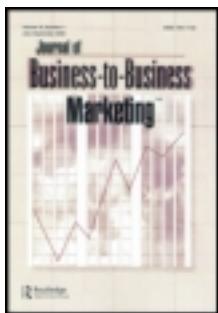


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### Considering Technological Impacts When Selecting Food Suppliers: Comparing Retailers' Buying Behavior in the United States and Europe

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# Considering Technological Impacts When Selecting Food Suppliers: Comparing Retailers' Buying Behavior in the United States and Europe

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**ABSTRACT** *Purpose:* The research investigates the impact of emergent technologies, specifically supply-chain technology and food-production technology (i.e., genetically modified organisms [GMO]), on global food retailers' supplier decisions.

*Methodology/approach:* Qualitative research is conducted to examine technology-related vendor selection criteria of food retailers in 5 European countries comparing to those in the US.

*Findings:* Our findings show that global food retailers view supply-chain technology as a competitive advantage and is integrated as an important selection criteria; however, selection criteria differ for food-production technology between the United States and the European countries. European food retailers explicitly oppose food-production technology (GMO), while U.S. food retailers implicitly accept food-production technology. Emerging from this opposing view, global food retailers establish similar criteria for organic food (non-GMO) supplier selection: reliability, distance, consistent quality, and relationships with suppliers.

*Research implications:* Applying the supplier choice framework (Lehmann and O'Shaughnessy 1982) to further analyze organic food suppliers, we find that reliability (adaptive criterion), distance (integrative criterion), consistent quality (performance criterion), and relationships with suppliers (economic criterion) are essential, but price is not.

*Practical implications:* This study suggests that to sustain competitiveness in the global food market, food suppliers not only need to ensure technological compatibility in supply-chain, but also adapt to the local food-production restriction (GMO) and organic food selection criteria preferences.

*Originality/value/contribution:* Supply-chain technology is strategically important and is adopted by global food retailers for competitive advantage; yet, there are dramatic differences regarding the acceptance of food production technology. This research contributes to the better understanding of how technologies exert significant and strategic weight in the food supplier selection process.

**KEYWORDS** global food retailing, retail buying behavior, supplier selection criteria, industrial marketing, business marketing

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The global food retailing industry is a mature market, generating \$4,349.4 billion of revenue in 2009 (Datamonitor 2010). Its forecasted compound annual growth rate is 6.5% for the next 5 years. Accordingly, recent advancements in technology—specifically, supply-chain management technology and food-production technology (i.e., genetically modified organisms [GMO])—have quickly become strategic issues for vendor selection and supplier management for global food retailers. Dynamic trends in global food consumption have prompted the demand and adoption of emergent technology within the food retailing industry. To sustain competitiveness in the global food market, food suppliers need to ensure technological compatibility in the supply chain, as well as adapt to local food production (GMO) technological preference.

Successful supply-chain relationships are integral to marketing strategy and customer relationship, and these relationships further enhance value co-creation among all stakeholders (Sanzo and Vazquez 2011; Paulin and Ferguson 2010). To ensure high value co-creation and delivery, larger food retailers, with more negotiating power, often set criteria to select strategic partners/suppliers that share technological compatibility and preference. On the other hand, smaller independent food retailers, with less negotiating power to set selection criteria and technological specification over their suppliers, tend to work with existing vendors to develop and co-create technological compatibility and specification (Paulin and Ferguson 2010). Thus, whether it is larger or smaller food retailer, decisions regarding the partnering with suppliers and vendors who adopt these technologies have become strategic in nature as they can impact current and future competitiveness.

Morash and Lynch (2002) asserted that new technologies that facilitate the development of sophisticated supply-chain systems (e.g., manufacturing resource planning and enterprise resource planning systems) have been welcomed by both suppliers and buyers with customer orientations. Specifically through electronic data interchange (EDI) and other coordination systems that information technology has enabled buying and selling firms to enhance market forecasts (i.e., through information sharing) to implement effective just-in-time delivery and to reduce inventory costs (Segev and Gebauer 2001). Although these new technologies come with high investment costs, research shows that such investments prove to increase overall organizational performance (Khavul et al. 2012).

However, in contrast to the high-tech advances in supply-chain systems that are perceived as adding value,

technological interventions in food production have been viewed by some regulators and many consumers unfavorably—especially when accounting for specific consumer values pertaining to food production and supply among varying countries (e.g., the United States vs. a number of European countries). Although many of these food-production technologies can reduce costs, increase the number of potential vendors, and enhance product availability, food retailers are concerned with regulatory restrictions and negative consumer attitudes, decreasing levels of consumer demand, and how these products may impact their brand image (Andersen 2010).

Much research on business-to-business (B2B) buying decisions have investigated relationships with contact persons (Liu and Leach 2001), transaction specific investments (Heidi and John 1989; 1990), elements of the buying situation (McQuiston 1989), trust and commitment (Morgan and Hunt 1994), perceived value and customer satisfaction (Anderson and Narus 1990; Liu, Leach, and Bernhardt 2005), influences of interorganizational information systems on the management of the supply-chain (Naudé, Holland, and Sudbury 2000), as well as factors impacting supplier selection in individual countries (Ng 2010). However, sparse research has been done to examine the influences of more recent food retailing technology on the vendor selection process by global food retailers. Thus, the purpose of this study is to investigate the impact of emergent technologies, specifically supply-chain technology and food-production technology (e.g., GMO), on global food retailers' supplier decisions.

This study applies Lehmann and O'Shaughnessy's (1982) framework of supplier choice criteria and systematically investigates the impact of these two categories of emergent technologies—supply-chain information technology and food-production technology—on global food retailers' supplier decisions. Literature is reviewed pertaining to vendor selection and vendor relationships, competitive positioning of food retailers, supply-chain technology, and food-production technology. This literature informs a set of propositions that are investigated using qualitative interviews with food retailers in the United States and Europe.

## RETAILER-SUPPLIER EXCHANGE RELATIONSHIPS

Several approaches have guided empirical research on B2B exchange relationships. Many studies draw from

industrial and organizational psychology, social psychology, and social exchange theory. These approaches typically emphasize managing dependence and uncertainty in exchange relationships (Anderson and Narus 1990; Dwyer, Schurr, and Oh 1987; Frazier and Summers 1984). In addition, transaction cost analysis and relational contracting theories have been used in various marketing studies (Anderson and Weitz 1992; Heide and John 1992). This approach focuses on identifying and developing efficient structures for governing transactions. Another approach, the interaction model, suggests that a cooperative atmosphere, mutual trust, and the exchange relationship are developed through mutually satisfying experiences among exchange partners (Ford 1990; Hallen, Johanson, and Seyed-Mohamed 1991).

Research on organizational buying behavior adds to the business relationship literature by providing an understanding of the process and motivations of customer purchases and vendor selection (Johnston and Bonoma 1981; McQuiston 1989; Sheth 1973). For example, Johnston and Lewin (1996) developed an integrated model of past research that indicates that much of organizational buying behavior appears to be related to the levels of risk associated with a given purchase situation. Furthermore, situational and relational variables can also be related to organizational buyers' perceptions of risk. For instance, both the ability to source from multiple vendors as well as the strength and depth of relations with current vendors tend to reduce perceived levels of risk (Johnston and Lewin 1996).

