

5-2014

Competing Through Customization: Using Human Resource Management to Create Strategic Capabilities

Ying Hong
McMaster University

Hui Liao
University of Maryland

Michael C. Sturman
Cornell University School of Hotel Administration, mcs5@cornell.edu

Yu Zhou
Renmin University of China

Follow this and additional works at: <http://scholarship.sha.cornell.edu/articles>

 Part of the [Human Resources Management Commons](#)

Recommended Citation

Hong, Y., Jiao, H., Sturman, M. C., & Zhou, Y. (2014). *Competing through customization: Using human resource management to create strategic capabilities* [Electronic version]. Retrieved [insert date], from Cornell University, School of Hospitality Administration site:<http://scholarship.sha.cornell.edu/articles/661>

This Article or Chapter is brought to you for free and open access by the School of Hotel Administration Collection at The Scholarly Commons. It has been accepted for inclusion in Articles and Chapters by an authorized administrator of The Scholarly Commons. For more information, please contact hlmdigital@cornell.edu.

Competing Through Customization: Using Human Resource Management to Create Strategic Capabilities

Abstract

Given the increasingly diverse customer preferences, customization has become a strategic opportunity for organizations to create value. There is no systematic effort, however, in understanding the implementation of customization as a competitive strategy. Based on theories of resources and capabilities and the multidimensional view of economic rents, we derive three strategies of customization—mass production, mass customization, and total customization—each creating a unique value for customers and incurring different costs. To bridge the gap in the human resources literature in delineating the strategic capabilities as an intermediate outcome of human resources systems, we further draw from organizational psychology perspectives to infer how the strategic capabilities for customization can be created through different human resources management systems.

Keywords

customization, dynamic capabilities, human resources, strategic capabilities

Disciplines

Human Resources Management

Comments

Required Publisher Statement

© Sage. Final version published as: Hong, Y., Jiao, H., Sturman, M. C., & Zhou, Y. (2014). Competing through customization: Using human resource management to create strategic capabilities. *Organizational Psychology Review*, 4(2), 124-147. doi: 10.1177/2041386613504608

Reprinted with permission. All rights reserved.

Competing through customization: Using human resource management to create strategic capabilities

Ying Hong
McMaster University

Hui Liao
University of Maryland

Michael C. Sturman
Cornell University

Yu Zhou
Renmin University

Abstract

Given the increasingly diverse customer preferences, customization has become a strategic opportunity for organizations to create value. There is no systematic effort, however, in understanding the implementation of customization as a competitive strategy. Based on theories of resources and capabilities and the multidimensional view of economic rents, we derive three strategies of customization—mass production, mass customization, and total customization—each creating a unique value for customers and incurring different costs. To bridge the gap in the human resources literature in delineating the strategic capabilities as an intermediate outcome of human resources systems, we further draw from organizational psychology perspectives to infer how the strategic capabilities for customization can be created through different human resources management systems.

Over the past decades, management researchers have been seeking an answer to the question of how do firms create “greater utility for customers than competitors do” (Sirmon, Hitt, & Ireland, 2007, p. 273). As customers’ needs become increasingly diverse (Gilmore & Pine, 1997), one strategic imperative is customization (Simonson, 2005). Customization means treating customers as unique individuals in offering products and services (Franke, Keinz, & Steger, 2009; Surprenant & Solomon, 1987). Customization adds to the total value of the product or service as experienced by customers, which determines the maximum economic rent that firms can appropriate (Peteraf & Barney, 2003). Product customization creates a closer fit with customer preferences (Franke et al., 2009; Simonson, 2005). Service customization is by itself an important criterion of service quality. Customization was found to be a key determinant of customer perception of service quality, bearing a higher weight than service reliability (Fornell, Johnson, Anderson, Jae-sung, & Bryant, 1996). Because of the unique value customization creates, customers’ willingness to pay and subsequently the revenue generated by selling customized products/services can be higher than standardized ones (Roth, Woratschek, & Pastowski, 2006). In addition, firms that customize often engage in extensive communication with customers. As a result, they will accumulate extensive proprietary information about customers, which makes it more costly for customers to switch to competitors (Pine, Peppers, & Rogers, 1995). Otherwise, offering standardized products may be subject to the escalating customer expectation of low price and responsiveness (Voss & Hsuan, 2009). This would continuously squeeze the profit margin for standardized providers. Therefore, customization is an amenable strategy to generate higher economic rent and create sustained competitive advantage for firms.

While there is now a view that customization can lead to greater rents in general (Kotha, 1995), there is simultaneously work that argues that different types of rents can be generated from different organizational resources (Chadwick & Dabu, 2009). Currently, there is no systematic effort to synthesize different strategies of customization and to understand how management practices contribute to customization. The incorporation of the resource-based view (RBV) of the firm and the multidimensional view of economics rents (e.g., Chadwick & Dabu, 2009), suggests the existence of three levels of customization: mass production, mass customization, and total customization. We discuss the theoretical logic that suggests this new typology.

In addition, although certain customization can be facilitated by technology and operational systems, the most exclusive customization process involves employees to at least partially perform complex customization tasks (Gwinner, Bitner, Brown, & Kumar, 2005). This underscores the importance of effectively managing human resources (HR). In general, the strategic human resource management (SHRM) field has been criticized as “a plethora of statements regarding empirical relationships and/or prescriptions for practice that fail to explain why these relationships exist or should exist” (Wright & McMahan, 1992, p. 297). This paper takes a different, theory-driven approach. Specifically, Becker and Huselid (2006) have called for more SHRM research to consider strategic capabilities as an intermediate outcome of human resource management (HRM) in the course of strategy implementation. Strategic capabilities refer to firms’ abilities to configure, integrate, and deploy resources toward the achievement of strategic goals, thus predicate firms’ core competency in gaining competitive advantage (Makadok, 2001; Sirmon et al., 2007). However, efforts in disintegrating different capabilities and in spelling their relationships with HRM have been few and far between. This requires integration with organizational psychology perspectives to understand the workforce characteristics that will support the needed capabilities.

Many strategic management researchers have indeed recently turned to the “microfoundations” of resource-based theories to understand how competitive advantages are created in firms (Coff & Kryscynski, 2011; Foss, 2011). One of the built-in components in the RBV is the human aspect: the firm-specific and causally ambiguous human capital, and socially complex behaviors and interactions constitute important forms of valuable, rare, inimitable, and nonsubstitutable resources (Coff & Kryscynski, 2011). It is the inherent complexity and idiosyncrasy in human capital and behaviors, however, that limited prior efforts in this regard. This paper therefore draws on theories of marketing, strategic management, psychology, and HRM to present an integrated framework of customization as a source of competitive advantage, and illustrate the role of HRM in creating the strategic capabilities for three types of customization.

Customization as a source of competitive heterogeneity

Prior research has suggested that customization varies on two dimensions: outcome customization (the extent to which the product or end result of the service matches customer’s preference; Surprenant & Solomon, 1987) and process customization (the extent to which individualized assistance was given to help customers; Lengnick-Hall, 1996; Skaggs & Youndt, 2004). This categorization describes what customization strategies might look like, but does not provide information on what sort of strategies might be expected due to theory.

Strategic management research suggests that an effective customization strategy should create a unique competitive advantage for firms. As defined by Peteraf and Barney (2003), competitive advantage refers to the ability to “create more economic value than the marginal (breakeven) competitor in its product market,” of which economic value refers to “the difference between the perceived benefits gained by the purchasers of the good and the economic cost to the enterprise” (p. 314). In this vein, in evaluating a customization strategy, firms weigh the benefit of customization against the cost of producing customization. Any resulting producer surplus constitutes the economic rent of firms. Yet as theory purports that organizational resources can yield different types of economic rents, firms may pursue different customization strategies to exploit the potential rents in different ways (Chadwick & Dabu, 2009). Chadwick and Dabu (2009) describe three types of economic rents: Ricardian rents, nontraditional Ricardian rents, and entrepreneurial rents. Each type is generated through the application of different resources. As firms acquire, develop, and deploy their resources in different ways to generate different sorts of rents, this suggests the presence of different strategies to describe the approach the organizations take. Based on existing theory, we describe three different customization strategies that have a potential to create unique competitive advantage for firms.

Ricardian rents and mass production

Ricardian rents accrue from owning a valuable resource that has inelastic supply (Chadwick & Dabu, 2009; Teece, Pisan, & Shuen, 1997). While traditional theory holds that only a few resources could accrue Ricardian rents (Barney, 2001), they can be preserved because of market imperfections, like the unequal distribution of information, causal ambiguity, luck, and complexity (Barney, 1991; Conner, 1991; Teece et al., 1997; Wright, McMahan, & McWilliams, 1994).

