

Apparel Retail Suppliers:
Entrepreneurial Manufacturers' Acquisition of Knowledge in the U.S. Supply Chain

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Abstract

The aim was to investigate current strategic alignment among U.S. apparel manufacturers addressing preparedness for two projected supply chain transformations in revitalizing this industry sector. The first emphasized relationship building for firm growth thus examined were supply chain bridging and manufacturers' entrepreneurial drive. The second stressed instituting closer proximities which was assessed as geographic and social proximity. Variables were examined for their ability to explain industry knowledge acquisition as strategic management. Data were collected via an online survey and linear multiple regression results signified entrepreneurial U.S. manufacturers' strategies embraced supply chain collaborations and proximity to users along the supply chain.

Key Word: supply chain management, apparel manufacturers, knowledge, bridging social capital, proximity

Introduction

Strategic alignment is considered necessary for firms operating in rapidly changing markets and contributes to a firm's agile responsiveness under uncertain and complex business environments (McAdam & Brown, 2001; Sun, Hsu, & Hwang, 2009). Recent predictions for the apparel and textile industry indicate that the pandemic will contribute to major transformations in the global supply chain. The Euromonitor International, an established market research company with a base in over eighty countries, has offered two specific supply side predictions for the apparel industry that include deeper and stronger relationships between buyers and suppliers, and closer proximity in supply chains accelerating the reshoring of production (Budding & Martin, 2021). This study investigates the plausibility of both predictions by examining small sized U.S. apparel and sewn products manufacturers and the effects of supply chain relationships as well as social and geographic proximity to users, including retailers and consumers. Alignment is said to magnify supply chain strengthens by way of relationships among independent parties that are mutually beneficial (McAdam & Brown, 2001). We attempt to gain a greater understanding of U.S. manufacturers' entrepreneurial drive, bridging relationships, and perceptions of proximity to other supply chain members as potential antecedents to acquisition of industry knowledge for advancing success. Garnering an understanding of existing U.S. apparel supply chain will contribute to strategic alignment in efforts to reshore apparel manufacturing for increased efficiency and sustainability meeting U.S. apparel retailers' demand for more frequent, smaller orders (Budding & Martin, 2021).

Literature and Hypotheses

The U.S. apparel manufacturing sector is characterized by intense competition necessitating firms to develop processes that support maintenance of competitive advantage as retail suppliers. To address the first prediction by the Euromonitor International, the work is framed by social capital theory and also by the resource-based view (RBV) of the firm perspective. Social capital theory posits that forms of collaboration expediate the firm's success in particularly competitive sectors such as apparel manufacturing (Uzzi, 1996). Bridging ties are considered conduits for information and resource sharing

with otherwise unassociated outsiders (Burt, 1992; Granovetter, 1985; Putnam, 1995; Tsai & Ghoshal, 1998). We know little about the current state of U.S. apparel manufacturers in terms of the type and level of collaboration existing along this sector's supply chain. The resource-based view (RBV) of the firm holds that managers seek and distribute resources such as knowledge, to accomplish goals in overcoming or adapting to environmental uncertainties (Bitowska, 2020; Lis & Sudolska, 2017). External knowledge resources are likely to hold stronger influences than internal resources (Ford & Mouzas, 2013). Zahra and George (2002) defined knowledge acquisition as the firm processes dedicated to procuring new know-how. Strategic efforts to acquire knowledge are predicted in this study to include the firm's commitment to building bridging ties along the supply chain and entrepreneurial drive. Entrepreneurial drive assesses the firm's sustained efforts to take risks, continue growth, produce innovative products, and emphasize technology. This definition includes aspects of Zbierowski's (2020) work regarding entrepreneurial orientation. We additionally included proximity, both geographic and social, in the analysis. Boschma (2005) suggested proximity reduced uncertainty, solved problems associated with coordination, and facilitated innovation. The following hypotheses guide this study's scope of investigation.