## Supplier Choice Criteria Theory

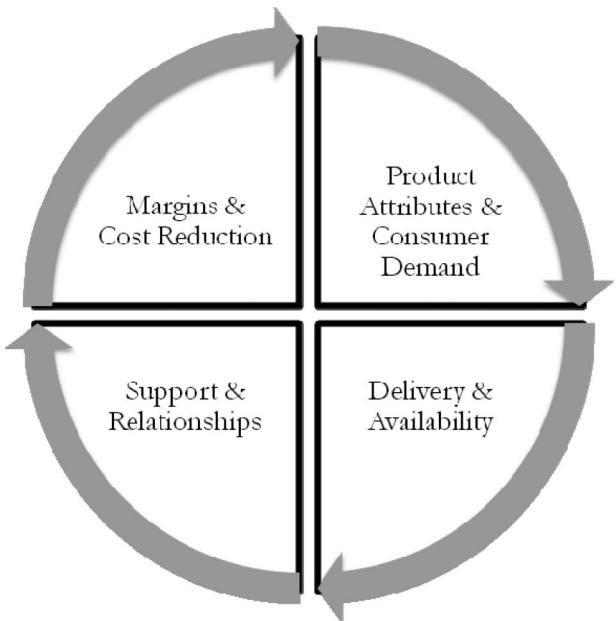
Current theories and ideas pertaining to organizational buying behavior, vendor selection, and relational exchange are based primarily on studies examining the buying behaviors of manufacturers and not resellers (Hansen and Skytte 1998; Skytte and Bove 2004). The lack of a thorough understanding of retail buying behavior has been repeatedly noted (McGoldrick and Douglas 1983; Sheth 1981). Although sparse research has been done to examine buying behaviors of resellers, foundational theory suggests that resellers' vendor selection criteria parallel that of manufacturers—as foundational decision and consumption rules apply to both scenarios. According to Lehmann and O'Shaughnessy (1982) supplier choice criteria, five key criteria affect supplier selection decisions: (1) performance; (2) economics; (3) integration; (4) adaptation; and (5) legality. Specifically, the *performance criterion* applies to how well the product will do the job. *Economic criterion*

refers to various costs associated with buying and utilizing the product. The *integrative criterion* deals with the supplier–customer orientation and commitment to exceeding customer expectations. *Adaptive criterion* refers to the belief and certainty that the supplier can produce and deliver specified product requests. And lastly, *legalistic criterion* applies to legal constraints to be considered in the purchase of a product. Taken together, these choice criteria operate in every business buying situation, with the exception of the *legalistic criterion* since this criterion falls outside of what is generally thought of to affect vendor selection decisions—i.e., price, quality, delivery, and service (Gustin, Daugherty, and Ellinger 1997; Lehmann and O'Shaughnessy 1982; Wilson 1994).

Further, research findings regarding retailer buying behavior suggests that many of the concepts that help explain vendor selection by manufacturers are, in fact, also pertinent to retailer decision making. For example, Braglia and Petroni (2000) suggested that in selecting suppliers, evaluations of predetermined choice criteria and comparisons among qualifying suppliers should be examined. Thus, the supplier selection process involves multi-attribute levels (Li et al. 2006). Fundamental concepts like establishing mutual trust (Dawson and Shaw 1989); enhancing service quality (de Ruyter, Wetzels, and Lemmink 1996); pricing (Johan and Gripsrud 1981); and reducing risk (McGoldrick and Douglas 1983) are important in retailers' vendor selection decisions. Further, more recent research findings indicate that such distributor trust indirectly impacts value creation in the buyer–seller relationship (Sánchez, Vijande, and Gutierrez 2010). However, key differences between manufacturer and reseller business models have been distinguished (Dent 2008), and more specific criterions that are used by retail buyers when selecting vendors have been identified.

Our review of this literature suggests that vendor selection criteria for food retailers can generally be classified into four areas: issues pertaining to margin (Rao, McLaughlin, and Hawkes 1995), issues related to product categories, consumer demand/product turnover (McGoldrick and Douglas 1983), issues related to delivery and availability (Skytte and Blunch 2005), as well as issues of manufacturer-support (Leach, Liu, and Pelton, 2011) (see Figure 1).

Technological changes in supply-chain/inventory management and food production impact the critical vendor selection criteria identified above. For example, the adoption of supply-chain technology can potentially lower transaction and inventory costs, thereby enhancing profit



**FIGURE 1** A classification of key vendor selection criteria for food retailers.

margins. Likewise, through electronic exchange technologies, vendors are able to more accurately maintain stock levels and even aid retailers with product category management. As such, these technologies can improve delivery and reliability as well as allow suppliers to take on larger and more critical support roles.

## COMPETITIVE POSITIONING STRATEGIES OF FOOD RETAILERS

Based on the theory of retailers' buying behavior, Sheth (1981) proposed that the selection of suppliers and products may vary in relation to, among other things, a retailer's size and positioning. As such, we examine vendor selection among three types of supermarkets that vary with respect to size and competitive positioning: (1) traditional supermarkets, (2) larger hypermarkets, and (3) specialty food retailers.

Traditional supermarkets have attributed their success over smaller, family-owned stores in part to their ability to convince vendors to adapt their operations to large-scale retailing. In general, supermarkets changed the consumers' shopping environments by offering lower prices, greater choices, speedier service, and more consistent quality. The larger supermarket chains have more capital, which gives them more purchasing power to buy more products at discounted wholesale costs. Larger chains facilitate stronger

vendor relationships and price reductions that force closures of many smaller food retailers (Stowell 1996).

Today, traditional supermarkets are facing growing competition from supercenters known as hypermarkets. The USDA defines a *hypermarket* as, "the largest supermarket format, typically 150,000 square feet or more of floor space; general merchandise accounts for 40 percent of sales, while food and all nonfood grocery products represent 60 percent of sales" ([www.ers.usda.gov](http://www.ers.usda.gov)). Although hypermarkets are competing by driving down prices through efficiency and scale, specialty food retailers are finding it possible to thrive with strategies that focus on product specialization and targeting smaller niche markets. Many of these specialty food retailers target consumers that demand foods that are perceived to be more healthy or better for the environment than those found in supermarkets or hypermarkets. For this reason, it is critical to examine the vendor selection criteria in these specialty food retailers in addition to those of larger food retailers.

## EMERGENT TECHNOLOGY – INFORMATION AND SUPPLY-CHAIN SYSTEMS

The introduction of technology in supermarkets over the years has improved the productivity and efficiency of the food distribution system while bringing many benefits to consumers. This continuing advancement of technology has enabled hypermarkets to expand, maintain competitive pricing, and hold profitable margins.

The introduction of the bar code illustrated that low-cost, powerful computing and information technology can reduce labor costs. Furthermore, this technology provided instant access to information and changed the relationship between manufacturers and retailers. Another leapfrog technology is EDI. Even though EDI acceptance was initially slow, it is now a mature technology and the majority of U.S. food retailers have implemented the platform. Today, 94% of purchase orders, primarily from larger manufacturers, are handled via EDI (Panettieri 2003). Similarly, RFID (radio frequency identification) technology is increasingly used in the food retail industry. RFID can generate top-line value by enhancing the accuracy of inventory management and streamlining the overall supply-chain management process (Kharif 2004). Industry reports suggest that the technological advances will continue and that there are several emerging technologies in

the process of being adopted by food retailers (e.g., Wi-Fi, Smart Cards, and Smart Shelves) (Anonymous 2010).

