



# Founding Team Capabilities and New Venture Performance: The Mediating Role of Strategic Positional Advantages

Y. Lisa Zhao  
Michael Song  
Gregory L. Storm

**This study conceptualizes founding team human capital with three multi-item scales that are related to critical functional areas in new service ventures: marketing capabilities, market-linking capabilities, and service design capabilities. We develop and empirically test a theoretical framework linking founding team capabilities to service venture performance through two strategic positional advantages: scalability and protectability. Our results provide insight into previous inconsistent findings regarding founding teams' impact on new venture performance, offer important managerial implications, and point to future research directions.**

## Introduction

Although the outcomes of new ventures are affected by many factors, such as entrepreneurs, industry structure, business strategy, resources, and organization structure (e.g., Chrisman, Bauerschmidt, & Hofer, 1998; Song, Podoyntsyna, Van Der Bij, & Halman, 2008), founding team has received enormous attention (e.g., Chandler & Hanks, 1994; Delmar & Shane, 2006; Eisenhardt & Schoonhoven, 1990; Herron & Robinson, 1993; Mosey & Wright, 2007; Packalen, 2007; Shrader & Siegel, 2007). This is not surprising given that a founding team initiates the new organization and sets the founding strategies that lock the venture into a pattern of resource acquisition and growth (Chrisman et al.; Eisenhardt & Schoonhoven; Shane & Cable, 2002; Unger, Rauch, Frese, & Rosenbusch, 2011). At inception, one of the few resources available to the firm is the human capital embedded in the founding team. This human capital enables the new

---

Please send correspondence to: Y. Lisa Zhao, tel.: 816-235-5153; e-mail: [songl@umkc.edu](mailto:songl@umkc.edu), to Michael Song at [songmi@umkc.edu](mailto:songmi@umkc.edu), and to Gregory L. Storm at [gregstorm@umkc.edu](mailto:gregstorm@umkc.edu).

venture to discover and exploit opportunities, plan strategies, and garner additional resources (Unger et al.).

Despite many studies that have documented a positive relationship between founding team human capital attributes and new venture performance (e.g., Ancona & Caldwell, 1992; Boeker, 1989; Gersick, 1989; McDougal, Daouza, & Hoy, 1992; McGee, Dowling, & Megginson, 1995; Murray, 1989; Shane & Stuart, 2002; Unger et al., 2011; West, 2007; Zucker, 1987), the findings from past studies are inconsistent. A recent meta-analysis of 70 samples (involving 24,733 observations) attributes the inconsistent findings to variations in the conceptualization of human capital, study contexts, and outcome measures (Unger et al.). Other studies in strategic leadership and entrepreneurship have suggested, both theoretically and empirically, that organizational strategies mediate the relationship of the top management team (or founding team) with organization outcomes, which in turn suggests that mediating models could potentially better explain the relationship (Baum, Locke, & Smith, 2001; Certo, Lester, Dalton, & Dalton, 2006; Newbert, Kirchoff, & Walsh, 2007; Shrader & Siegel, 2007; Wright, Hmieleski, Siegel, & Ensley, 2007). Yet to date, few studies have conceptualized and empirically tested for mediating models that link the founding team and venture outcomes. Human capital literature, in general, and founding team human capital literature, in particular, have not been able to clearly articulate the process by which founding teams affect an organization's competitive advantages, and the literature does not provide clear guidance as to how founding teams should be assembled and how they affect the outcomes of the new ventures (Chandler & Hanks, 1994; Delmar & Shane, 2006; Herron & Robinson, 1993; Kamm, Shuman, Seeger, & Nurick, 1990; Packalen, 2007; Shrader & Siegel).

This study investigates how founding team human capital affects new venture performance by developing a mediating model for the service industry from resource-based competitive advantage theory (Day & Wensley, 1988). We conceptualize human capital along three dimensions that correspond to three important functional areas (marketing, market linking, and service design) for a start-up service venture. Each dimension is measured by a multi-item scale that we develop from literature and validate in this study. Strategic positional advantages are measured along two dimensions—scalability and protectability—which are constructed from the potential for a service offering to achieve and sustain competitive advantages in cost leadership and differentiation (Bharadwaj, Varadarajan, & Fahy, 1993).

Service ventures provide an ideal testing ground, as services constitute the predominant sector of the U.S. economy (Metters & Maruchek, 2007; Spohrer, Maglio, Bailey, & Gruhl, 2007) and are often critical components of the success of high-tech products (Jana, 2007; Spohrer et al.). Recent studies in management and marketing have argued that businesses (of products or services) create competitive advantages through services (Lusch, Vargo, & O'Brien, 2007). This service-dominant logic (see Vargo & Lusch, 2004) suggests that organizations and their outcomes can be potentially explained by the knowledge and skills of entrepreneurs, because such knowledge and skills allow the organization to envision and deliver what customers want and are willing to pay for. Therefore, examining the impact of founding team human capital on new service venture performance can potentially provide important implications regarding other organizations.

This study makes several contributions to the literature. First, we theoretically conceptualize and empirically test a mediating model. Second, we contribute to the body of entrepreneurship literature by investigating the role of founding team marketing-related capabilities which are critical for new ventures to build much needed legitimacy and reputation. Marketing-related capabilities are the core resources for businesses to deliver

competitive advantages (Srivastava, Fahey, & Christensen, 2001) and are important factors that affect firm survival (Parasuraman, Berry, & Zeithaml, 1983). Yet, they have received little attention in entrepreneurship literature. Third, we conceptualize founding team human capital with three multi-item scales that are related to functional areas critical for start-ups and investigate how human resources affect new service venture performance by creating positional advantages. To the best of our knowledge, this study is the first to measure founding team human capital in three functional dimensions with multi-item scales and investigate the role of strategic competitive advantage in relation to human capital and firm performance.

## Theoretical Framework

Resource-based literature suggests that some firms achieve better performance than others because they possess resources that are valuable, rare, and difficult to imitate and substitute by competitors (Barney, 1991). These resources are potential sources of competitive advantages, and they can be strategically deployed to create competitive advantages that lead to superior firm performance (Bharadwaj et al., 1993; Day & Wensley, 1988). However, resource-based literature has not been able to clearly articulate what constitutes resources and how resources are converted to competitive advantages (Crook, Ketchen, Combs, & Todd, 2008; Kraaijenbrink, Spender, & Groen, 2010; Priem & Butler, 2001; Srivastava et al., 2001).

Recent developments in marketing and management theory have increasingly emphasized the importance of the value creation aspect of resources. Indeed, “[t]here is no such thing as a ‘resource’ until a man finds a use for something in nature. Until then, every plant is a weed and every mineral just another rock” (Drucker, 1985, p. 30). A firm creates competitive advantages by converting its resources to meet the needs of customers (Lusch et al., 2007), and “all firms, including ‘goods’ firms, can transform themselves competitively by understanding how they can serve” (p. 16). To create a competitive advantage, a firm has to transform its resources into an offering that customers need and are willing to pay for over that of competitors. In this sense, firms compete through services, and goods are mechanisms for converting the resources to services (Lusch et al.).

At the core of this service-dominant logic is the firm’s human capital (i.e., skills and knowledge of the entrepreneurs) that acts upon and creates value from resources. Day and Wensley (1988) define capabilities as the skills and knowledge of a firm’s personnel that set them apart from the personnel of other firms. For new ventures at inception, the only skills and knowledge available are embedded in the founding team, and we define these skills and knowledge as founding team capabilities. Founding team capabilities enable the venture to envision what people want and are willing to pay for and to strategically acquire and deploy other resources to design and deliver the service offering (Chandler & Hanks, 1994; Read, Dew, Sarasvathy, Song, & Wiltbank, 2009; Vargo & Lusch, 2004). “Any competitive advantage that a new firm achieves is likely to be based upon what the founders can do better than others” (Cooper & Bruno, 1977, p. 21).

The key to creating competitive advantages is the creation of customer value, which stems from the firm’s understanding of the market and customers and from the firm’s connection with customers and channel members (Srivastava et al., 2001). For a new venture, the understanding and connection reside in the capabilities (skills and knowledge) of the founding team. Although “[i]t is not possible to enumerate all possible capabilities because every business develops its own configuration of the capabilities that is rooted in the realities of its competitive market, past commitment, and anticipated

requirements” (Day, 1994, p. 40), marketing-related capabilities are the critical capabilities, and customer value is largely created by leveraging marketing specific capabilities through marketing activities and business processes (Srivastava et al.). Following marketing and management literature (e.g., DeSarbo, Di Benedetto, Jedidi, & Song, 2006; Gronroos, 1995; Moorman & Slotegraaf, 1999; Song, Di Benedetto, & Nason, 2007; Srivastava et al.), we categorize marketing-related capabilities as marketing capabilities (related to skills and knowledge in sales, promotion, and advertising) and market-linking capabilities (related to skills and knowledge that create and maintain relationships with customers and channel members). We also include founding team service design capabilities to capture the business process that converts the business idea (derived from founding team marketing and market-linking capabilities) to actual service offerings. Previous studies have shown that marketing capabilities, market-linking capabilities, and service design capabilities are three types of capabilities that are important for firms in generating competitive advantages (DeSarbo, Di Benedetto, Song, & Sinha, 2005; Moorman & Slotegraaf; Song et al.).

