traffic to a web portal that would then generate advertising revenue was novel: 'It really is very web-specific, nothing emulates it out there.' (Freeserve, Director of Channels).

Functional capabilities

Each of these systemic capabilities comprised a number of functionally-specialized capabilities which formed the primary operational activities and the support functions of the business system. The envisaged performance level of these functional capabilities reflected the ambition and scope of the business's systemic capabilities. For example, NWS's requirement that on-line dealing would be complementary to its existing telephone broking service meant that:

'It mirrors exactly the business that was there, i.e. there is a dealing function, there's a help desk function, then there's operations who settle the trade and, alongside that, you know, you've got the compliance function overseeing.' (Head of Dealing, NWS)

The aim of creating a system where there was no real difference in terms of the customer's trading between customer and internet orders meant that the new capabilities could be created as modular attachments to the existing capability architecture. From an operations perspective, the emphasis was on re-usability of existing systems and, hence, of leveraging existing capabilities in dealing as well as in operations (where trades are processed and settled). Development of the new, on-line service required only an interface between the web and the existing system through which "live" orders were routed; existing links between the order system and the operations systems were already in place and could be re-used.

By contrast, Selftrade's requirement for an integrated, stand-alone trading capability necessitated creating a broad set of functional capabilities. Achieving Selftrade's strategic intent also meant that these functional capabilities—from client recruitment to trading, operations, settlement, and compliance—were tightly integrated. As a newcomer to the UK brokerage sector with ambitious market share goals, Selftrade also required a well-developed marketing capability together with information and training for customers new to securities trading. The existence of a rigorous, well-defined regulatory regime meant that many of Selftrade's functional capabilities were predetermined by compliance requirements:

'In terms of how we are set up and the decisions we took, we are actually very traditionally set up. I mean, you can't cut back offices in too many ways, you have to have certain functions... So we are actually very traditionally set up in terms of cash functions, stock functions, reconciliation functions, dealing, call centre etc. Etc...' (Director of IT & Operations)

For Aviators, the strong technological orientation meant a strong preference for technical solutions to every functional task:

'At the very beginning in 1994, there was just me and the computer. I had worked as a consultant in a techie role since the early 1980s, and I had with a very techno-centric worldview which assumed that whatever the problems of the universe, they could be resolved by a suitable

program...It assumes that all that is required to solve a problem is a solution, and it ignores or is unaware of the need for marketing or the need for organisation...I would be delighted not to have a single salesman, not to do a single bit of traditional selling, but for the website or for it all to happen organically and virally.’ (Founder and CEO).

The ambition and novelty that we observed in Freeserve’s systemic capabilities were matched by the need to develop a large number and wide diversity of component capabilities. Freeserve conceived of its functional and operational capabilities as falling into three core areas: “technology” which included production, infrastructure, and research; “portal and access” which included customer access, portal content, and functionality; and “customer operations” which included setting up ISP accounts and customer service and support.

Internal vs. External development

Once the broad outlines of the configuration of capabilities had been established, critical strategic decisions, according to our interviewees, concerned which capabilities would be developed internally and which outsourced.

The dominant factor in all cases was speed, hence, wherever the requirements for functional capabilities were generic rather than specialized, the default solution was to outsource. All but one of our sample of business ventures chose to outsource almost all of their technology needs. Selftrade was especially emphatic about the need to outsourcing IT requirements in order to achieve speed and cost efficiency. This also implied a preference for standardized over customized software. Internal software development was limited to supporting the web site and optimizing links with external bodies such as the London Stock Exchange:

‘We never had to do any major (IT) development ourselves, it was basically taking as much off-the-shelf as we could and understanding how we could plug it together and really limiting our own development to supporting the French for our website... Connections to the Stock Exchange, connections to CREST, they are all the sorts of things we had to deal with locally. Applications to the regulators took a while and, in the end, that had the longest lead time of everything.’ (Director of IT & Operations)

Freeserve also relied heavily on outsourcing—a result of the complexity of its capability architecture, its initial lack of internal capabilities, and criticality of early-mover advantage.

‘We are not even much of a technology company, although we have a lot of technology people, because most of it is outsourced.’ (Director of Channels).

Freeserve outsourced almost all technical and operational aspects of its ISP service to Energis, a telecom company, and its subsidiary Planet Online. The portal side of its business also relied heavily on outsourcing: it was built mainly on third party content. It utilized a tenancy model, where content providers paid Freeserve to be located on its website. At the same time, dependence on outsourcing required Freeserve to develop the capabilities to coordinate these arrangements—including managing an affiliate network comprising some 200 firms, vetting their content, and developing the capability to sell advertising.

In the case of NWS and Freeserve, externally sourced capabilities included those obtained from their corporate parents. NWS drew heavily upon other parts of the RBS Group for its back office and other functional capabilities, allowing it to focus on developing its internet trading

functions and integrating them into NWS's existing back-end functions. Freeserve used the retail network of its parent Dixons for most of its marketing and sales—Freeserve software was distributed with sales of PCs at Dixons' 1,000 UK stores.

