

In Ernst & Young LLP (EY US) *NextWave: Agriculture*, we discuss several paradoxes and market themes that represent disruptive forces for food and agriculture.

Vertical integration in food and agribusiness

Once your customer, now your competitor

Verticalization in food and agribusiness

Consumer trends have driven rapid change in recent years across food. Consumers are more food and health conscious than ever — they want to know where and how their food was raised. They are interested in the ideals of LATTE, or local, authentic, traceable, transparent and ethical. In *NextWave: Agriculture*, we discuss several paradoxes and market themes that represent disruptive forces for food and agriculture. Consumers are responding to these disrupters with increasingly diverse and personal demands of the food they consume.

Consumers are also changing traditional behaviors about how they dine. One of the key trends in this space, alongside consumers demanding food transparency, is the desire for convenience. In 2015, for the first

time ever, consumers in the US spent more money dining out than cooking meals at home.¹ The food delivery space is filled with competitors in the US. Firms like Grubhub, Uber Eats and Postmates compete for market share in this newly formed space.

The changing social contract

When we think about sustainability, the word and the movement didn't just start in the past few years. Several examples from the past show events and reactions that humans took to change practices that led to better environmental outcomes.

Think back to the Dust Bowl. It is 1930 and the country is mired in the Great Depression. Large dust storms carried soil across the Great Plains. In response to this, New Deal programs around soil conservation were implemented. The act

of rotating crops became commonplace and we changed the way we performed tilling and other on-farm operations.

We see numerous examples of sustainability mentioned through the decades, up through the early 2000s. Around this time, the movement began to pick up new momentum. Generations like millennials and Gen Z were bringing new ideas and values to the table. Sustainability was the trend, but now we are seeing an increased shift to more value-based agriculture, or even a regenerative agriculture, taking sustainability one step further not only to "sustain" the earth, but to heal and regenerate it.

Vertical integration

We know these consumer trends will continue to evolve, and to address this seismic shift, organizations will have to as well. Firms will look to innovation and adoption of leading practices, digital tools and business models to achieve this goal. One of these approaches is integrating into different parts of the agricultural value chain.

In today's world of disruption and hypercompetitiveness, firms are looking for any edge possible to maintain a competitive advantage. As companies across many industries are being disrupted, examples include Uber, Amazon and Netflix, others are putting measures in place to protect their market share.

Vertical integration, by definition, is *the combination in one company of two or more stages of production normally operated by separate companies*. This is typically done for reasons that tie back to quality control, reduced costs through economies of scale and even increased market share due to the high barriers of entry.

Backward integration occurs when a company acquires a key supplier or takes over a process typically done earlier in the value chain. In recent years, retailers have taken the spotlight, with a few exceptions, as follows:

- ▶ **Kroger, Albertsons, Meijer vertically integrate dairy products:** Milk, cheese, butter and ice cream are commonly sold under a private label and these companies have set up manufacturing sites and dairy farms to bring production in-house. As of 2018, Kroger produced around 40% of its private label milk in-house.²
- ▶ **Walmart opens 250,000-square-foot milk processing facility in Fort Wayne, Indiana:** The move will expand Walmart's in-house private label milk brands. The company began production in late 2018.³
- ▶ **Costco announces a \$400m investment in poultry production facility in Nebraska:** The company will control every aspect — from egg hatcheries through to the processing of birds. Costco expects production to begin in late 2019 and ramp up to full production over one to two years.⁴
- ▶ **Amazon acquires Whole Foods for over \$13b:** Amazon now has access to customer data, private-label product lines and several hundred physical locations that are visited by affluent consumers.
- ▶ **General Mills partners with Gunsmoke Farms to convert 34,000 acres (53 square miles) of farmland in South Dakota to organic:** This will guarantee a stronger supply of wheat for their organic brand Annie's, which can be tailored to General Mills' standards.⁵
- ▶ **Walmart creates its own supply chain for Angus beef:** "As clean labels, traceability and transparency become more and more important to customers, we've made plans to enter into the beef industry creating an unmatched system that allows us to deliver consistent quality and value," said Scott Neal, Senior Vice President, Meat, Walmart U.S. "By enlisting a number of best-in-class companies to take part in the supply chain, we'll be

able to provide customers with unprecedented quality, provide transparency throughout the supply chain and leverage the learnings we gain across our business."⁶

The moves from dairy are an extension of a trend that coincides with private labeling. This practice is not exactly new, but in today's world where data is so important, this is a step toward harnessing more data. The moves by Walmart and, specifically, Costco into the animal production and processing space are new — and potentially disruptive to these industries.