H1. As the manufacturer's bridging supply chain relationships increases, so will their efforts to acquire business knowledge.

H2. As the manufacturer's entrepreneurial drive increases, so will their efforts to acquire business knowledge.

H3. As the manufacturer's efforts to achieve proximity, so will their efforts to acquire business knowledge.

Methods

Analyses involved development of four scales for gathering quantitative data via an online survey. The scales were developed or modified from scholars' work cited previously in defining this study's variables along with work by Teece (1992), Yli-Renko, Autio, and Sapienza (2001), and Stam and Elfring (2008). For each scale a mean score was created by summing the mean score for each 7-point Likert-type item that was phrased to elicit a level of either perceived importance or level of agreement with '1' low and '7'

Table 1: Indices for Supply Chain Industry Variables

	Mean	Standard deviation	Component factor statistic
Bridging Supply Chain Factors	4.795	1.15	
Cronbach's alpha = .810, variance explained 29.59%			Factor 1
1. Strategic collaboration across firms reduces duplication and unproductive...	4.61	1.454	0.721
2. Working with others in the industry to obtain market knowledge	5.56	1.313	0.696
3. Strong business relations...obtain technical knowledge from suppliers	4.8	1.464	0.869
4. Gain technology from industry relationships	4.15	1.568	0.835
Acquiring Firm Knowledge Factors	5.454	0.849	
Cronbach's alpha = .729, variance explained 14.51%			Factor 2
1. Internal sources of knowledge	5.68	0.946	0.656
2. Outside sources of knowledge	5.45	0.985	0.694
3. Acquiring new knowledge	5.57	0.98	0.805
4. R&D in the firm	5.02		0.714
Entrepreneurial Drive Factors	5.281	0.842	
Cronbach's alpha = .710, variance explained 10.449%			Factor 3
1. Willing to take risks to advance business	5.8	1.105	0.557
2. Strong desire to keep business growing	6.3	0.925	0.436
3. Offering cutting-edge products	5.1	1.502	0.716
4. Competitive advantage is technology	4.37	1.629	0.659
5. Glue to organization is emphasis on being first	4.29	1.577	0.807
Proximity Factors	4.122	1.343	
Cronbach's alpha = .766, variance explained 8.143%			Factor 4
1. Geographic proximity to users and manufacturers	3.61	1.761	0.843
2. Social proximity to users and manufacturers	3.75	1.747	0.883
3. Reciprocity among contacts	4.7	1.407	0.665

high (See Table 1). The Cronbach's alpha levels, provided in Table 1, suggest adequate reliability (Nunnally & Bernstein, 1994). Before operationalizing the variables, a factor analysis was carried out to examine the construct validity of the instrument. We followed the procedure outlined in Tabachnik and Fidell (2007) and used principal component analysis specifying varimax rotation with Kaiser Normalization resulting in a four-factor solution (See Table 1). The total variance explained was 62.69% which exceeds the Hinkin (1995) threshold of 60%. For the 16 items in the instrument, the factorability of the

data was confirmed by the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy at 0.736, thus exceeded the threshold of 0.50 (Kaiser & Rice, 1974). Bartlett's test of sphericity was significant (chi-square = 465.42, df = 120, $p < .001$).

The sampling plan involved two phases of data gathering in 2019. First, a state sample involved respondents who had attended an annual, statewide meeting of apparel manufacturers, and were likely closer in proximity. Second, a national sample was derived from a list of firms who had registered as apparel manufacturers operating under the U.S. NAICS code 315 (U.S. Bureau of Labor Statistics, 2020). As the first sample involved smaller-sized business, we limited the second sample to small firms