An international study of technology usage recently found that more American firms than European firms use procurement technologies to enhance operational efficiency—particularly for highly customized technology (Leach 2009). Conversely, when products are standardized and less critical, both European and American firms are comfortable sourcing with supply-chain and procurement technologies. These findings suggest that standardized supply-chain technology may be easily adopted by large U.S. and European food retailers to enhance operational efficiencies, given the low degree of food product customization. In addition, it may suggest that these technologies are more readily adopted in the United States than in Europe. Therefore, with regard to information technology and supply-chain management systems, the following propositions are put forth:

Proposition 1a: Larger supermarket formats that rely on operational efficiencies for competitiveness will be more likely to select vendors based on supply-chain technology.

Proposition 1b: Food retailers in the United States will be more likely to select vendors based on supply-chain technology than those in Europe.

## EMERGENT TECHNOLOGY – FOOD PRODUCTION

Increasing consumer awareness of the connection between nutrition and health, and the introduction of organic foods into mainstream supermarkets are influencing consumer purchasing decisions and impacting the direction of the food retail industry in its vendor selection criteria. GMOs refers to “plants or animals that have had their genetic material modified to enhance a desired characteristic or to inhibit an undesirable characteristic” (Brady and Brady 2003). There have been debates for and against the consumption of genetically modified products since their introduction into the market over a decade ago. Various and sometimes conflicting perspectives from the government, food manufacturers, food retailers, and consumers continue to shape this development in the food retailing industry.

Debates regarding GMO food and its long-term impact continue, and some consumers still refuse to purchase and/or consume GMO products (Andersen 2010). This debate has led consumers to question certain agricultural practices and increase demand for organic products, which

are perceived as more environmentally sound, healthier, and better tasting (Schifferstein and Ophuis 1998; Williams and Hammit 2001). Between the European Union and the United States, there are markedly different policies regulating the production and labeling of GMO and organic products, and related consumer awareness and preferences. As such, the impact of food-production technology is not uniformly positive. Although suppliers that source genetically modified foods have access to larger and less expensive markets that can potentially improve product availability and profitability for food retailers, regulatory restrictions and negative consumer attitudes may seriously choke demand.

## Government Policies

In Europe, retailers that sell or place GMO goods on the market need to comply with Annexes of Directive 2001 and apply for an environmental risk assessment approval (Botija et al. 2009). Conversely, in the United States, retailers are free to market products with GMO ingredients without labeling requirement but are required to apply for Food and Drug Administration approval to certify non-GMO products.

On the other hand, the European Union regulates the entire production process for foods marketed as organic to ensure transparency at all stages of production and processing. The European Union regulations clearly state the incompatibility between GMO and organic production and prohibit the use of GMO in organic goods. This newly reformed organic farming framework in the European Union shows that *organic* is conceptualized as a regulated and sustainable practice and not just a niche marketing tool (Winickoff and Klein 2010). This practice is consistent with European Union consumers’ concerns pertaining to GMO products and demands for credibility in organics. On the contrary, the U.S. government mainly regulates the end process for organic products (i.e., nutrition labeling) and focuses on product certification at the retail level (Haniotis 2000). This regulatory framework suggests that the U.S. conceptualizes organic largely as a marketing instrument based on consumer preferences and is less focused on developing sustainable farming practices (Winickoff and Klein 2010).

## Consumer Attitudes

Consumers’ demands in organic and/or local food are continuously changing traditional supermarket’s and

hypermarkets' vendor selection criteria. Currently, traditional food retailers are rapidly expanding supply-chain technology and slowly but surely adopting local and organic food into their stores. This is driven by consumers' increasing awareness (and dislike) of GMO and demand for non-GMO foods. Responding to consumers' demand, food retailers are adopting new vendor selection criteria to include organic and local vendors, and for some, moving away from "food production technology-driven" GMO goods. As previous studies suggest, European consumers have strong, deep-rooted negative attitudes toward GMO products (Grunert et al. 2004; Saba and Vassallo 2002; Sparks, Shepherd, and Frewer 1994). This negative attitude is especially evident because of recent food safety scares that caused European Union consumers to become more risk averse regarding food safety issues and more distrustful of the government (Haniotis 2000; Parmentier 1999). Compared to many European consumers, U.S. consumers have relatively little knowledge about GMOs and tend to trust the government with GMO-related issues (Ekici 2000; Haniotis 2000).

Applying supplier choice criterion (Lehmann and O'Shaughnessy 1982), the increased interest in organic foods has created changing demands for suppliers and retailers, forcing retailers to re-evaluate their selection criteria for certain vendors. Industry reports of the organic food market in the United States and the European Union also indicate that many supermarkets have hesitated to introduce organic lines into their stores, citing problems with supply (Colom-Gorgues 2009; Henchion, O'Reilly, and Cowan 2002; Organic Trade Association 2010). To stay competitive with nonorganic products and to ensure customer loyalty, food retailers rely on organic food suppliers' ability to provide steady supply of goods (Riley 2003). The ability to secure a consistent supply has the potential to push what is currently a niche market into a mainstream market. Reliability on the part of the vendor in providing a more consistent supply is an important factor in a food retailer's assessment of which suppliers to use. As research findings consistently show, product quality (performance criterion), price (economic criterion), delivery reliability (adaptive criterion), and customer preference (integrative criterion) are the most important attributes considered in the comparative evaluation and choice of a supplier (Braglia and Petroni 2000; Li et al. 2006; Narasimhan, Talluri, and Mahapatra 2006).

Considering the distinct differences between the European Union and the United States in government regulations, historical customer preferences with regard to

GMO and organic products, and the adoption of supplier choice criterion (Lehmann and O'Shaughnessy 1982), the following propositions are put forth:

Proposition 2a: Food retailers in European countries will be less likely to source from food suppliers that use GMO food production technology than those in the United States.

Proposition 2b: Food retailers in European countries will have more strict selection criterions toward GMO food production technology and related issues than in the United States.

Proposition 2c: Food retailers in European countries will have more strict selection criterions toward organic foods than in the United States.

## METHODOLOGY

We contacted multiple food retailers in the United States and Europe to request recommendations for personnel with extensive background in the local retailing food supply-chain and buying decision making process. These recommendations were screened to identify the key informants selected for the study. The key informants selected for the study were individuals making purchase decisions with the respective buying centers for the food retailers. To investigate these vendor selection practices, a series of systematic qualitative case studies were conducted. Case studies were developed based on in-depth interviews with key purchasing personnel and decision makers in the food retail industry. Although cases were qualitative in nature, they followed many of the prescriptions for theory-testing case research outlined by Johnston, Leach, and Liu (1999, 2000). Twenty-four interviews were conducted: six in the United States (Los Angeles), five in Iceland (Reykjavík), four in Ireland (Dublin), five in the United Kingdom (London), two in the Netherlands (Amsterdam), and two in Belgium (Brussels). The type of food retailers interviewed consisted of multinational hypermarkets, supermarket chains, and specialized food retailers (see Table 1). To collect accurate and appropriate information to examine our propositions, rigorous standards were taken to ensure that appropriate and knowledgeable personnel were selected to participate in the interviews (Johnston, Leach, and Liu 1999). The types of personnel interviewed held the following titles: CEO, Owner, Head Buyer, Vice President of Purchasing/Procurement, Store Manager, General Merchandising Manager, Assistant Manager, and Senior Trading Manger (see Table 2). Informants held different titles across multiple retailers; however, the depth in knowledge base regarding the local retailing food-supply chain and buying decisions was the primary selection criteria of informants for this particular