We're living in a time of unprecedented change. New digital technologies, along with data and analytics, especially in agriculture, can be both a driver of further vertical integration by allowing leading adopters of new systems to capitalize on newfound efficiencies and may enable new virtual integration opportunities through the adoption of a wide array of digital supply chain technologies across organizational borders.

With most of these moves occurring over the last half decade and still yet to be in full production, the jury is still out about whether these actions ultimately will be profitable. However, the trend of commercial-scale experimentation is undeniable and has the potential to enable those companies that sell directly to consumers to address the evolving demands of consumers that are consistent with their values.

Let's take a deeper dive into Costco's backward integration into poultry

In response to the consumer trends around convenience, rotisserie chickens have become a popular item for retailers over the years. The concept is simple: a consumer with a limited amount of time can visit a store, pick up a whole chicken that has already been optimally prepared, purchase side dishes or incorporate the chicken into a soup or pasta, and be able to feed their family for a reasonable cost, all without the burden of spending hours preparing a meal.

Compared with higher-cost options, like eating out, or less healthy options, like fast food, the rotisserie chicken checks the boxes of inexpensive, healthy and convenient. That's why Costco sells millions of them each year and is taking these important steps to make sure they are sold at the highest quality.

In 2016, Costco announced its plans to enter the production of poultry (chicken) that will supply up to 40% of its rotisserie chicken demand. The company has partnered with Lincoln Premium Poultry to construct a \$400m processing facility in eastern Nebraska. Contracting with farmers in Nebraska and Iowa, the company hopes to begin production in 2019 and ramp up to 100 million birds per year by late 2020.⁷

With this move, Costco has integrated the entire poultry value chain. They will look to control several aspects: their facilities in Nebraska will contain hatcheries, feed mills, production, processing, etc. "With respect to vertical integration, we continue to explore opportunities that will allow us to realize even greater member satisfaction, whether driven by price, quality or a combination," said Costco CEO Craig Jelinek in the Costco 2018 Annual Report.⁸

AgTech

This industry — experiencing a record-breaking \$17b+ in investing in 2018, according to AgFunder⁹ — is another interesting part of this story. Costco will be assisting in custom builds for its poultry houses that will allow for real-time monitoring of the climate, bird health, and feed and water consumption. They will be invested in those facilities with the farmers. Costco is working with Auburn University to partner in many of these applications.

In another application of AgTech, Costco is working to automate a lot of the feed mill and processing activities, reducing the reliance on labor. The feed mills are using digital technology to adjust real-time nutrient content in the feed to respond to changes in the poultry houses. Processing efficiencies are found when they primarily are processing whole birds, with virtually no human involvement required.¹⁰

Consistent supply and cost control

Four companies — Tyson Foods, Pilgrim's Pride Corporation, Sanderson Farms and Perdue Farms — produce 67%¹¹ of ready-to-cook broilers, by weight, in the US. If we look at the supplier power in this consolidated industry, the entry into poultry production will at the very least help Costco offset the supply risk and control costs. It is estimated that Costco can achieve up to 25 cents per bird in cost reduction from this effort.

One of the primary drivers also was the quality and size of the bird; whole bird production size was getting significantly larger and outside of the optimal size for the rotisserie. The average bird is raised to approximately eight weeks, and sometimes to a specified number of days. Adjusting feed ratios and nutrient content to respond to specific needs in each population, birds can be raised and fed the optimal amount of feed to produce an optimal product, even scheduling the slaughter at a precise hour. These focused efforts will produce a consistent bird for the rotisserie application, at the optimal quality and cost.

Value chain optimization

Another interesting aspect is the site selection. In selecting Nebraska, Costco is entering a state that ranks 27th in poultry and egg production, but also ranks 3rd in the US in corn and 4th in soybean production.¹² These grains represent a significant portion of the broiler feed ration. The southeastern part of the United States is a more traditional area of the country to raise poultry. Picking a state with a large existing supply of feed components will create efficiencies that states without this cannot obtain. The lack of long transportation routes for feed sourcing will decrease freight costs and make this a more sustainable option.

Transparency

As consumers demand further transparency of growing practices and animal treatment, Costco gains the opportunity here to tell a good story. Costco now can control several aspects of the value chain — the sources of feed, the animal living conditions and the treatment of animals — along with less reliance on labor. As preferences evolve within the consumer community, Costco will have levers to pull to quickly respond by adjusting their production methods.

