

# Structural change or logical incrementalism?

## Turbulence in the global meat system

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### Abstract

In the last ten years the global meat industry has encountered numerous critical events related to food safety and food quality. These events in turn have caused the industry to re-evaluate how the meat supply chain functions and how to service the new social attributes demanded in the market place. This paper uses a unique methodology, shedding light on why and how the US meat industry is evolving and why its evolutionary path may differ from that which is occurring in Europe.

### 1. Background

In the last ten years the global meat industry has encountered numerous critical events related to food safety and food quality. These events in turn have caused the industry to re-evaluate how the meat supply chain functions and how to service the new social attributes demanded in the market place. Issues like source-verified, non-GMO, and organic are becoming important sources of product differentiation. How should firms in the meat supply chain respond?

Several studies (Fearn, 1998; Viaene and Verbeke, 1998; Lobstein 2001; and Yeung and Morris, 2001) have described and assessed the drastic changes in the Western European meat industry due to food scares and consumer distrust in the regulatory system. The motivation for these studies lies in the catastrophic consequences of food safety scandals that directly affected this region. Events such as the Bovine Spongiform Encephalopathy (BSE) outbreak and its link to human neurological Creutzfeldt-Jacob disease (VCJD), the re-appearance of the Foot and Mouth Disease (FMD) after decades of free status, and concurrent biological and chemical contamination in food products, have shaken the entire European meat industry. As a result, this industry has been forced to evolve to high levels of coordination in the chain relationships and to delivery of complex new social attributes (Gow and Goldsmith, 2002).

On the other hand, countries like the US, which have not faced in vivo such chaotic events, have implemented

preventive measures and new regulations at the margin. Some experts (Schuff, 2001; Ginsburg 2001 and Robinson 2001) believe that the current regulatory system is vulnerable, requiring further action. Lobstein (2001) suggests that the meat industry should not simply take reactive and preventive measures but should be ready for unexpected food safety problems. Dailey (2001) also believes that to assure a trustworthy meat system, new and solid alliances between governmental agencies and the meat industry are needed. According to Martin (2001) about 6 out of 10 Americans are concerned that Europe's BSE problem could affect the US; moreover, according to a survey from the Food Marketing Institute cited by the same author, the consumer faith in the US food supply has eroded from a confidence level of 84 % in 1996 to 74% in 2000.

For the global meat industry, the assurance of safe products and the supply of new social attributes could be a daunting task. According to Sporleder and Goldsmith (2001), events such as BSE and FMD, genetically engineered products, and animal welfare concerns signal rising expectations for firms in the food and agricultural supply industry to deliver social attributes. According to these authors there are numerous mechanisms by which trust and food safety can be assured, the more traditional strategies involve governmental approaches while the more promising, given the new environment, involve firm-level and third-party strategies, such as third-party protocols, branding, indemnification, and vertical alliances and integration<sup>1</sup>. While it is clear how

<sup>1</sup> Some of these strategies and new marketing approaches are already in place in the US meat industry. For instance, warehouse clubs, food service entities and some meat processors have started marketing campaigns of branded products to change meat commodity perception to a value-added category (Major, 2001). Likewise, new initiatives of vertical coordination between producers and processor to assure quality products and share financial risks are becoming common (Katz and Boland, 2000). Government agencies, like the USDA, are supporting process-verification systems to control and verify each phase of meat processing (Castaldo, 2001). Nonetheless it is difficult to assess whether these strategies represent a current trend or an isolated initiative.

the European industry is responding, how should the US meat industry react?

## 2. Underlying theory

There are two general theories of organizational adaptive change. From the complexity theory literature (Leifer, 1989; Stacey, 1995; Macintosh and Maclean, 1999) the concepts of entropy and far-from equilibrium portend the potential for organizations to radically reconfigure themselves as their niche compatibility becomes untenable. Operating far from equilibrium necessitates new strategic architectures, which are not found through mild experimentation. An important component of the complexity view of organizational transformation is the role of a major critical and external event that initiates this process of change. In relation to this study, food scares and the demand of new social attributes could be an external force that might cause the industry to start a process of fundamental change, like that seen in Europe.

On the other hand, rugged landscape theory (Levinthal, 1997; McKelvey, 1999) and strategic management theory portend a more incremental (and limited) process (Quinn, 1980, Fredrickson and Jaquinto, 1989; Quinn et al, 1990; Mintzberg, 1994; Brown and Eisenhardt, 1997). Modern theories of strategy posit that radical moves are inconsistent with the fundamentals of the strategy process; a process described as logical incrementalism (Quinn et al, 1990). Because organizations are complex and strategy emerges from within the organization and not simply from senior management (Mintzberg, 1994), long-jump strategic changes envisioned in the complexity theory literature are unrealistic.

Similarly, rugged landscape theory states that firms move along fitness peaks that represent multiple optima. This diverse fitness landscape offers alternative sustaining organizational forms and business models (McKelvey, 1999). Alternatively, a landscape that is not rugged implies that the industry converges to one archetype. This would be consistent with the neoclassical economics view of the complementarity between markets and business form. The ruggedness of the environment is a function of the number of attributes necessary for survival (industry complexity) and the degree of industry interconnectedness (Levinthal, 1997). Two stylized systems can exist: one heterogeneous system with many peaks (organizational forms) and low maxima, and another with a singular dominant organizational form and a unique maximum. In their search for greater fitness, firms gravitate toward peaks (successful

models): which is an adaptation process. At the same time population forces are selecting organizational forms; which is thus a selection process. Firms can therefore always be attempting to improve their fitness while at the same time the local peak they are climbing may be far from the global optimum, and the firm is doomed.

Additionally these competing views of strategy can be analyzed from the standpoint of chain and network science (CNS). The premise of CNS is that as markets become dynamic and laden with information there are increasing returns to investments in network assets. A network perspective can effectively describe the increasingly complex delivery systems of food from production through to consumption (Omta et al, 2002). Historically though, commodity supply chains have relied on static, broad, and universal grades and standards (e.g. #2 yellow corn). Information loading came from within the firm, not between firms. Such a system is highly efficient if each firm in isolation is able to satisfy customer needs. The network scheme under such a supply system is rather boring. The US meat industry, with its roots in the commodity business model, comprises essentially sequentially independent firms. Given the turbulence in the meat industry, are the industry's network properties changed as knowledge becomes a limiting factor? If they are changed, is the change radical or incremental? Following Levinthal (1997), might multiple network structures be equally competitive in the same industry?