**TABLE 1** Profile of Food Retailer Characteristics

Country	Format	Company Profile
US	Hypermarket	Employees > 100,000 (in US) Sales > \$70 Billion
	Supermarket	Employees > 3,000 (Parent Company) Sales > 6 Billion
	Specialty Store	Employees > 5,000 Sales > 8 Billion
	Specialty Store	Size < 5,000 Feet <sup>2</sup>
	Specialty Store	Employees > 50,000 Sales > 8 Billion
	Specialty Store	Size < 5,000 Feet <sup>2</sup>
	Hypermarket	Employees > 100,000 Sales > 27 Billion
	Supermarket	Employees > 500 Sales > 600 Million
	Supermarket	Employees > 2,000 Sales > 4 Billion
	Supermarket	Employees > 100,000 (Parent Company) Sales > 36 Billion
Belgium	Hypermarket	Employees > 70,000 Sales > 12 Billion
	Hypermarket	Employees > 400,000 Sales > 80 Billion
	Supermarket	Employees > 9,000 Sales > 7 Billion
	Supermarket	Employees > 500 Sales > 1 Billion
Ireland	Hypermarket	Employees > 70,000 Sales > 10 Billion
	Hypermarket	Employees > 100,000 (Parent Company) Sales > 15 Billion Size > 10,000 Feet <sup>2</sup>
	Supermarket	Employees > 40,000 Sales > 7 Billion
	Supermarket	Employees > 150,000 (Parent Company) Sales > 27 Billion
	Supermarket	Employees > 5,000 Sales > 4 Billion
England	Hypermarket	Size > 50,000 Feet <sup>2</sup>
	Supermarket	Employees > 1,500 Sales > 400 Million
	Supermarket	Size < 5,000 Feet <sup>2</sup>
	Specialty Store	Size < 5,000 Feet <sup>2</sup>
	Specialty Store	Size < 5,000 Feet <sup>2</sup>
Iceland	Hypermarket	
	Supermarket	
	Supermarket	
	Specialty Store	
	Specialty Store	

study. As such, the same job titles across the informants did not play a key role in our informant selection process. Instead, the informants screened and used in the final analyses were of those with experiences across most, if not all,

**TABLE 2** Sample Food Retailer Characteristics of Indepth Interviewees

Country	Format	Interviewee
US	Hypermarket	General Merchandising Manager
	Supermarket	Store Manager
	Specialty Store	VP Of Purchasing
	Specialty Store	Owner
	Specialty Store	Store Manager
	Specialty Store	Owner
Belgium	Hypermarket	VP of Development and Procurement
	Supermarket	Store Manager
Netherlands	Supermarket	Store Manager
	Supermarket	Buyer
Ireland	Hypermarket	Store Manager
	Hypermarket	Assistant Manager
England	Supermarket	Buyer
	Supermarket	Store Manager
	Hypermarket	Assistant Manager
	Supermarket	Owner
	Supermarket	Assistant Manager
	Supermarket	Owner
Iceland	Hypermarket	Senior Trading Manager
	Hypermarket	CEO
	Supermarket	Head Buyer
	Supermarket	Store Manager
	Specialty Store	VP
	Specialty Store	Owner

areas of functioning within the local food supply-chain and buying decision processes.

Based on insights from previous research, an interview protocol was developed and used with the U.S. companies (see Table 3). The same sets of questions, with slight modifications due to cultural aspects, were then used with the interviews in Iceland, Belgium, Ireland, the Netherlands and the United Kingdom. The focus of the interview was centered on how vendor selection decisions were made with regard to supply-chain technology and food-production technology in the food retail industry. Initially, these evaluators worked to reach a consensus to the question: "How do emergent changes in supply-chain technology and food-production technology impact food retailers' vendor selection criteria?" Then transcripts were reevaluated in an attempt to provide a richer description of these circumstances.

Interview responses were transcribed, and transcripts were scrutinized by eight marketing experts. The eight marketing experts include both marketing scholars as well as current, marketing practitioners holding graduate degrees in the areas of business and marketing (i.e.,

**TABLE 3 Interview Protocol**

- How many vendors do you currently work with?
  - What is the average length of time of your relationship with a vendor?
  - Can you walk us through the process of how you selects vendor?
  - What vendor selection criteria do you use? (If they say quality, then ask them to define quality).
  - How much weight do you place on trust and quality (and other criteria they mentioned)?
  - Do you have periodic review meetings with your vendors?
  - Has technology affected the selection process and/or the relationships you have with your vendors?
  - What type of technology do you use with your vendor? Bar Code Scanning? Electronic Data Interchange? RFID? Specific Software? Others?
  - What technology do you plan to implement within the next 5-10 years?
  - Do you sell Genetically Modified foods in your store? Why or why not?
  - Do you believe that consumers are beginning to demand non-genetically modified foods?
  - Do you believe that if consumers were more educated regarding genetically modified foods that demand for these products would change?
- (If yes) How would that affect the food retail industry?
- Has there been an increase in consumers purchasing organic foods from your store(s)? Why do you think that may be?
  - How do you decide how many organic products to sell?
  - Is it difficult to find suppliers specializing in organic products?
  - What are the key criteria that you use when selecting suppliers of organic foods?
  - (For non-hypermarket stores) Has the growth of hypermarkets affected your business?
  - What do you believe is the key to sustaining success for your organization over the long and short term? (certain products, technology, infrastructure)

PhD and/or MBA). Both scholars and practitioners have backgrounds in B2B marketing and general business, however not all evaluators are in the area of purchasing. Although not every evaluator came from the area of food purchasing specifically, the inter-evaluator reliability was strong. Specifically, to ensure inter-evaluators reliability, multiple steps were taken in the evaluation process to increase inter-evaluator reliability. Notably, due to the exploratory nature of this research, no a priori propositions were imposed upon the evaluators. First, all evaluators (i.e., differing in age, gender, and ethnic background) independently reviewed the transcriptions to determine a set of relevant propositions. After individual interpretations were brought forward; through discussion among all evaluators, a common set of propositions threading across all of the interviews was established. Final propositions were then determined. Interpretations of the data were distributed to all informants used in the final analyses to review and confirm before finalizing results of this study. Those interpretations deemed inaccurate were controlled for via removal from the analyses. Only accurate interpretations approved by all informants remained in the analyses and final reporting of this manuscript.

Pertaining to internal reliability, evaluators came from diverse backgrounds with varying cultural and belief systems that may play a role in subjective interpretation of the qualitative data (Loo and Lowe 2012); thus, following Dubois and Gibbert's (2010) and Wagner, Lukassen, and Mahlendorf's (2010) suggested procedures to increase internal validity of qualitative research, we (1) triangulated to find convergence among multiple evaluators as well as (2) reconfirmed causal linkages established from interpretation of the data with the informants. In addressing external validity as it pertains to qualitative research, we (1) conducted multiple analyses of the transcriptions as recommended by Eisenhardt (1989) and (2) generalized our propositions to extant theory (i.e., supplier choice criteria theory) rather than generalize to the population as a whole as recommended by Dubois and Gibbert (2010).