The traceability options and the ability to contain any potential foodborne outbreaks could offset risk as well. Costco will have the ability to control the lot size and traceability — from egg to fork — removing the barriers of the traditional value chain. Self-contained

production to processing offers the ability to track and trace diseases and pathogens through the process of isolating the causes and entry points. This is an additional benefit in food-safety monitoring.

What other areas might be next for disruption?

We can expect to see retailers continue to test new approaches, including vertical integration. The common candidates for grocers likely will occur in the perimeter of the store, which includes fresh fruits and vegetables, meat, dairy, seafood, breads and deli items.

With evolving consumer demands and the prevalence of foodborne illness, retailers can gain additional quality controls by following the Costco approach. Change will likely occur in many aspects of food in the coming years. Here are some notable examples:

- ▶ **AgTech and new models** - New models like urban farms, vertical farming, in-store production and aquaculture could provide a bounty of local options to consumers, even in former food deserts. A wide array of digital AgTech solutions will cause disruption in all areas of the value chain. Do we see a large retailer making a play to integrate into these spaces?
- ▶ **Proteins** - Walmart has made a play in the niche area of Angus beef. Could we see other retailers follow suit, or even take this a step further?
- ▶ **Alternative meats** - Does a large player in the protein space become a one-stop shop for all protein needs, while diversifying risk?
- ▶ **Alcohols** - Craft beer was one of the first industries in the local food movements. EY has teamed with an Italian wine company to offer traceability of each bottle. Is this a niche area into which a retailer with the right story and the right strategy could vertically integrate?
- ▶ **Fast food** - McDonald's has committed to transitioning to 100% cage-free eggs by 2025. As transparency becomes a larger issue, could we see a fast-food retailer move into a protein-based, vertically integrated arrangement in the future?

How EY can help

Our Agribusiness team is actively engaged with leading organizations across the food and agricultural value chain by helping them define success and develop road maps to achieve success in this new food and agriculture paradigm. The combination of deep food and agriculture sector experience and the vast technology assets and capabilities of the global organization of member firms (collectively, EY) of Ernst & Young Global Limited and its alliance relationships provides a strong complement to the EY purpose of *Building a better working world*. The Agribusiness team is positioned to assist on a range of fronts, including:

- ▶ Defining purpose and setting strategy – what are we trying to achieve, starting with the customer needs, value proposition and business model?
- ▶ Developing compelling value propositions and business cases for a range of internal and external stakeholders.
- ▶ Establishing execution approaches - M&A support, including strategy and buy and integration support.
- ▶ Digital and supply chain strategies - technologies such as blockchain, etc.

- ▶ Recognized as a global leader - agribusiness subject-matter resource
- ▶ Strong sector experience - across agribusiness, food, health care and consumer
- ▶ Deep agricultural knowledge - across the entire value chain
- ▶ On leading edge of current trends - understand how trends apply to clients' businesses
- ▶ Technical capabilities and understanding - convergence of technology across the ecosystem

The Agribusiness team can bring the power of EY integrated service lines to our clients.

Advisory

Our Advisory practice works with you to turn thinking into execution and to accelerate profitable innovation and digital ecosystems, deliver breakthrough innovation strategies, optimize organizations' capabilities, and help drive growth and manage risk. Together, with our diverse teams, global connectivity and understanding of your industry issues, we provide or furnish long-lasting results — from strategy to execution.

Transaction Advisory Services

Our Transaction Advisory Services professionals work with clients to help them make better and more informed decisions about how they strategically manage capital and transactions in a changing world. We bring together a combination of skills, insights and experience to deliver tailored advice attuned to your needs — helping you drive a competitive advantage and increased shareholder returns through improved decision-making across all aspects of your capital agenda.

Tax

Our Tax team can help you navigate the shifting landscape of business and tax. Our people and global resources can help you develop and execute business strategies quickly and effectively, with strong accountability and governance. We blend local country technical knowledge with appropriate regional and global insights about the latest developments to help you meet your tax and reporting needs, as well as deliver on your people agenda.

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Our Assurance professionals provide confidence about the validity of financial statements, business-critical information or processes to companies, investors and regulators. Assurance skills are not limited to audit or finance — our Assurance professionals also help organizations make informed decisions about monitoring and reporting on environmental policies, governance and fraud investigations.

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