employing fewer than 250 people. Responses from smaller-sized manufacturers were thought to also provide insights from new business startups and those located in a wider array of U.S. geographic areas. The second sample provided responses from manufacturers distributed across the U.S. and thus held further distances or proximity in terms of location than the first sample. The two samples allowed for inclusion of firms that were likely geographically close in proximity and those that were geographically dispersed. We did identify significant demographic differences at the state and national level in that the state sample held the following; more female participants; younger mean age; and considered their prior knowledge and level of expertise higher. As there were no significant differences for the four key variables involved in this investigation, we incorporated a control variable 'location' in the statistical analyses and examined a combined sample for a total of 125 valid responses (77 national and 48 state). Using the Dillman, Smyth, and Christian (2009) method our response rate was 4.96% and is a recognized limitation for generalizing the results to a larger population. However, these single key informants were considered the most knowledgeable individuals within the firm providing an understanding of small sized U.S. apparel and sewn product manufacturers operating upstream in the retail supply chain. Non-response bias was examined using independent t-tests for the antecedent and dependent variables with no significant difference between early or late survey respondents (Armstrong & Overton, 1977). In sum, participants self-identified themselves as entrepreneurs (91.8%), 52% were male and 48% female, the mean age was 53 years, 47.7% achieved a college degree, and 72% held manufacturing knowledge prior to launching their business. Characteristics of the firm included 1 to 127 years in existence with a mean of 23 years, 92.8% in either the growth or mature lifecycle stage, and with less than 10 employees.

Results

A comparison of the individual items that compose the indices reveals the firms' strong entrepreneurial drive to take risks and to keep the business growing. The variable with the strongest mean score involved the firms' efforts to acquire knowledge (in Table 1). Results from linear multiple regression analyses using stepwise entry support all three hypothesized relationships in that, after controlling for location in step one, H2 entrepreneurial drive (adj. $R^2 = .122$), H3 proximity (adj. $R^2 = .072$), and H1 industry

bridging (adj. $R^2 = .047$) each significantly contributed to manufacturers' efforts to acquire business

Table 2: Predictors of Acquiring Firm Knowledge

	Model
Step 1 Location 1=State 0=National	-0.152 (-1.523)
Step 2 Entrepreneurial Drive	0.281 (2.807)**
Proximity	0.257 (2.657)**
Industry Bridging	0.231 (2.249)*
F-Statistic	7.867 **
Adjusted R^2	0.253
Durbin-Watson	2.201

Note: Linear Multiple Regression, stepwise entry

Beta (t value), * $p < 0.05$; ** $p < 0.01$, $N=82$

knowledge (see Table 2). These findings suggest support for social capital's bridging and the RBV perspective. The strong presence of entrepreneurial drive in meeting the firms' efforts to acquire knowledge, alongside bridging and proximity to users, suggests the entrepreneurial manufacturers' recognized importance of relationship building as strategy.

Conclusions

Relative to study's objectives in addressing the two predictions for advancing the apparel industry in the transformation of the global supply chain, we found support for current participation in relationship building along the supply chain to enhance firm related knowledge, and the recognized importance of closer geographic and social proximities for advancing firm knowledge. Several strategic steps to alignment among U.S. apparel manufacturers appear to be a recognized as potential solutions for addressing marketplace uncertainty and complexity in meeting upstream and downstream supply chain needs. Findings suggest small-sized apparel manufacturers are often entrepreneurial, recognize the value of bridging, and are pursuing proximity to other firms along the supply chain. These findings hold applications for strategically advancing reshoring of U.S. apparel manufacturing. Avenues for further inquiry include continued study of specific types of knowledge sought, and examples of collaborative efforts among users such as suppliers and retailers. Additionally, proximity distances could be examined for neighboring or non-adjoining locations as well as the occurrence of industrial districts or clusters (Markusen, 1996). Given the limited sample size, extending the study to include samples of non-apparel producers or to involve participants from other markets may improve generalizability. Despite shortcomings, this study provides a response to the predicted transformations facing the post-pandemic apparel industry sector explicating U.S. manufacturers participating in this study are instituting strategic alignments in response to rapidly changing markets.

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