## FINDINGS

### Supply-Chain Systems and Inventory Management Technologies

Findings support the idea that food retailers are adopting new technology for competitive advantage and in some

cases as a tool for survival. A head buyer of a supermarket chain in Iceland reported seeing obvious advantages to these technologies, as he indicates that new technology is a “must have” not only to get ahead of competitors, but also to “stay even”. Similarly, a buyer of supermarket group in Ireland said, “Technology is of high importance to us. We are in the process of upgrading our entire stock supply system to integrate all . . . from the shelf, using wireless symbol technologies, all the way to the supplier and back to the shelf using a custom application package utilizing EDI (Electronic Data Interchange).” Likewise, a General Merchandising Manager from a hypermarket in the United States stated that implementing new technology has allowed the company to become more productive. The only stores managers interviewed that did not use integrated technologies were small independent food retailers. They said that from an investment standpoint, it does not make business sense for these smaller sized stores to use a costly amount of new technology.

Interviews also examined the use of specific technologies. Most food retailers in the United States, Iceland, and the European Union were found to use bar coding technology for shipping and receiving, product recall, and inventory management. In England, a supermarket group stated that they were the first supermarket to implement information technology, such as bar codes, as a part of its supply management systems. In Iceland, a store manager of a supermarket reported that they are in the process of integrating its bar code check-out system, inventory supply, and ordering system. They anticipate that this will help the company to begin the automated ordering process and allow them to identify product and seasonal trends that would otherwise have taken months to determine manually. Bar coding was also credited with enabling a U.S. supermarket to become more productive. A store manager stated, “Our company recognized an increase in productivity when it implemented the bar code and scanner technology.”

In the United States and the European Union, many food retailers were planning the implementation of RFID technology in the near future. The vice president of development and procurement at a hypermarket group in Belgium stated that his company has already started a plan to completely integrate RFID. It has begun elementary testing of RFID and plans to continue for another 2 to 3 years; further, they are requiring its suppliers to do the same. In London, a hypermarket group has already begun using RFID. They report increased efficiencies, fewer lost

shipments and product recalls, better tracking delivery times, and fewer spoiled goods. This hypermarket group expects to make a return on its \$3 million investment within 3 years. A general merchandising manager of a U.S. hypermarket stated that the company will soon invest in and move toward RFID technology.

In general, findings suggest that EDI was the most common type of software program currently being used in the food retail industry. EDI solutions provide a common standardized platform for the food retailing industry, enabling companies to keep costs down among multiple suppliers and distribution channels. A senior trading manager of a supermarket group in the United Kingdom stated that all of its stores currently take on different independent technologies, because the company does not require owners to adopt a uniform, corporate platform. This will change in the near future. Specifically, this supermarket group is moving in the direction of standardizing technologies with its upcoming mandate that all private labeled products will need to be ordered through EDI. The company realizes that EDI will allow the company to lower transaction costs and speed up transaction cycles for all stores.

Technology compatibility was found to be a major supplier selection criterion in the food retail industry. Many food retailers see technology driving their relationships with suppliers. A vice president of purchasing at specialty food retail in the United States looks for suppliers who use compatible technology to reduce time and labor costs and “to effectively compete in this aggressive industry.” In Iceland, a supermarket manager reported that the company tries to seek suppliers that use its technology and is willing to work with its suppliers to help them achieve such compatibilities.

However, as with any new technologies implementation, costs may limit a food retailer’s decision. The only food retailers in our research that were not using EDI were small-scale independent specialty stores. For example, the vice president of a specialty store in Iceland stated that “Our company would like to use EDI but it cannot justify the cost.” A similar statement was made by a specialty food store owner in the United States, who realizes that EDI could give his store a competitive edge but does not have enough volume to justify the expense. Although a hypermarket group in Iceland is not currently using EDI, the company intends to implement it in the near future. An executive at this hypermarket stated that he recognizes the value that EDI brings to the company and that its use will be necessary for survival in the food retailing industry.

Findings from the above interviews indicate that more companies are adopting supply-chain and inventory management technologies, such as bar coding, RFID, and EDI. Furthermore, larger and more efficient supermarkets are adopting more and newer technology; for them, technology compatibility has become an important supplier selection criterion. As such, Proposition 1a is supported. However, findings suggest that these technologies are being adopted by firms not only in the US but also in the EU, thus not supporting Proposition 1b.

## GMO and Organic Foods

Findings suggest that most food retailers within the European Union do not promote the sale of genetically modified products. Yet, with proper labeling, products containing GMO do appear on shelves in some EU food retailers. A store manager in the Netherlands claimed that, “GMO is highly rejected among citizens of the EU largely due to the media, which plays a huge part in influencing the purchasing habits of consumers.” A store manager of a supermarket group in Belgium stated, “If a genetically modified product does not bring any added value to the consumer, the need for selling it is unfounded and useless.” Similarly, a supermarket group in the United Kingdom has specific written contractual guidelines indicating that their stores will not sell genetically modified food products. This further solidifies the importance of selecting GMO-free suppliers for food retailers. In fact, all food retailers interviewed inside the European Union claimed that they do not promote the sale of any genetically modified products.

Yet findings did identify that a small percentage of supermarkets and hypermarkets sell products with low percentage of GMO without “contains GMO” label. According to a supermarket group in Ireland, although the Irish government has urged the strict labeling of all GMO, nonlabeled products with small amounts of GMO are making their way into Ireland. Similarly, there appears to be GMO in some products in Iceland due to what seems to be lack of education among consumers on the issue. A local supermarket stated that “the public is generally not well educated on GMO and therefore, show little to no resistance towards such products.” The owner of the organics store confirmed this and added that “our [local consumers], who do not travel outside of Iceland, are unaware of the GMO issue and thus, there is little discussion about it.” A managing director of a hypermarket group said that, “in response to the public’s non-resistance

towards GMO, some stores in fact have been selling GMO products.”

In the United States, food retailers do not explicitly state whether they sell GMO products or not since U.S. laws do not require “contains GMO” label. Consumers requesting non-GMO foods often shop at specialty stores, such as Whole Foods or Trader Joe’s. Although we identify GMO products in many stores, most U.S. food retailers would not comment on the use of GMO at their stores. The only interviewee who was comfortable addressing the GMO issue was a vice president of purchasing at a specialty retail chain. He explained that his company adopted a non-GMO stance in response to customer demands. This specialty chain continues to build its brand by its independence in the marketplace and promotes what its similarly independent customer seeks to purchase. Overall, non-GMO food does not seem to be an important selection criterion for food suppliers in the United States.

In sum, findings from our interviews indicate that Proposition 2a is supported, as most food retailers within the European Union do not sell GMO products and most food retailers in the United States do. However, in Iceland, GMO goods are available because of Icelanders’ lack of awareness and therefore ambivalence on the issue. Not only do most food retailers in the United States sell GMO foods, but also they do so without GMO labeling/identification. Except specialty stores or specialty brands food retailers, most food retailers in the United States do not typically consider a supplier’s ability to comply with non-GMO criterion. As such, these findings support Proposition 2b.

To examine Proposition 2c, interviews were conducted applying Lehmann and O’Shaughnessy’s (1982) framework to examine organic foods supplier selection criteria. Our findings advance the supplier choice criteria (Lehmann and O’Shaughnessy 1982) and show that in the European Union, Iceland, and the United States, food retailers use the following criteria when evaluating vendors for organic products: reliability, distance, consistent quality, and the relationship with suppliers.

## Reliability

In the European Union, many food retailers have also expressed concerns over shortages and uncertain deliveries. A hypermarket group of Ireland said: “There is a profound need for the company to boost the year-round supply of organic dairy, meat, and fruit and vegetable products.” The

importance of consistency in supply was also supported by a supermarket group in London: "Our company wants to work with reliable suppliers who can provide us with frequent deliveries and regular supplies. This way we ensure that products are always on the shelves and shoppers won't make their purchases elsewhere."