The exception to this preference for outsourcing technology was Aviators which focused on developing its own technology—a key source of differentiation. However, when it came to customer support capability, Aviators cost considerations dominated:

'Outsourcing has worked. In order to provide a 24-hour service, and to deal with requirements during peak periods, you would need quite a number of staff. In terms of the outsourced solution, we don't have the staffing cost, we just pay for the call minutes handled. We have no control over the quality of the personnel and we have very little influence over the culture they project, but we are reasonably satisfied with that.' (Founder and CEO, Aviators).

Priorities

Prioritization—determining a time sequence for the development of different capabilities—was essential because of time pressures imposed by the pace of technological advance and the need for rapid market penetration to establish early-mover advantage. Resource constraints were also influential: limited finance and managerial capacity required each new venture to determine which capabilities were essential to getting the business up-and-running. For Freeserve, this meant a rapid roll-out of its ISP service quickly followed by the development of portal content in order to attract advertising. As the service was free and distribution was leveraged through the Dixon's retail network, marketing was not a major issue, but rapid scaling of operations was. For Selftrade, priorities were quite different: the crowded marketplace for online brokerages meant that effective marketing was the key to growth. For Aviators the belief in the market appeal of "a better mousetrap" meant that simultaneous development of technically advanced ISP service together with value added services was the overwhelming priority. For NSW, the goal of seamless service meant that the internet dealing service needed to work in an integrated way at the outset. Attaining this goal required simplicity of service design and initially restricting the service to existing clients,

Time pressures meant that speed was the dominant performance criterion and development timetables were tight:

'We were about two months behind our initial schedule, which was pretty aggressive to get a business from nowhere to launch in about five months. In the end, we managed it in about seven months.' (Director of IT and Operations, Selftrade).

These time pressures allowed little opportunity for deliberation:

'Where you are given a choice of vendors, literally you just knock out three of them, sometimes on quite an irrational basis. You know, like they didn't pitch up to a meeting.' (Director of IT and Operations, Selftrade).

'When we first launched, it was about doing things as fast as we could, it wasn't about refining them.' (Director of Communications, Selftrade)

Minimizing time to market resulted in an emphasis on achieving basic functionality; efficiency goals were secondary during start-up. Typically it required 12 months for firms to move away from “project mode” and to focus on process efficiencies:

‘Launching, getting the business to the first seventy per cent of operational effectiveness is the key. However, closing off that last thirty per cent, frankly, is where the money is.’ (Director of Communications, Selftrade)

Table 2 summarizes the key features of the capability architectures of the four businesses.

Table 2 Dimensions of Capability Architecture

	Freeserve	Aviators	Selftrade	NWS
Systemic capability	Access capability involved the provision of dial-up internet service to wide base of users. Portal capability involved the supply of a broad range of proprietary and third-party content through Freeserve’s own portal.	Online provision of a full range of value-added services for aviation enthusiasts and businesses	Integrated, stand-alone online securities trading system	An on-line share dealing service integrated into an existing conventional brokerage structure.
Functional capability	Three core operational areas were Technology, Portal and Access, and Customer Operations.	Technology (Development, Support and Administration), Customer Support, Business Development, VISP Sales.	Capability architecture mirrored traditional functional structure of broker. Major functions: IT, Operations, Marketing, and Customer Relations (including Dealing). Support functions: Compliance, Finance, and HR. The primary emphasis was on Marketing	Web-based trading interface as modular component of existing system. Other functions (dealing services, customer support and operations, client relations, and research) retained with some adaptation
Internal vs. External	ISP technology and operations outsourced to Energis. ISP marketing and distribution by parent (Dixons). Portal content developed with third parties	Initially all functions internally developed; customer support later outsourced.	Technological development outsourced to third party software developers. Parent company’s capabilities used for front end web interface.	Trading system software by MBA Systems; online financial information provided by ICB Primark. Reliance on NWS’s existing capabilities
Prioritization	Initial focus—ISP rollout; then portal and CRM capabilities	Technological capabilities developed at expense of capability in marketing in early stages of development. Later emphasis on process improvement with adoption of quality standards (ISO9000) to attract customers and to drive development (particularly in HR capability).	Importance of complying with financial regulation required parallel development of capabilities and resistance to trial-and-error development. Speed of development critical.	Development based on existing IT project methodology; customer support function developed concurrently.

Organizational structure

Our interviewees articulation of their cognitive outlines of capability architecture triggered our curiosity as to how their as these mental conceptualizations were realized. Our interviewees perceived no clear divide between the realms of cognition and action: the pressures of time meant that a common managerial vision was translated almost immediately into imperatives for action. The bias towards “getting things done” created a barrier to reflective insight by our interviews as to the linkages between cognition and action. The critical first stage of the operationalization of capability architecture was the emergence of specialization: different members of the founding team took responsibility for actions in different functional areas.