Companies seeking to profit from Ricardian rents should pursue an approach that can best thrive under stable conditions and with consistent customer demand. Thus, this strategy should provide low outcome and process customization. Firms using this strategy offer a narrow array of products and services, often intending to streamline the production process to save cost and/or improve reliability, which can be traced back to the philosophy of scientific management (Taylor, 1912). This can be an effective strategy because the targeted customers consider purchasing the

product/service as a “means to an end” (Swan & Pruden, 1977). These customers value inexpensive and convenient products/services simply to satisfy their end needs. When targeted customers are indifferent to various choices, or when customers are not knowledgeable about their own preferences (Simonson, 2005), it is useful for firms to offer only one or a few “prototypes” to help customers make a decision (Terwiesch & Loch, 2004). In addition, firm surplus is enabled by the cost savings brought by economies of scale— “lower unit costs of a single product or service through greater output and faster throughput of production process” (Pine, 1993, p. 43). This strategy has been a dominant strategy in traditional firms (Simonson, 2005). It facilitated the early development of the auto industry, when industry leaders such as GM and Ford mass produced several popular models that the general population could afford and quickly generated rents through economies of scale. The general population at the time was relatively unsophisticated and indifferent to complex choices; thus, affordability and reliability of vehicles were the most important criteria.

Nontraditional Ricardian rents and mass customization

Nontraditional Ricardian rents are acquired when a resource being scarce, but it must also be coupled with cospecialized systems and resources that, as a set, provide competitive advantage (Chadwick & Dabu, 2009). This cospecialization develops over time, and is dependent on the organization’s specific resources and processes. A strategy that intends to maximize nontraditional Ricardian rents must therefore seek to benefit from a situation with resource scarcity coupled with variations in factor quality (Chadwick & Dabu, 2009). It should aim to increase outcome customization while at the same time limiting the extent of process customization to keep costs low. The synergy in systems is necessary to provide flexibility in production design, yet where the synergy of the systems leading to the flexibility, as a whole, provides the nontraditional Ricardian rents. This strategy has been labeled as mass customization (Kotha, 1995; Pine, 1993; Pine, Victor, & Boynton, 1993).

As noted by Kotha (1995), instead of “[producing] standardized products at a price that everyone can afford, the goal of mass customization is to produce enough variety in products and/or services so that nearly everyone finds exactly what he or she wants at a reasonable price” (p. 22). This strategy generates a closer preference fit than standardization. Organizations allow customers to mix and match different options to create a customized outcome at the later stage of assembly, which is also referred to as “delayed differentiation” (Lee & Tang, 1997) or “adaptive customization” (Gilmore & Pine, 1997). In other words, customization happens only at the assembling stage, while basic modules can still be massively produced to reduce economic costs. Competitive advantage is gained because the systems involved in the adaptive customization are aligned and efficient as a group. For example, using a centralized database, recruitment websites may allow user interactivity to filter information based on users’ abilities and preferences, or organize information based on users’ specified order (e.g., person-organization fit, demands-abilities fit, etc.; Dineen & Noe, 2009).

Mass customization manages customers’ perceptions of customization while keeping the economic costs associated with manufacturing and assembling standardized parts relatively low. Firm competitive advantage resides in the synergy between production, adaptation to customer demand, and the resources necessary to provide the array of products potentially included within the customization. For example, Ford’s CEO Alan Mulally initiated a restructuring strategy in 2006, in which the company adopted a mass customization strategy using eight standardized platforms and common parts across the world, on which different variations could be made. This significantly reduced the complexity and cost than formerly producing different vehicles across different regions, yet at the same time still created different looks of the cars for customers to choose from (“Ford Epiphany in Dearborn,” 2010).

Entrepreneurial rents and total customization

Entrepreneurial rents occur because of the unique abilities of individuals and firms to anticipate, exploit, and create market disequilibria (Chadwick & Dabu, 2009). In contrast to Ricardian rents, entrepreneurial rents require the presence of market disequity, or the ability of the firm to create market disequity. A firm seeking to maximize entrepreneurial rents tailors to the particular customer’s needs. This strategy often allows “user design” of products (Randall, Terwiesch, & Ulrich, 2007) or “collaborative customization” (Gilmore & Pine, 1997), where customers are involved at the design stage and in a more fundamental manner. We label this strategy total customization.

From an operations standpoint, total customization does not rely on standardized modules; rather, it allows “process restructuring” (Lee & Tang, 1997). Rolls Royce, for example, differentiates itself by encouraging unique user design. Customers specify parts at the design stage, who are allowed to alter existing options and create new options. This involves high process customization—that is, extensive human interaction to help customers understand the specifications and develop their preferences. Upscale providers also endeavor to provide the most adaptable and

enjoyable customer service throughout the process (Gwinner et al., 2005). To provide customers with the most exquisite experience, in 2006 Ritz Carlton abandoned the 20-point list of service protocols (e.g., “always carry a guest’s luggage”) and replaced it with a set of simpler values (e.g., “I am empowered to create unique, memorable, and personal experiences for our guests”) so that employees can cater services to each customer’s needs (Hall & Johnson, 2009). Although total customization incurs the highest operations and human costs, it also creates the highest value by generating the best preference fit, and at the same time satisfying customers’ expressive desire to feel unique (Gwinner et al., 2005; Skaggs & Huffman, 2003) and accomplished (Franke, Schreier, & Kaiser, 2010). In addition, research has shown that customers would afford extra value to a customized product if the customer had enjoyed or put in substantial effort in the design process (Franke & Schreier, 2010). The high perceived value by customers enables firms to generate more entrepreneurial rents.

Seeking evidence for the customization typology

In our prior discussion, we propose that the RBV and theory of rents suggest that a typology of customization should exist, with three distinctive strategies emerging. We must delve into the theoretical implications of the theories that lead us to this typology, and see what characteristics of organizations within each typology we should expect that can be directly observed and tested. The theories that lead us to posit the presence of this typology also provide insights into the sort of strategic capabilities needed to fulfill each individual strategy.

Strategic capabilities for customization

The three customization strategies not only create different customer value and incur different economic costs, but also present different levels of complexity and dynamism in the delivery of products/services. Complexity relates to the number of contingencies and the amount of coordination needed to capture an opportunity (Davis, Eisenhardt, & Bingham, 2009; Dellaert & Stremersch, 2005; Skaggs & Huffman, 2003). Dynamism describes the degree to which the environment is unpredictable (inconsistent flow of opportunities), and the extent to which the environment is ambiguous (lacks clarity in determining the procedures of action; Davis et al., 2009). To the extent that these three types of customization incur different levels of complexity and dynamism, they also require different capabilities for firms to succeed.

Component capabilities. As companies that compete on mass production adopt the philosophy of scientific management (Taylor, 1912) and rely on economies of scale (Pine, 1993, p. 43), the focus is on maximizing efficiency. Given that tasks are often organized by functions, the component capabilities of firms to efficiently and effectively produce parts within narrow confines and limited processes are critical (Kusunoki, Nonaka, & Nagata, 1998). Component capabilities are defined as “the local abilities and knowledge that are fundamental to day-to-day problem solving” (Henderson & Cockburn, 1994, p. 65). Specifically, these capabilities are composed of a series of “modules” which may not be readily imitable by others but can be effectively replicated and regenerated internally when needed (Voss & Hsuan, 2009). These modules are derived from scientific studies in which the most efficient methods are identified and decomposed into easy-to-transfer parts. Component capabilities are most important for creating path dependency in resource accretion (e.g., the accumulation of tacit knowledge and experience), and for the continuous improvement of production reliability and efficiency.

For example, in the 1980s, Chrysler was organized into functional departments, such as emission system, body, steering, etcetera (Cohen & Prusak, 2001). In each function, there were very specific procedures for producing each component, which were further divided among individuals that were responsible for one or more small and “scientific” modules. Such capabilities are local/component-based in that the knowledge and skills are specific to a particular type of task and embodied in a specific group of employees, and that proficiency resides within the functional boundary. Such functional proficiency enabled Chrysler to ensure high reliability in their cars throughout the 1980s. However, when Chrysler later introduced a “platform” structure in which the functional boundaries were blurred and all types of engineers were involved simultaneously to design a new car, product defects started to increase (Cohen & Prusak, 2001). Kusunoki et al. (1998) also found that local capabilities, including technological accumulation, database within functions, etcetera, were particularly important for product development in Japanese material-based industries. Therefore, in a relatively stable and predictable task environment, component capabilities enable firms to produce the most reliable outcomes at a relatively low cost.

Architectural capabilities. Mass customization demands more than functional proficiency. In mass customization, “low costs are achieved primarily through economies of scope—the application of a single process to produce a greater variety of products or services more cheaply and quickly” (Pine, 1993, p. 43). As an example of mass customization, Dell allows customers to specify each component they desire in order to assemble the final computer that meets the customers’ exact needs. A greater amount of information is collected from customers, which needs to be incorporated into the assembling stage of the production process. To build to order, Dell assembles each computer according to all specifications that are obtained. This requires a broader coordination system, which adds to the complexity in production (Dess & Davis, 1984). The more specifications provided, the more customized outcomes can be. High levels of complexity can incur undue cost for firms without the proper capabilities to manage them. In fact, between 2000 and 2006, Ford offered such a wide range of cars and variations in car models across the world that only two components remained in the same “world car” sold in America and Europe, which incurred substantial costs and notable difficulties for coordination within the company, leading the company to the brink of bankruptcy (“Ford Epiphany in Dearborn,” 2010).