Literature has defined competitive advantage in two dimensions—cost leadership and differentiation (e.g., Day & Wensley, 1988). Although new ventures often enter the market with a differentiated product or service, it may be difficult for service ventures to achieve cost leadership and to sustain the differentiated position (Bharadwaj et al., 1993) due to the intangible and perishable nature of service offerings (Upah, 1980) and the small size and poor resource pool relative to established firms.

Nevertheless, opportunities for exploiting scale economies to create cost leadership differ across firms. Literature has shown that service firms can achieve scale economies by incorporating new technologies (Quinn & Gagnon, 1986). Technology-based service offerings have greater opportunity to exploit scale economies than people-based service offerings. Bharadwaj et al. (1993, p. 88) note that:

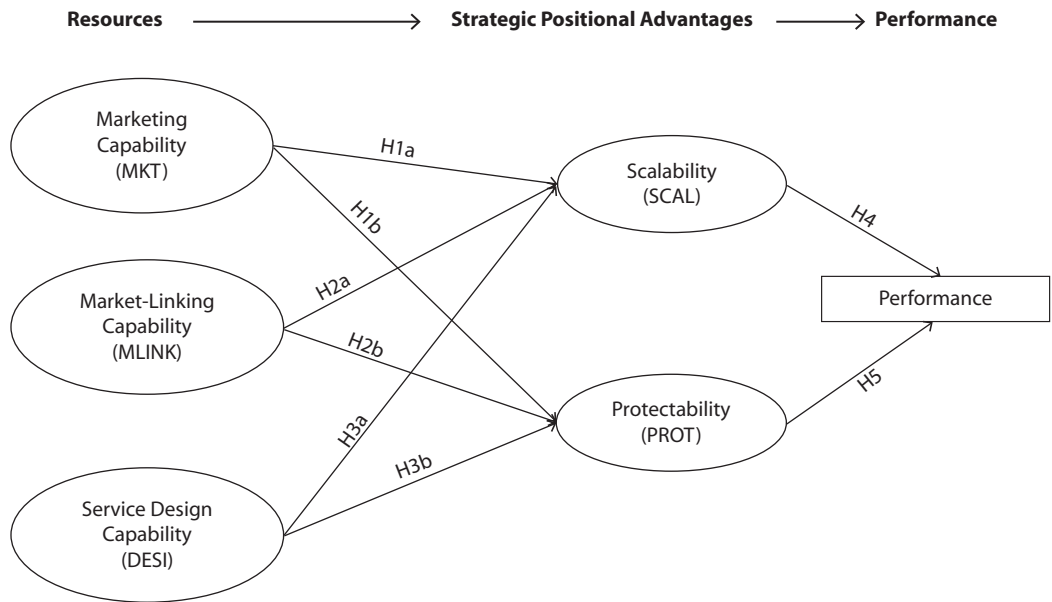
[O]pportunities for exploiting are significantly greater in equipment-based service industries than in people-based industries. Service firms can also achieve economies of scale by centralizing service production facilities while decentralizing customer-contact facilities (Upah, 1980) or centralizing certain critical (and/or equipment-intensive) activities and localizing less critical (and/or people-intensive) activities, as exemplified by clinical laboratories by performing some tests in dispersed local units and others involving expensive equipment and/or skilled personnel in regional centers (see Porter, 1990).

In addition, service offerings incorporating proprietary technologies can be protected through patents, copyrights, or secrecy (Bharadwaj et al., 1993). Some services such as Priceline.com have achieved some success at patenting portions of their service delivery process. Service ventures can also erect barriers to imitation through asset accumulation. Service offerings involving complex and specialized asset are difficult to invent around (Bharadwaj et al., 1993; Dierickx & Cool, 1989; Lippman & Rumelt, 1982).

Following the above arguments, this article defines scalability of a service venture as the extent to which the venture has the potential to serve larger numbers of customers and decrease costs through the use of technologies, equipment, and centralized facilities. Scalability enables the venture to deliver the service offering at a lower cost and to exploit the potential to serve a larger number of customers than its competitors. Protectability refers to the extent to which the service offering incorporates proprietary technologies and complex knowledge/assets. A venture’s scalability and protectability represent the

Figure 1

Conceptual Model



founding team’s strategy to position the venture to achieve sustainable competitive advantages in differentiation and cost leadership, and they are the strategic positional advantages of the new venture.

Edelman, Brush, and Manolova (2005) argue that “the source of strategy in small firms is most likely to arise from human capital resources, capabilities and competencies” (p. 364). Founding teams with higher levels of marketing capabilities, market-linking capabilities, and service design capabilities are able to envision, design, and deliver service offerings with higher degrees of scalability and protectability. Ventures with high degrees of scalability and protectability in their service offerings will achieve better performance than other ventures. Porter (2001) argues that strategy is about creating “fit” among resources, organization, goals, and management action, and without this “fit,” a strategy will not be successful. Therefore, we propose that the pursuit of scalability and protectability mediates the relationship between founding team capabilities and new service venture performance. Figure 1 depicts the conceptual framework. We develop each hypothesis in the following sections.

**Founding Team Marketing Capabilities and Positional Advantages**

*Marketing capabilities* refer to the founding team’s experience in industry and marketing and its skills in sales, promotion, and advertising (Day, 1994; Day & Nedungadi, 1994; DeSarbo et al., 2005, 2006). Previous experience in industry and marketing can help the founding team to identify potential customers and service locations that provide customers with convenient access to service offerings and thus achieve better facility utilization (Berry, Seiders, & Grewal, 2002). Preemptively securing strategic locations is

critical for new ventures to configure facilities and centralize critical activities that require expensive equipment and skilled personnel while providing localized customer services. Preemptive identification of the ideal service location also facilitates the offering of a service through technology. A technology-based service offers customers convenience in terms of time and location and provides the venture with the possibility of offering the service at a prime location at a below prime cost (for example, a firm can place an ATM machine at a popular shopping center without paying the cost that it has to pay for a branch office).

Since most new ventures do not establish a formal marketing unit at inception, both marketing and sales are often conducted by founding team members (at least initially), and the marketing ideas and marketing knowledge come from these founding team members' previous knowledge and through sales and promotion activities conducted by the founding team (Kotler, Rackham, & Krishnaswamy, 2006). Promotion, advertising, and sales activities in a new venture often play the important role of collecting customer information and understanding customer preferences. Founding teams with strong sales and promotion skills can better understand how customers perceive and understand benefits, and they can better develop technology-based service offerings and incorporate technologies in these offerings to enhance convenience and ease of use (Berry et al., 2002). A better understanding of how customers perceive value and benefits also helps the venture to better identify what technology and equipment should be deployed to better achieve scale economy. Founding teams with higher marketing capabilities can better combine place, promotion, and infrastructure (equipment and location) to meet customer preferences and sales volumes (Rayport & Sviolka, 1994), again allowing the venture to achieve comparably better equipment and facility utilization. All of these increase the venture's ability to exploit the potential opportunities of achieving scalability. We propose:

**Hypothesis 1a:** An increase in founding team marketing capabilities leads to an increase in scalability of the service offering.

Previous research also suggests that a higher level of *marketing capabilities* leads to a higher level of innovation in the technologies incorporated in the service offering (Weerawardena, 2003). Technology and service innovation is increasingly becoming the center of service development (Hipp & Grupp, 2005). Proprietary technologies can often be protected through patents, copyrights, and/or trade secrecy. Advertising and sales skills can increase a service offering's symbolic benefits such as brand image. Increased customer experiential benefits and positive attitude toward the service offering promote customer satisfaction and loyalty and increase switching costs for customers (Lam, Shankar, Erramilli, & Murthy, 2004). All these represent complex intangible assets embedded in the service offering that, although they cannot be legally protected, are difficult for competitors to copy because of ambiguity of the assets. The social complexity and path dependency of these intangible assets incorporated in the service offering also deter rivals from imitating the service offering (Rivkin, 2000).

Therefore, marketing capabilities on one hand enhance the ambiguity of service offering attributes and benefits, which increase barriers to imitation, and on the other hand, enable the venture to incorporate tangible assets in the service offering, which can be legally protected. We propose:

**Hypothesis 1b:** An increase in founding team marketing capabilities leads to an increase in protectability of the service offering.

## Founding Team Market-Linking Capabilities Positional Advantages

*Founding team market-linking capabilities* refer to the founding team's skills and knowledge in relationship marketing and were originally developed in service marketing literature (Berry, 1995). This construct has received renewed attention in recent studies (Srivastava et al., 2001). This article defines founding team market-linking capabilities as the founding team's capabilities to create and maintain relationships with customers and channel members (DeSarbo et al., 2005, 2006; Sparrowe, Liden, Wayne, & Kraimer, 2001). These relationships are often based on trust and reputation and are especially important for services because of the intangible nature of services (Berry, 1995). While founding team marketing capabilities allow the venture to configure and deliver the service offering that customers need and are willing to pay for, they focus on short-term goals (Gronroos, 1995). Market-linking capabilities allow the venture to create durable relationships with customers and channel members. These are concerned with long-term goals (Gronroos). Marketing capabilities and market-linking capabilities are not mutually exclusive; however, they are distinct from each other, and both are important for service firms, as evidenced by marketing literature (e.g., Berry; Srivastava et al.).

Because relationship marketing requires close contact with customers and channel members (which can be costly), firms often look for technologies to decrease the cost related to relationship marketing and enhance the potential benefits (Berry, 1995). Technology-assisted interactions with customers facilitate customer information gathering and provide the new service venture with a better understanding of customer needs so that it can design technology and facilities to tailor the service offering to customer requirements (Berry). Incorporating technology into the service also enhances the venture's ability to centralize delivery processes that require expensive equipment or skilled personnel.

