A Comparison of Information Technology Usage across Supply Chains: A Comparison of the U.S. Beef Industry and the U.S. Food Industry

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ABSTRACT

Historically, the growth of the beef industry has been hampered by various entities, i.e., breeders, cow-calf producers, stockers, backgrounders, processors, etc... within the beef industry’s supply chain. The primary obstacles to growth are the large numbers of participants in the upstream side of the supply chain and the lack of coordination between them. Over the last decade significant advances have been made in information and communication technologies, and many new companies have been founded to promote these technical advances. This research looks at both the upstream and downstream participants to determine the degree to which information technologies are currently being utilized and the degree that these new technologies have driven performance improvements in the beef industry’s supply chain. Through surveys, the authors find that the beef industry does not use information technologies to their benefit and that the US beef supply chain is not yet strategically poised to enable the use of these technologies.

INTRODUCTION AND BACKGROUND

In a study of the U.S. beef industry and the use of information technology (IT) to enable the industry’s supply chain, Neureuther and Kenyon (2008) found that the beef industry is not using IT to any significant advantage except in the area of information collection. They further found that IT could enhance supply chain performance and integration, but the supply chain is not yet strategically poised to do so. They attributed this to several reasons:
1. Beef in the U.S. is thought of as a commodity product.
2. The U.S. beef industry lacks a common vision and industry goals.
3. The mentality of downstream partners in the supply chain constrains incentives and information movement to upper levels in the supply chain.
4. In addition, auction houses have developed into information clearinghouses for much of the information in the supply chain and few are using e-markets or e-commerce tools.
5. Mistrust of internet usage dominates the industry where there is a feeling that small producers may be eliminated by adopting IT.
6. Current supply chain entities partners perceive little or no benefit to moving their processes online with respect to cost savings in procurement.

Based on these findings, they made several recommendations for the beef industry in the area of IT use in the supply chain and with respect to infrastructure changes that will need to occur in order to enable the use of IT. A synopsis of the recommendation is found in Table 1.

Objectives

Even though a solid foundation of supply chain research exists (Chandra & Kumar, 2000; Levy & Grewal, 2000; Mentzer, Dewit, Keebler, Min,

Table 1. Beef industry IT recommendations (Neureuther & Kenyon, 2008)

<table>
<thead>
<tr>
<th>IT Usage</th>
<th>Infrastructure</th>
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<tbody>
<tr>
<td>Increase the use of e-markets and e-commerce for auction houses in order to create visibility and reach, reduce transaction costs, and facilitate asset swap to achieve better utilization of key assets</td>
<td>Coordination mechanisms need to be matched to the market structure in order to improve value</td>
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<td>Create tangible rewards for adherence to standards, such as contracts that require a higher price per pound for beef that meets an agreed upon level of supply and/or an agreed upon grade specification</td>
<td>Better communication of consumer demands needs to occur throughout the supply chain</td>
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<td>The use of electronic data interchange (EDI) technologies (or even internet XML applications) to link animal record keeping information throughout the supply chain – from cow/calf producer to retailer – by individual animal</td>
<td>Better education of the typical rancher of supply chain management benefits, especially in the areas of coordination, vertical integration, and IT usage is a must</td>
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