

A person wearing a blue long-sleeved shirt is holding a tablet computer. Their right hand is touching the screen, and their left hand is supporting the bottom. The background is a blurred field of green plants, likely a farm or agricultural setting. A large yellow trapezoidal shape is overlaid on the top left of the image, containing the title text.

Digital agriculture: influences, trends, and opportunities among ag retailers

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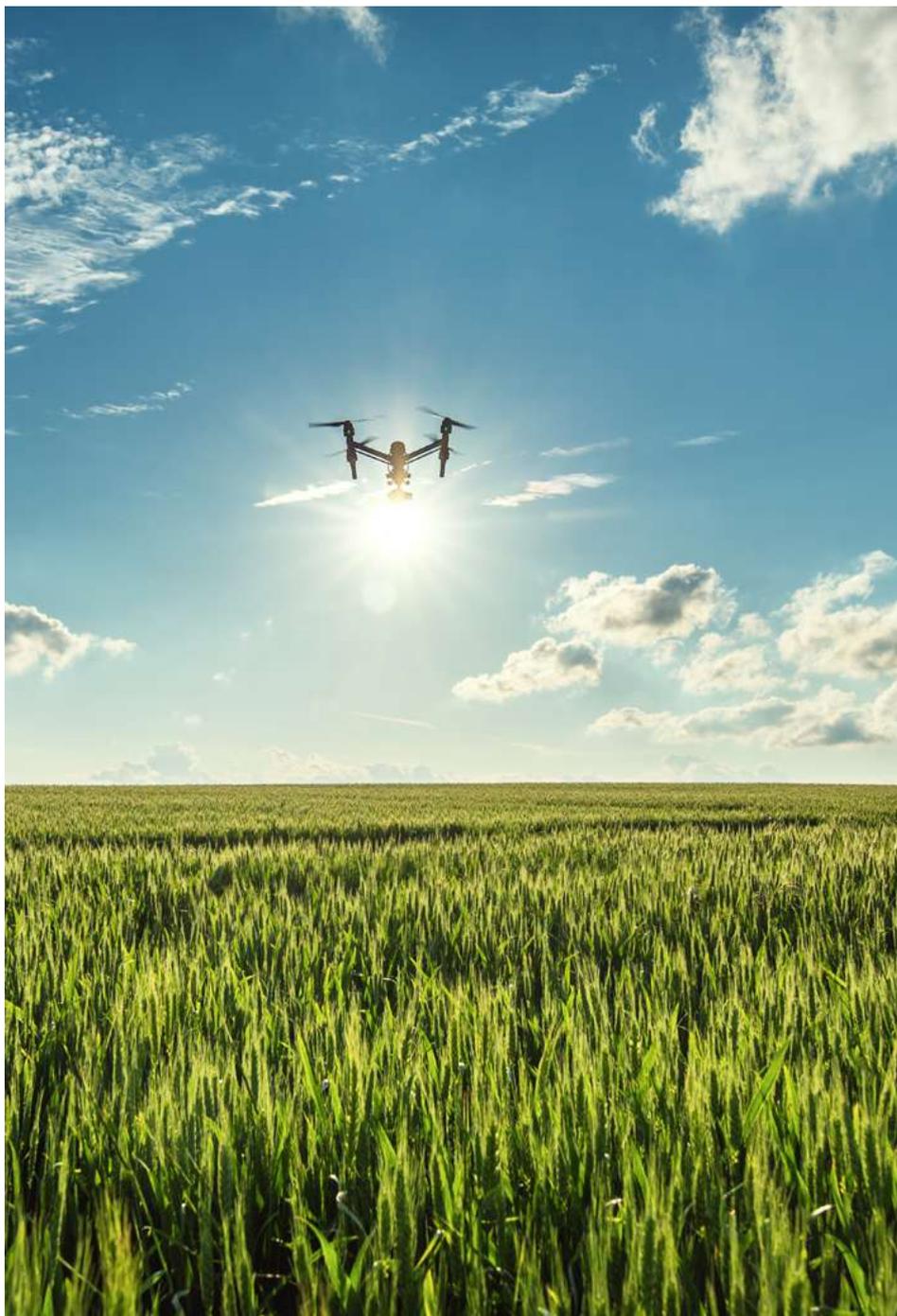


Building a better
working world

Digital Agriculture will provide the opportunity for Agriculture Retailers to enhance the grower experience and strengthen their relationship with growers.