Channel activities are also important for service ventures to create customer value. Coordination with channel members can be challenging for new ventures because new ventures often have to deal with channel members who are relatively more resource rich and powerful (Weitz & Jap, 1995). Founding team capabilities to create and maintain relationships with channel members enable the venture to design technologies that help to standardize and routinize channel activities. Standardized routines are more easily carried out through equipment, technology, and centralization.

Strong relationships with customers and channel members are critical to the new venture's ability to efficiently deliver services (Aldrich & Zimmer, 1986; Baum, Calabrese, & Silverman, 2000; Chrisman et al., 1998; Cooper, Gimeno-Gascon, & Woo, 1994). Efficient service delivery is dependent on infrastructure (equipment and facilities) and technology (Rayport & Sviolka, 1994). It is the founding team's ability to develop strong relationships and use these relationships to transact with partners that allows it to understand which combination of internal and external operations is optimal for the market and to find the optimal ways to integrate equipment and technology into the service delivery process to potentially serve large numbers of customers and decrease the costs of its service offering. Therefore, we propose:

**Hypothesis 2a:** An increase in founding team market-linking capabilities leads to an increase in scalability.

*Founding team market-linking capabilities* are also important for a venture to increase its service offering protectability. First, strong relationships with channel partners can be an important source of innovation (Benton & Maloni, 2005; Chen, Paulraj, & Lado, 2004; Petersen, Handfield, & Ragatz, 2005; Prahinski & Benton, 2004; Song & Di Benedetto,

2008). Innovative business processes can be supported by specialized equipment and technology, and can also be protected through business method patents (Martin & Mykytyn, 2009). Second, durable relationships with customers simplify the buying experience for the customer and incentivize the customer to remain a loyal, long-term customer (Sheth & Parvatiyar, 1995). Creating durable relationships with customers also increases the customers' perceived switching costs, reduces customer churn (Reichheld & Sasser, 1990), and increases the complexity of the service offering. Complex assets employed in service delivery are isolating mechanisms for service companies to increase barriers to imitation (Bharadwaj et al., 1993). In addition, the information in these types of relationships becomes very specific to the firm/channel member and therefore difficult for competitors to replicate. Therefore, we propose:

**Hypothesis 2b:** An increase in founding team market-linking capabilities leads to an increase in protectability of the service offering.

### **Founding Team Service Design Capabilities and Positional Advantages**

*Service design capabilities* refer to the founding team's ability to design, develop, and produce services. Founding team service design capabilities allow the new venture to harness innovations in process efficiency and cost reduction, to drive the quality and consistency in service delivery, and to anticipate industry change (Cooper, 1979; Song, Di Benedetto, & Song, 2008; Verona, 1999). Once a venture identifies the market opportunity and understands customer preferences by employing its founding team marketing capabilities and market-linking capabilities, the venture has to develop the technology, design the equipment, and configure the facilities to produce and deliver the service offering. The founding team's capabilities to forecast technological change allow the venture to integrate appropriate technology in the production and delivery of a service. The founding team's skills in service design are essential for the venture to design services that are equipment based and technology based and to centralize service production facilities. Therefore, we propose:

**Hypothesis 3a:** An increase in founding team service design capabilities leads to an increase in scalability.

A high level of *service design capabilities* enables a new venture to develop new technologies (Song et al., 2008) that can be incorporated into the service offering. Increased design skills allow the venture to more effectively and efficiently integrate internal assets and technology with channel member assets and technology to develop a more distinctive, innovative service. A more innovative service that integrates complex assets both internally and externally is inherently more protectable than other services (Jong & Vermeulen, 2003). A relatively higher ability to apply design skills to the service innovation process, combined with a higher relative ability to forecast industry direction, allows the venture to produce a service that is well placed for longevity in the market (i.e., one that is not going to be invented around or substituted soon). The ability to develop processes to manage the integration of the complex assets (internal and external), technology, and human capital necessary to deliver a distinctive new service is in itself a substantial source of differentiation in the market (Brentani, 2001). A higher level of service design capability leads to higher levels of service innovation that in turn allow for higher levels of protectability (Bharadwaj et al., 1993; Day & Wensley, 1988). Therefore, we propose:



**Hypothesis 3b:** An increase in founding team service design capabilities leads to an increase in protectability.

### **Strategic Positional Advantages and Performance**

Strategic positional advantages are concerned with sustainable competitive advantages in cost leadership and differentiation (Day & Wensley, 1988). Cost leadership and differentiation form the “intervening stage” (Day & Wensley, p. 5), and ignoring this intervening stage is “a serious gap, for the intervening stage does much to mediate the relationship of inputs to outputs” (Day & Wensley, p. 5). As information for measuring cost leadership and differentiation is generally unavailable for start-up ventures, this study defines a venture’s positional advantages as the potential of the venture to protect its service offering (*protectability*) and incorporate technology, equipment, and centralization into the service offering (*scalability*). As discussed earlier in this article, service ventures can achieve service scalability through the integration of higher levels of technology and equipment into the service delivery process and centralization of critical activities that use expensive equipment (Bharadwaj et al., 1993).

Higher relative scalability is an important component in the conversion of sources of advantage into actual advantages (Day & Wensley, 1988). Achieving higher scalability than competitors enables the venture to either increase financial performance through relatively higher margins or increase market share through lower prices (or more likely, impact both performance dimensions through some combination of the two) (Day & Wensley). Since founding team capabilities are the critical resources for the new venture to achieve scalability of a service offering and a service offering with a higher degree of scalability that is more likely to outperform its peers, we propose that scalability mediates the relationship between founding team capabilities and the service venture performance:

**Hypothesis 4:** Scalability mediates the relationship between founding team capabilities in which an increase in scalability leads to an increase in venture performance.

Founding team capabilities in marketing, market linking, and service design allow service ventures to enter the market with an innovative offering that customers need and are willing to pay for over the service offerings of competitors. However, a differentiated position needs to be sustainable for the new venture to achieve superior performance; to achieve superior performance, the new venture has to protect its service offering from imitation by competitors through legal protection of technology and business processes and/or through the building of complex assets around the service offering. Founding team human resources are potential advantages for the new venture to achieve positional advantages. To achieve actual positional advantage, the venture team has to leverage its skills and resources to produce and deliver the service offering with a high level of protectability. We propose:

**Hypothesis 5:** Service protectability mediates the relationship between capabilities and performance in which an increase in protectability leads to an increase in venture performance.

It is important to note that we propose a mediated model in this study, but we do not argue for a full mediating framework. Therefore, in our data analysis we allow for the direct relationship between capabilities and performance in addition to mediated capability and performance relationships.

## Method

### Pretest of the Theoretical Framework and Measurement Scales

This study adopts well-tested scales to measure founding team capabilities and develops new scales for scalability and protectability from the conceptualization of Bharadwaj et al. (1993). Before data collection, we pretested the scales and the conceptual framework through in-depth interviews with six founders of new service ventures, of which three are successful service start-ups and three are failed service start-ups.

The interviews consisted of three parts. First, each of the six entrepreneurs was asked to assess his or her new venture's founding team capabilities that were critical for the venture to recognize, explore, and create advantageous competitive positions. The objective of this part of the interview was to identify dimensions of founding team capabilities and refine our scale items. Second, we asked the entrepreneurs to evaluate their own experiences in recognizing and exploiting opportunities to create positional advantages that were critical for their new ventures to achieve superior performance. Finally, we presented capability and competitive strategic position scale items that we generated from the literature and interviews and asked the entrepreneurs to assess whether the items were relevant and complete.

The interview findings indicate that it was very important for new service ventures to protect their service offerings. This point was stressed by our interviewees repeatedly throughout the interviews. In addition, all interviewees agreed that in order to achieve superior performance, founding teams must find ways to create scale economies. Our field data further suggested that founding team capabilities shaped the new service venture's strategic competitive positions, because differences in these capabilities resulted in founding teams' differing abilities to recognize and exploit opportunities. Finally, the interviews confirmed that the scale items we had generated were appropriate.

### Data Collection

The sample frame was taken from the new independent businesses listed in the Dun & Bradstreet Corporation database. For a firm to be included in our study, it must have been created by a founder or a team of founders in the following industries: (1) engineering, professional, scientific, technical, research, and testing services; (2) computer and software-related services (programming, computer processing, data preparation and processing, information retrieval, computer facilities management, computer rental and leasing, computer maintenance and repair); and (3) wholesale trade and retail (electronic parts and equipment, home appliance, computer and computer peripheral equipment, and software). The initial sample included 1,246 firms.

During the first year after the ventures were founded, we used a mail survey to collect data on founding team size, prior industry experience, prior start-up experience, prior marketing experience, prior service design experience, founding team capabilities, and venture strategic competitive positions. The survey was administered following the total design method for survey research (Dillman, 1978) and sent to the founder of each of the 1,246 new ventures. The first mailing packet included a business card, a personalized letter, a copy of the survey, a postage-paid envelope with individually typed return-address labels, and a list of research reports available to participants. To increase the response rate, we followed up the mailing with multiple letters and, in some cases, multiple phone calls and faxes as needed. Of the original sample, packages sent to 167 firms were returned due to various reasons.