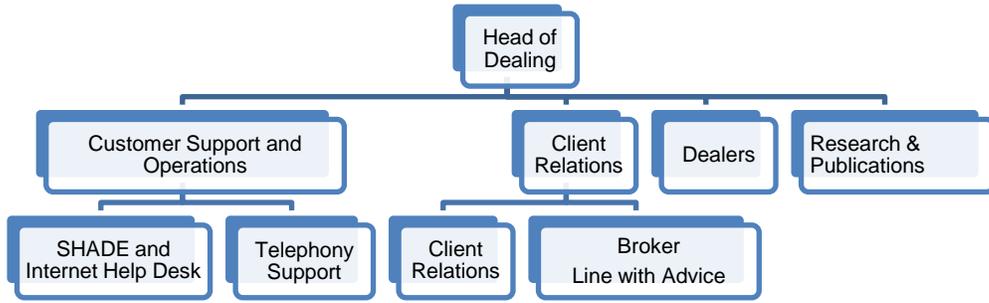
This process of different individuals taking responsibility for different areas of decisions and actions we interpreted as the emergence of *organizational structure* within the new business ventures. The first stage of emergent structure was the allocation of specialized roles within the founding teams of the new business ventures. When these individuals were assigned job titles and authorized to recruit subordinates, then capability architecture became objectively observable within a formalized organizational structure. At that point the infrastructure for capability creation was brought into existence. Figure 3 shows the organizational structures of our four case study businesses soon after their establishment. Our key observation here was that the departments and positions within the organizational charts corresponded to the functional capabilities within each business’s capability architecture.

In the case of NWS (Figure 3a), development of the on-line service had little impact on the existing dealing services division with core functional areas within NWS, such as operations and marketing, largely unaffected. The key challenge for NWS was to develop the requisite technical capabilities and to provide additional customer support for on-line customers. By contrast, Selftrade created a functional structure from scratch with an emphasis, first, on the marketing function (in order to grow the customer base) and, subsequently, on customer relations (to retain customers). This orientation is evident from Selftrade’s organization structure where the communications function, comprising sales, marketing, and customer relations was the firm’s biggest and most important function (Figure 3b).

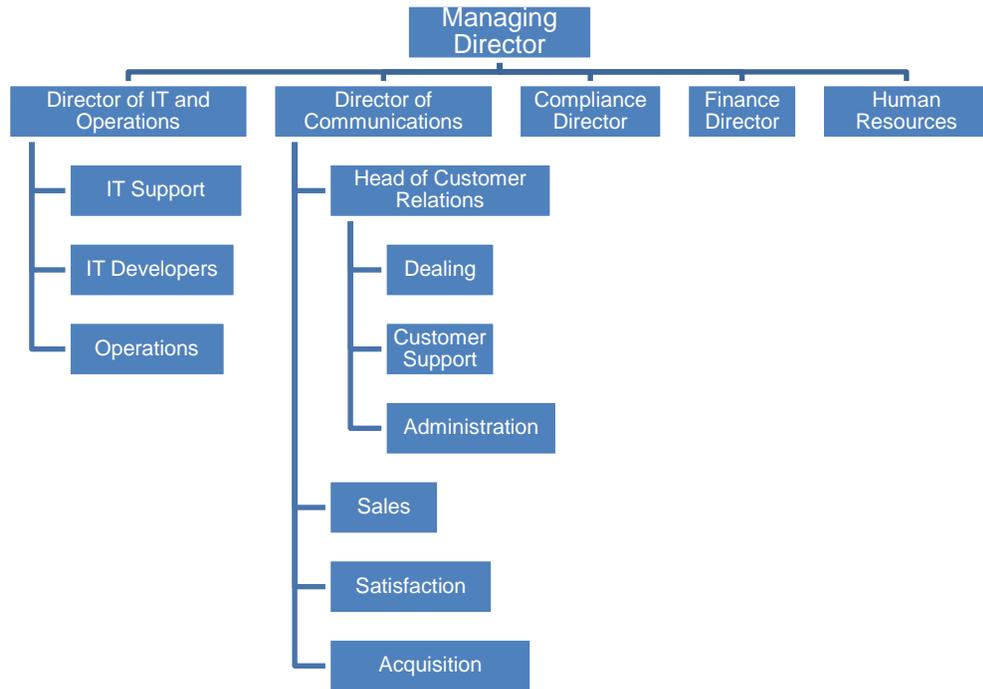
While the positions and departments shown in the organizational charts corresponded to the functional capabilities developed within each of the businesses, systemic capabilities were developed primarily through the informal structure. Systemic capabilities were the result of cross-functional coordination; this task was achieved partly through individuals who held cross-functional executive positions (particularly the CEO and COO), partly through the Chief Technology Officer (to the extent that IT systems provided the primary vehicle for linking different processes), and partly through cross-functional teams and committees. The relative importance of these different integrating mechanisms varied across our four case studies. At Aviators, the CEO and founder Monu Ogbe was primarily responsible for developing and managing systemic capabilities. At NWS, it was the top management committee—the Programme Board—comprising the Managing Director of NWS, the head of IT, the head of IT Architecture, and two key project managers. At Selftrade, systemic capability development was the responsibility of the top management team, with cross-functional project teams created for the explicit purpose of managing cross-functional integration.