## 3. Research objective and methodology

These competing theories frame our research objective which was to determine how the meat industry is responding to the recent events involving food safety. The research posed two central questions regarding the industry's response: what is the rate of change, i.e. is it radical or incremental, and, more importantly, what is the rationale for this strategy choice.

In the quest to empirically answer these questions there was a methodological dilemma. What data are available to study? How might one provide evidence about the strategic intent of our study industry, especially as it appears paradoxical in light of recent events? While this is partly a predicament of agribusiness research and the paucity of secondary data (Goldsmith and Dissart, 1998; Boehlje, 1999), it is also a predicament of strategy research. The grounded research approach<sup>2</sup> has proven quite successful when attempting to understand strategic intent in the present or when the subject is extremely dynamic<sup>3</sup>. A simple review

<sup>2</sup> A good example is Brown and Eisenhardt (1997).

<sup>3</sup> Dynamics is particularly pernicious because even given a large N, stationarity problems dominate the problem.

of the recent literature pertaining to the meat industry reveals very little information about industry behavior at the firm or transaction level<sup>4</sup>. While numerous researchers admit that the food and agricultural industry is undergoing structural change, there has been no work, with the exception of Boland et al (1995) and Katz and Boland (2000), studying the implications of this structural change at the firm level. This has become even more evident with the recent crises related to food safety, as most work has been dominated by analysis from a policy and government perspective (see Spriggs and Isaac, 2001). Therefore there is a critical need for complementary firm-level research as consumers, policy makers, and the industry wrestle with how best to deliver safe food. This research manuscript attempts to fill some of the gap in this knowledge.

To accomplish this, the research took a simple yet unique approach to help yield some empirical evidence. It involved three empirical methodologies all focused on the same meat supply chain (in Chicago, Illinois): 1) semi-structured interviews with supply chain managers; 2) videotaping of retail meat cases to document exactly what was being sold, and 3) consumer interviews eliciting preferences (conducted by another research team (Swanson, 2001)).<sup>5</sup>

The research process began with a series of semi-structured interviews with supply chain agents from the meat retailer to the packer using a needs assessment technique. The work by Swanson (2001) was reviewed. His survey of consumers targeted the same retail stores. Swanson's work was followed up with visits to some of the stores involved in the survey.

While Swanson asked consumers what they wanted in the fresh meat case, what were consumers actually offered? To assess this, with permission of the management, the meat cases were videotaped. By triangulating the survey, videotape, and interviews a clear picture was drawn of how the supply chain was responding in a world of turbulence and why it was responding in that way.

### The Swanson study

The purpose of the survey was to better understand consumers' stated preferences for social attributes and their willingness to pay for those attributes<sup>ii</sup>. In short, consumers considered price, as well as health concerns such as no preservatives, antibiotics or hormones, to be only moderately important (Figure 1).

The most important attributes, according to these consumers, were product presentation, quality grades, and taste. The attributes organic, environmentally friendly, and humanely-raised were relatively less important. While not completely mirroring European consumer response (see Salvador, 2002; Gow and Goldsmith, 2002), these results do reflect some consistency with European consumers' attempts to reform the meat safety system and Martin's (2001) recent article in *Nation's Restaurant News*. If these results are robust, one would conclude that consumers appear to prefer natural products and higher quality cuts, and they are willing to pay for them (Swanson, 2001).

<sup>4</sup> e.g. Macdonald et al, 1996; Buhr and Kim, 1997, Zaibet and Bredahl, 1997, Unnevehr et al 1997, Anderson, 1999; Drabenstott et al, 1999; Ollinger et al, 2000; Morrison and Katherine, 2001; Wachenheim and DeVuyst, 2001

<sup>5</sup> In terms of timing, the semi-structured interviews were conducted first in the winter and early spring of 2001. Swanson then conducted his survey in the late spring and summer (2001). Videotaping followed later in the summer of 2001.

ii Swanson conducted a consumer survey in the spring of 2001. This survey included 934 respondents from six supermarkets in the Chicago metropolitan area. The six supermarkets included two independent stores, two specialty meat stores, one cooperative supermarket and one natural grocery store. Respondents with income levels greater than \$100,000 per year represented 20 percent of the customers in one of the neighborhoods, 50 percent in three other neighborhoods, and almost 75 percent in the last neighborhood. The majority of the respondents were women (at least 70% across all the supermarkets) with ages mostly between 40 and 60 years old. 49% of the respondents were professionals, 18% housewives, and 17% retired. The surveys were handed out in the stores, filled out at home, and then mailed in with the postage paid envelope that was provided.

This likert-scale questionnaire listed 18 characteristics that influence meat-purchasing decisions among consumers. The characteristics can be grouped as followed:

- 1 Attitude towards price.
- 2 Quality perception like visible traits, quality grades, branded meats and taste.
- 3 Health concerns related to the absence of antibiotics, preservatives and hormones, the use of non-GMO feed, and organically produced meat.
- 4 Environmental and humane handling concerns.
- 5 Interest in convenience products such as pre-prepared and pre-packaged meats.

Other issues related to the importance of packaging, locally produced meat, irradiation and slaughtering practices (kosher and halal)