As the farming industry faces the challenge of feeding a growing global population in ways that are both economically and environmentally sustainable, innovations in analytics and technology platforms are playing an increasingly important role in aiding crop management decisions. As digital agriculture matures, agricultural retailers (ag retail) will continue their important role of servicing producers through interrelated farm technologies and crop input products. Often structured as cooperatives and comprised of numerous satellite locations, ag retailers serve as the middlemen between manufacturers and growers. As such, ag retailers are regularly perceived as the grower's trusted advisor.

Ag retail sales and services traditionally include agronomic advice, crop scouting, credit management, custom application, and the sale of crop inputs and protectants. While the certified agronomists associated with rural ag retail sites work diligently with growers to plan and execute crop production strategies, the corporate arm of ag retail works closely with crop input manufacturers to bulk purchase, distribute and store crop input products throughout numerous locations. Serving as both advisor and supplier, the ag retailer must recommend the most efficient use of input products, while at the same time, move considerable quantities of low-margin products to make a profit.



As introduced in the previous article, [Digital agriculture: helping to feed a growing world](#), Ag 3.0 is the application of digital innovation to advance efficiencies throughout the farming sector. Ag retailers have played a vital role in the adoption of the first wave of digital agriculture, known as precision farming. This approach uses software and hardware to identify variability zones within a field, then adjusts applications of crop inputs to meet the needs of each zone.

Digital agriculture seeks to disrupt the competitive landscape through platforms that provide more responsive supply chains, dynamic product pricing, new credit management services and environmental compliance. Sustaining a competitive advantage will require ag retailers to collaborate with input manufacturers and their new methodologies, while delivering agronomic, technological and regulatory expertise that satisfy a changing farm demographic (i.e., larger farms, different stakeholders and additional innovations.)

Agriculture Retailers will help producers strengthen their bottom line by utilizing new platforms that create frictionless economies and differentiated grower experiences.