Higher complexity requires a higher level of shared structure and stronger relationships for human resources to be aggregated (Ployhart & Moliterno, 2011). Although the production is still conducted in a “mass” manner, “firms apply technology and management methods to provide product variety and customization through flexibility and quick responsiveness” (Kotha, 1995, p. 22). This requires architectural capabilities, which are firms’ abilities to integrate and develop component capabilities (Henderson & Cockburn, 1994, p. 65). Specifically, architectural capabilities involve first disintegrating complex processes into a series of production or service “modules,” or building blocks (Lee & Tang, 1997; Voss & Hsuan, 2009). Then, these individual modules of knowledge, skills, and capabilities are combined to achieve integrated proficiency. For example, to provide payroll-tax solutions to the Phoenix Suns (a professional basketball team), ProBusiness had to consider the different tax-withholding laws in different states that the team traveled to. ProBusiness dealt with this complexity by first creating basic modules for preparing tax in each state and then adjusting and combining the modules to create an integrated solution for the client (Adler, 2003). Modularity reduces complexity in customization as the final product would depend less on the iterations between components; it also increases flexibility as decisions occur in choosing modules but not in altering the integrative system itself (Pil & Cohen, 2006). Thus, architectural capabilities are a critical catalyst for enabling asset mass efficiency to achieve product innovation.

Dynamic capabilities. Besides complexity, total customization also introduces dynamism in the task environment. For firms that try to involve customers in the design, the interaction with each customer may be unique. Providing informative assistance and enjoyable interactions to customers also requires analyzing each customer’s needs/styles. Some customer ideas may even be beyond what the usual routines can offer. The firm will therefore need to regenerate new processes to address the requests. These uncertain and ambiguous contexts place a stricter demand on the fast processing and communication of information across functions, and on the flexibility to develop new processes. Dynamic capabilities, which are “the firm’s ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environments” (Teece et al., 1997, p. 516), are particularly important in this context.

Both dynamic and architectural capabilities may involve coordination across functions. The distinction is that while architectural capabilities are concerned with partitioning and combining tasks and needed skills across functions, dynamic capabilities emphasize iterative communications across functions (Kusunoki et al., 1998). This requires an open culture for communication and a sense of community beyond functional boundaries. Buckman Labs’ CEO Robert Buckman was highly committed to satisfying each customer's needs, for which the company developed a knowledge network K’Netix (Hackett, 2000). Through this platform, 1,200 associates from over 80 countries can efficiently communicate and share knowledge. A customer in France who needed a solution was instantly assisted by an associate in Monaco, who received input from associates halfway across the globe. Such boundaryless communications enabled the company to effectively help each customer.

Depending on the level of dynamism, the forms of dynamic capabilities vary (Eisenhardt & Martin, 2000). When customer needs are to some extent predictable (such as common preferences for certain auto components), dynamic capabilities resemble operative or first-order dynamic capabilities, that is, they exemplify as “enduring routines, systems, and processes” (Doving & Gooderham, 2008). These routines stipulate various processes to create a unique experience for customers (Voss & Hsuan, 2009). Adaptation in activities can then be made by changing the parameters of the routines. For example, to custom-build a kitchen, although house layout and specific requirements of the customer may vary, most specifications are somewhat predictable; thus, the builder could apply certain existing routines to build different components of the kitchen, only altering certain parameters. These routines contribute to effective and

consistent performance in total customization. Davis et al. (2009) found in a study using mathematical simulation of the environment and structure that in an environment with low unpredictability, having an optimal level of structure helped to avoid making mistakes and contributed to higher performance.

When the task environment is extremely unpredictable (such as creating a new product template or service process to address an unprecedented request), optimal routines are very simple and iterative (Eisenhardt & Martin, 2000). Having complex structures in this case reduces the flexibility to adapt to environmental demands, while the importance of structure in correcting mistakes is attenuated due to a lack of predictability (Davis et al., 2009). Instead of applying routines, it involves continuous regeneration of routines and service capabilities (Danneels, 2008), and proper divestment of nonstrategic resources (Moliterno & Wiersema, 2007). Decision making by providers is necessary for acting spontaneously, which may ultimately lead to the creation of new routines (Eisenhardt & Martin, 2000; Lei, Hitt, & Bettis, 1996). This is also called “second-order” or “meta-learning” dynamic capabilities (Danneels, 2008), or the capabilities to continuously regenerate new capabilities and divest non-strategic capabilities (Collis, 1994). These dynamic capabilities contribute to the output of the firm indirectly through creating other operative capabilities (Helfat & Peteraf, 2003). A real estate developer once had a customer who desired a private swimming pool with absolute privacy, thus came up with a solution of building an underground swimming pool. To come to this innovation solution, the developer improvised a new process involving city planners, architects, engineers, and contractors to obtain necessary approval, redesign the structure, and rebuild the property. Through these iterative communications, the developer was able to overturn some existing routines and create new processes. Such capabilities to make decisions depend on various factors that are similar to those that foster exploratory learning in firms. Danneels (2008) found that the firm’s willingness to reduce existing routines, constructive conflict, environmental scanning, and resource slack all had an effect on marketing and R&D second-order competences.

Managing customization

How can the capabilities needed for implementing different customization strategies be created? Human resources have been considered one of the most important resources in implementing firm strategies and creating firm competitive advantage (Wright, Dunford, & Snell, 2001; Wright et al., 1994). We focus on human resources for two reasons. First, they are scarce, nonsubstitutable, and valuable, thus have a potential to generate traditional Ricardian rents for firms (Chadwick & Dabu, 2009). Second, human resources are particularly important in creating capabilities needed for new processes (Ployhart & Moliterno, 2011). These capabilities are highly firm specific and path dependent, which again give rise to nontraditional Ricardian rents and entrepreneurial rents (Chadwick & Dabu, 2009). Although certain customization could be facilitated by technology and operational systems, the most exclusive customization process involves employees to at least partially perform complex customization tasks (Gwinner et al., 2005). It should be noted that HR management discussed next is contingent on some assumptions about other aspects of the organization, such as organizational technology, structure, and financial assets (Chadwick & Dabu, 2009), which are beyond the scope of this paper.

A main perspective of HR, the contingency perspective (Baird & Meshoulam, 1988; Delery & Doty, 1996; McMahan, Virick, & Wright, 1999), suggests that based on the task environment and strategy, HR systems should be configured to align with strategy. On the one hand, to synthesize the strategic and HR literature, researchers have suggested including strategic capabilities of firms in the model (Huselid, Becker, & Beatty, 2005; Wright et al., 2001). On the other hand, drawing from micro perspectives will help shed light on the workforce characteristics and behaviors that are amenable for creating different capabilities, which has been less understood in previous literature (Wright & Boswell, 2002). As such, firms strategically calibrate their HR systems, by first envisioning a workforce that is capable of creating the strategic capabilities, and then configuring HR practices that will build such a workforce (Huselid et al., 2005). In what follows, we draw from theories of workforce abilities, motivation, opportunities, and social networks (Delery & Shaw, 2001; Gittell, Seidner, & Wimbush, 2010) to illustrate what that is needed for different levels of customization.

Human capital. Employees first need the knowledge, skills, and abilities that are aligned with the strategic capabilities to create value for the organization (Jackson & Schuler, 1995). Skills-enhancing HR practices such as recruiting, selection, and training bundled together can create, develop, deploy, and retain desirable abilities (Hatch & Dyer, 2004; Jiang, Lepak, Hu, & Baer, 2012; Lepak & Snell, 1999).

In mass production, employees need to be proficient within their functional boundaries, which is enabled by specialized skills, or skills that are confined to each function/position, such as task-specific skills (Hatch & Dyer, 2004; Lepak & Snell, 1999), in order to create component capabilities. For assembly line workers, task specificity allows them to develop the highest level of proficiency, as discovered in time motion studies (Taylor, 1912). For professional providers whose tasks are characterized by knowledge intensity (von Nordenflycht, 2010), specialized skills are also more likely to be in-depth (Hannan & Freeman, 1977). For example, an income tax accountant in general may be more proficient in performing his/her specialty service than a general accountant. In addition, specialized skills have high asset specificity, which leads to causal ambiguity and subsequently, inimitability (Reed & DeFillipi, 1990). To reinforce specialized skills, pay for skill blocks encourages employees to develop and retain such skills (Wright & Snell, 1998).

In building architectural capabilities for mass customization, employees not only need to be proficient in their own tasks, but also be able to coordinate and integrate tasks across functions. This requires some generalized skills in addition to specialized skills. Generalized skills are skills that “arise from large numbers of technologies, organization routines, and individual- or team-based experience” (Reed & DeFillipi, 1990, p. 91). Such skills are applicable across multiple tasks and functions, and are broad and versatile (Shaw, Gupta, Mitra, & Ledford, 2005; Wright & Snell, 1998). Breadth in skills allows a constructive overlap in cognitive understandings and communication protocols with individuals from other functions (Kang, Morris, & Snell, 2007; Nahapiet & Ghoshal, 1998). Selection for teamwork potential has been shown to affect cross-functional communication and shared visions and norms (Gittel, 2000). In addition, skill-based compensation plans that emphasized broad skills and covered more skills were shown to consistently relate to performance flexibility and firm survival (Shaw et al., 2005).

In total customization, employees need to be flexible enough to respond to unexpected requests. In this case, generalized skills allow employees to cope with request uncertainties and to quickly develop new skills when needed (Batt, 2002; Wright et al., 1994; Wright & Snell, 1998). In addition, employees need to have skill malleability (Maurer, Wrenn, Pierce, Tross, & Collins, 2003), which is individuals’ belief about the extent to which they can improve and change their skills. It increases individuals’ self-efficacy in skill improvement and learning orientation, which in turn enables them to learn new skills according to customers’ needs.