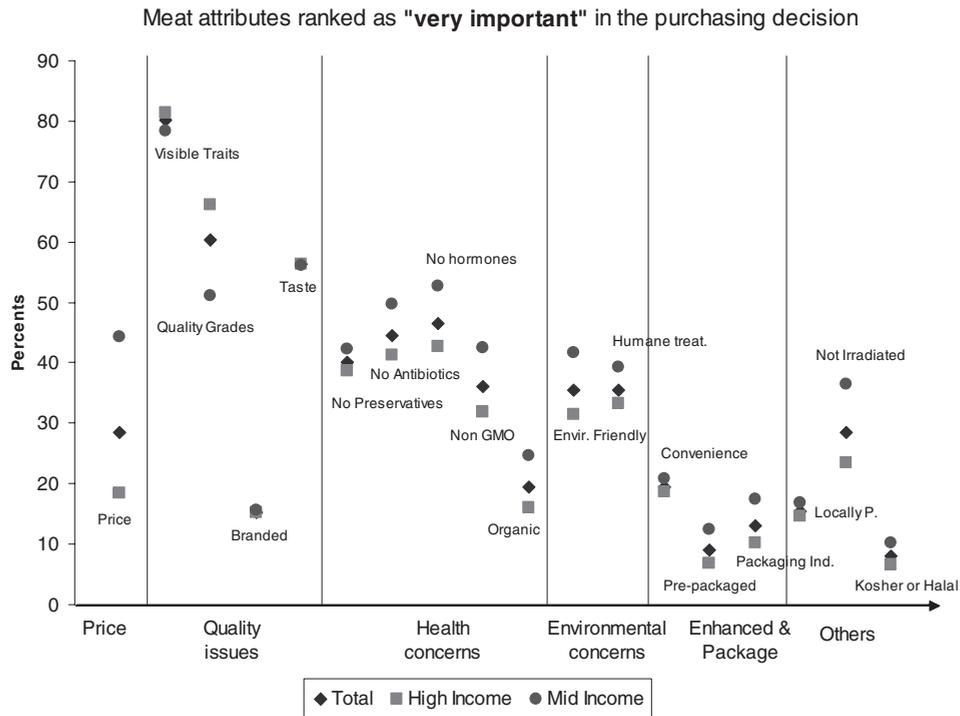


Figure 1. Swanson Meat Survey Results.

**Semi-structured interviews and direct observation**

Using a semi-structured interview instrument (Yin, 1994; Gummesson, 2000) and direct observation (Kumar, 1989), our research methodology analyzed three of the Swanson stores and their supply chains (plus three other stores for validation purposes). Four overarching questions were behind our approach; how does the US meat distribution system operate, how well is the chain operating, how is the chain responding to the turbulence in the global supply chain, and, finally, what is the degree of dissonance with respect to critical product attributes across the supply chain from consumers to packers.

The semi-structured interview instrument was structured in the form of a needs assessment (Johnson et al, 1987; Soriano, 1995). Needs assessment is a technique in business relationship management for suppliers to learn how their client’s business operates. It specifically focuses on the day-to-day operations that the manager (interviewee) deals with. It elicits from that manager information on how business is done, where problems and challenges exist, and

what would make the business run more smoothly. By conducting a needs assessment the supplier learns from the client how their own product and service contributes to the client’s success and where new sales and service opportunities might lie.

The needs assessment approach was particularly valuable for us when attempting to understand the impact of the recent market turbulence related to social attributes. Because there has been much media attention to these issues, respondents may be biased in their responses when directly asked how the turbulence affects their businesses. Alternatively, with the needs assessment approach, the managers reveal how their businesses are performing, the satisfaction of their clients, and what changes they would like to see in the meat/animal products they are buying and re-selling. All business factors are “fair game” as the discussion is not preset to be about the social attribute issue. If a need arises on its own concerning, for example, source verification, one could then link environmental turbulence and an industry response.<sup>6</sup> All interviews were taped and transcribed.

<sup>6</sup> Interviews involved a cooperative wholesaler as well as a cooperative retailer. The cooperatives were particularly valuable because management needs to be very responsive to the membership due to the unique governance structure. Any member concerns are generally transmitted as unmet needs for the procurement manager. This transparency provided important insights into the current state of meat demand and how well the chain was performing. For example, it was hypothesized that SKU counts would be higher in the co-op retailer (ceteris paribus), and that was indeed the case.

The needs assessments were compared within and across supply chains and with consumer response as expressed in the Swanson study. All interviews were conducted with either owners or senior or mid-level management. Sixteen managers were interviewed (Figure 2).

Three managers were in the meat packing; two represented a national firm (P1) and one was a small independent company (P2) serving clients outside of Illinois. Three wholesalers were interviewed; one represented a large national cooperative (W1) serving regional chains from across the US that do not compete with each other, one

represented a large regional cooperative (W2) serving over 200 stores in the Chicago area, and one was the buyer for a large regional retail chain (RC). Ten retail managers were interviewed; two managed a local mid-sized cooperative chain (CO), six owned or managed three independent retail stores (I1, I2, I3), one owned a small speciality retail meat market (SM), and one was a case manager in a large regional retail chain (RC).

The interview instrument contained 170 open-ended questions. Not all questions were asked to all supply chain members because interviewees were heterogeneous, representing the breadth of the supply chain, and they did