In Iceland, reliability is also pivotal. A buyer from a supermarket group stated: "With demand currently exceeding supply, many companies like ours are finding it increasingly difficult to source a continued supply of organic products. One of our company's focus is to develop a secure and reliable organic supply base. Over the years, we have helped a number of farmers undergo organic conversion by providing them with financial support and expertise during the period of conversion."

In the United States, specialty food retailers such as Whole Foods Market and Trader Joe's, and similar food stores, recognize that in order to increase and retain customers, it is necessary to increase the level of supply and lengthen the season for organic foods. A purchasing executive at a specialty store stated: "Our company realizes that insufficient supply of organic products available and limited product range are factors that will limit consumers' decision to purchase organic products. Thus, our goal is to ensure that we work with suppliers who are reliable, and who can provide our store with more steady supplies." This is consistent with the findings from secondary research suggesting that specialty food retailers need to ensure continuity of organic food supply to retain customer loyalty and enhance brand development. In line with Lehmann and O'Shaughnessy's (1982) supplier choice criteria, reliability of organic food supplies parallels the adaptive criterion (i.e., production and delivery of specified products) necessary for vendor choice selection.

### **Distance**

According to a representative from a supermarket group in the Netherlands, "Keeping an eye on how far the produce travels before it reaches retailers from suppliers is an important criterion we use to select vendor. We prefer to order from local producers because fresh fruit and vegetables not treated with preservatives or [been] genetically modified tend to be more perishable." A similar statement was expressed by a vice president of procurement for a hypermarket group in Belgium: "The company's policy is to seek out Belgian suppliers first, not only to help promote the local economy, but also to ensure the freshness of

the products." In Iceland, a hypermarket group mentioned that distance is a factor because supplier proximity impacts the company's incurred cost (transportation and product handling).

Likewise, in the United States, a specialty chain believes in sourcing locally for organic products. Supplier proximity is an important factor to consider because shoppers know the produce is fresh if it comes from a farm 25 miles away. Dealing directly with local suppliers can provide retailers with advantages such as lower transportation costs and increased product freshness. Retailers also have the additional advantage of being able to see, smell, and touch the product when they use local suppliers versus those at a greater distance. Consistent with the integrative criterion underlying supplier choice criteria (Lehmann and O'Shaughnessy 1982), strategic logistical distance between suppliers and supermarket serves to indicate supplier–customer orientation. Further, such decisions made on supplier's strategic location in relation to the supermarket show how committed a supplier is to not only meeting, but exceeding expectations of the buyer.

### **Quality**

A hypermarket group in Belgium defines organic food quality by the product's taste and appearance. If the quality is not properly monitored, customers would resist buying substandard organic products. A hypermarket store manager in Dublin stated that, "When finding suppliers, the company looks for quality and service. If the supplier cannot meet this requirement, then the company will not work with that supplier." A supermarket group in Iceland mentioned that the quality of a retailer's organic product, especially in the produce section, is critical to that particular vendor's success. The importance of quality as supplier selection criteria is also expressed in the United States, where specialty stores like Trader Joe's, Whole Foods Market, and other independent brands look for suppliers who can provide organic products with a consistent level of quality. They want the organic products to be at least the same quality as nonorganic products and do not accept any inferior taste or physical appearance of the product. As suggested by supplier choice criteria theory, the quality of the product (i.e., organic foods) must satisfy food retailers' and consumers' standards and expectations, paralleling the performance criterion of a product for supplier selection.

## Retailer–Supplier Relationship

In the European Union, many food retailers, such as a hypermarket in Belgium, a supermarket in the Netherlands, and a supermarket in Ireland, have worked on building relationships with their suppliers to develop the range of organic food products in their store. A hypermarket in Belgium stated, “We have a long history of loyal suppliers; 90 to 95 percent have been working with the company since it began. The company’s philosophy is to build long-term relationship and trust by growing together with small supplier companies.” A supermarket in Ireland also expressed a similar sentiment: “Our company seeks to establish closer relationships with our suppliers so that we can increase efficiencies in our business.” This is consistent with secondary research suggesting that more and more food retailers are realizing a competitive advantage by building long-term relationship and trust with their suppliers (Ehrnreich 1999). A supermarket group in the United Kingdom also values the relationships it has with suppliers because “sound relationships with suppliers can give leverage to our stores such as advertising and promotion support, new product development, and [ability to] obtain products in short supply quickly.” In Iceland, an organic store owner stated that most of her supplier relationships date back to the store’s opening in 1986. The store’s success and expansion can be attributed to its sound relationship and effective communication with its suppliers.

Similar findings are seen in the interviews conducted in the United States. A specialty food retail chain places a lot of value on the relationship: “We have been working with our suppliers for about 10 to 25 years, and a lot depends on the relationship between buyers and suppliers.” In this company, after a buyer identifies a need for a particular product, s/he frequently refers new inquiries to their existing suppliers. Furthermore, while this specialty chain prefers to have as many private labels as possible in its store, it gives priority to its existing suppliers to develop them. Such relationship management equates to increased efficiencies related to reducing cost and providing quality products, paralleling Lehmann and O’Shaughnessy’s (1982) *economic* criterion.

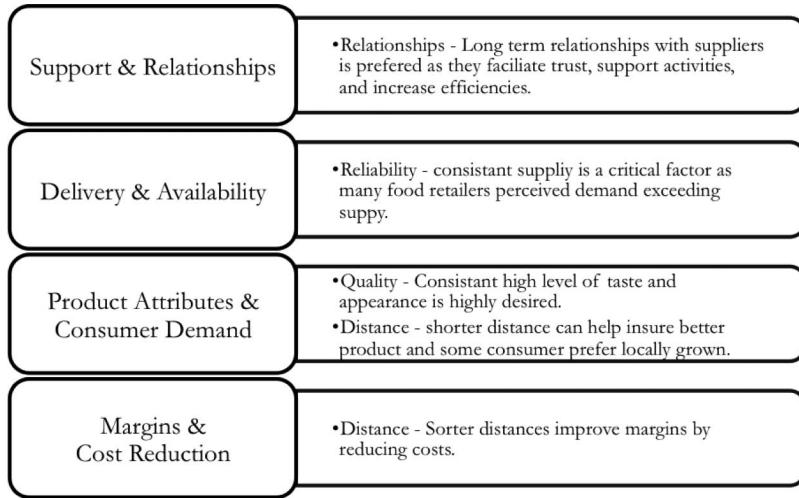
Interestingly, our study shows that low price is not an essential criterion for selecting organic food supplier; instead, organic food retailers focus on local sourcing from reliable and quality suppliers. Overall, the increased interest in organic foods has created changing demands for global food retailers and suppliers; forcing all retailers to

re-evaluate their selection criteria for certain vendors. In conclusion, our findings did not provide full support for Proposition 2c. However, this only further validates Lehmann and O’Shaughnessy’s (1982) supplier choice criteria. In fact, reliability, distance, consistent quality, and relationship with suppliers are important supplier selection criteria for organic food retailers in general, whether in the European Union, Iceland, or the United States.