For the firms that responded to our first-year survey, we conducted follow-up data collections 2 years later to collect objective data on first-year, second-year, and third-year sales and gross profit margins. Among the remaining 1,079 ventures, we collected complete data from 372 service ventures, representing a response rate of 34%.

### **Nonresponse Bias Tests**

We deploy the “wave” extrapolation method to examine possible nonresponse bias (Armstrong & Overton, 1977): we compare the early responses with the responses generated by follow-up letters, phone calls, and faxes for variables of founding team size, founding team experience in start-ups and industry, and total sales of the first year after founding. Multivariate analysis of variance shows no significant differences between early and late responses (Wilks’ Lamda = 997 and  $p > 0.890$ ; Pillai’s Trace = 0.00 and  $p > 0.890$ ). Therefore, we concluded that nonresponse bias was not a significant problem in our study (Armstrong & Overton).

### **Common Method Bias**

New ventures are often initiated with one or a few founders. The founders are the only sources of information about the ventures. We, like many other researchers, were not able to use multiple informants in data collection. To control possible common method biases, we followed recommendations by Podsakoff and Organ (1986) and Podsakoff, MacKenzie, Lee, and Podsakoff (2003). First, we collected data on the explanatory variables and dependent variables at different times; we used a longitudinal data set. Second, in the questionnaire we reordered the scales and mixed the items that were intended to measure a certain construct with the items that were intended to measure other constructs. Third, we randomly reversed some scale items to eliminate the possible consistency motif (Podsakoff et al., 2003). Fourth, Harman one-factor analysis rejects the one-factor model. Confirmatory factor analysis (CFA) one-factor model fit indices ( $\chi^2 = 4059.8$ ; GFI = 0.463; CFI = 0.347; NFI = 0.328; RMSEA = 0.162) reject the one-factor model. Exploratory factor analysis (EFA) shows that the first factor only counts 39.38% of the total variance. Finally, we carried out confirmatory factor analyses to establish measurement discriminant validity that further demonstrates that the constructs are distinct from each other. Below, we discuss confirmatory factor analysis of the measurement model.

### **Confirmatory Factor Analysis and Measurement Validity**

Confirmatory factor analyses were carried out to assess construct unidimensionality, convergent validity, and discriminant validity of the measurement model. We assessed unidimensionality by the overall fit as suggested by Gerbing and Anderson (1988) and Joreskog and Sorbom (1988). The overall fit indices for our measurement model are  $\chi^2/\text{degrees of freedom (df)} = 648.845/329 = 1.972$ ; GFI = 0.894; CFI = 0.940; NFI = 0.887; and RMSEA = 0.051. All fit indices indicate that the measurement model fits the data very well (Brown, 2006).

Construct convergent validity was demonstrated by high Cronbach’s alphas (the lowest alpha = 0.75) and highly significant factor loadings ( $p < 0.01$ ). Discriminant validity was examined by comparing the average variance explained (AVE) with shared variance (Fornell & Larcker, 1981; Gerbing & Anderson, 1988). This method investigates discriminant validity by comparing the AVE with shared variance between different

constructs (Fornell & Larcker). Table 1 presents the correlations between different constructs in the lower left off-diagonal of the matrix and square roots of AVE along the diagonal. The smallest square root of AVE (0.66) was bigger than the largest correlation coefficient (0.57) for any of the multi-item scale variables. Therefore, discriminant validity was confirmed (Fornell & Larcker).

## Study Measures

The independent variables in this study are the founding team capabilities (marketing, market linking, and service design), along with the following control variables: founding team size; founding team previous experience in start-ups, industry, marketing, and service design; market turbulence; and market growth. Founding team capabilities and market conditions are measured on 7-point Likert-type multi-item scales. Other variables are measured with objective numbers.

The scale items for *marketing capabilities*, *market-linking capabilities*, and *service design capabilities* were adapted from DeSarbo, Di Benedetto, and Song (2007). The *marketing-capability* scale has four items that measure the degree to which the venture's founding team had adequate skills and resources in advertising and promotional skills to support the commercialization of the services, and founding team's prior experience in marketing similar industries. The *market-linking capability* scale has three items that measure the founding team's capabilities in creating and managing durable relationships with customers and channel members, as well as its prior customer service and customer retention experience. The *service design capability* scale has four items that evaluate the founding team's prior new service development experience in similar industries, its ability to predict technological change, and its capability for technology development and quality control.

Founding team size is measured by the number of founders who are actively involved in the operations of the venture, and founding team experience is calculated as the average number of years of start-up experience, industry experience, marketing experience, and service design experience. These variables have been used in previous studies to measure founding team human capital.

We also include two variables measuring market conditions: *market turbulence* and *market growth*. The scale for *market turbulence* has five items that measure the degree of customer preference for change, customer desire for new products, differences between new and existing customers, and the difficulty in predicting marketplace changes. The *market growth* scale has four items that measure industry sales growth, perceived opportunity, market growth, and product and industry demand growth.

*Scalability* and *protectability* are conceptualized as mediating variables. They too were measured on 7-point Likert-type multi-item scales. The *scalability* measure has four items rating the venture's opportunities for exploring scale economies, the extent to which the service is equipment based rather than people based, the extent to which the venture can centralize operations, and the extent to which the service is technology based relative to those of competitors. The *protectability* scale comprises four items that measure the degree to which the service can be protected by patents or proprietary technology, the degree of difficulty for other firms to invent around the firm's service, the degree to which the service requires complex assets, and the degree to which complex knowledge is embedded in the service.

New venture performance was measured by the average gross profit, which is calculated by the first 3-year average sales times the first 3-year average profit margin. These

Table 1

Basic Statistics

	AGP	SCAL	PROT	MKT	MLINK	DESI	GROW	MATU	TEAMS	EXST	EXIND	EXMKT	EXDS
Mean	5.70	4.99	4.35	4.97	4.25	4.36	4.24	4.99	2.37	1.89	22.22	26.72	8.21
Standard deviation	8.63	1.2	1.43	1.16	1.5	1.41	1.38	1.37	0.83	0.98	6.93	7.5	3.13
Construct reliability	n.a.	0.75	0.86	0.85	0.85	0.85	0.85	0.90	n.a.	n.a.	n.a.	n.a.	n.a.

	AGP	SCAL	PROT	MKT	MLINK	DESI	GROW	MATU	TEAMS	EXST	EXIND	EXMKT	EXDS
Average gross profit (AGP)	n.a.												
Scalability (SCAL)	0.40	<b>0.66</b>											
Protectability (PROT)	0.38	0.40	<b>0.79</b>										
Marketing capability (MKT)	0.31	0.50	0.31	<b>0.78</b>									
Market-linking capability (MLINK)	0.31	0.30	0.57	0.16	<b>0.81</b>								
Design capability (DESI)	0.33	0.54	0.5	0.46	0.29	<b>0.77</b>							
Market growth (GROW)	0.02*	-0.04*	0.00*	0.04*	0.00*	0.05*	<b>0.77</b>						
Market turbulence (MATU)	0.01*	-0.07*	0.00*	-0.05*	-0.03*	-0.06*	0.43	<b>0.80</b>					
Size of founding team (TEAMS)	0.32	0.34	0.49	0.42	0.39	0.37	-0.02*	-0.08*	n.a.				
Prior start-up experience (EXST)	0.22	0.14	0.10	0.03*	0.08*	-0.01*	0.02	0.00*	0.08*	n.a.			
Prior industry experience (EXIND)	0.37	0.58	0.4	0.60	0.29	0.54	0.03*	-0.05*	0.33	-0.03*	n.a.		
Prior marketing experience (EXMKT)	0.33	0.48	0.32	0.75	0.11	0.35	0.02*	-0.06*	0.44	0.12	0.42	n.a.	
Prior design experience (EXDS)	0.24	0.24	0.34	0.27	0.49	0.18	-0.06*	-0.02*	0.42	-0.21	0.23	0.22	n.a.

Note: Square root of AVE on diagonal for multi-item scales; \* not significant at  $p < .05$ .

Measurement model: Goodness of fit:  $\chi^2/\text{degrees of freedom (df)} = 648.8454/329 = 1.972$ , GFI = 0.894, CFI = 0.940, NFI = 0.887, RMSEA = 0.051 (90% confidence interval: 0.045–0.057).

n.a., not applicable.

data were collected directly from the firms participating in this research project, over a 3-year period after the survey was administered. The final measurements are presented in Appendix A.

### Model Estimation—Path Model Analysis

Although the Baron and Kenny (1986) four-step analysis has been the most commonly used approach for testing mediation, recent studies show that it has very low power to test mediating effects. Mediation can be established without significant direct relationships between independent variables and dependent variables, which is the first step in the Baron and Kenny method (McKinnon, Fairchild, & Fritz, 2007). In addition, the Baron and Kenny method does not provide a statistical test to assess the significance and strength of the mediating effects. Nevertheless, we performed a series of simple path model analyses (regressions) before carrying out the full path model analyses, following Baron and Kenny's four-step procedure. The results of these analyses established significant direct relationships between founding team capabilities (independent variables) and performance (dependent variables), significant relationships between founding team capabilities and positional advantages (mediators), and significant relationships between positional advantages and performance.

To test our theoretical model, we followed recent developments in mediation analysis and carried out a series of path analyses (McKinnon et al., 2007) and Sobel tests for testing the mediating (or indirect) effects (Shrout & Bolger, 2002). We initially included industry dummies in our analysis, and they were subsequently deleted from our model because we did not find cross-industry differences.