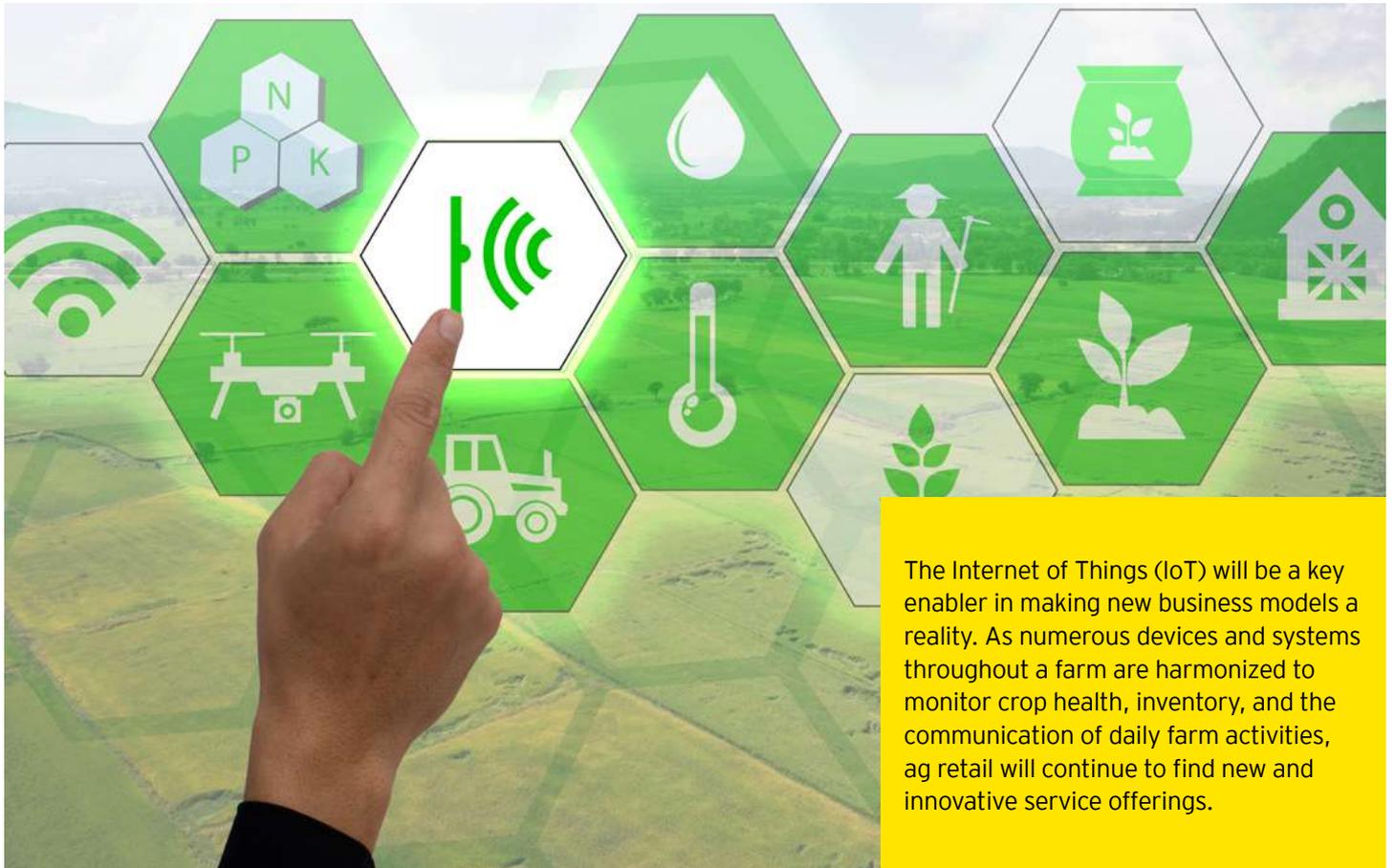


Digital ag: an opportunity for new business models

Innovative ag retailers and crop input manufacturers are working together to establish more collaborative business models. New partnerships are committed to integrating business processes, enhancing inventory transparency and establishing agile supply chains. As more efficiencies are captured throughout the season, partnerships will solidify a competitive advantage by focusing on streamlined costs and bringing a better experience to growers.

Although many start-up ventures seek technology as a means of disintermediating the ag retailer, the complexities associated with fertilizer distribution, coupled with the trusted relationship model that bonds growers and ag retailers, will not be easily disrupted. As digital agriculture introduces more efficiencies throughout the farming ecosystem, ag retailers can help growers strengthen their bottom line by utilizing new platforms that create frictionless economies and differentiated grower experiences. This will create an opportunity for ag retailers to innovate their marketing models, such as shifting their focus from selling products to selling outcomes. For example, an outcome-based pricing model for products or services may reconcile at the end of a season to settle on a price based on the yield performance of the crop.

New approaches to the market, such as selling outcomes, will require ag retailers to have deep familiarity with a grower's operation, the ability to bundle and procure products from multiple input manufacturers, and adopt technology solutions that remove administrative pain points while minimizing yield loss. The caveat to such models is that they will require growers to relinquish a high degree of control over crop management decisions. An ag retailer and other participating partners will not assume the risk associated with outcome-based models unless a grower complies with their prescriptions and application recommendations.



The Internet of Things (IoT) will be a key enabler in making new business models a reality. As numerous devices and systems throughout a farm are harmonized to monitor crop health, inventory, and the communication of daily farm activities, ag retail will continue to find new and innovative service offerings.

A focus on exceptional customer experience

Exceptional customer experience will become a hallmark of digital agriculture. From crop planning through harvest, digital agriculture is striving to seamlessly connect services associated with crop production. This interconnectivity among value-chain providers will relieve many of the current stresses associated with obtaining agribusiness services and may result in considerable disruption in product pricing, financing and credit services.

For example, enhanced inventory transparency throughout the supply chain may create dynamic pricing models for products such as seed inputs and protectants, and thus disrupt the traditional buying power of cooperatives. Similar to the oft changing price of fuel at gas stations and seats on airlines, the price of crop inputs will dynamically adjust according to the supply and demand of real-time orders and inventory changes. In turn, ag retailers will find opportunities to offer more robust pre-season planning and product ordering services so that growers may secure the benefits associated with early procurement.