As total customization also involves process customization, to deliver adaptive and pleasant service, managers need to develop employees’ service skills, including service orientation, customer knowledge, sensitivity to others, tolerance for ambiguity, and modification of self presentation, which are critical for customizing processes and providing “expressive” experiences for customers (Gwinner et al., 2005; Liao, Toya, Lepak, & Hong, 2009). Offering high quality service is particularly important for organizations that target the most sophisticated customers. The change of store service orientation over time—operationalized as emotional stability, agreeableness, conscientiousness, educational success, and situational judgment—positively predicted sales per employee, sales growth, and profit (Ployhart, Weekley, & Ramsey, 2009). Pay for service-related skills and competencies is particularly useful in enhancing service flexibility and expressiveness (Graf, 2007; Shaw et al., 2005).

Motivation. Employees who have the right skills also need to be properly motivated to engage in desirable behaviors (Wright et al., 1994). Psychology theories such as expectancy theory (Vroom, 1964), social exchange theory (Blau, 1964; Eisenberger, Huntington, Hutchinson, & Sowa, 1986), and signaling theory (Ostroff & Bowen, 2000) suggest that HR practices motivate employees to reciprocate by providing the right reward valence and instrumentality, organizational support, or signals to employees. High commitment and traditional HR practices alike were shown to reduce the psychological contract violation of employees (Sonnenberg, Koene, & Paauwe, 2011). Likewise, the behavioral perspective (Schuler & Jackson, 1987) suggests that HR practices such as performance appraisal and rewards can establish expectations for employees to display desirable behaviors such as knowledge sharing and combination (Collins & Smith, 2006), passion for service (Schneider, Wheeler, & Cox, 1992), and positive emotions to customers (Sutton & Rafaeli, 1988).

Performance-related behaviors may range from flexible to inflexible (Bhattacharya, Gibson, & Doty, 2005), independent to cooperative, and concerned for processes to concerned for outcomes (Wright & Snell, 1998), amongst others. Extrinsic motivation-enhancing practices such as performance pay and incentives, as well as intrinsic motivation-enhancing practices such as job design, involvement, and teamwork, operate to solicit different types of motivation (Jiang et al., 2012). In mass production, employees are encouraged to focus on their functional performance and ensure accuracy, which can be evaluated by detailed, quantifiable outcomes (Wright & Snell, 1998), such as scrap rate. In addition, pay for team performance is a useful means to reduce self-interest and uphold greater common interest

(Evans & Davis, 2005; Pfeffer, 1998). Contingent team rewards were found to influence members' collaboration (Harrison, Price, Gavin, & Florey, 2002). Pay for team performance also predicted team goal setting, which in turn predicted team performance (Guthrie & Hollensbe, 2004).

When it comes to mass customization, employees not only need to ensure reliable performance within functions, but also need to be cooperative with external functions to ensure compatibility of multiple components and the reliability of integration (Coff, 1997). Performance measurement and compensation should reflect a cross-functional focus (Gittell et al., 2010), such as how well individuals collaborate with others in knowledge sharing, peer support, and helping (Mossholder, Richardson, & Settoon, 2011). Cross-functional performance measurement was found to encourage problem-solving communication and helping across functions (Gittell, 2000). Reward interdependence was shown to affect collective performance (Wageman & Baker, 1997). At the organizational level, practices such as organizational-level stock ownership, gain sharing, and profit sharing (Bae & Lawler, 2000; Coff, 1997) encourage individuals to expand their span of accountability to the entire organization.

For total customization, as discussed before, employees need to be concerned with service processes as well as outcomes, as how customers' requests are addressed is one important aspect of value creation for customers. In addition, unlike mass production, employees are also encouraged to be flexible (Bhattacharya et al., 2005), proactive (Griffin, Neal, & Parker, 2007), and learning-oriented (Maurer et al., 2003) in total customization. Individuals need to be recognized for their personal achievement in order to encourage initiative taking (von Nordenflycht, 2010). As total customization requires employees' social and emotional involvement (Graf, 2007), organizations may consider using "behavioral" performance criteria (Schuler & Jackson, 1987) such as tackling problems (Gittell et al., 2010) and offering developmental feedback to others (Beltran-Martin, Roca-Puig, Escrig-Tena, & Bou-Llusar, 2008). Behavior-based or process-based evaluations accurately capture the critical process of interpersonal interaction (Hartline, Maxham, & McKee, 2000) and are also useful for providing developmental feedback for future improvement (Snell & Dean, 1992).

Opportunities. Besides extrinsic motivation, intrinsic motivation can be enhanced by practices such as employee involvement and flexible job design (Jiang et al., 2012). Supplementing extrinsic motivation with intrinsic motivation is particularly important given that excessive extrinsic rewards have been shown to produce a suboptimal effect on the performance on a variety of tasks (Ariely, Gneezy, Loewenstein, & Mazar, 2009). Part of the reason may be that intrinsic motivation can be diminished to the extent that certain extrinsic rewards impair individuals' psychological needs of competence (e.g., profit sharing), autonomy (e.g., group incentives), and relatedness (e.g., individual incentives; Gagne & Forest, 2008). In addition, pay contingency may alter the effect of perceived organizational support on performance because more attention is focused on the economic exchange between the individual and the organization (Pazy & Ganzach, 2009).

In mass production, employees' priority is to ensure reliability and efficiency. According to scientific management principles, employees are provided with very specific tasks, which will involve very limited opportunities to use discretion. Although organizations design specific routines for each function to follow, employees are the ones who implement the tasks. It is important that formal channels are provided for employees to make suggestions (Horwitz & Neville, 1996).

In mass customization, to facilitate outcome customization, organizations need to provide task empowerment, in which employees are harnessed with a considerable amount of freedom to carry out their work (Horwitz & Neville, 1996), such as how to coordinate different tasks. This is consistent with the argument in the total quality management literature which suggests that line employees who are actually performing the task are most informed of the work process, thus they should have autonomy to make decisions (Waldman, 1994). Besides its benefit in integration, task empowerment creates enriched jobs in which employees can develop their intrinsic motivation and utilize their full potential to perform and to remain in the organization (Coff, 1997). Empowerment was found to contribute to organizational performance in general (Birdi et al., 2008).

Compared to the other two strategies, total customization requires the highest level of discretion for employees to make decisions and take accountability for their actions (Heckscher, 2007; von Nordenflycht, 2010). In a highly uncertain task environment, employees not only need autonomy in carrying out their tasks, but also discretion to take initiatives beyond their immediate responsibilities, to collaborate with other functions to complete tasks, and to create new processes or routines on behalf of the management when needed. To fully empower employees, a system of "high involvement" practices (Batt, 2002; Horwitz & Neville, 1996)—practices integrating information sharing, teamwork, problem solving, participation in decision making, profit sharing, and employee ownership—is helpful. A combination of these practices creates incentives and support for employees to perform a wide array of tasks upon requests, to seek information and resources from others, to continuously learn new knowledge and skills, and to cater performance

flexibly to meet the customers' needs (Batt, 2002). The task behaviors that are created by high involvement HR practices, therefore, are flexible and proactive (Bhattacharya et al., 2005).

Social network. The social network perspective extends HR research from focusing on individual actors to considering the relations among actors (Brass, 1995). Specifically, several types of networks are relevant in the context of customization: strong ties and weak ties, which are distinguished by the extent to which the ties are long-term, intensive, intimate, reciprocal, and overlapping (Granovetter, 1973); and proximal and distal ties, which vary based on whether the connections are internal or outside the immediate workgroup (Aime, Dyne, & Petrenko, 2011). The configuration of HR practices, such as teamwork, information sharing, and rewards, can facilitate the creation of preferred social capital (Evans & Davis, 2005).

In building component capabilities for mass production, strong proximal ties, or ties that are close, enduring, and shared within a function, are most important for developing greater affect (Leana & van Buren, 1999). As individuals have specialized skills, effective communication among individuals within functions is critical (Burns & Stalker, 1961; Lawrence & Lorsch, 1967). Employees who are closely tied to each other develop common language and knowledge of the team (Nahapiet & Ghoshal, 1998; Thompson, 1967), which facilitate efficient and effective coordination among specialized tasks and develop trust and strong norms for reciprocity (Coleman, 1988). Implementing self-managed functional teamwork is amenable, which also reduces the need for formal controls (Adler & Kwon, 2002; Pfeffer, 1998) and improves service quality and sales performance (Batt, 1999). With close ties and a strong culture, employees are more likely to share tacit knowledge and accumulate exclusive experience within the function.

As discussed before, the complex task environment in mass and total customization requires collaboration across functions. Individuals who are closely connected within functions tend to ignore the importance of developing external networks, and may even develop animosity towards other functions. To create architectural and dynamic capabilities, organizations need to encourage distal ties, or ties that are outreaching (Blyler & Coff, 2003). Strong distal ties provide nonredundant information and resources necessary for developing architectural capabilities, and thus can bring in broader connections than proximal ties. For example, when an assembled computer has a defect, having information and resources from all functions will facilitate the identification of the problem. HRM can facilitate a culture of cross-functional collaboration by implementing various community-building practices, such as teambuilding activities, cross functional teamwork (Evans & Davis, 2005), and face-to-face meetings (Gittell et al., 2010). Such activities allow individuals from diverse functions and levels to be placed in a provisional task/meeting, whereby they get to know each other and gain access to resources and information for future use.