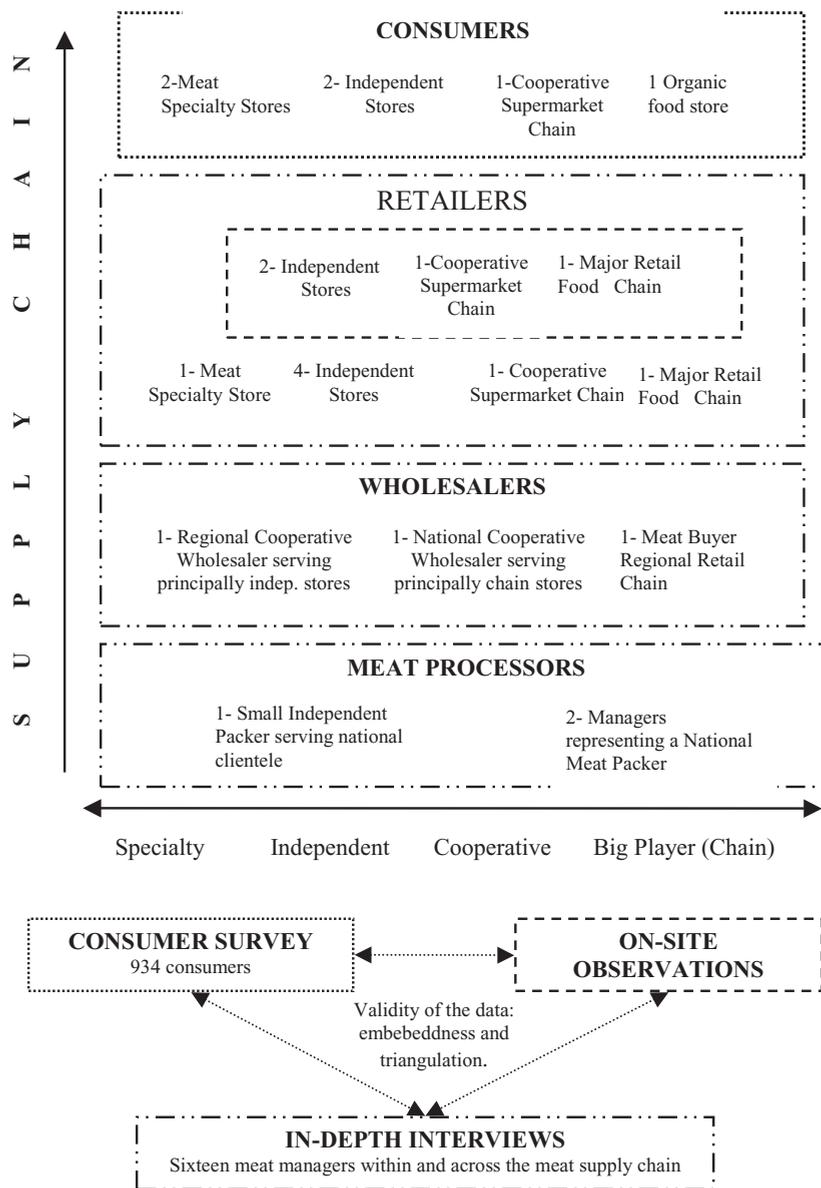


Figure 2. Research Methodology Overview.

not all hold the same management positions. Interviews were held on-site and lasted on average two hours. All but two interviews were tape recorded and transcribed. Transcripts were analyzed using a software program called QSR-N5 NUD\*IST (Non-numerical Unstructured Data Indexing Direct Searching and Theorizing).

**Direct observation**

The on-site observations included four retail stores in the Chicago metropolitan area: two independent family-owned supermarkets, one cooperative community-owned supermarket, and one regional supermarket chain. The two independent stores were considered "high-end" supermarkets with locations in wealthy neighborhoods (Table 1).

One of the independent supermarkets operated out of a single location, while the other had three locations. The cooperative market, a three-store chain, was associated with a more diverse and urban clientele. Finally, the retail chain store, with 200 stores in the area, located in the same community as the second independent supermarket, was considered to be a super-store with a more aggressive marketing strategy.

Besides their willingness to participate in the study, three factors were considered in the selection of the stores: 1) the aim of having the most heterogeneous group possible, in terms of type and size of the stores, consumer orientation, and demographic context; 2) the necessity of including high-end supermarkets where supposedly social attributes are more likely to be offered or addressed; and 3) the participation of the stores in the in-depth interviews and

the consumer survey<sup>7</sup>. There was very good overlap between in-depth interviews, meat case analysis, and the Swanson study.

The subject meat cases were systematically digitally videotaped making sure to capture individual products, their labelling, and packaging. Due to the focus of the study, only fresh meats were considered - processed, canned and frozen meats were not included. The meat categories were broken down as follows: Regular - fresh meat cuts traditionally offered in all meat departments; Enhanced - those products in which additional value was added to the regular product (i.e. stuffed chicken breasts as opposed to regular chicken breasts); Low volume - those items which are not high in demand (i.e. lamb fries, pigs feet.) Within each category, the meat data was sorted into species type: beef, veal, pork, lamb, chicken, turkey and specialty. Specialty meats are products such as rabbit, duck and Cornish hens. Observations were conducted at the end of the week (Thursday and Friday) when meat cases are generally at their fullest.

An important caveat with this kind of research is the robustness of the results. The limitations of such qualitative research are recognized and the research design attempted to address, ex-ante, as many of the validation questions (see Goldsmith et al, 2001) as possible. Extensiveness (Yin, 1994) was addressed through cross-sectional data collection across supply chains as well as within supply chains. Triangulation was achieved through the semi-structured instrument that asked each chain member (whenever possible) similar questions framed in a similar way. Embeddedness (Yin, 1994) was achieved by direct observation of the meat case and served to assess the consistency of the responses of managers and consumers.

**Table 1. Sample Store Profiles.**

	Approx. size sq. ft	Income/fam \$	Caucasian %	Afric-Amer %	Latino %	Others %
Independent 1	22000	94750	94.7	1.5	1.1	2.3
Independent 2	45000	126750	97.4	0.5	-	1.0
Coop.	50000	66000	39.2	51.5	1.2	8.0
Retail chain*	65000	126750	97.4	0.5	-	1.0

\*Income and demographic information was obtained from the consumer survey.

The retail chain did not participate in the survey; the values in this category were assumed to be similar to Independent store 2, since they are located in the same neighborhood.

<sup>7</sup> It is important to mention that two managers from each of these four selected stores were interviewed, and a random group of their customers (except for the case of RC) accounted for 88% of the respondents in the Swanson survey.

## 4. Results

### Context

As mentioned above the focus was on four retail stores, which were subsets of the Swanson study and our supply chain interviews. There were 530 fresh meat SKUs<sup>8</sup> across the four videotaped stores; 30% in the chain retailer, 32% in the co-op, and 22% and 16% in the two independent retailers (Figure 3).

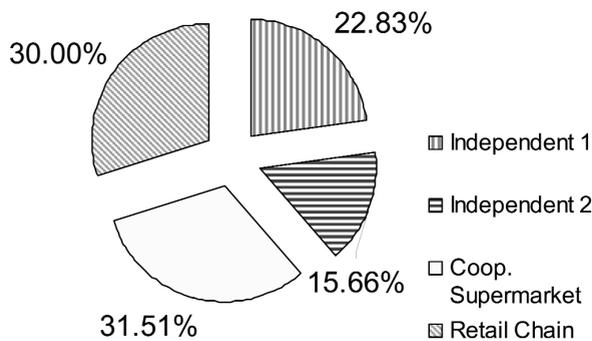


Figure 3. Percentage of Total Meat SKUs by Store (N=530).

The chain retail store had 2.5 meat SKUs/1,000 sq.ft., the co-op 3.3, and the two independents 5.5 and 1.8 respectively. Thus the two independents differed in their retail focus with respect to meat. Of the six major species, beef comprised 39% of the SKUs, pork 21%, poultry 30%, lamb 5% and veal 4% (Figure 4).