We then estimated the full model that includes all focal and control variables as well as all possible direct and indirect paths. We compared this model with a series of nested models (removing some variables from the path model). Since this type of path model (including all direct and indirect paths of the exogenous variables in the model) generates virtually zero  $\chi^2$  s, we resort to *F*-tests of the squared multiple correlations ( $R^2$ ) on the dependent variable (average gross profit) for model comparisons.

First, from the full path model estimates, we noted that the market turbulence variable did not yield any significant path coefficient. Therefore, in the second step we removed the variable from the path model. The  $R^2$  difference between this model ( $R^2 = 0.280$ ) and that of the full model ( $R^2 = 0.281$ ) is not statistically significant, confirming this reduced model. In the third step, we removed founding team experience variables one at a time (first marketing experience, then service design experience, and then finally industry experience), as marketing capability and service design capability scales include items on founding team experience in marketing, service design, and industry. Every time we deleted a variable from the path model, we carried out an *F*-test to compare the  $R^2$  of the newly reduced model ( $R^2 = 0.279$  after removing marketing experience;  $R^2 = 0.274$  after further removing service design experience;  $R^2 = 0.271$  after further removing industry experience) with that of the full model ( $R^2 = 0.281$ ). In each case, the  $R^2$  difference was not statistically significant. We therefore treat this model as our base model and remove the insignificant paths (rather than the variables) one at a time, starting from those of the control variables.

In every step during which we remove a path, we reestimate the model and conduct a chi-square test comparing the reduced model with the previous model to ensure that the removing of the path does not reduce goodness of the fit. The  $\chi^2$  difference between the final model and the saturated model (where all direct and indirect paths are included) is 5.444 with 7 df ( $\chi^2/\text{df} = 5.444/7 = 0.778$ ). The final model is not statistically different

Table 2

## Final Model Path Coefficients

	From	To	Coefficient	SE	Std. Coeff.	
Hypothesized	Marketing capability (MKT)	Scalability (SCAL)	0.33***	0.05	0.32	
	Market-linking capability (MLINK)	Scalability (SCAL)	0.10**	0.03	0.13	
	Design capability (DESI)	Scalability (SCAL)	0.31***	0.04	0.37	
	Market-linking capability (MLINK)	Protectability (PROT)	0.38***	0.04	0.40	
	Design capability (DESI)	Protectability (PROT)	0.31***	0.04	0.30	
	Scalability (SCAL)	Average gross profit (AGP)	1.51***	0.39	0.21	
	Protectability (PROT)	Average gross profit (AGP)	1.07***	0.34	0.18	
	Added	Prior start-up experience (EXST)	Scalability (SCAL)	0.15**	0.05	0.13
		Market growth (GROW)	Scalability (SCAL)	-0.06*	0.04	-0.07
Prior start-up experience (EXST)		Protectability (PROT)	0.09*	0.06	0.06	
Team size (TEAMS)		Protectability (PROT)	0.38***	0.07	0.22	
Marketing capability (MKT)		Average gross profit (AGP)	0.97**	0.39	0.13	
Market-linking capability (MLINK)		Average gross profit (AGP)	0.65*	0.32	0.13	
Prior start-up experience (EXST)		Average gross profit (AGP)	1.45***	0.40	0.16	

Note: \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ , one-tail test.

Final full model: Goodness of fit:  $\chi^2/\text{degrees of freedom (df)} = 5.444/7 = 0.778$ ; GFI = 0.997; NFI = 0.993; CFI = 1.000; RMSEA = 0.000 (90% confidence interval: 0.00–0.054).

Squared multiple correlations ( $R^2$  equivalent) SCAL: 0.414; PROT: 0.490; AGP: 0.262.

SE, standard error.

from the saturated model. The other fit indices for the final model are: GFI = 0.997; NFI = 0.993, CFI = 1.000; RMSEA = 0.000. These indices suggest an excellent fit between the final model and the data (Hu & Bentler, 1999). The squared correlations ( $R^2$  equivalence) for gross profit, scalability, and protectability are 0.262, 0.414, and 0.490, respectively. Table 2 displays the model estimates, and Figure 2 presents the final model and path coefficients.

## Results and Discussion

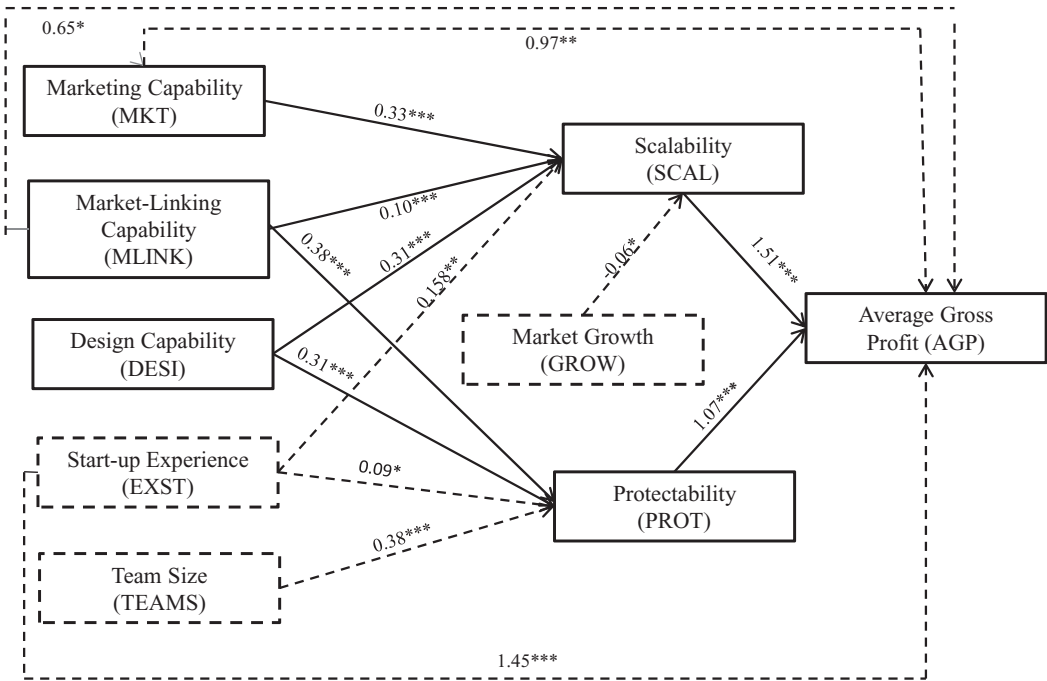
### Hypothesis-Testing Results

The results displayed in Table 2 and Figure 2 support all of our hypotheses linking founding team capabilities to positional advantages with the exception of H1b. H1a, H2a, and H3a state that marketing capabilities, market-linking capabilities, and service design capabilities positively affect new service venture scalability; the path coefficients from marketing capabilities (0.33,  $p < .001$ ), market-linking capability (0.10,  $p < .01$ ), and design capabilities (0.31,  $p < .001$ ) to scalability were all positive and significant. H2b and H3b state that marketing capabilities and service design capabilities positively affect new service venture protectability; the path coefficients from market-linking capability (0.38,  $p < .001$ ) and design capability (0.31,  $p < .001$ ) to protectability are positive and significant, thus supporting H2b and H3b, but H1b, which states that higher founding team marketing capabilities lead to higher protectability, was not supported by our data.

To test the mediating hypotheses (H4 and H5), we perform Sobel tests (Shrout & Bolger, 2002) on the indirect effects of founding team capabilities on venture

Figure 2

Path Coefficients



Note: Dashed bordered shapes represent control variables; dashed paths are not hypothesized paths; \*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.01$

performance. Mediation is established if the indirect effect is statistically significant. Results in Table 3 support H4 and H5. Scalability mediates marketing capabilities, market-linking capabilities, and service design capabilities (indirect effect = 0.49,  $p < 0.001$ ; 0.15,  $p < 0.01$ ; 0.47,  $p < 0.001$ , respectively). Protectability mediates market-linking and service design capabilities (indirect effect = 0.41,  $p < 0.001$ ; 0.33,  $p < 0.001$ , respectively). However, protectability does not mediate founding team marketing capabilities. In addition to the indirect (mediated) effect, founding team marketing capabilities and market-linking capabilities exert direct effects on performance (0.97,  $p < 0.01$ ; 0.65,  $p < 0.05$ , respectively). Therefore, scalability partially mediates founding team marketing capability. Scalability and protectability together partially mediate market-linking capability and fully mediate service design capabilities.

Among the control variables, founding team start-up experience affects performance through scalability (indirect effect = 0.23,  $p < 0.01$ ), protectability (indirect effect = 0.10,  $p < 0.05$ ), and directly (direct effect = 1.45,  $p < 0.001$ ). Founding team size affects performance through protectability (indirect effect = 0.40,  $p < 0.01$ ), and market growth affects performance through scalability (indirect effect = -0.09,  $p < 0.01$ ).