While strong ties strengthen traditions and routines, they may potentially "trap individuals in their own net" (Gargiulo & Benassi, 2000), limiting individuals' access to new information. Weak ties can then be helpful for encouraging flexible and adaptable employee behaviors (Hansen, 1999), which are needed for dynamic capabilities. Whereas strong connections create strong routines, without such constraints, loosely coupled actors can be more spontaneous. To enhance responsiveness in problem solving and facilitate the regeneration of new processes that customers desire in total customization, cross-functional conflict resolution can be useful (Gittell, 2000).

HR system configurations

Based on the aforementioned strategic capabilities and desired workforce, the implementation of HR practices can then be tailored to the needs of each customization level. Previous research has shown that HR practices can be grouped into different dimensions that support different aspects of workforce characteristics, such as skill-enhancing HR practices (e.g., recruitment, selection, and training), motivation-enhancing HR practices (e.g., performance, compensation, and career development), and opportunity-enhancing HR practices (e.g., job design and teamwork; Jiang et al., 2012). Based on these frameworks and the aforementioned human capital, motivation, opportunities, and social networks that are amenable for different customization strategies, we derive the following HR systems with particular workforce characteristics that are conducive to the creation of targeted capabilities (see Figure 1).

Proposition 1: Among firms that focus on mass production, greater use of functional HR systems, which include practices of selection and training for task-specific skills, appraisal of and pay for team performance, employee suggestion, and functional teamwork, will be associated with higher component capabilities.

Proposition 2: Among firms that focus on mass customization, greater use of integrative HR systems, which include practices of selection and training for cross-functional skills, appraisal of and pay for cross-functional cooperation, task autonomy, and cross-functional teamwork, will be associated with higher architectural capabilities.

Proposition 3: Among firms that focus on total customization, greater use of high- involvement HR systems, which include practices of selection and training for flexible skills, appraisal of and pay for flexible behaviors, total empowerment, and cross-functional conflict resolution, will be associated with higher dynamic capabilities.

Discussions

This paper draws on theories of marketing, strategic management, psychology, and HRM to present an integrated framework of customization as a source of competitive advantage. This framework contributes by filling in the gaps in extant literature, and presenting some implications for future research in these fields.

Strategic management research

Resource- and capability-based views state that sustainable competitive advantage originates from the possession of valuable, rare, inimitable, and nonsubstitutable resources and capabilities (Barney, 1991; Dierickx & Cool, 1989; Peteraf, 1993). A major opportunity for advancing these arguments is specifying what these resources and capabilities are in specific contexts, and articulating how they can be created (Priem & Butler, 2001). This paper aims to answer the “what and how” questions for the management of competitive heterogeneity by bringing in two new perspectives.

First, focusing on one context is important for understanding the complex resources/

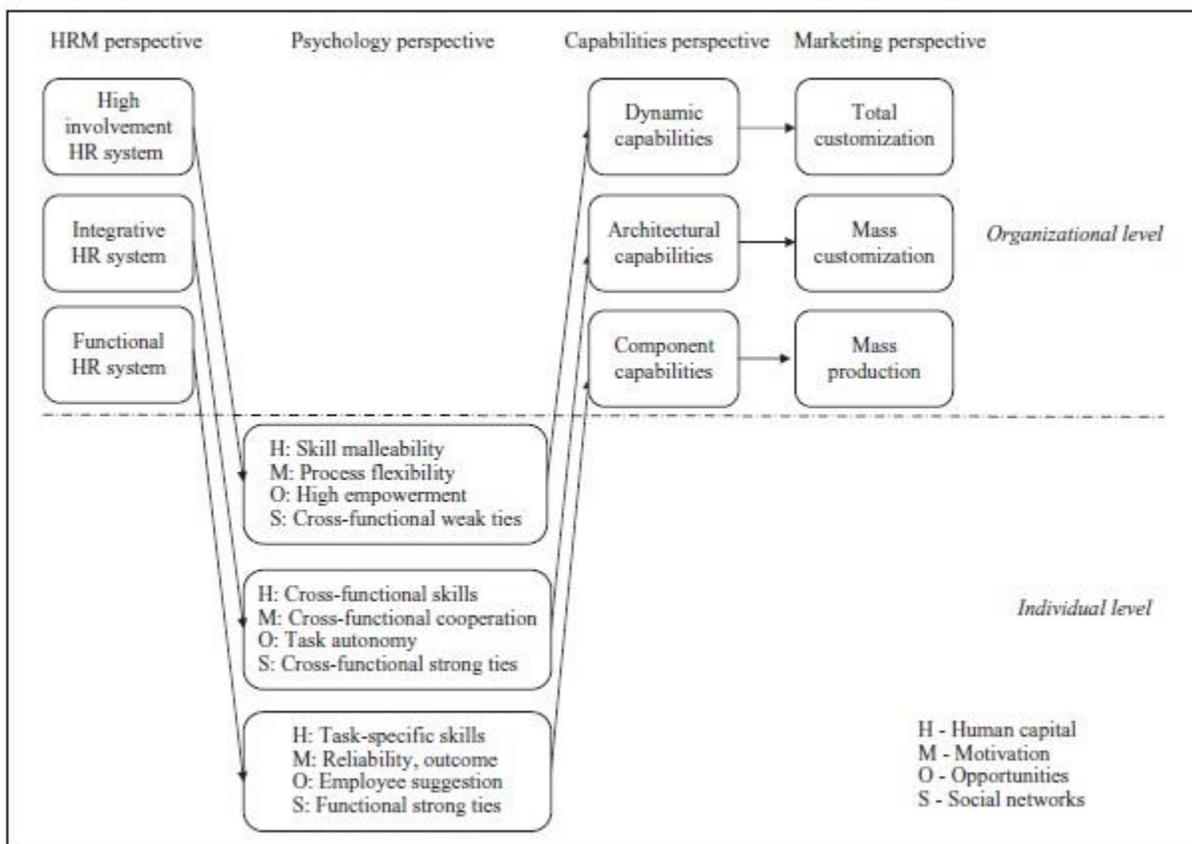


Figure 1. The linkages between HR systems, workforce, strategic capabilities, and customization.

capabilities required and how they can be created. We focus on one exclusive strategic context—customization—which has gained attention due to the increasingly diverse customer preferences and escalating customer expectation for being unique (Gilmore & Pine, 1997). We summarize three typical models of customization (mass production, mass customization, and total customization). The differences among the three models are important in that they each create a unique value proposition for customers (by offering low price products/services with convenience, low price

products/service with a close outcome preference fit, and personalized attention showing respect and consideration for customers). The three types of customization generate three distinct task environments, which in turn demand different strategic capabilities. We draw on theories of firm capabilities and the categorization of component, architectural, and dynamic capabilities to illustrate the realization of different customization strategies. These heterogeneous capabilities are thought to be inimitable, thereby contributing to the sustained competitive advantage of customization. We encourage future research in strategic management to use similar approaches to answer the “what and how” questions of resources/capabilities by focusing on other specific contexts inspired by other disciplines.

Second, strategic management researchers often underscore the micro foundations (Coff & Kriscynski, 2011; Foss, 2011), particularly the importance of knowledge and human capital (Barney & Wright, 1998), in the conceptualization of strategic resources/capabilities. Of the empirical studies that operationalized resource and capability heterogeneity, human capital has gained the highest popularity as an independent variable (Newbert, 2007). The efforts in introducing HR to the strategic model and in understanding the management of HR as a source of competitive advantage, however, have been limited (Coff & Kriscynski, 2011; Wright et al., 2001). The approaches taken to assess HR varied substantially across studies, ranging from measuring demographics composition, experience, and gender, to HR practices (Newbert, 2007). Related, although the strategic HRM field is built on the premises of strategic resources/capabilities, extant research in strategic HRM has not effectively incorporated strategic management theories. Although strategic capabilities are considered an important intermediate outcome of HRM (Becker & Huselid, 2006), to our knowledge no substantive effort has been devoted to delineating how HRM can contribute to the creation of strategic capabilities. In addition, we drew from psychology theories to specify the workforce needed for each strategic capability, and outlined the HR systems that would contribute to the creation of such a workforce. Future research in strategic management may further synthesize theories of psychology and HRM to understand the creation of sustained competitive advantage of firms.