Over 90% of the SKUs originated from the major packers<sup>9</sup> (Table 2). Of the 530 SKUs, 27% were branded (Figure 5).

The leading branded species was poultry (51%) followed by pork (29%). While 65% of the branded products originated from the large packers, 11 other brands were also

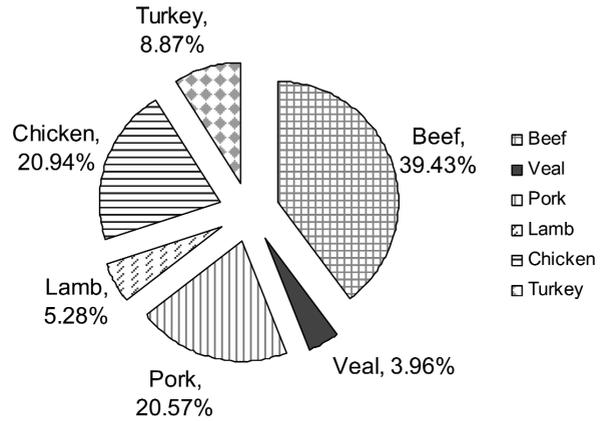


Figure 4. Meat SKU Breakdown by Meat Type (N=530).

represented<sup>10</sup>. Contrary to what might have been expected from the Swanson survey, only 11% of the facings were natural,<sup>11</sup> most of these originating from the large packers. Poultry was by far the leader among natural products (85%) (Figure 6).

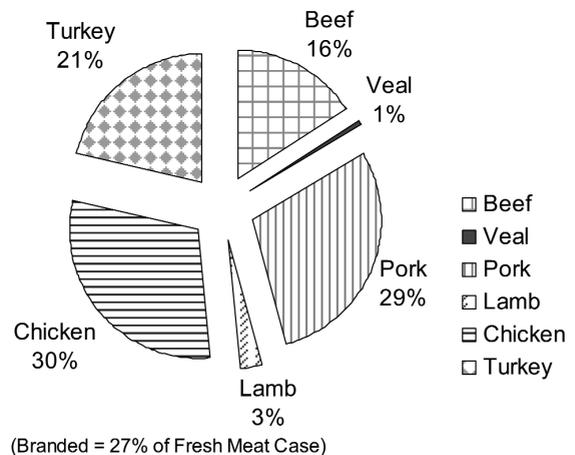


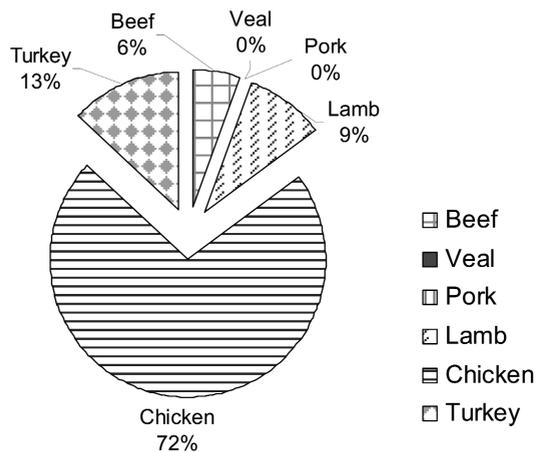
Figure 5. Meat SKU Branded Products (N=143).

<sup>8</sup> Individual products known as "Stock Keeping Units."

<sup>9</sup> Tyson, Perdue, IBP (now part of Tyson), Excel, Farmland, Smithfield, Gold Kist, ConAgra (Butterball), and Hormel.

<sup>10</sup> Amish Brand, Bell & Evans, Burgers', Catelli, Chef's Requested, Chiappetti, Coleman, Flavor Best, Plantation, Rose's, The Turkey Store, Trail Boss

<sup>11</sup> The notion of "natural" can be misleading, because each natural program is certified but not defined by the USDA. The circumstances under which the term "natural" may be used on the labeling of meat and poultry products are described in Policy Memo 055, "Natural Claims." Policy Memo 055 provides that the term "natural" may be applied only to products that contain no artificial ingredients, coloring ingredients, or chemical preservatives; and the product and its ingredients are not more than minimally processed. Minimally processed products that do not contain these types of ingredients, such as fresh meat and poultry, will automatically qualify for the use of the term "natural" on product labeling.



Natural Products= 11% of Fresh Meat Case

Figure 6. Meat SKU Natural Products (N=56).

### Recent food scares

None of the interviewees were concerned about the recent food safety incidents. For example, at the time of the interviews there had been a “BSE scare” in Texas, which made not only the industry news but also the national news (Schuff, 2001).

None of the interviewees raised the BSE issue on their own when our needs assessment approach raised questions about performance of the supply chain. When prompted at the end of the interview, most had not heard of the incident and those who had were unconcerned. At the end of one interview with a major national meat cooperative wholesaler, he was asked how familiar he was with what was going on in Europe (meat scares and depressed meat consumption). When asked whether any of his members had asked about traceability or BSE, he replied, “not really.” However, when pressed on whether there had been any e-mail traffic from his member retailers, he said “some.” With regard to what member retailers were asking, he stated simply, they asked

Table 2. Summary of Results

Topic	Result	Implication
Supply Source	90% from major packers	Major packers providing coverage across distribution channel
Supply Source	65% of branded products from major packers	Major packers effectively providing distribution channel with branded offerings
Natural Products	Only 11% of SKUs	Minor impact on meat case. Most of the natural SKUs supplied by major packers
Food Safety	BSE/FMD Recalls	Little concern, awareness, impact on operations
Food Safety	USDA/FDA	Chain members are satisfied and confident
Traceability	High level of trust	Traceability from plant is sufficient
Traceability	Full IP not necessary	Major packers know where their animals come from
Traceability	No evidence in meat case	Argument could be there are other mechanisms in place that make traceability superfluous, i.e. branding, USDA inspection, retail double brand, reputation brand of major packers.
Quality	Differentiation by means of broad and static USDA grades	Limited need by SC members for more information
Quality	Increasing use of select grade	Leaner and better margins
Quality	For SC member quality means supply chain performance, i.e. logistics and efficiency	Major packers effectively address needs of down-chain. They can “sell what they buy.” Case-readiness is very important to wholesalers and retailers
Price	Dominant issue in the conduct of the SC (even small upscale independents)	Meat is still basically a commodity. US consumers are highly price sensitive.
Packer concentration	Not an issue	Sufficient number, efficient so product substitution can be made readily.
Commodity model	Allows buyers flexibility	Avoids a “hold-up”

“if our meat was safe and I told them it was.” When asked whether an overnight fall in demand of 10, 20... even 70% would be of concern to the membership, he replied, “Did that happen in Europe?” The suggestion was then made that engaging in a planning exercise focused on the areas of risk assessment and crisis management might be of value to the membership. The wholesaler thought that might be a good idea, but it was probably “...ahead of its time....”