Figure 3. Organizational structures of the businesses

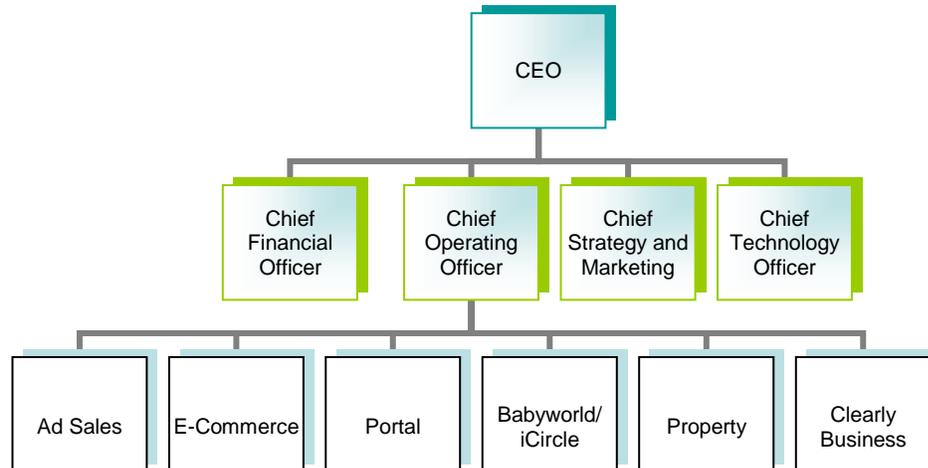
(a) NWS Dealing Services Division



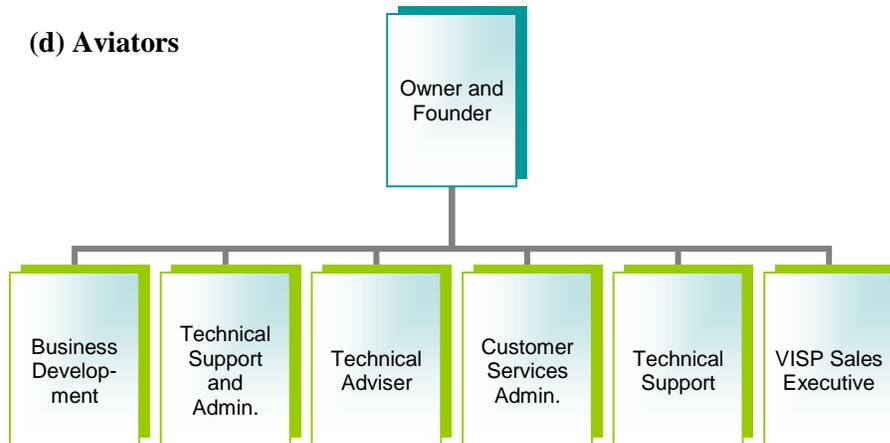
(b) SELF Trade



(c) Freeserve



(d) Aviators



Sources of knowledge

Our case evidence confirmed the findings of prior literature that founding managers are the primary medium through which knowledge flows to new businesses with their prior employment as the primary source of the knowledge used to create capabilities. Our main extension to existing research findings was in distinguishing the different roles played by different levels of management—notably that of the founding team and the next management tier—then linking this distinction to our distinction between systemic and component capabilities.

In all four businesses founding teams that were responsible for the initial stages of capability development: formulating strategic intent and capability architectures. In moving the businesses into operation mode, the founding teams were the key actors in construction of systemic capabilities and they selected and appointed the individuals who would lead the development of functional capabilities.

The extent to which the founding teams drew their knowledge from prior work experience varied between the two sectors. In the online brokerages, there was a heavily reliance upon prior experience. At NWS, the Programme Board were members of the parent organization with support from hired consultants. At Selftrade, all but one of the founding team came from the financial services sector. As a new form of business without a well-established business model or consensus around an accepted capability architecture, the two ISPs had to rely less on prior experience and more on creativity, inspiration, and bricolage both in designing capability architecture and then putting that architecture into operation. The inspiration for Freeserve came from an outsider, Peter Wilkinson (the founder of Planet Online) and two Dixon’s insiders, Ajaz Ahmed and Rob Wilmot. However, it was a Dixon’s executive, John Pluthero, who was primarily responsible for articulating the capability architecture and translating design into reality. Despite his limited familiarity with the world of information technology, Pluthero was able to draw upon his experiences of strategy and business development in real estate, hotels, and retailing. By contrast, Monu Ogbe was an experienced IT professional, although his vision for Aviators drew as much from his interests as a pilot as from his professional experience. In developing systemic capabilities it seems likely that general business experience may be more valuable than specialized technical expertise.

Beyond conceptualizing capability architecture, creating organizational structure, and providing the overall coordination essential for systemic capabilities, the key role of the founding teams was in hiring the next layer of managers. These were the individuals that would be primarily responsible for building functional capabilities. In the formative stages of the new businesses, recruitment was seen as one of the most important and time consuming pursuits of the top managers:

‘So I spent most of my initial time looking at IT vendors, recruiting staff, selecting partners for things like banking... which took up most of my time during the first couple of months, I guess.’ (Selftrade’s Director of IT and Operations)

In the case of the online brokerages, the principal hires involved individuals who possessed both functional and industry experience—the rigorous regulatory framework of the financial services sector favoured industry-relevant experience. At Selftrade, all of the four key functional heads were hired from established brokers, with three hired from a locally-based competitor.