HRM research

By embedding the paper in a strategic context, it also sheds light on some remaining puzzles in HR research in terms of (a) the variations and (b) the bundling of HR practices (Delery, 1998; Delery & Doty, 1996; Lepak, Liao, Chung, & Harden, 2006). Drawing from the RBV, this paper suggests that it is the heterogeneity in human resources, created by different implementation of HR practices with different contents and orientations, that generates sustained competitive advantages of organizations (Wright et al., 1994). This argument suggests that attention may be switched away from seeking “the” best generic HR system, which if exists, is arguably explicit and highly imitable (Coff & Kriscynski, 2011). In previous research on best HR systems, a high performance culture was commonly advocated, yet such a culture could be exemplified and conveyed differently through subtle distinctions in HR practice implementation (such as a focus on reliability vs. flexibility), which were often not articulated. Our approach also departs from previous research that segments different HR functional practices into different systems. For example, training and development have been considered part of the high-commitment work system, while selection and appraisal have been categorized as traditional HR practices (Sonnenberg et al., 2011). We suggest that selection, appraisal, training, and development can all be catered to different strategic capabilities (i.e., component vs. architectural vs. dynamic capabilities). All these may create a high-performance culture, although high performance is defined differently for different HR systems. The implementation of HR practices should be tailored to reflect the different workforce that is desired under each strategy. It should be noted that just as the differences among the three levels of customization are incremental, the needed capabilities and workforce attributes are incremental as well. For example, component capabilities are not only important for standardization, they are also important for customization, although they become a necessary but not sufficient condition for successful customization. In fact, architectural and dynamic capabilities are built on proficient component capabilities. We only focus on the strategic capabilities at each level to highlight their distinctions.

Psychology research

We draw on micro theories of human capital, motivation, opportunities, and social networks to bridge the gap between the right HR systems and the desirable capabilities to be created by the workforce. This suggests that future theoretical development and empirical research on the linkage between HR systems and outcomes may span across levels of analysis and fields of research rather than merely studying the direct relationship between HR systems and organizational-level outcomes (Wright & Boswell, 2002). All dimensions of human capital, motivation, opportunities,

and social networks may be considered simultaneously in order to provide a more comprehensive understanding of the relationships between HR systems and strategic outcomes. In addition, future research may examine individual characteristics, which may moderate the effect of various HR systems on different workforce outcomes. For example, a recent meta-analysis shows that older employees display more positive attitudes when exposed to maintenance-oriented HR practices, whereas younger employees are more receptive to development-oriented HR practices (Kooij, Jansen, Dijkers, & De Lange, 2010). Future research may further consider individual characteristics such as collectivistic versus individualistic cultural values (Farh, Hackett, & Liang, 2007) or autonomous, controlled, versus a motivated individuals (Deci & Ryan, 1985), and their moderating effects on the relationships between functional, integrative, and high-involvement HR systems and workforce outcomes.

Practical implications

In this paper we suggest three prototypical customization strategies, which vary on two continuums of outcome and process customization. Organizations may choose a combination or variation of these strategies. Some organizations may attempt to “dress up” customers’ perceptions of customization, instead of actually altering the process of customization. With many options for customers to choose from, many PC producers create an impression among customers that their computers are totally customized. In reality, all components are standardized and often purchased from a supplier. When this could suffice most customers’ needs, very few organizations would actually upgrade to a total customization strategy but simply manage customers’ perceived utility. Although customization could be “perceived,” we discuss it in the “real” terms, to differentiate the different implications for management.

Our framework suggests that managers need to first understand customers’ preferences to be treated as unique individuals. Depending on the optimal levels of customization that generate competitive advantage for the organization, managers may create the relevant strategic capabilities through properly managing employees’ human capital, motivation, opportunities, and social networks. Managers may cultivate a culture of customization and employee adaptability by first selecting individuals who fit with such a culture. Psychology research has suggested that certain employees are more predisposed to customization than others, such as those with high self-monitoring, tolerance for ambiguity, and service orientation (Gwinner et al., 2005). Companies that focus on customer experience (such as Southwest Airlines) may include teamwork skills, interpersonal adaptability, and relevant criteria into their selection standards (Lengnick-Hall & Lengnick-Hall, 2003). Managers may choose selection tests or structured interviews that can effectively predict individual differences on these dimensions.

In addition, managers need to empower employees and create an amenable social environment for customization. For example, Viant’s CEO calls himself a Chief Cultural Officer and creates various opportunities for employees to connect. The company requires new hires from all its eight offices to attend a 3-week orientation program held in a single office in Boston so that all new hires will gain exposure to senior employees’ experiences while at the same time develop connections and accumulate resources that will become useful long after they return to their own office (Lengnick-Hall & Lengnick-Hall, 2003). GE’s workout program is another excellent example of bringing employees from across bureaucratic boundaries to quickly develop solutions to high-priority issues. These employees brainstorm ideas and develop recommendations to solve the problems in face-to-face meetings. Company leaders usually make immediate yes or no decisions in the public forum, and fully empower employees to implement the solutions afterwards. Such opportunities fully mobilize talent from multiple functions to solve problems, and instill employees with a sense of being creative and challenged. These satisfy employees’ psychological needs for competence, autonomy, and relatedness, thereby enhancing employees’ autonomous motivation (Gagne & Forest, 2008).

Conclusion

In today’s competitive market landscape, whether an organization can sustain its competitive advantage depends on whether it can provide a unique value proposition for its customers, and whether it has the unique resources/capabilities to sustain such unique advantage. Researchers have pointed to the fact that customers become increasingly diverse in their preferences, which presents an opportunity for organizations to create unique value for them. The RBV and theories of different types of rents suggest the existence of different customization strategies. Mass production, mass customization, and total customization each represents a unique value proposition for the customers, and demands a unique set of strategic capabilities. It is in this vein that we link HR systems to desired workforce and needed capabilities. By synthesizing strategic management theories with HRM and psychology theories, we have contributed to developing a framework of differentiating HR systems among different strategic capabilities based on the

amenable human capital, motivation, opportunities, and social networks, which may be useful for future research to disentangle the creation of other strategic capabilities using HR management.

Acknowledgements

The authors would like to thank Drs. Mark Huselid, Susan Jackson, David Lepak, John Medcof, and Roland Rust who have provided helpful comments on earlier drafts of the manuscript.

References

- Adler, P. S. (2003). Making the HR outsourcing decision. *MIT Sloan Management Review*, 45, 53-60.
- Adler, P. S., & Kwon, S. W. (2002). Social capital: Prospects for a new concept. *Academy of Management Review*, 27, 17-40.
- Aime, F., Dyne, L. V., & Petrenko, O. V. (2011). Role innovation through employee social networks: The embedded nature of roles and their effect on job satisfaction and career success. *Organizational Psychology Review*, 1, 339-361.
- Ariely, D., Gneezy, U., Loewenstein, G., & Mazar, N. (2009). Large stakes and big mistakes. *The Review of Economic Studies*, 76, 451-469.
- Bae, J., & Lawler, J. J. (2000). Organizational performance and HRM strategies in Korea: Impact on firm performance in an emerging economy. *Academy of Management Journal*, 43, 502-517.
- Baird, L., & Meshoulam, I. (1988). Managing two fits of strategic human resource management. *Academy of Management Review*, 13, 116-128.
- Barney, J. (1991). Firm resources and sustainable competitive advantage. *Journal of Management*, 17, 99-129.
- Barney, J. B. (2001). Is the resource-based "view" a useful perspective for strategic management research? Yes. *Academy of Management Review*, 26, 41-57.
- Barney, J. B., & Wright, P. M. (1998). On becoming a strategic partner: The role of human resources in gaining competitive advantage. *Human Resource Management*, 37, 31-46.
- Batt, R. (1999). Work organization, technology, and performance in customer services and sales. *Industrial and Labor Relations Review*, 52, 539-574.
- Batt, R. (2002). Managing customer services: Human resource practices, quit rates, and sales growth. *Academy of Management Journal*, 45, 587-597.
- Becker, B. E., & Huselid, M. A. (2006). Strategic human resources management: Where do we go from here? *Journal of Management*, 32, 898-925.
- Beltran-Martm, I., Roca-Puig, V., Escrig-Tena, A., & Bou-Llusar, J. C. (2008). Human resource flexibility as a mediating variable between high performance work systems and performance. *Journal of Management*, 34, 1009-1044.
- Bhattacharya, M., Gibson, D. E., & Doty, D. H. (2005). The effects of flexibility in employee skills, employee behaviors, and human resource practices on firm performance. *Journal of Management*, 31, 622-640.
- Birdi, K., Clegg, C., Patterson, M., Robinson, A., Stride, C. B., Wall, T. D., & Wood, S. J. (2008). The impact of human resource and operational management practices on company productivity: A longitudinal study. *Personnel Psychology*, 61, 467-501.
- Blau, P. (1964). *Exchange and power in social life*. New York, NY: Wiley.
- Blyler, M., & Coff, R. W. (2003). Dynamic capabilities, social capital, and rent appropriation: Ties that split pies. *Strategic Management Journal*, 24, 677-686.
- Brass, D. J. (1995). A social network perspective on human resources management. In G. R. Ferris (Ed.), *Research in personnel and human resources management* (Vol. 13, pp. 39-79). Greenwich, CT: JAI Press.
- Burns, T., & Stalker, G. M. (1961). *The management of innovation*. London, UK: Tavistock.
- Chadwick, C., & Dabu, A. (2009). Human resources, human resource management, and the competitive advantage of firms: Toward a more comprehensive model of causal linkages. *Organization Science*, 20, 253-272.