## CONCLUSIONS

The findings support the trend toward rapid advancement in technology for supply-chain systems and inventory management within the food retailing industry for all six countries we investigated. As such, the relationship between suppliers and retailers is increasingly reliant upon technology. Further, such findings advance theoretical explanations of managerial attitudinal orientations on international entrepreneurship, such that managerial commitments and practices can facilitate globalization (Freeman and Cavusgil 2007). As the industry continues to innovate and consumer demand fluctuates, food retailers have embraced technology to stay competitive. Automating the supply-chain does require an investment; however, as noted by many food retailers, the costs have been declining and the return on investment cycle is shortening as the internet provides a common platform to integrate its customized applications. As the costs of these technologies decreases over time, findings strongly suggest that there is strong interest in adopting these technologies by all retailers regardless of size or competitive position.

On the other hand, our findings show distinct differences in the acceptance of technology in food production. As a result of consumers’ greater tolerance towards the use of GMO, food retailers in the United States and Iceland typically sell genetically modified foods without nutrition labeling. However, given strict government regulation and strong consumer attitudes, the opposite is true in the European countries. Concerns over the use of GMO have been a key driver in the growth of the organic food market. Findings from this study suggest that growth in the organics market will impact the vendor selection criteria utilized by food retailers, as suggested by tenets of supplier choice criteria (Lehmann and O’Shaughnessy 1982). Specifically, when evaluating their suppliers, global food retailers reported factoring in their selection criteria



**FIGURE 2** Summary of findings on food retailers' selection criteria for organic food vendors.

issues of reliability, distance, consistent quality, and relationships with suppliers (see Figure 2 for summary of findings and the Appendix for a summary table of comments).

Is it successful at ensuring future access? How are these relationships managed? Is this strategy the same for manufacturers developing suppliers of scarce manufacturing inputs as it is for retailers developing suppliers of scarce finished goods for resale? These questions warrant much needed attention, and research in these areas is encouraged.

## Implications for Further Research

The current study uses in-depth interviews to explore an area that is not easily quantified and multiple variables influence behavioral decision making processes. Because the buying process within food supply-chain is time-dependent (i.e., due to dynamic changes in consumer demand), qualitative approaches are better suited (Halinen and Tornroos 2005; Quintens and Matthysse 2010). However, we recognize that our sample size is limited and should be further tested in a setting allowing for a larger sample size and therefore increase generalizability of our results. We suggest future research (i.e., survey, quantitative research relying on statistical generalization instead of qualitative research relying on analytical generalization here) address this issue to further substantiate and advance our findings.

As with most qualitative studies, we found evidence that supports many of the established and evolving theories of buyer-seller relationships as well as a few more surprising insights. For example, an unexpected and interesting finding of this study is the level of investment and partnering by a few food retailers to develop strategic partnerships with organic suppliers. A firm's desire to develop suppliers when products are scarce (or have the potential to become scarce) is an interesting topic that needs additional research. What are the key drivers of this strategy?

## IMPLICATIONS FOR BUSINESS MARKETING PRACTICE

Emergent technologies in supply chain management and food production have become critical issues impacting vendor selection. Accordingly, food retailers are now adapting to emergent technologies in supply-chain management and food production. Although in very different ways, both are profoundly impacting the relationships between food retailers and their supply partners. Specifically, these technologies are impacting retailers' vendor selection criteria and vendor choice. Furthermore, these retailer decisions are increasingly viewed as critical to realizing and/or maintaining a competitive advantage.

More specifically, our findings suggest that food retailers need to pay close attention to technological changes that impact supply-chain and inventory management. It is well documented that by using supply-chain systems and inventory management technologies, large supermarkets and hypermarkets have driven costs down and are able to add value to consumers through their efficiencies (Segev and Gebauer 2001). The current study expands on this by identifying that many smaller food retailers are rapidly adopting these technologies as well. For smaller and specialty retailers, the decision is becoming

less about should these technologies be adopted, but rather when will these technologies be adopted. Furthermore, the answer to these questions seems to depend on (1) the technology's costs and ROI as well as (2) what direct competitors are implementing. As such, regardless of their competitive position in the marketplace (i.e., hypermarket, supermarket, specialty market), food retailers recognize that their understanding of current and future supply-chain and inventory management technologies is critical to competitiveness.

For food retailers, the findings of this study also illustrate the importance of understanding consumer attitudes and the political climate toward food-production technologies. We find a dramatic difference in the attitudes and acceptance of genetically modified organisms (GMO) and organic food products across the countries investigated. In general, Europeans perceive the social interaction around food consumption to be more important than Americans who view food consumption more from its nutritional and physiological elements. Thus, it has been suggested that GMO foods might be considered "polluted" by Europeans (Ekici 2000) and GMO technology in food production may contribute to a fear of losing European culinary traditions and identity (Parmentier 1999). These different attitudes directly impact consumer demand for GMO products and, thereby, the requirements that food retailers demand of their suppliers.

Findings highlight the need for food retailers to evaluate their access to high quality vendors selling highly desired products. For example, to maintain access to non-GMO and organic products, we found that food retailers are strategically forging strong ties with food producers and manufacturers. Given the strict criteria that vendors of non-GMO and organic food must meet, coupled with the strong growth on this segment, food retailers are found to be partnering with, investing in, and developing their supply partners. These activities may be particularly important to food retailers that depend on these products for a larger percentage of their sales. However, as larger food retailers add organic brands, access to suppliers may become problematic.

There are also implications of this study for managers of food suppliers and manufacturers. First, findings suggest that the efficiencies, increased accuracy, cost reductions and additional food-supplier services that accompany the adoption of supply-chain and inventory management technologies are desired by all types of food retailers. Furthermore, more food retailers plan to adopt additional technologies as costs decline. As such, food suppliers and manufacturers

must be aware of the current and future technological requirements desired by their retail customers. Likewise, as these requirements change, suppliers may identify areas where they can add further value and facilitate stronger relationships with key channel partners.

Furthermore, for suppliers and manufacturers of organic food products, this research may assist with strategic focus. Several key criteria have been identified for buyers of organics (i.e., reliability, distance, quality, and relationships). These criteria fall within general categories of food retailer vendor selection criteria; however, because they are specific to organics, they may provide added guidance (see Figure 2). Because retail customers desiring organics are already looking for something "special," developing advantages along these criterions may improve competitiveness, raise customer dependence, and increase profitability.

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## APPENDIX: SUMMARY TABLE OF COMMENTS

*Proposition 1a:* Larger supermarket formats that rely on operational efficiencies for competitiveness will be more likely to select vendors based on supply-chain technology. (*Supported*)

Larger Food Retailers: 12 out of 13 commented that they are or will be selecting vendors based on supply-chain technology, while one did not comment.