‘You need the experience as well, because we couldn’t afford to be training people, because you know there were a million and one things to do. So you needed people who were confident in their own subject matter to come in, to set departments up, to know how functions were going to work, to learn the new systems they had to deal with, you know, to understand all the external relationships, you know, CREST, banking, the Stock Exchange... So those first couple of months were about getting the right people in.’ (*Director of IT and Operations, Selftrade*)

In some functions, however, sectoral knowledge was secondary to functional expertise. For customer relations, Selftrade hired staff with relevant functional experience but no prior financial services experience:

‘...we took an awful lot of people from Thomas Cook (a travel agency) in Peterborough just for their call centre experience not because of their financial services knowledge...’ (Head of Customer Relations)

In the case of the ISP business, the newness of the sector inevitably meant less opportunity for hiring individuals with industry experience. Inevitably first movers in the industry became targets for sourcing experienced staff. Freeserve hired several key individuals from AOL, the biggest and longest established ISP. But for the most part, industry specific experience was not available:

‘One of the things that’s an issue when you go into the market is trying to find people with experience and nobody’s had experience with this.’ (*Director of Channels, Portal Division, Freeserve*)

In the absence of relevant functional expertise, the emphasis was adaptability and learning capacity: “racehorses you can throw at any project” (Director of Customer Relations, Freeserve).

Table 3 lists key managers at the four business ventures and their career backgrounds.

Table 3 Managers’ roles and backgrounds

	Founding team	Background	Subsequent hires	Background
Self Trade	Haakon Overli, Managing Director Martin Braund, COO Peter Boucher, Marketing Director Ian Grew, CTO	Head of Technical Investment Banking, ING Barings Ops Manager, Barclay's Stockbrokers Unilever, marketing Barclay's Stockbrokers	Dealers Customer support	Other brokerage firms Mainly from Thomas Cook
NWS	MD, NWS Head of IT Head of IT Architecture (Plus two project managers)	All were internal transfers within NatWest Securities	Principal hires were IT personnel	IT professionals with prior financial services experience
Free-serve	John Pluthero, CEO Mark Danby, COO Rob Wilmot, CTO Ajaz Ahmed	Dixons, GM Mastercare Dixons, corporate development Dixons Dixons, retailing	Frank Keeling, COO Stratis Schleparis, CTO Nicholas Backhouse, CFO David Melville, General Counsel John Grisby, Head of Portals Keith Hawkins, MD Marketing	COO, AOL Europe CTO, AOL Europe Barings; Coopers&Lybrand Law firm BBC Marketing VP, AOL UK
Aviators	Monu Ogbe, CEO Mrs. Ogbe, Finance & Admin Tom Dawes-Gamble, Technical Advice	IT consultant; amateur pilot Spouse IT consultant; amateur pilot	Andy Nash, Business Development	IT consulting

Routinization and codification in the capability development process

Common to all the organizational capabilities we studied—whether systemic or functional, operational or administrative—was the need to establish *organizational processes*: repeatable sequences of actions through which organizations accomplish tasks. To the extent that processes are routinized, then organizational processes are synonymous with organizational routines. We use the term *processes* in preference to *routines*, first, because our interviewees used this term, second, because not all processes were routinized, and third, to avoid the conceptual baggage that the academic literature has attached to the “value-laden... ambiguous and somewhat perjorative term ‘routine’” (Pentland and Reuter, 1994: 492).

We identified two main development patterns for organizational processes: an *emergent pathway* and a *design pathway*. The key distinction being the stage at which codification occurred. Codification among our sample took many forms: creating a human resource manual, documenting appraisal procedures and other HR tasks at Selftrade; documenting a standardized process for signing up a new affiliate at Freeserve; and an automated procedure for creating a domain name in the product database at Aviators.

Emergent pathway

In the emergent pathway, codification represented the final stage in an evolutionary process of capability development that began with ad hoc solutions followed by their routinization. Pressures for standardization and scaling then created incentives for codification. An incremental development pattern was evident. The most frequently performed tasks were the first to be routinized, while those which were most important to operational performance and most vulnerable to variability the first to be codified.

In Selftrade, ad hoc solutions tended to focus on those operational areas such as customer service which presented the challenge of multiple potential solutions to particular problems:

‘Initially everything was manual... I think what we tried to do was try and get at least three or four people who had previous experience in managing this type of department ...It was very, very gradual. It was kind of a very slow process initially where we were very much depending on those three or four people to be the experts.’ (Head of Customer Operations)

Conversely, early routines were developed around relatively simple administrative tasks. For some routines, it was a simple further step to codification given that it was relatively straightforward to develop documentation around routine processes, such as employee appraisals for example, particularly where templates were informed from prior experience in other established organisations. Over time, the intention was to codify as many routines as possible, including those relating to customer service:

‘What we’ve done is identified between 20 or 25 key processes within that department, which again range from opening an account to closing an account to withdrawing money to making a complaint... and we’ve basically got a whole list of documentation which we’ve built up over time for some of it and for the rest of it, we’ve worked very closely with our compliance department who’ve helped us to identify gaps in processes.’ (Head of Customer Operations)

Similarly, in Freeserve, early attempts at codification focused on standardizing documents and procedures within the technology function largely as a result of technologists’ prior experience of dealing with established project management techniques used in IT development. The spur to increased codification grew out of an internal emphasis on centralised and co-ordinated efforts.

Design pathway

For other organizational processes, codification occurred at the outset. For many operational tasks, the starting point was designing processes around codified routines. This was especially the case for automated processes where the intention to minimize manual input. Thus tasks such as cash-handling and customer registration were codified in the first instance. Such technology-based processes were characterized by highly modular structures. This was especially evident at NWS, where the customer-web interface was designed as an addition to the existing electronic trading system requiring task automation within the new system. The stronger the preference for technology-based solutions, the greater the emphasis on early-stage codification. Aviators was a case in point:

‘Every process that can be automated should be automated...and we use automation wherever we can...All but exceptions and client processes are codified... Everything that is a computer process is nice and clear, and when humans interfere, it is one of our biggest sources of problems.