Discussion

This study integrates literature in management, entrepreneurship, and marketing. We develop and test a mediating model that links founding team human capital—



Table 3

## Indirect and Direct Effects on Performance

Variable	Indirect effect through			Total
	Scalability	Protectability	Direct	
Marketing capability (MKT)	0.49***	n.a.	0.97**	1.46
Market-linking capability (MLINK)	0.15**	0.41***	0.65*	1.21
Design capability (DESI)	0.47***	0.33***	n.a.	0.80
Prior start-up experience (EXST)	0.23**	0.10*	1.45***	1.78
Team size (TEAMS)	n.a.	0.40**	n.a.	0.40
Market growth (GROW)	-0.09**	n.a.	n.a.	-0.09
Scalability (SCAL)	n.a.	n.a.	1.51***	1.51
Protectability (PROT)	n.a.	n.a.	1.07***	1.07

Note: \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ , one-tail test.

conceptualized as three types of founding team capabilities—to new venture performance, where strategic positional advantages—conceptualized as scalability and protectability—serve as the mediators. Although the data do not allow us to directly test strategic positional advantages in terms of cost leadership and differentiated position, our results show that ventures with higher degrees of scalability and protectability outperform their peers. Results in Table 2 show that every unit increase in scalability and protectability leads to \$1.51 and \$1.07 million increases in average first 3-year gross profit, respectively. Our results offer important theoretical and managerial implications.

First, scholars have argued that venture outcomes are determined by entrepreneurs who recognize opportunities, assemble resources, and develop strategies to deploy resources to exploit opportunities (Chrisman et al., 1998). Human capital is the important source for strategic action (Edelman et al., 2005) that describes the firm's strategic position. Many studies in strategic leadership and entrepreneurship have argued for this logic and suggested, both theoretically and empirically, that organizational strategies mediate the relationship of entrepreneur human resources with organization outcomes (Armstrong & Shimzu, 2007; Baum et al., 2001; Certo et al., 2006; Newbert et al., 2007; Shrader & Siegel, 2007; Wright et al., 2007). Kraaijenbrink et al. (2010) suggest, "Future theorizing would also benefit from explicitly distinguishing between building and acquiring (resources) on one hand and the managerial process of deploying that (resource) on the other hand" (p. 361). Newbert (2007) echoes this same call. This study conceptualizes two important positional advantages that a new venture can strategically create to potentially achieve scale economy and cost leadership. We further link human resources to strategic positional advantages and performance, offering insight into the "black box" that converts a venture's human capital into venture performance.

Second, previous studies have argued that the relationship between human capital and firm outcome depends on performance measures (Kraaijenbrink et al., 2010) and the conceptualization of human capital (Unger et al., 2011). The relationship is stronger for human capital outcomes (e.g., knowledge and skills) than for human capital investments

(e.g., experience). It is stronger for task-related human capital. This study measures human capital by both investment and outcome, and we conceptualize human capital along three important task areas. Our results suggest that human resources encompass investments and task-related outcomes, we show how each type is linked to performance directly or through strategic actions.

Third, marketing and management literature suggests that marketing-related capabilities are the core resources for businesses to deliver competitive advantages (Srivastava et al., 2001) and are important factors that affect firm survival (Parasuraman et al., 1983). Yet, entrepreneurship literature has been largely silent on the subject. Our study fills the literature gap. Our results show that founding team marketing and market-linking capabilities are important resources affecting new venture performance (total effect for marketing and market linking =  $1.21 + 1.46 = 2.67$ ).

Surprisingly, neither founding team marketing capabilities nor marketing experience appears to relate to the development of protectable services, at least in the early years of service venture existence. There are at least three possible explanations for this counter-intuitive result: (1) sufficient time has not passed for promotional efforts to have familiarized the customer with a venture's distinct benefits; (2) early-stage ventures do not have adequate resources to devote to the sometimes expensive endeavor of deep customer education; or (3) possibly the effect is quite different—it may be that a higher degree of marketing capability on the founding team detracts from developing innovative technologies (i.e., the venture focuses on promoting the brand rather than focusing on developing a truly differentiated service).

Probably the most surprising result is the negative relationship between market growth and scalability ( $-0.06, p < 0.05$ ). This shows that market growth conditions could be “fooling” new venture management teams into mistakenly not pursuing scalability. The path coefficient of scalability to performance indicates that every unit increase in scalability leads to a \$1.51 million increase in average annual gross profit. Yet, this analysis shows that the stronger the market is growing, the less likely a new venture management team is to pursue scalability. This could be because the management team believes that scalability is not necessary to achieve venture growth in markets that are growing (i.e., management attempts to “grow with the market”). This analysis shows that neglecting scalability leaves money on the table and may strategically impair the venture's growth for years into the future due to the path dependency effect (Eisenhardt & Schoonhoven, 1990).

Our findings confirm that founding team capabilities are important factors affecting new venture performance. However, a new venture with a very capable founding team has to make conscious efforts to create competitive strategic positional advantages in the deployment of technology and equipment, the development of barriers to imitation, and the integration of complex assets into the service delivery process, because capabilities affect new venture performance through the founding team's decisions to build positional advantages. In assembling a founding team for a new venture, entrepreneurs need to ensure that their teams have the appropriate mix of marketing, market linking, and service design capabilities. In addition, entrepreneurs, as well as investors, should carefully consider the capability mix of the founding team they select and pay attention to which team member is assigned to which tasks. Market-linking and service design capabilities are critical for new service ventures to build scalability and protectability. Marketing capabilities have no impact on new ventures' efforts to create protectability but are very important for new ventures' efforts to create scalability and financial performance. Deploying the correct team member to the correct task, based on capability, is essential.

## Study Limitations and Future Research

This study conceptualizes human resources according to important functional areas for new service start-ups. Although results provide strong support for the construct scales, future studies should explore additional dimensions and investigate how the constructs and scales can be generalized to other industries and cultural contexts.

In addition, data on founding team capabilities and positional advantages are collected from single respondents. New ventures' founding team sizes are usually very small (the average team size is 2.36 in our sample; approximately 15% were started by one founder). Founding team members are the only ones who are involved in the ventures at the early stages and can provide reliable information about the founding team and the venture. It is very difficult to have more than one informant to answer survey questions. However, if it is possible, future research should collect data from multiple resources.

We also call for future research to investigate the configuration of human resources and strategic positions, as resources rarely exist independently. Positional advantages in scalability and protectability are not mutually exclusive. In fact, the achieved levels of these two should be heterogeneous, since they are a result of a management team's decisions to build either or both. Future analysis of the contribution of either one, or different levels of the two, to venture performance may provide insightful guidance about how a new venture should assemble its founding team.

Finally, the definition of "service company" used in this study is quite broad and includes companies such as wholesalers. This definition may be inconsistent with other narrower definitions of "services companies." Future studies with both narrower and broader definitions could help to validate our results. We also did not directly measure economies of scales and differentiated positions of service offerings. This should be explored in future research.

## Appendix A: Research Variables and Study Measures

*Notes:* The statements were in random order in the survey. The construct names and variable labels were not part of the survey.

### I. First Three-Year Average Annual Gross Profit (GPF; in \$1 million)

=Average Gross Profit Margin \* Average Sales:

where:

Average Gross Margin (in %) = (first year gross margin + second year gross margin + third year gross margin)/3;

Average Sales = (first year sales + second year sales + third year sales)/3.

### II. Service Characteristics

*Listed below are some statements which may be related to your company. For each statement, please show the extent to which you believe your company has the feature described by the statement. Please indicate your degree of agreement or disagreement by circling a number from one (1) to seven (7) on the scale to the right of each statement. Here: 1 = strongly disagree that your company has that feature, 7 = strongly agree that your company has that feature. You may circle any of the numbers in the middle that show your degree of agreement or disagreement. There are no right or wrong answers. All we are interested in is a number that best shows your perceptions.*

---

	<b>Scalability (SCAL)</b> (new items developed from Bharadwaj, Varadarajan, and Fahy (1993); Cronbach's alpha = 0.71)
SCAL1	Related to other services in our industry, opportunities for exploring scalability of our services are great.
SCAL2	Related to other services in our industry, our services are more equipment-based service than people-based service.
SCAL3	We can easily achieve economies of scale by centralizing our service production facilities.
SCAL4	Related to other services in our industry, our services are more technology-based service than people-based service.
	<b>Protectability</b> (new items developed from Bharadwaj, Varadarajan, and Fahy (1993); Cronbach's alpha = 0.86)
PROT1	The technologies incorporated in our services cannot be easily "invented around" without violation of patents or/and copyrights.
PROT2	The knowledge embedded in our services is very difficult to copy.
PROT3	To successfully bring our services to market, it requires a firm to possess complex and multiple co-specialized assets.
PROT4	Our services incorporate proprietary technologies that are protected by patents, copyrights, or/and trade secrecy.

---

### III. New Venture Founding Team's Capability

*A new venture founding team is the group of founders and key employees who move a new venture from an idea to a fully functioning firm. The founding team often owns the majority of the equity of the new venture.*

*In this section, we are interested in understanding the capabilities of the initial new venture founding team. Listed below are some possible capabilities. For each capability, please indicate the extent to which you believe the founding team processes the specific capability: 1 = strongly disagree that the founding team possesses the capability; 7 = strongly agree that the founding team possesses the capability. There are no right or wrong answers. All we are interested in is a number that best shows your perceptions.*

---

	<b>Marketing Capability (MKT)</b> (adapted from DeSarbo, Di Benedetto, Song, and Sinha, 2005); Cronbach's alpha = 0.89
MKT1	Our founding team had adequate advertising skills and resources to support the commercialization of our services.
MKT2	Our founding team had adequate promotional skills and resources to support the commercialization of our services.
MKT3	Our founding team had prior sales experience in similar industries.
MKT4	Our founding team had prior marketing experience in similar industries.
	<b>Market-Linking Capability (MLINK)</b> (adapted from DeSarbo, Di Benedetto, Song, and Sinha, 2005); Cronbach's alpha = 0.87
MLINK1	Our founding team had excellent customer-linking capabilities (i.e., creating and managing durable customer relationships).
MLINK2	Our founding team had prior customer service and retention experience in similar industries.
MLINK3	Our founding team had excellent capabilities for creating durable relationships with channel members who provide our services to customers.
	<b>Design Capability (DESI)</b> (adapted from DeSarbo, Di Benedetto, Song, and Sinha, 2005); Cronbach's alpha = 0.85
DESI 1	Our founding team had prior new service development experience in similar industries.
DESI2	Our founding team had excellent ability of predicting technological changes in the industry.
DESI3	Our founding team had excellent technology development capability.
DESI4	Our founding team had excellent quality control skills.