Although collaboration is increasing between supply chain partners, ag retailers have ample opportunity to create a better customer experience by solely leveraging digital enhancements within their own organizations. Many ag retailers still resort to notepad and

triplicate carbon-copy forms for sales and inventory management. Providing digital platforms for sales, operations and customers to view local inventory levels and place online orders will greatly reduce inefficiencies while providing a better overall experience.

As other agribusiness industries, such as farm credit financing and crop insurance, update their digital capabilities, ag retailers may become a sales conduit to help growers take advantage of beneficial offerings. By showing how a farm uses data to more efficiently manage its operations and mitigate risk, growers may find easier access to operating credit during down economies and better crop insurance premiums. Improved customer experiences in these realms would be quite disruptive to today's crop financing and risk management environments.

The maturing wave of Internet of Things (IoT) devices and sensor-based monitoring services will provide ag retailers additional opportunities to enhance a grower's farm management and crop health experience. Located throughout the farm, IoT devices would monitor climate conditions, soil moisture, spore count and other data. This would feed into predictive crop models and notify the grower and agronomist of crop stage milestones and impending threats. Integrated digital monitoring will significantly enhance the ag retailer's role in crop scouting, analytics and logistics services.



As the demographic landscape within farming communities change, Agriculture Retailers will need to reexamine the expectations that producers have of them.

The challenge of shifting demographics

The oft discussed demographic trend with Corn Belt farms is the decreasing number of moderate-level operations (annual gross sales of \$2,500-\$499,000) and the increasing number of large-scale operations (+\$500,000 annual gross sales). However, changing demographics within both ag retail and farm management are presenting a new set of challenges. Ag retailers face the growing challenge of replacing seasoned personnel and attracting younger talent. Meanwhile, new classes of farmers, such as young, digital natives and institutional investors, have different expectations regarding ag retail services.

Changes in farm ownership are challenging the traditional dynamics of the ag retailer/grower relationship. First is the trend of strategic acquisition of farmland and established farming operations by institutional investors. These stakeholders recognize the value of land scarcity and the investment opportunity in a world of changing consumer consumption demands. Second, is the trend of younger farmers who are beginning to take over their family's large, multigenerational farms. These tech savvy growers often form their digital expectations based on what they experience in other industries. If it is commonplace for consumer products to be evaluated, purchased and have their delivery tracked online, then the same digital experience is expected for their farming business. Thus, the new generation of farm managers

and institutional owners may migrate away from long established ag retail relationships if a certain level of experience with digital management and predictive analytics is not delivered.

Ag retailers must be careful of how influential forces such as grower expectations can change the competitive landscape. Currently, ag retailers are concerned about how digital supply chain integration with crop input manufacturers may open the door for manufacturers to bypass them and go directly to growers. However, if the digital experience expectations of large, sophisticated farms are not met by ag retail, the growers themselves may pressure the input manufacturers to work directly with them.

Another demographic challenge facing ag retail is the retirement of much of its rural workforce over the next decade. As the elder generation leaves the industry, they will depart with decades of customer insights and agronomic expertise. A transfer of professional knowledge and client relationships is proving difficult as younger personnel leave rural ag retail positions for higher-paying jobs in urban areas. This accelerating urbanization trend is not only straining talent resources in North America but is globally projected to add 2.5 billion people to the urban population by 2050¹. Sophisticated digitization may be the incentive that draws young talent back into the agriculture industry.

¹ *World Urbanization Prospects: The 2014 Revision*, United Nations, 2014, <https://esa.un.org/unpd/wup/publications/files/wup2014-highlights.pdf>.

Digital agriculture is widely recognized as the third great revolution of modern agriculture.



Summary

There are many transformational forces within crop production, consumer preferences and regulatory requirements that will require ag retailers to rethink their strategic fit within the food value chain. To stay competitive, ag retailers will need to invest in technology infrastructure, training programs and alliances that better serve an evolving food value chain while meeting the expectations of a new generation of farm managers. Digital agriculture provides the opportunity for ag retailers to operate more efficiently, strengthen the grower relationship with better customer experiences and protect its valuable place within the food value chain.

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