- Coff, R. (1997). Human assets and management dilemmas: Coping with hazard on the road to resource-based theory. *Academy of Management Review*, 22, 374-402.
- Coff, R., & Kryscynski, D. (2011). Drilling for micro foundations of human capital-based competitive advantages. *Journal of Management*, 37, 1429-1443.
- Cohen, D., & Prusak, L. (2001). *In good company: How social capital makes organizations work*. Cambridge, MA: Harvard Business School Press.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, 95-120.
- Collins, C. J., & Smith, K. G. (2006). Knowledge exchange and combination: The role of human resource practices in the performance of high- technology firms. *Academy of Management Journal*, 49, 544-560.
- Collis, D. J. (1994). Research note: How valuable are organizational capabilities? *Strategic Management Journal*, 15, 143-152.
- Conner, K. R. (1991). A historical comparison of resource-based theory and five schools of thought within industrial organization economics: Do we have a new theory of the firm? *Journal of Management*, 17, 121-154.
- Danneels, E. (2008). Organizational antecedents of second-order competences. *Strategic Management Journal*, 29, 519-543.
- Davis, J. P., Eisenhardt, K. M., & Bingham, C. B. (2009). Optimal structure, market dynamism, and the strategy of simple rules. *Administrative Science Quarterly*, 54, 413-452.
- Deci, E. L., & Ryan, R. M. (1985). The General Causality Orientations Scale: Self-determination in personality. *Journal of Research in Personality*, 19, 109-134.
- Delery, J. E. (1998). Issues of fit in strategic human resource management: Implications for research. *Human Resource Management Review*, 8, 289-309.
- Delery, J. E., & Doty, D. H. (1996). Modes of theorizing in strategic human resource management: Tests of universalistic, contingency, and configurationally performance predictions. *Academy of Management Journal*, 39, 802-835.
- Delery, J. E., & Shaw, J. D. (2001). The strategic management of people in work organizations: Review, synthesis, and extension. In G. R. Ferris (Ed.), *Research in personnel and human resources management* (Vol. 20, pp. 165-197). Stamford, CT: JAI Press.
- Dellaert, B. G. C., & Stremersch, S. (2005). Marketing mass-customized products: Striking a balance between utility and complexity. *Journal of Marketing Research (JMR)*, 42, 219-227.
- Dess, G. G., & Davis, P. S. (1984). Porter's (1980) generic strategies as determinants of strategic group membership and organizational performance. *Academy of Management Journal*, 27, 467-488.
- Dierickx, I., & Cool, K. (1989). Asset stock accumulation and sustainability of competitive advantage. *Management Science*, 35, 1504-1511.
- Dineen, B. R., & Noe, R. A. (2009). Effects of customization on application decisions and applicant pool characteristics in a web-based recruitment context. *Journal of Applied Psychology*, 94, 224-234.
- Doving, E., & Gooderham, P. N. (2008). Dynamic capabilities as antecedents of the scope of related diversification: The case of small firm accountancy practices. *Strategic Management Journal*, 29, 841-857.
- Eisenberger, R., Huntington, R., Hutchinson, R., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology*, 71, 500-507.
- Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, 21, 1105-1121.
- Evans, W. R., & Davis, W. D. (2005). High- performance work systems and organizational performance: The mediating role of internal social structure. *Journal of Management*, 31, 758-775.

- Farh, J.-L., Hackett, R. D., & Liang, J. (2007). Individual-level cultural values as moderators of perceived organizational support-employee outcome relationships in China: Comparing the effects of power distance and traditionality. *Academy of Management Journal*, 50, 715-729.
- Ford epiphany in Dearborn: How Ford turned a crash into a profit—without a government bail-out. (2010, December 9). *The Economist*. Retrieved from <http://www.economist.com/node/17673258>
- Fornell, C., Johnson, M. D., Anderson, E. W., Jae-sung, C., & Bryant, B. E. (1996). The American Customer Satisfaction Index: Nature, purpose, and findings. *Journal of Marketing*, 60, 7-18.
- Foss, N. J. (2011). Why micro-foundations for resource-based theory are needed and what they may look like. *Journal of Management*, 37, 1413-1428.
- Franke, N., Keinz, P., & Steger, C. J. (2009). Testing the value of customization: When do customers really prefer products tailored to their preferences? *Journal of Marketing*, 73, 103-121.
- Franke, N., & Schreier, M. (2010). Why customers value self-designed products: The importance of process effort and enjoyment. *Journal of Product Innovation Management*, 27, 1020-1031.
- Franke, N., Schreier, M., & Kaiser, U. (2010). The “I designed it myself” effect in mass customization. *Management Science*, 56, 125-140.
- Gagne, M., & Forest, J. (2008). The study of compensation systems through the lens of self-determination theory: Reconciling 35 years of debate. *Canadian Psychology/Psychologie Canadienne*, 49, 225-232.
- Gargiulo, M., & Benassi, M. (2000). Trapped in your own net? Network cohesion, structural holes, and the adaptation of social capital. *Organization Science*, 11, 183-196.
- Gilmore, J. H., & Pine, B. J. (1997). The four faces of mass customization. *Harvard Business Review*, 75, 91-101.
- Gittell, J. H. (2000). Organizing work to support relational co-ordination. *International Journal of Human Resource Management*, 11, 517-539.
- Gittell, J. H., Seidner, R., & Wimbush, J. (2010). A relational model of how high-performance work systems work. *Organization Science*, 21, 490-506.
- Graf, A. (2007). Changing roles of customers: Consequences for HRM. *International Journal of Service Industry Management*, 18, 491-509.
- Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology*, 78, 1360-1380.
- Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance: Positive behavior in uncertain and interdependent contexts. *Academy of Management Journal*, 50, 327-347.
- Guthrie, J. P., & Hollensbe, E. C. (2004). Group incentives and performance: A study of spontaneous goal setting, goal choice and commitment. *Journal of Management*, 30, 263-284.
- Gwinner, K. P., Bitner, M. J., Brown, S. W., & Kumar, A. (2005). Service customization through employee adaptiveness. *Journal of Service Research*, 8, 131-148.
- Hackett, B. (2000). *Beyond knowledge management: New ways to work*. New York, NY: The Conference Board.
- Hall, J. M., & Johnson, M. E. (2009). When should a process be art, not science? *Harvard Business Review*, 87, 58-65.
- Hannan, M. T., & Freeman, J. (1977). The population ecology of organizations. *American Journal of Sociology*, 82, 929-964.
- Hansen, M. T. (1999). The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits. *Administrative Science Quarterly*, 44, 82-111.
- Harrison, D. A., Price, K. H., Gavin, J., & Florey, A. (2002). Time, teams, and task performance: Changing effects of surface and deep-level diversity on group functioning. *Academy of Management Journal*, 45, 1029-1045.
- Hartline, M. D., Maxham, J. G., III, & McKee, D. O. (2000). Corridors of influence in the dissemination of customer-oriented strategy to customer contact service employees. *Journal of Marketing*, 64, 35-50.

- Hatch, N. W., & Dyer, J. H. (2004). Human capital and learning as a source of sustained competitive advantage. *Strategic Management Journal*, 25, 1155-1178.
- Heckscher, C. (2007). *The collaborative enterprise: Managing speed and complexity in knowledge-based businesses*. New Haven, CT: Yale University Press.
- Helfat, C. E., & Peteraf, M. A. (2003). The dynamic resource-based view: Capability lifecycles. *Strategic Management Journal*, 24, 997-1010.
- Henderson, R., & Cockburn, I. (1994). Measuring competence? Exploring firm effects in pharmaceutical research. *Strategic Management Journal*, 15, 63-84.
- Horwitz, F. M., & Neville, M. A. (1996). Organization design for service excellence: A review of the literature. *Human Resource Management*, 35, 471-492.
- Huselid, M. A., Becker, B. E., & Beatty, R. W. (2005). *The workforce scorecard: Managing human capital to execute strategy*. Boston, MA: Harvard Business School Press.
- Jackson, S. E., & Schuler, R. S. (1995). Understanding human resource management in the context of organizations and their environments. In M. R. Rosenweig & L. W. Porter (Eds.), *Annual review of psychology* (pp. 237-264). Palo Alto, CA: Annual Reviews.
- Jiang, K., Lepak, D. P., Hu, J., & Baer, J. C. (2012). How does human resource management influence organizational outcomes? A meta-analytic investigation of mediating mechanisms. *Academy of Management Journal*, 55, 1264-1294.
- Kang, S.-C., Morris, S. S., & Snell, S. A. (2007). Relational archetypes, organizational learning, and value creation: Extending the human resource architecture. *Academy of Management Review*, 32, 236-256.
- Kooij, D. T. A. M., Jansen, P. G. W., Dijkers, J. S. E., & De Lange, A. H. (2010). The influence of age on the associations between HR practices and both affective commitment and job satisfaction: A meta-analysis. *Journal of Organizational Behavior*, 31, 1111-1136.
- Kotha, S. (1995). Mass customization: Implementing the emerging paradigm for competitive advantage. *Strategic Management Journal*, 16, 21-42.
- Kusunoki, K., Nonaka, I., & Nagata, A. (1998). Organizational capabilities in product development of Japanese firms: A conceptual framework and empirical findings. *Organization Science*, 9, 699-718.
- Lawrence, P. R., & Lorsch, J. W. (1967). Differentiation and integration in complex organizations. *Administrative Science Quarterly*, 12, 1-47.
- Leana, C. R., & van Buren, H. J. (1999). Organizational social capital and employment practices. *Academy of Management Review*, 24, 538-555.
- Lee, H. L., & Tang, C. S. (1997). Modelling the costs and benefits of delayed product differentiation. *Management Science*, 43, 40-53.
- Lei, D., Hitt, M. A., & Bettis, R. (1996). Dynamic core competences through meta-learning and strategic context. *Journal of Management*, 22, 549-569.
- Lengnick-Hall, C. A. (1996). Customer contributions to quality: A different view of the customer-oriented firm. *Academy of Management Review*, 21, 791-824.
- Lengnick-Hall, M. L., & Lengnick-Hall, C. A. (2003). HR's role in building relationship networks. *Academy of Management Executive*, 17, 53-63.
- Lepak, D. P., Liao, H., Chung, Y., & Harden, E. (2006). A conceptual review of human resource management systems in strategic human resource management research. In J. Martocchio (Ed.), *Research in personnel and human resource management*. Stamford, CT: JAI Press.
- Lepak, D. P., & Snell, S. A. (1999). The human resource architecture: Toward a theory of human capital allocation and development. *Academy of Management Review*, 24, 31-48.