---

## IV. Controls

---

**Market Growth (GROWTH);** Cronbach's alpha = 0.85

1. Sales growth in this industry is high.
2. There are a lot of opportunities in this industry.
3. The market is growing at a very high pace.
4. The demand for products in this industry increases rapidly.

**Market Turbulence (MATU)** (adapted from Jaworski and Kohli, 1993); Cronbach's alpha = 0.89

1. In our kind of business, customers' product preferences change quite a bit over time.
2. Our customers tend to look for new products all the time.
3. We are witnessing demand for our products and services from customers who never bought them before.
4. New customers tend to have product-related needs that are different from those of our existing customers.
5. It is very difficult to predict any changes in this marketplace.

**Size of founding team (TEAMS)** (adapted from Eisenhardt and Schoonhoven, 1990)

Number of founding team members.

**Prior start-up experience (EXST)** (adapted from Marino and DeNoble, 1997; McGee and Dowling, 1994). Combined number of years that the members of the founding management team in previous start-up situations.

**Prior industry experience (EXIND)** (adapted from Marino and DeNoble, 1997; McGee and Dowling, 1994)

Combined number of years that the members of the founding management team spent in previous positions that were in similar industries or markets.

**Prior marketing experience (EXMKT)** (adapted from McGee et al., 1995; Marino and DeNoble, 1997)

Combined number of years that the members of the founding management team spent in previous positions that were in marketing.

**Prior service design experience (EXSD)** (adapted from McGee et al., 1995; Marino and DeNoble, 1997)

Combined number of years that the members of the founding management team spent in previous positions that were in service design

---

## REFERENCES

- Aldrich, H. & Zimmer, C. (1986). *Entrepreneurship through social networks*. Cambridge, MA: Ballinger Publishing Company.
- Ancona, D.G. & Caldwell, D.F. (1992). Demography and design: Predictors of new product team performance. *Organization Science*, 3(3), 634–665.
- Armstrong, C.E. & Shimzu, K. (2007). A review of approaches to empirical research on the resource based view of the firm. *Journal of Management*, 33(6), 959–986.
- Armstrong, J.S. & Overton, T.S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, XIV(August), 390–402.
- Barney, J.B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17, 99–120.
- Baron, R.M. & Kenny, D.A. (1986). The moderator–mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182.
- Baum, J.A., Calabrese, T., & Silverman, B.S. (2000). Don't go it alone: Alliance network composition & startups. *Strategic Management Journal*, 21(3), 267–299.
- Baum, J.R., Locke, E.A., & Smith, K.G. (2001). A multidimensional model of venture growth. *Academy of Management Journal*, 44(2), 292–303.
- Benton, W.C. & Maloni, M. (2005). The influence of power driven buyer/seller relationships on supply chain satisfaction. *Journal of Operations Management*, 23(1), 1–22.
- Berry, L.L. (1995). Relationship marketing of services—growing interest, emerging perspectives. *Journal of the Academy of Marketing Science*, 23(4), 236–245.

- Berry, L.L., Seiders, K., & Grewal, D. (2002). Understanding service convenience. *Journal of Marketing*, 66(3), 1–17.
- Bharadwaj, S.G., Varadarajan, P.R., & Fahy, J. (1993). Sustainable competitive advantage in service industries: A conceptual model and research propositions. *Journal of Marketing*, 57(4), 83–99.
- Boeker, W. (1989). Strategic change: The effect of founding and history. *Academy of Management Journal*, 32(3), 489–515.
- Brentani, U. (2001). Innovative versus incremental new business services: Different keys for achieving success. *Journal of Product Innovation Management*, 18(3), 169–187.
- Brown, T.A. (2006). *Confirmatory factor analysis for applied research (methodology in the social sciences)*. New York: The Guilford Press.
- Certo, S.T., Lester, R.H., Dalton, C.M., & Dalton, D.R. (2006). Top management teams, strategy and financial performance: A meta-analytic examination. *Journal of Management Studies*, 43(4), 813–849.
- Chandler, G.N. & Hanks, S.H. (1994). Market attractiveness, resource-based capabilities, venture strategies, and venture performance. *Journal of Business Venturing*, 9(4), 331–349.
- Chen, I.J., Paulraj, A., & Lado, A.A. (2004). Strategic purchasing, supply management, and firm performance. *Journal of Operations Management*, 22(5), 505–523.
- Chrisman, J.J., Bauerschmidt, A., & Hofer, C.W. (1998). The determinants of new venture performance: An extended model. *Entrepreneurship Theory and Practice*, 23(1), 5–25.
- Cooper, A.C., Gimeno-Gascon, F.J., & Woo, C.Y. (1994). Initial human and financial capital as predictors of new venture performances. *Journal of Business Venturing*, 9, 371–395.
- Cooper, R.G. (1979). The dimensions of industrial new product success and failure. *Journal of Marketing*, 43, 93–103.
- Cooper, R.G. & Bruno, A.V. (1977). Success among high technology firms. *Business Horizons*, 20, 16–22.
- Crook, T.R., Ketchen, D.J., Combs, J.G., & Todd, S.Y. (2008). Strategic resources and performance: A meta-analysis. *Strategic Management Journal*, 29(11), 1141–1154.
- Day, G. & Nedungadi, P. (1994). Managerial representations of competitive advantage. *Journal of Marketing*, 58, 31–44.
- Day, G.S. (1994). The capabilities of market-driven organizations. *Journal of Marketing*, 58(4), 37–52.
- Day, G.S. & Wensley, R. (1988). Assessing advantage: A framework for diagnosing competitive superiority. *Journal of Marketing*, 58(April), 31–44.
- Delmar, F. & Shane, S. (2006). Does experience matter? The effect of founding team experience on the survival and sales of newly founded ventures. *Strategic Organization*, 4, 215–247.
- DeSarbo, W.S., Di Benedetto, C.A., Jedidi, K., & Song, M. (2006). A constrained latent structure multivariate regression methodology for empirically deriving strategic types. *Management Science*, 52(6), 909–924.
- DeSarbo, W.S., Di Benedetto, C.A., & Song, M. (2007). A heterogeneous resource based view for exploring relationships between firm performance and capabilities. *Journal of Modeling in Marketing*, 2(2), 103–130.
- DeSarbo, W.S., Di Benedetto, C.A., Song, M., & Sinha, I. (2005). Revisiting the Miles and Snow strategic framework: Uncovering relationships between strategic types, capabilities, environmental uncertainty, and firm performance. *Strategic Management Journal*, 26(1), 47–74.

- Dierickx, I. & Cool, K. (1989). Asset stock accumulation and sustainability of competitive advantage. *Management Science*, 35(12), 1504–1511.
- Dillman, D.A. (1978). *Mail and telephone surveys: The total design method*. Hoboken, NJ: John Wiley and Sons.
- Drucker, P. (1985). *Innovation and entrepreneurship*. New York: Harper Collins.
- Edelman, L.F., Brush, C.G., & Manolova, T. (2005). Co-alignment in the resource-performance relationship: Strategy as mediator. *Journal of Business Venturing*, 20(3), 359–383.
- Eisenhardt, K.M. & Schoonhoven, C.B. (1990). Organizational growth: Linking founding team, strategy, environment, and growth among U.S. semiconductor ventures, 1978–1988. *Administrative Science Quarterly*, 35, 504–529.
- Fornell, C. & Larcker, D.F. (1981). Evaluating structured equation models, with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 64–73.
- Gerbing, D.W. & Anderson, J.C. (1988). Structured equation modeling in practice: A review and recommended two step approach. *Psychological Bulletin*, 103(3), 411–423.
- Gersick, C.J.G. (1989). Marking time: Predictable transitions in task groups. *Academy of Management Journal*, 32(2), 274–302.
- Gronroos, C. (1995). Relationship marketing: The strategy continuum. *Journal of the Academy of Marketing Science*, 23(4), 252–254.
- Herron, L. & Robinson, R.B. (1993). A structural model of the effects of entrepreneurial characteristics on venture performance. *Journal of Business Venturing*, 8(3), 281–294.
- Hipp, C. & Grupp, H. (2005). Innovation in the service sector: The demand for service specific innovation measurement concepts and typologies. *Research Policy*, 34, 517–535.
- Hu, L. & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1–55.
- Jana, R. (2007). Service innovation: The next big thing. *Business Week*, March 29.
- Jong, J.D.P. & Vermeulen, A. (2003). Organizing successful new service development: A literature review. *Management Decision*, 41(9), 844–858.
- Joreskog, K.G. & Sorbom, D. (1988). *LISREL 7: A guide to the program and applications*. Chicago, Ill: SPSS.
- Kamm, J.B., Shuman, J.C., Seeger, J.A., & Nurick, A.J. (1990). Entrepreneurial teams in new venture creation: A research agenda. *Entrepreneurship Theory and Practice*, 14, 7–15.
- Kotler, P., Rackham, N., & Krishnaswamy, S. (2006). Ending the war between sales and marketing. *Harvard Business Review*, 87(7–8), 68–78.
- Kraaijenbrink, J., Spender, J.C., & Groen, A.J. (2010). The resource-based view: A review and assessment of its critiques. *Journal of Management*, 36(1), 349–372.
- Lam, S.Y., Shankar, V., Erramilli, M.K., & Murthy, B. (2004). Customer value, satisfaction, loyalty, and switching costs: An illustration from a business-to-business service context. *Journal of the Academy of Marketing Science*, 32(3), 293–311.
- Lippman, S. & Rumelt, R. (1982). Uncertain imitability: An analysis of interfirm differences in efficiency under competition. *Bell Journal of Economics*, 13, 418–438.
- Lusch, R.F., Vargo, S.L., & O'Brien, M. (2007). Competing through service: Insights from service-dominant logic. *Journal of Retailing*, 83(1), 5–18.