In general, meat agents perceive major events like BSE and FMD as external issues that have not really affected the domestic industry. However, most of the retailers and wholesalers acknowledged that BSE and FMD are part of their daily business conversations. Four of the five retailers managers of the specialty store, the two independent stores and the retail chain- admitted that a small proportion of their customers have inquired, at least with general questions, about BSE and FMD. They perceived that the media has done a good job in educating the public, particularly in the case of BSE. Only one retail chain manager noticed a decrease in meat sales when these two events were at their height. According to the managers of the retail chain and the independent store, FMD caused more alarm among consumers than BSE, even though it is well known that FMD does not directly affect humans. The managers felt that consumer alarm around FMD was based more on concerns about meat availability and the possibility of higher prices. One of the wholesalers noticed that meat recalls have become more common, but according to him this increase in meat recalls is mainly related to better control procedures. Moreover, according to the store manager of the I1, the number of meat recalls is insignificant compared with the tonnage moved by meat packers. The director of the Meat Division in W1 mentioned that meat recalls usually have a slight and temporary effect on the sales of the recalled cut. Meat packers believe that one of the major changes in food sanitation in the last ten years is the implementation of Hazard Analysis and Control of Critical Points (HACCP). In general, interviewees perceived that HACCP improved the handling of meat products particularly at the processor level. However, some interviewees - the Carcass Sales Manager of M1 and the Meat Department Manager of RC- suggested that this procedure should be extended to other players in the chain like producers and retailers. According to the safety manager of the major meat packing plant, clean handling and food safety programs remain top priorities in their daily activities.

In general, meat agents are satisfied and confident with USDA and FDA regulations. Overall the managers all assumed that the current regulatory system guaranteed a

wholesome product. One of the wholesalers also mentioned that in the meat supply chain nobody is really demanding greater control, different practices, or greater assurance in the commercialization of meat products.

### Traceability

According to the meat packers interviewed, traceability or source of verification in the meat industry is not currently necessary because cattle are “closely guarded and regulated.” Furthermore, they felt that implementation of such a system would require major transformations that the meat industry is not prepared for. The foremost efforts in traceability and source of verification are found in certain branded meat programs. For example, according to one meat packer, Certified Angus Beef (CAB) is working on a system to track animals from birth in order to assure their black lineage. Currently, full traceability is not part of the CAB program. None of the meat packers were aware of or interested in the high-level traceability systems being implemented in Europe. Wholesalers and retailers also believe that currently there are no reasons to justify traceability or source of verification in “domestic” meat products. According to the meat specialty store manager and one of the independent store managers, consumers are really just worried about whether the product is domestic<sup>12</sup>. There was a uniformly high degree of trust in the US meat supply chain among the interviewees. (The most common complaint was about access to product and price.).

While the survey did not address the question of traceability, the meat case analysis revealed no evidence of source verification or traceable products. It is important to note that while the discussion of traceability is proceeding at a rapid pace in Europe, e.g. Britain’s animal passport system,

**Table 3. Reasons for the absence of traceability or source of verification.**

	Interviewees
It is not necessary now; the regulatory system works pretty well.	5
Consumers are not interested in traceability of domestic meat.	5
Traceability systems are not feasible and difficult to implement.	2

<sup>12</sup> We verified that this meant consumers preferred the domestic private-label non-traceable lamb product to an imported fully traceable branded lamb product originating from a high quality EU-style plant.

traceability was not in evidence in this study's meat cases, even among the 27% of the products that were branded and 11% that were "natural."

There are two ways to interpret these results; the first is that the meat industry is ignoring the larger forces affecting the world's meat supply chain. Alternatively, these results could indicate that there is a lack of change because the value proposition of changing the strategic architecture (see Prahalad and Hamel, 1990) does not exist for firms in the supply chain. Integrated firms argue that they achieve a form of traceability because the animals originate from their own barns. Also, for all meat packing plants there is full traceability back to the plant<sup>13</sup>.

### Quality

An important indicator of the evolutionary state of an industry is the everyday language that is being used by management (and labor) and with customers. As noted above "source verification" and "traceability" were not to be found in the meat case nor were they raised as a need by the managers. While much of the food industry may be differentiating, the US meat industry is still dominated by the broad and static grades and standards of the USDA. 39% (209) of all meat SKUs were beef. Of these, 10.5% were branded, incorporating company information, and 51% had some sort of government grade (Prime, Choice, or Select). The remainder had no information pertaining to quality. Of the SKUs with government grades, 5% were Prime, 68%, Choice, and 27% Select. Among the beef SKUs offered by one of the independent retailers, 78% had no quality information on the label or package. These results describe a commodity supply chain that is well in place, and whose retailers believe that the foundation of consumer choice is price.

This was confirmed in our interviews as well. From the most elite meat market to the volume buyers, they all used the language of the USDA: "Prime", "Choice", and "Select" and their relation to price. Conversations with managers supported the notion that there is only a limited need for more consumer information pertaining to US meat products. For example, one of the lengthiest discussions involved a manager and an assistant general manager and had to do with their meat purchasing strategy. They disagreed on why they offered primarily Select products; was it the leanness or the margin<sup>14</sup>? The manager of the smallest and most

exclusive meat shop visited also felt that the quality of meat coming through formal channels was quite satisfactory. His differentiation occurred through service, i.e. custom cutting. Finally, a meat manager in an independent supermarket in a high-end neighborhood responded that his greatest concern was price, not quality. He wanted to figure out how to compete on price if his company was to invest in a store-brand of meat.