For example, somebody has bought a service, changes their mind and wants a different one instead and wants to be credited for the balance for the difference in price. The system doesn't do it, and humans are bound to mess it up, and there isn't a written procedure that defines how to do that and what to do.' (Founder and CEO, Aviators)

All four of our sample businesses displayed a mixture of emergent and design-led where the key determinant was the characteristics of the individual. At the same time, a tendency towards standardization of process development meant that, in each business, one approach predominated (see Table 4).

Table 4 Patterns of process development

<p>Freeserve (Emergent) Process development initially ad hoc except for the technology function which developed standardized documents and procedures. Ad hoc solutions became routinized and, after the first 2 years, codification accompanied a centralized initiative to assess what was being done and how. Redesign and automation of customer-interface routines followed emergence of a new revenue model for the ISP business--including processes for connection, registration, customer care, and billing.</p>	<p>NWS (Design) An initial emphasis on automation resulted from the need to build an IT-based trading system and to integrate the new on-line service with legacy systems. Codification was also emphasised within the IT Project Methodology followed used in developing the on-line service.</p>
<p>Aviators (Design) Automation of products and services existed alongside ad hoc customer service and negotiation solutions. Increased emphasis on codification driven by need to increase the scale of the operation while maintaining fewer staff and reducing the possibility of human error.</p>	<p>Selftrade (Emergent) Despite an initial emphasis on the codification of simple tasks, e.g. developing templates for employee appraisal, primary mode of process development was ad hoc solutions to customer service. Increased automation and adoption of CRM tools resulted in the codification of routine-based processes.</p>

The drivers of codification

Common to both emergent and design pathways was a tendency for codification to increase over time. For Aviators, IT-based codification was an article of faith:

'All the activities that are involved in running our business do need to be formalized and will be...The need for it has been recognized for a very long time.' (Founder and CEO, Aviators)

For the others, codification was to facilitate the scaling and replication of organizational processes. Expansion necessitated hiring new employees requiring their training and integration:

'And, I suppose really where the processes and the documentation of processes really came into play in the first instance was when we were starting to recruit a lot more people. When you have to train 15 or 20 people all at once – how a trade works and how the financial markets work, then I guess you really need to have handouts, and that's probably where our embryonic procedures began.' (Head of Customer Operations, Selftrade)

Codification was also driven by the desire to increase efficiency: in service operations scale efficiency depends critically upon reducing variability. Across a range of operational and administrative processes, codification permitted standardization which was a prerequisite for automation. Efficiency from automation was especially important for our two online brokerage firms. At NWS automation provided the necessary connectivity between its trading activities and its

other value chain activities including settlements and clearing. The firm's existing automated process flows alone numbered 730. From these, it developed and monitored key performance indicators (KPIs) on a daily basis ranging from how many trades take place to the length of time brokers take in answering a call:

'The KPI's are our first indicator of something going wrong. It does stand out if the process suddenly wobbles...In some brokers, if they are dealing one hundred trades a day, they don't need as tight control over processes necessarily, but with the volumes that we are dealing with, you only have to go out of line for one day and you find you have a major problem on your hands.' (*Senior Manager, Operations*)

Codification and automation had the effect of revealing weaknesses in coordination between different processes. The result was that pressures for codification tended to be progressive: once some processes were codified, there was pressure to extend codification to adjacent processes. At Selftrade, the creation of a CRM (Customer Relationship Management) tool triggered a wave of automation and codification through a series of closely linked processes:

'Probably the most visible change (since we began operation) is the absence of paper on people's desks...[T]he one thing we've developed ourselves is the 'Call Centre Application', it's a mini-CRM tool. The primary function is it allows us to manage all customer contact. We are making this tool work for us a bit more. We've automated some of our processes through it. For complaints handling, we'd take the complaint and try and get this person to talk to someone who would handle this complaint... it was kind of verbal, there was nothing really documented. What we've managed to do with this tool is manage a real process flow. We put a status of "complaint" on this and this turns into a workflow for us. ...For customer contact and for customer history, there's only one interface...And today, it handles some of our cash processes as well.' (*Head of Customer Operations*)

At Freeserve, design of the web interface was the basis for linking a whole series of processes from initial customer registration system through to new product introductions. The result was a more systematic approach to organizational learning and performance improvement:

'Documenting and creating organisational memory takes a lot of time...we are not in the one-off game any more...but we are old enough so that we are doing things we've done before...When you launch something you actually have to think about how we do things wrong so we understand what we have learnt and can do things better next time...You can change the base line but there's a base line that needs to be documented and is inherently completely interconnected with the other base lines or main processes.' (*Director of Customer Relations, Freeserve*)

The dynamics of capability development: Disruption and change

The capability development process that we have outlined so far may provide a misleading picture of stability and continuity. Despite our identification of a common process of capability development (involving four key components and following a similar temporal pattern), this did not preclude disruption and redirection.