- ✓ “[Name withdrawn] has already started a plan to completely integrate RFID. We begun elementary testing of RFID with our vendors. This will continue for another two to three years” (Belgium Hypermarket)
- ✓ “We require our suppliers to use the same [supply-chain technology].” (Netherlands Supermarket)

- ✓ “[Supply-chain] technology is of high importance to us. We are in the process of upgrading our entire stock supply system to integrate all . . . from the shelf, using wireless symbol technologies, all the way to the supplier and back to the shelf using a custom application package utilizing EDI.” (Ireland Hypermarket)
- ✓ “We look for suppliers who utilize compatible [supply-chain] technology.” (Ireland Hypermarket)
- ✓ “We began the automated ordering process [with vendors] last year. This has allowed us to identify product and seasonal trends.” (Ireland Supermarket)
- ✓ “We have already begun using RFID [with vendors] . . . We notice [there are] increased efficiencies, fewer lost shipments and product recalls, better tracking delivery times, and fewer spoiled goods.” (UK Hypermarket)
- ✓ “We were the first supermarket to implement [supply-chain] information technology [with suppliers] as a part of the supply management systems.” (UK Supermarket)
- ✓ “We try to seek suppliers that use the same [supply chain] technology. We are willing to work with them and help them develop [supply-chain] technologies so there is compatibility in the system.” (Iceland Supermarket)
- ✓ “We are in the process of integrating bar code checkout system, inventory supply, and ordering system with our suppliers”. (Iceland Supermarket)
- ✓ “Our company will soon invest in and move toward RFID technology.” (US Hypermarket)
- ✓ “ . . . implementing [supply-chain] technology [with vendors] has allowed us to become more productive.” (US Hypermarket)
- ✓ “Our company recognized an increase in productivity when it implemented the bar code and scanner technology.” (US Supermarket)

Smaller Food Retailers: only 3 out of 11 commented that they are or will be selecting vendors based on supply-chain technology, while 3 against the idea, and 5 did not comment.

For:

- ✓ “We look for suppliers who utilize compatible [supply-chain] technology to reduce time and labor costs and to effectively compete in this aggressive industry.” (US Specialty Food Retail)
- ✓ “[Name withdrawn] is moving in direction of standardizing technologies with its upcoming mandate that

- ✓ all private labeled products will need to be ordered through EDI." (UK Supermarket)
- ✓ "[Supply-chain] technology is a 'must have' not only to get ahead, but also to 'stay even.'" (Iceland Supermarket)

Against:

- ✓ "From an investment standpoint, it does not make business sense to utilize a costly amount of new technology." (Ireland Supermarket)
- ✓ "We select vendors we can trust . . . Technology is not as important." (Belgium Supermarket)
- ✓ "[Supply chain] technology is the way to go, but it cannot justify the cost for us." (Iceland Supermarket)

*Proposition 1b:* Food retailers in the US will be more likely to select vendors based on supply-chain technology than those in Europe. (*Not Supported*)

US Food Retailers: 4 out of 6 commented that they are or will be selecting vendors based on supply-chain technology.  
European Food Retailers: 11 out of 18 commented that they are or will be selecting vendors based on supply-chain technology.

- ✓ See comments from *Proposition 1a*

*Proposition 2a:* Food retailers in European countries will be less likely to source from food suppliers that use GMO food production technology than those in the United States. (*Supported*)

European food retailers: 12 out of 18 commented or suggested that they do not sell GMO goods or source from food suppliers that use GMO food production technology, while 3 commented or suggested sourcing from or selling GMO products and 3 did not comment on sourcing from or selling GMO products.

- ✓ "If a genetically modified product does not bring any added value to the consumer, the need for selling it is unfounded and useless." (Belgium)
- ✓ "Our customers want non-GMOs so we don't sell GMOs" (Belgium)
- ✓ "GMO is highly rejected among citizens of the EU. Our company is very strict about non-GMO policy." (Netherlands)
- ✓ "We work with suppliers for GMO-free products." (Netherlands)

- ✓ "[Name withdrawn] complies with GMO labeling . . . Some consumers buy only GMO-free, but some don't seem to care. I think it's just personal preference." (Ireland)
- ✓ "Our store does not sell genetically modified food because of the [company] policy." (Ireland)
- ✓ "We don't sell genetically modified food . . . Our customers and suppliers know that . . ." (Ireland)
- ✓ "In general, we don't sell GMOs. But some items may have a bit . . . We make sure they are labeled." (Ireland)
- ✓ "[Name withdrawn] has specific guidelines with vendors clearly indicate that our stores do not sell genetically modified food products." (UK)
- ✓ "We sell GMO-free products. Consumers don't want genetically modified food." (UK)
- ✓ "Nowadays there are more customers want non-GMO food, so we sell what they want." (UK)
- ✓ "Our customers demand GMO-free goods. I am not sure if [it's because] they are more educated, or [are] affected by the media." (UK)
- ✓ "Our local consumers, who do not travel outside of Iceland, are unaware of the GMO issue and thus, there is little discussion about it." (Iceland)
- ✓ ". . . the public is generally not well educated on GMO and therefore, show little to no resistance towards such products." (Iceland)
- ✓ "In response to the public's non-resistance towards GMO, some stores in fact have already selling GM products." (Iceland)

US Food Retailers: 1 out of 6 commented or suggested that they do not sell GMO goods or source from food suppliers that use GMO food production technology, while 5 did not comment on sourcing from or selling GMO products.

- ✓ ". . . adopted a non-GMO stance in response to customer demands." (US)

*Proposition 2b:* Food retailers in European countries will have more strict selection criterions toward GMO food production technology and related issues than in the United States. (*Supported*)

- ✓ See comments from *Proposition 2a*

*Proposition 2c:* Food retailers in European countries will have more strict selection criterions toward organic foods than in the United States. (*Supported*)

### Reliability:

- ✓ “There is a profound need for the company to boost the year-round supply of organic dairy, meat, and fruit and vegetable products.” (Ireland)
- ✓ “Our company wants to work with reliable suppliers who can provide us with frequent deliveries and regular supplies.” (UK)
- ✓ “One of our company’s focus is to develop a secure and reliable organic supply base.” (Iceland)
- ✓ “. . . our goal is to ensure that we work with suppliers who are reliable, and who can provide our store with more steady supplies.” (US)

### Distance:

- ✓ “Keeping an eye on how far the produce travels before it reaches retailers from suppliers is an important criterion we use to select vendor.” (Netherlands)
- ✓ “The company’s policy is to seek out Belgian suppliers first, not only to help promote the local economy, but also to ensure the freshness of the products.” (Belgium)
- ✓ “. . . Distance is [a]very important factor, because it costs us more for transportation and handling.” (Iceland)
- ✓ “Customers know it’s fresh if it comes from a farm 25 miles away.” (US)

### Quality:

- ✓ “For us, quality is taste and appearance. If the quality is not properly monitored, customers would not buy sub-standard organic products.” (Belgium)
- ✓ “When finding suppliers, the company [name withdrawn] looks for quality and service. If the

supplier cannot meet this requirement, then the company [name withdrawn] will not work with that supplier.” (Ireland)

- ✓ “. . . quality of an organic product, especially in the produce section, is critical to a vendor’s success.” (Iceland)
- ✓ “. . . look for suppliers who can provide organic products with a consistent level of quality.” (US)

### Retailer–Supplier Relationship:

- ✓ “We have a long history of loyal suppliers; 90 to 95 percent have been working with the company since it began. The company’s philosophy is to build long-term relationship and trust by growing together with small supplier companies.” (Belgium)
- ✓ “We have worked on building relationships with our suppliers. So we can develop the range of organic food products together.” (Netherlands)
- ✓ “Our company seeks to establish closer relationships with our suppliers so that we can increase efficiencies in our business.” (Ireland)
- ✓ “. . . Sound relationships with suppliers can give leverage to our stores such as advertising and promotion support, new product development, and [ability to] obtain products in short supply quickly.” (UK)
- ✓ “Most of my supplier relationships date back to the store’s opening in 1986. The store’s success and expansion can be attributed to its sound relationship and effective communication with our suppliers.” (Iceland)
- ✓ “We have been working with our suppliers for about 10 to 25 years, and a lot depends on the relationship between buyers and suppliers . . . We give priority to our existing suppliers to develop [new products]” (US)