Unlike in the Swanson study, when the issue of quality was raised, the topics were not social attributes, but logistics and efficiency issues. The focus on these issues underlies the supply chain's overall satisfaction with the products emerging from the large packers. The packers have adequately addressed a quality problem that has plagued the downstream part of the chain for many years. With the advent of boxed-beef, and now tray packs (case-ready), buyers of meat, i.e. wholesalers, retailers, and restaurants, are now able to "sell what they buy." In the past with a hanging carcass there were all sorts of opportunities for losses, from waste, trim, spoilage, poor processing, etc. The quality attributes processors have concentrated on in the last few years are reducing purge (the liquid in the meat pack), presentation, uniformity of cut, shelf life, uniformity of packaging, quality of packaging, not to mention in-plant labelling and pricing. All these attributes make wholesaling and retailing a much less risky and more efficient endeavour. Retailers now know that, much like with their center aisle items, what is bought can then be sold. The packing industry has also taken fundamental steps to address the perishability problem. Much of the guesswork associated with price, product shrink, and product quality is gone. The retailer can now reduce its labor demands in the meat section, open up more selling space, dramatically reduce waste, eliminate the need to process hamburger, and better match supply with customer traffic flows. These efficiency attributes associated with the product not only help the large retailers but simplify business for the small retailers as well.

### Price

Price was one of the dominant topics in the interviews. Price plays a key role in every transaction along the supply chain from producers to consumers. The manager of W1 mentioned that "price is an important factor since quality and specification are pretty much standard in meat products," particularly with beef.

<sup>13</sup> In a recent paper Gow and Goldsmith (2002) analyze the US system's preference for ex-post risk mitigation versus Europe's ex-ante precautionary principle.

<sup>14</sup> Select grades are less expensive to purchase. When combined with a "lean" label, consumers are willing to pay a premium for a lower cost product. This occurred in a large cooperative grocery store with a very urban clientele.

By-in-large meat case SKUs are managed as commodities. Communication with suppliers is arm's length, and relationships are completely transactional<sup>15</sup>. Managers were asked indirectly about industry structure and access to product. All of them agreed that the limited number of firms did not inhibit their purchases. Most found that the oligopoly was competitive and it simplified the ordering process. One wholesaler commented that the four purveyors he normally dealt with represented a good number; more would add unnecessary complexity to the buying process and heterogeneity to the product, and fewer would promote non-competitive behavior. Added to the industry mix were numerous "brokers" who add liquidity to the system and valuable competitive discipline.

It is important to understand that the main drivers of the meat supply chain are perishability and volatile consumer demand. Access to product without wild swings in price is critical for the planning process both at wholesale and retail levels. A commodity model, as opposed to a differentiated product/service model is of value because it simplifies transactions and allows for ample substitutability. Buyers described a process of continually mitigating price and supply risk by varying to some degree the volume of business they direct to any one supplier. They always retain access to alternative marketing channels to avoid being caught short or from being "held up." The largest retailers, for example, buy from the field for an additional reason; their demand exceeds the supply of one packer. Each packer also optimally supplies many buyers, thus avoiding being overly committed to one buyer. One of the largest meat buyers in the study remarked that he had to buy all his meat in "a half hour," because his volume could move markets. If the market found out the chain store was planning a special on a particular cut of meat, prices would start to rise with each additional phone call the meat buyer had to make. Avoiding being caught short is a major need throughout the chain. Smaller buyers grumbled not about quality<sup>16</sup> or even so much about price, but about access to the product; whether the product came from their wholesalers or whether they purchased directly from packers. They all agreed that industry structure was not a limiting factor and they found little need to change the system<sup>17</sup>.

Purchasing decisions between retailers and wholesalers depend almost solely on price. Retailers, even in high-end markets, consider that price is a priority when dealing with meat suppliers. Interviewees described in detail how price

discovery occurs and how they protect themselves from "buying high." For retailers, this is one of the reasons they rely on multiple purveyors. Respondents (not including the meat packer managers) uniformly agreed that big meat packing plants offer the best prices.

Retailers are also price driven because, according to them, consumers focus on price in their meat purchasing decisions. Although managers from high-end markets mentioned the importance of other attributes such as service and quality, they also agreed that their customers were concerned about price. Two interviewees, one serving a high-end restaurant and the other a high-end independent store, mentioned instances in which customers switched to other stores just because of price. This result contradicts the Swanson survey in which consumers, especially in high-income neighborhoods, ranked the importance of price in their purchasing decisions relatively low.

One meat manager in a high-end independent store described a situation that had occurred earlier that week. He received a call from a customer he knew by name. She was calling on her cell phone from the meat section of a large chain store competitor where the roast was on sale for \$1.00 per pound (14%) less than he was offering. She wanted to know what he thought about the quality of his competitor's products. Not only did she know the relative prices in both stores, but she was using the local "butcher" not to discuss quality narrowly, but quality in a broad commodity sense. Though only an anecdote, the story from this high-end retailer reflects the current state of the meat value proposition in the US.

The meat case analysis supports the observations from the interviews. While the independent stores were the highest priced, the prices were not correlated with meat quality (Appendix 1). What the consumer was paying extra for was store service and convenience. The generic red meats were all of similar grade and sourced from one of the large packers, but price was 53% higher on average in the independent stores. Brands across the four stores commanded a 42% premium over the generic or private label alternative. Yet, as noted above, branded and enhanced meat products are much more common in the chain retailer than in the independent supermarkets. Not carrying unique meat products certainly appears to limit the independent supermarkets' degree of freedom as they try to compete with the larger chain stores.

<sup>15</sup> See Rackam et al (1990) for a discussion of transactional relationships.

<sup>16</sup> Overall, everyone along the chain and across store types was quite pleased with the product.

<sup>17</sup> One group of small independent retailers was intrigued by the idea of directly sourcing their product and is currently working with producers and University Extension to explore the idea of a private brand.

## 5. Conclusion

Our results show that the US meat chain has responded very differently to the turbulence over the last ten years than the European industry. The US chain appears to be taking an incremental approach, focusing on price, labor and distribution efficiency, and product performance such as shelf life, trim, and retail readiness. Third-party verification and government involvement beyond HACCP and the traditional inspection system are not evident. The major meat packers in the country appear to be satisfying the needs of downstream chain members whether they be chain store retailers or high-end independents. Even the most exclusive retailer is happy with the current offerings from the national meat packers.