The primary source of disruption was turbulence in the external business environment which in turn precipitated the reformulation of strategic direction. In none of our businesses did strategic intent provide stable long-term direction for the development of organizational capabilities

as envisaged by Hamel and Prahalad (1989). Consistent with Lovas and Ghoshal (2000), strategic intent adapted to changes in the external environment. However, while environments changed continuously, changes in strategic intent were episodic—consistent with the punctuated equilibrium model of strategic change (Romanelli and Tushman, 1994).

The degree to which strategic intent changed depended upon the extent of external upheaval. Thus, the technological and regulatory changes in the ISP sector—especially the introduction of FRIACO (Flat Rate Internet Access Call Origination)—revolutionized the business models of our ISPs by enhancing subscription revenues and reducing dependency upon advertising and other portal revenues. Freeserve shifted its emphasis from developing portal-delivered content in favor of its ISP service, while Aviators abandoned its niche-oriented, vertical strategy in favour of a business-to-business model supplying technology and web-hosting to “virtual ISP” operators. These changes in strategic intent were intensified by the “dot.com bust” of 2000 which forced both Freeserve and Aviators to downsize their strategic ambitions. For Aviators, this was its second reformulation of strategic intent: earlier it had shifted its revenue model from the delivery of content to the providing ISP functionality rather than content: ‘Essentially, the ISP was the second string to the bow, but in the end it became the driving force...The ISP arm of the business became the core as opposed to the information.’ (Business Developer, Aviators)

The on-line brokerage sector was also subject to external turbulence. Growing competition and declining trading volumes the followed the “dot.com bust” of 2000-1, caused Selftrade to focus less on back office development to support a rapidly growing client base and more towards operational efficiency and customer retention—particularly the development of its customer relationship management (CRM) system. As an established broker with a leading market share, NWS was able to maintain its initial strategic intent; but it too was pushed into closer integration between its online share dealing service and NatWest Bank’s online banking service.

Table 5 Changes in Strategic Intent

Organization	Events triggering reformulation of strategic intent
Freeserve	<p>Development of FRIACO provided a new revenue model for the access business. This allowed less emphasis on content via the portal.</p> <p>Saturation of ISP consumer market implied focus on customer retention rather than customer acquisition and enhancement of customer service operation.</p> <p>Dot.com collapse revealed risks of relying on external technology partners—greater emphasis on developing technology internally.</p>
Aviators	<p>Development of FRIACO threatened revenue base of Aviators which, in turn, prompted re-design of on-line sign up process for new customers.</p> <p>Launch of virtual ISP (VISP) service as means of developing distribution and origins of marketing capability.</p>
NWS	<p>The on-line dealing service was targeted at existing clients, and there was no change in aspirations to change this or the functionality of the dealing service provided.</p>
Self Trade	<p>Ongoing downturn in market environment following launch resulted in focus on efficiency and on customer retention rather than customer acquisition:</p> <ol style="list-style-type: none"> (1) Ongoing development of back office system to automate as many processes as possible. (2) Development of Customer Relationship Management (CRM) tool within the call centre.

The changes in strategic intent induced changes in capability architecture. The principal changes were changes in priorities and changes in the boundary between internal development and outsourcing of capabilities. At Selftrade, increased competition and stalling market growth shifted priorities to developing customer service and support. At Aviators, the shift towards a business-to-business (B2B) model where Aviators offered operational and technology services for virtual ISPs was, in part, affirmation that Aviators' primary capabilities were technological and also recognition of the need to rely on clients' marketing and distribution capabilities to reach a wider consumer audience:

'We need to do deals with clients who have marketing muscle, offering them the technology by which to reach their large markets.' (Founder and CEO).

During 2000, Freeserve's shifting strategic intent resulted in increased internal development of technology: a Chief Technology Officer was appointed and separate product and infrastructure groups were created within the technology division:

'As Freeserve has grown and developed its offerings to customers, we have needed to have more input and more control over the infrastructure supplying these offerings – particularly core services such as the portal... we may enter into partnerships with service providers that allow us to learn from the experts with an aim to take more control of the technology.' (Technology Manager).

At all four businesses, changes in capability architecture induced changes in organizational structure. Organizational changes also resulted from growing size and complexity of the businesses. Both factors combined at Freeserve, whose organizational structure showed the greatest change amongst our sample:

'How we used to be structured is very different from how we are structured today... the different business units or brands were all separate. Today, very few are separate... Interestingly, we are now moving away from that complete consolidation back out to a slightly more differentiated business units again. We are split into three basic divisions since last year.' (Director of Channels, Portal Division)

DISCUSSION AND CONCLUSION

Our study was motivated by the assumption that, to establish commercial viability, firm needs to build combinations of complementary capabilities and by the perception that the existing literature has failed to provide an integrated view of the process of capability development. The evidence from four new e-commerce businesses has allowed us to propose a model of capability development that offers a more comprehensive view of how organizational capabilities are created and developed. In common with recent contributions to the capabilities literature, our model assigns a leading role to managers as instigators and drivers of capability creation. As well as integrating existing ideas and theoretical contributions, our model also extends current thinking on capability development—notably in establishing the central role of capability architecture in linking strategic intent to managerial action. Capability architecture represents a firm's structuring of capabilities in terms of hierarchy, firm boundaries, and time sequence. Capability architecture provides the basis for the organizational structure within which capabilities are nurtured and a development plan in terms of outsourcing decisions and priorities.