- Liao, H., Toya, K., Lepak, D. P., & Hong, Y. (2009). Do they see eye to eye? Management and employee perspectives of high-performance work systems and influence processes on service quality. *Journal of Applied Psychology*, 94, 371-391.
- Makadok, R. (2001). Toward a synthesis of the resource-based and dynamic capability views of rent creation. *Strategic Management Journal*, 22, 387-401.
- Maurer, T. J., Wrenn, K. A., Pierce, H. R., Tross, S. A., & Collins, W. C. (2003). Beliefs about "improvability" of career-relevant skills: Relevance to job/task analysis, competency modeling, and learning orientation. *Journal of Organizational Behavior*, 24, 107-131.
- McMahan, G. C., Virick, M., & Wright, P. M. (1999). Alternative theoretical perspectives for strategic human resource management revised: Progress, problems, and prospects. In P. Wright, L. Dyer, J. Boudreau, & G. Milkovich (Eds.), *Research in personnel and human resource management* (pp. 99-122). Greenwich, CT: JAI Press.
- Moliterno, T. P., & Wiersema, M. F. (2007). Firm performance, rent appropriation, and the strategic resource divestment capability. *Strategic Management Journal*, 28, 1065-1087.
- Mossholder, K. W., Richardson, H. A., & Settoon, R. P. (2011). Human resource systems and helping in organizations: A relational perspective. *Academy of Management Review*, 36, 33-52.
- Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23, 242-266.
- Newbert, S. L. (2007). Empirical research on the resource-based view of the firm: An assessment and suggestions for future research. *Strategic Management Journal*, 28, 121-146.
- Ostroff, C., & Bowen, D. E. (2000). Moving HR to a higher level: HR practices and organizational effectiveness. In K. J. Klein & S. W. J. Kow-lowski (Eds.), *Multilevel theory, research, and methods in organizations* (pp. 211-266). San Francisco, CA: Jossey-Bass.
- Pazy, A., & Ganzach, Y. (2009). Pay contingency and the effects of perceived organizational and supervisor support on performance and commitment. *Journal of Management*, 35, 1007-1025.
- Peteraf, M. A. (1993). The cornerstones of competitive advantage: A resource-based view. *Strategic Management Journal*, 14, 179-191.
- Peteraf, M. A., & Barney, J. B. (2003). Unraveling the resource-based tangle. *Managerial & Decision Economics*, 24, 309-323.
- Pfeffer, J. (1998). *The human equation: Building profits by putting people first*. Boston, MA: Harvard Business School Press.
- Pil, F. K., & Cohen, S. K. (2006). Modularity: Implications for imitation, innovation, and sustained advantage. *Academy of Management Review*, 31, 995-1011.
- Pine, B. J. (1993). *Mass customization: The new frontier in business competition*. Boston, MA: Harvard Business School Press.
- Pine, B. J., Peppers, D., & Rogers, M. (1995). Do you want to keep your customers forever? *Harvard Business Review*, 73, 103-114.
- Pine, B. J., Victor, B., & Boynton, A. C. (1993). Making mass customization work. *Harvard Business Review*, 71, 108-118.
- Ployhart, R. E., & Moliterno, T. P. (2011). Emergence of the human capital resource: A multilevel model. *Academy of Management Review*, 36, 127-150.
- Ployhart, R. E., Weekley, J. A., & Ramsey, J. (2009). The consequences of human resource stocks and flows: A longitudinal examination of unit service orientation and unit effectiveness. *Academy of Management Journal*, 52, 996-1015.

- Priem, R. L., & Butler, J. E. (2001). Is the resource-based "view" a useful perspective for strategic management research? *Academy of Management Review*, 26, 22-40.
- Randall, T., Terwiesch, C., & Ulrich, K. T. (2007). User design of customized products. *Marketing Science*, 26, 268-280.
- Reed, R., & DeFillipi, R. J. (1990). Causal ambiguity, barriers to imitation, and sustainable competitive advantage. *Academy of Management Review*, 15, 88-102.
- Roth, S., Woratschek, H., & Pastowski, S. (2006). Negotiating prices for customized services. *Journal of Service Research*, 8, 316-329.
- Schneider, B., Wheeler, J. K., & Cox, J. F. (1992). A passion for service: Using content analysis to explicate service climate themes. *Journal of Applied Psychology*, 77, 705-716.
- Schuler, R. S., & Jackson, S. E. (1987). Linking competitive strategies with human resource management practices. *Academy of Management Executive*, 1, 207-219.
- Shaw, J. D., Gupta, N., Mitra, A., & Ledford, G. E. (2005). Success and survival of skill-based pay plans. *Journal of Management*, 31, 28-49.
- Simonson, I. (2005). Determinants of customers' responses to customized offers: Conceptual framework and research propositions. *Journal of Marketing*, 69, 32-45.
- Sirmon, D. G., Hitt, M. A., & Ireland, R. D. (2007). Managing firm resources in dynamic environments to create value: Looking inside the black box. *Academy of Management Review*, 32, 273-292.
- Skaggs, B. C., & Huffman, T. R. (2003). A customer interaction approach to strategy and production complexity alignment in service firms. *Academy of Management Journal*, 46, 775-786.
- Skaggs, B. C., & Youndt, M. (2004). Strategic positioning, human capital, and performance in service organizations: A customer interaction approach. *Strategic Management Journal*, 25, 85-99.
- Snell, S. A., & Dean, J. J. (1992). Integrated manufacturing and human resource management: A human capital perspective. *Academy of Management Journal*, 35, 467-504.
- Sonnenberg, M., Koene, B., & Paauwe, J. (2011). Balancing HRM: The psychological contract of employees: A multi-level study. *Personnel Review*, 40, 664-683.
- Surprenant, C. F., & Solomon, M. R. (1987). Predictability and personalization in the service encounter. *Journal of Marketing*, 51, 86-96.
- Sutton, R. I., & Rafaeli, A. (1988). Untangling the relationships between displayed emotions and organizational sales: The case of convenience stores. *Academy of Management Journal*, 31, 461-487.
- Swan, J. E., & Pruden, H. O. (1977). Marketing insights from a classification of services. *American Journal of Small Business*, 2, 38-48.
- Taylor, F. W. (1912). Scientific management. In D. S. Pugh (Ed.), *Organizational theory: Selected readings* (pp. 203-222). London, UK: Penguin Books.
- Teece, D. J., Pisan, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18, 509-533.
- Terwiesch, C., & Loch, C. H. (2004). Collaborative prototyping and the pricing of custom-designed products. *Management Science*, 50, 145-158.
- Thompson, J. D. (1967). The structure of complex organization. In D. S. Pugh (Ed.), *Organization theory: Selected readings* (pp. 29-43). London, UK: Penguin Books.
- Von Nordenflycht, A. (2010). What is a professional service firm? Toward a theory and taxonomy of knowledge-intensive firms. *Academy of Management Review*, 35, 155-174.
- Voss, C. A., & Hsuan, J. (2009). Service architecture and modularity. *Decision Sciences*, 40, 541-569.

Vroom, V. H. (1964). *Work motivation*. New York, NY: Wiley.

Wageman, R., & Baker, G. (1997). Incentives and cooperation: The joint effects of task and reward interdependence on group performance. *Journal of Organizational Behavior*, 18, 139-158. Waldman, D. A. (1994). The contributions of total quality management to a theory of work performance. *Academy of Management Review*, 19, 510-536.

Wright, P. M., & Boswell, W. R. (2002). Desegregating HRM: A review and synthesis of micro and macro human resource management research. *Journal of Management*, 24, 247-276.

Wright, P. M., & McMahan, G. C. (1992). Theoretical perspectives for strategic human resource management. *Journal of Management*, 18, 295-320. Wright, P. M., Dunford, B. B., & Snell, S. A. (2001). Human resource and the resource based view of the firm. *Journal of Management*, 27, 701-721. Wright, P. M., McMahan, G. C., & McWilliams, A. (1994). Human resources and sustained competitive advantage: A resource-based perspective. *International Journal of Human Resource Management*, 5, 301-326.

Wright, P. M., & Snell, S. A. (1998). Toward a unifying framework for exploring fit and flexibility in strategic human resource management. *Academy of Management Review*, 23, 756-772.