- Marion, K.E. & DeNoble, A.F. (1997). Growth and early returns in technology-based ventures. *Journal of High Technology Management Research*, 8(20), 225–242.
- Martin, N.L. & Mykytyn, P.P. (2009). Evaluating the financial performance of business method patent owners. *Information Systems Management*, 26, 285–301.
- McDougal, P.P., Daouza, D.E., & Hoy, F. (1992). *The state of the art of entrepreneurship*. Boston: PWS-Kent.
- McGee, J.E. & Dowling, M.J. (1994). Using R&D cooperative managements to leverage managerial experience: A study of technology-intensive ventures. *Journal of Business Venturing*, 9(1), 33–48.
- McGee, J.E., Dowling, M.E., & Megginson, W.L. (1995). Cooperative strategy and new venture performance: The role of business strategy and management experience. *Strategic Management Journal*, 16(7), 565–580.
- McKinnon, D.P., Fairchild, A.J., & Fritz, M.S. (2007). Mediation analysis. *Annual Review of Psychology*, 58, 593–614.
- Metters, R. & Marucheck, A. (2007). Service management—academic issues and scholarly reflections from operations management researchers. *Decision Sciences*, 38(2), 195–214.
- Moorman, C. & Slotegraaf, R.J. (1999). The contingency value of complementary capabilities in product development. *Journal of Marketing Research*, 36(2), 239–257.
- Mosey, S. & Wright, M. (2007). From human capital to social capital: A longitudinal study of technology based academic entrepreneurs. *Entrepreneurship Theory and Practice*, 31, 909–936.
- Murray, A.I. (1989). Top management group heterogeneity and firm performance. *Strategic Management Journal*, 10, 125–141.
- 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.
- Newbert, S.L., Kirchoff, B.A., & Walsh, S.T. (2007). Defining the relationship among founding resources, strategies, and performance in technology-intensive new ventures: Evidence from the semiconductor silicon industry. *Journal of Small Business Management*, 45(4), 438–466.
- Packalen, K.A. (2007). Complementing capital: The role of status, demographic features, and social capital in founding teams' abilities to obtain resources. *Entrepreneurship Theory and Practice*, 31(6), 873–891.
- Parasuraman, A.A., Berry, L.L., & Zeithaml, V.A. (1983). Service firms need marketing skills. *Business Horizons*, 26(6), 28–31.
- Petersen, K.J., Handfield, R.B., & Ragatz, G.L. (2005). Supplier integration into new product development: Coordinating product, process, and supply chain design. *Journal of Operations Management*, 23(3–4), 371–388.
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y., & Podsakoff, N.P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903.
- Podsakoff, P.M. & Organ, D.W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12(4), 531–544.
- Porter, M.E. (1990). *Competitive advantage of nations*. New York: Simon and Schuster.
- Porter, M.E. (2001). Strategy and the Internet. *Harvard Business Review*, 79(3), 62–78.
- Prahinski, C. & Benton, W.C. (2004). Supplier evaluations: Communication strategies to improve supplier performance. *Journal of Operations Management*, 22(1), 39–62.



- Priem, R.L. & Butler, J.E. (2001). Is the resource based “view” a useful perspective for strategic management research? *Academy of Management Review*, 26(1), 22–40.
- Quinn, J.B. & Gagnon, C.E. (1986). Will services follow manufacturing into decline? *Harvard Business Review*, 64(6), 95–103.
- Rayport, J.F. & Sviolka, J.J. (1994). Managing in the marketspace. *Harvard Business Review*, 72, 141–144.
- Read, S., Dew, N., Sarasvathy, S., Song, M., & Wiltbank, R. (2009). Marketing under uncertainty: The logic of an effectual approach. *Journal of Marketing*, 73(3), 1–18.
- Reichheld, F.R. & Sasser, W.E. (1990). Zero defections: Quality comes to customer service. *Harvard Business Review*, 3(4), 106.
- Rivkin, J.W. (2000). Imitation of complex strategies. *Management Science*, 46(6), 824–844.
- Shane, S. & Cable, D. (2002). Network ties, reputation, and the financing of new ventures. *Management Science*, 48(3), 364–381.
- Shane, S. & Stuart, T. (2002). Organizational endowments and the performance of university start-ups. *Management Science*, 48(1), 154–170.
- Sheth, J.M. & Parvatiyar, A. (1995). Relationship marketing in consumer markets: Antecedents and consequences. *Journal of the Academy of Marketing Science*, 23(4), 255–271.
- Shrader, R. & Siegel, D.S. (2007). Assessing the relationship between human capital and firm performance: Evidence from technology-based new ventures. *Entrepreneurship Theory and Practice*, 31(6), 893–908.
- Shrout, P.E. & Bolger, N. (2002). Mediation in experimental and non-experimental studies: New procedures and recommendations. *Psychological Methods*, 7, 422–445.
- Song, L., Di Benedetto, C.A., & Song, M. (2008). *Sustainable competitive advantage in the first product of new ventures*. Working paper. Kansas, MO: University of Missouri.
- Song, M., Di Benedetto, A., & Nason, R.W. (2007). Capabilities and financial performance: The moderating effect of strategic type. *Journal of Academy Marketing Science*, 35, 18–34.
- Song, M. & Di Benedetto, C.A. (2008). Supplier’s involvement and success of radical new product development in new ventures. *Journal of Operations Management*, 26(1), 1–22.
- Song, M., Podoyntsyna, K., Van der Bij, H., & Halman, J.H.I. (2008). Success factors in new ventures: A meta-analysis. *Journal of Product Innovation Management*, 25(1), 7–27.
- Sparrowe, R.T., Liden, R.C., Wayne, S.J., & Kraimer, M.L. (2001). Social networks and the performance of individuals and groups. *Academy of Management Journal*, 44(2), 316–325.
- Spohrer, J., Maglio, P.P., Bailey, J., & Gruhl, D. (2007). Steps toward a science of service systems. *IEEE Computer Society*, 40, 71–77.
- Srivastava, R.K., Fahey, L., & Christensen, H.K. (2001). The resource based view and marketing: The role of market based assets in gaining competitive advantage. *Journal of Management*, 27(6), 777–802.
- Unger, J.M., Rauch, A., Frese, M., & Rosenbusch, N. (2011). Human capital and entrepreneurial success: A meta-analytical review. *Journal of Business Venturing*, 26(3), 341–358.
- Upah, G.D. (1980). Mass marketing in service re-tailing: A review and synthesis of major methods. *Journal of Retailing*, 56, 59–76.

- Vargo, S.L. & Lusch, R.F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing*, 68(1), 1–17.
- Verona, G. (1999). A resource-based view of product development. *Academy of Management Review*, 24(1), 132–142.
- Weerawardena, J. (2003). The role of marketing capability in innovation-based competitive strategy. *Journal of Strategic Marketing*, 11, 15–35.
- Weitz, B.A. & Jap, S.A. (1995). Relationship marketing and distribution channels. *Journal of the Academy of Marketing Science*, 23(4), 305–320.
- West, G.P. (2007). Collective cognition: When entrepreneurial teams, not individual, make decisions. *Entrepreneurship Theory and Practice*, 31(1), 77–102.
- Wright, M., Hmieleski, K.M., Siegel, D.S., & Ensley, M.D. (2007). The role of human capital in technological entrepreneurship. *Entrepreneurship Theory & Practice*, 31(6), 791–806.
- Zucker, L.G. (1987). Institutional theories of organization. *Annual Review of Sociology*, 13, 443–460.
- 

Y. Lisa Zhao is an Assistant Professor of Entrepreneurship and Innovation at the Henry W. Bloch School of Management at University of Missouri-Kansas City, Kansas City, MO.

Michael Song holds the Charles N. Kimball, MRI/Missouri Endowed Chair in Management of Technology and Innovation and is Professor of Marketing at the Henry W. Bloch School of Management at University of Missouri-Kansas City, Kansas City, MO.

Gregory L. Storm is a Ph.D. candidate in Entrepreneurship and Innovation at the Henry W. Bloch School of Management at University of Missouri-Kansas City, Kansas City, MO.