By focusing upon the linkages between the different components of the capability development process, our attention was directed to aspects of the process that had received little attention previously. For example, although strategic intent has long been regarded as a key driver of firm development and competitive advantage, the previous literature has done little to investigate the characteristics and dimensions of strategic intent. Similarly, in relation to the role of prior employment as a source of knowledge for new businesses, we were able to specify different knowledge sources for different types of capability. In terms of the debate between routinization and managerial design in the development of capabilities, we were able to show that capability development follows either an emergent path in which codification follows routinization, or a design path in which codification occurs at the outset.

To the extent that our abductive methodology deploys “creative inference” (Haig, 2005) and “imaginative theorizing” (Locke et al, 2008), questions inevitably arise over the validity of the model we develop and its ability to extend beyond the confines of our sample. On both issues we draw confidence from the fact that most our main findings are confirmed by other empirical studies.

The central role of strategic intent as the key driver of capability development is apparent in almost all case-based research into capability development at specific firms. Particularly revealing are studies showing how differences in strategic intent resulted developing different capability configurations between rival firms, e.g. Texas Instruments and Sharp in electronic calculators (Amikura and Shintaka, 1997) and Borders and Barnes & Noble in book retailing (Raff, 2000). Although, other studies have not explored the dimensions of strategic intent, several point to the key role of *scale* of strategic ambition in driving the level of capability. For example, it is interesting to contrast the outcome of Hyundai’s obsession with creating a world class automobile company (Kim, 1998) with NCR’s modest aspirations for its mainframe computer business (Rosenbloom, 2000: 1085-1091). . .

The concept of *capability architecture* appears in the conceptual but not in the empirical literature. However, other case study research has alluded to the translation of top management aspirations into lists, maps, agendas, or guidelines indicating the capabilities that needed to be developed and priorities among them. Amikura and Shintaka (1997) refer to the “strategic schema” which guided the development of Sharp and Texas Instruments’ calculator businesses. The “cognitive templates” with which entrepreneurial firms approached internationalization (Bingham and Eisenhardt, 2005) also embodied conceptions of required functionality that corresponded to our notion of capability architecture. Other studies point to product architecture as providing a framework for capability development—see Noda’s (1999) case study of Sharp’s minidisk player, (Noda, 1999), Rosenbloom (2000) on NCR’s mainframe business, and Montealegre (2002) on Bolsa de Guayaquil. The role of organizational structure as a guiding framework for building capabilities is also apparent in the literature—see especially Amikura and Shintaka (1997), Kim (1998), Montealegre (2002), and Narduzzi et al. (2000). On this point it is noteworthy that NCR’s difficulties in developing its mainframe computer business during the 1960s were partly the result of an organizational structure that was incongruent with the capabilities required (e.g. the separation of engineering and development from manufacturing, marketing, and sales).

Our model of capability development provides a generalized description of the capability development process in terms of a specification of the key components of the process, an

indication of their temporal ordering, and an identification of the primary actors (the top management team together with functional heads). Can this process model provide a starting point for a deterministic theory of capability development capable of predicting the types of capability that a firm will develop and the level of performance to which these capabilities will reach? From our four case study findings augmented by previous case research, we can offer tentative suggestions as to how the variables incorporated in our capability development model might influence the types of capabilities developed and the level of their development. Thus, the nature of strategic intent and its dimensions in terms of scale and scope appear to have important influences both on the type of organizational capabilities developed and also the level of development attained. Second, in moving from conceptualization to operationalization, a high degree of consistency between capability architecture and organizational structure is likely to facilitate the creation of the organizational processes which confer capability. Third, given the importance of other firms as sources of the know-how for developing functional capabilities, hiring functional experts from companies which possess the desired functional capabilities can facilitate the imitation or recreation of these capabilities. Fourth, codification plays a critical role in the development of organizational processes. While codification may precede or follow routinization, the earlier its introduction into the development of organizational processes, the better the prospects for scaling and performance improvement.

More generally, our study offers the potential for a linking the resource-based theory of the firm—in which organizational capabilities play a central role—with the intentions and actions of managers. Key resource-based concepts such as resource reconfiguration (Galunic and Rodan, 1998), knowledge integration (Grant 1995), and resource “bundling” and “leveraging” (Sirmon et al., 2007) offer penetrating insights into the sources and dynamics of competitive advantage, but the organizational mechanisms through which they operate have remained obscure. We are hopeful that our model of capability development can help narrow the gulf between the theoretical abstraction that has characterized the resource-based and knowledge-based views of the firm and practical aspects of managerial cognition and organizational processes.

ENDNOTES

¹ See for example the studies of early US semiconductor firms (Holbrook et al., 2000), Borders and Barnes & Noble (Raff, 2000), Hyundai Motor (Kim, 1998), Bolas de Valores de Guayaquil (Montealegre, 2002).

² This approach has also been endorsed by Siggelkow: "...I believe that cases can also help sharpen existing theory by pointing to gaps and beginning to fill them. Thus, the near-ubiquitous claim that 'not much is known, hence we engage in grounded theory building,' does not seem to me a necessary condition for the justification of case research." (Siggelkow, 2007: 21)

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