Branding is still done on a limited basis and does not address such attributes as traceability, source verification, or organic production. National meat packing companies appear to be able to serve the demand for social attributes; and they are able to use such marketing terms as "natural" or "angus," which may confuse rather than clarify product offerings for downstream chain members and consumers. Chain members are very clear in their language choice, relying on standard USDA commodity grades (i.e. Select, Choice or Prime) to describe and market/procure their products. Disruptive issues, such as BSE, FMD, and GMO, have not arisen as needs requiring attention. While chain members in our research had heard of these issues, and could define them, they all felt secure with the current chain structure. Not only were the large packers well-positioned to deliver differentiated products, large retailers too seemed to be the most aggressive in bringing new products into their stores. With respect to the meat case this seems counter-intuitive as the outer perimeter (fresh and ready-to-eat foods such as fish, meat, and bread) of the store holds the greatest opportunities for independent retailers to differentiate themselves. Instead of differentiating themselves with products, the smaller retailers in our study differentiated themselves with service and shopping convenience.

Paradoxically, the preferences stated by the Swanson consumers were quite different from what was offered in the store meat cases they were patronizing. While many respondents stated that social attributes were "very important", these attributes were only found to a limited degree in the meat case. Products that offered these attributes, e.g. "natural," were by-in-large poultry products, even though most products in the meat case are not poultry. While Swanson (2001) describes significant demand for traceability and organic attributes, retailers did not see this as a high

priority nor were they offering products with these attributes in their meat cases. The needs assessment results and the meat case analysis were consistent with each other. Supply chain members, especially those downstream, were not frustrated that they could not get the products their consumers were demanding. For them, in terms of product offering, the chain was working well.

Framing and bias are real risks in this type of research, and we should therefore be cautious working in this area of social attributes. Not only is there a lot of media coverage, but recent events in the industry have raised numerous new issues. Norms, language, and a common understanding of what is real, what is temporary, or what is permanent are still in flux. Neither researchers, policy makers nor the industry have the benefit of hindsight at this point in time to lend clarity to these issues. Therefore for researchers working at the leading edge of these phenomena it is important to err on the side of neutrality and objectivity. The researchers in this project attempted to address this issue by utilizing the needs assessment approach and direct video observation.

Are retailers being irrational in not offering what consumers "really" want, or do consumer attitudes differ from their behavior? The argument of this paper is that for the US consumer, the fundamentals of price and pristine presentation dominate. This conclusion is supported by the research data. These characteristics are also compatible with the set of supplier competencies and the efficiency needs of the large surface retailers.

One general conclusion that summarizes the results of the needs assessments is that the chain is generally happy with the value package (price and quality) being offered. This seems paradoxical given the recent events in the global meat industry. Despite significant turbulence in the meat industry over the last ten years, the US chain has fundamentally changed little; it is still scale and commodity driven<sup>18</sup>. The European chain on the other hand is in the process of significant structural change in its push to provide a source-verified and fully traceable product. The results of this study seem to indicate that the US meat industry has reacted quite differently to the recent events concerning meat quality and traceability. One explanation is that the domestic markets in the US and Europe are so different that alternative supply chains structures are warranted. Are the food safety risks really any greater in the US than in Europe? If so, then the US industry would appear to be taking huge risks. Or are the Europeans over investing in ex-ante control systems with higher capital and transaction-related costs? This has interesting implications as European and US packers

<sup>18</sup> Applying the concepts of Prahalad and Hamel (1990) to the US pork industry: Did integration address the productivity gap or the opportunity gap? Is the dominant model an architectural innovation (revolution) or a novel form of a continuous progression (evolution)?

compete in many of the same global markets, such as Japan. Are US producers at a competitive disadvantage because of quality or are European packers at a disadvantage because of price?

What we are describing may be Levinthal's (1997) "rugged landscape", where competitive complexities are so great in the meat industry that there are numerous peaks from which one can compete. There may not be one way to achieve safe meat, but numerous mechanisms, institutions, organizational forms, and supply chain structures. Thus what some might see as denial of obvious changes in the consumer environment, the US meat industry may simply see as logically incremental. Only in hindsight will one know for sure.

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## Appendix 1. Selected Meat Price Comparisons Across the Four Sample Stores.

Meat Category/Product	I1		I2		CO		RC		
	Brand	Generic	Brand	Generic	Brand	Generic	Brand	Generic	Private
Ground Sirloin		3.19		<b>3.99</b>		3.79		<b>3.99</b>	
Porterhouse Steak Choice		6.99		8.99		7.99	<b>9.99</b>		
London Broil		4.99		<b>7.99</b>		5.79	<u>5.99</u>	<u>4.99</u>	
Pork Chop - Boneless Butterfly		4.59		<b>5.29</b>		5.09	<u>2.64</u>	<u>0.99</u>	
Boneless Pork Roast		4.39		<b>4.99</b>		<b>4.99</b>	2.99		
Tenderloin		5.49		<b>5.99</b>		4.99	<b>5.99</b>		
Chops				4.99	<b>2.19</b>	<b>3.29</b>			
Loin Chops		8.99		<b>12.99</b>		8.99		9.99	
Leg of Lamb			<b>5.99</b>	<b>4.99</b>		2.99		4.99	
BLSL Breast		<b>4.99</b>			4.59	2.49		2.99	
BLSL Breast (Natural)	<b>4.99</b>		<b>4.99</b>				3.99		3.99
Bone-In Breast			<b>3.39</b>	<b>1.49</b>					
Thigh		1.29		<b>1.99</b>	<u>0.79</u>	<u>0.99</u>			
Thigh		1.29		1.99	<b>0.79</b>	<b>0.99</b>			
Thigh (Natural)							<b>1.79</b>		<b>0.99</b>
Pinwheel (Thigh & Leg)						0.89			<b>1.49</b>
Whole Fryer	<b>1.59</b>		1.49		<b>1.29</b>	<b>1.19</b>			
Cut Up Fryer	<b>1.69</b>	<u>0.79</u>	1.59			1.39	1.59		
Turkey Tails					<b>1.29</b>	<b>1.49</b>			

Gray background = high-priced store    Underline = Brand-Generic Same Store Comparison