Digital Appetite in Rural America: Innovative Agricultural Technologies and the Potential for USDA

Accenture 2016 Analysis of Farming Experts

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Our Research

Digital technologies and data analytics are transforming how farmers make decisions and operate their farms. Digital agricultural technologies, such as connected crop services, yield map analysis, droning, and precision irrigation are increasingly prevalent. As more and more farmers leverage these to extract insights, there is tremendous potential for data sharing and collaboration with the US Department of Agriculture.

To learn more about how farmers are leveraging digital, Accenture Research performed qualitative interviews with a select group of farming experts across 5 states in the US: Oregon, Kansas, Iowa, Michigan, and Kentucky. Our focus was to understand their online habits, needs, challenges, and opportunities.

Need for Digital Agricultural Technologies: For a deeper understanding of how and why farmers use these technologies for digital, specifically in daily farm operations, we asked questions such as:

- What technologies do you currently use?
- What decisions do you make differently as a result of information gathered from these techniques?
- What stakeholders would you trust with data collected from your farm?

We aimed to understand more about farmers’ appetites for digital, specifically in precision agriculture. In addition, we wanted to learn about farmers’ willingness to interact with the USDA. Are they willing to share their data? What is their level of trust?

Internet usage: For insights on farmers’ internet usage, we asked questions such as:

- How do you use internet for personal and commercial purposes?
- What percent of activities do you do online?

The following analysis demonstrates clear potential for USDA investment in digital services that can harness the increasing appetite of newer technologies in farming.
73% of farmers have internet access
43% of farmers use internet for business purposes

“Solutions are not integrated together... it is hard to use these tools”
—Iowa Farm Manager

“We are willing to do everything to improve the relationship with the USDA and to generate more trust”
—Michigan Farmer

Confused Farmer (Overwhelmed by data)

All farmers with internet access would be open to sharing more data should data accuracy and security improve

66% of farming experts interviewed have utilized precision agriculture technologies such as VRT and prescription maps

84% expressed a willingness to interact with the USDA online mainly via desktop/mobile
Understanding Farmers' Digital Appetite

As digital tools and platforms make waves across sectors, agriculture in particular has been prone to disruption. Farming has evolved from traditional methodologies such as manual crop tracking to more advanced techniques. Farmers across the country are leveraging value-add tools such as custom prescriptions, in-soil sensors, and yield map analysis to gain insight and improve efficiency. Accenture looked to gain a deeper understanding of farmers' digital preferences and how they use these new cutting-edge technologies. We conducted interviews with farmers and ranchers across the US to understand internet usage for personal and commercial purposes, and to further gauge appetite for digital services.

What did we learn?

Farmers' appetite for digital is growing

• 43% of farmers interviewed are reported to use computers for business purposes.

• More and more farmers are leveraging technology and digital platforms to extract insights from farm operations and communicate internally and externally.

70% of farms—a record high—have high-speed internet access, illustrating an upward trend in connectedness in the rural sector.

• Across all types of farms—from oilseed and grain to cattle ranching—millennials under 25 compose a growing percentage of the workforce. More and more of these millennials are leveraging digital, with over 73% of farmers utilizing computers to inform decisions daily.

• On average, farmers perform 20% of their activities online, a significant increase from previous years.

• These results corroborate with USDA National Agricultural Statistics Service (NASS) research indicating that, on farms, computer and internet access, usage and ownership is up significantly since 2007.

Digital Farming is already the norm

• 83% of farming experts interviewed use digital to improve crop and farm operations as well as to leverage tools such as precision planting and NDVI Imaging. Many are actively looking to expand in agtech, as well as to leverage precision agriculture to inform decisions.

Farmers are mostly using these technologies to gather information regarding seed variety, planting dates, fertilizer application planning, irrigation planning, crop yields, purchasing, and year-on-year planning.

Technologies that farmers use vary. Of those that reported leveraging digital, most use yield map analysis tools, precision planting, and drone deployments. All farmers expressed an interest in expanding the range of technologies that they utilize in order to increase operational efficiency and better manage their farmland.

Farmers want to share more with the USDA online, but need to be reassured first

• 83% of farming experts interviewed expressed a willingness to interact with the USDA online, mainly via desktop/mobile.

• The want to share more data online. Farmers indicated a willingness to partner and improve relations with the USDA to make interactions simpler and to generate more trust.
Tapping into the Need for Change

Agricultural technology plays an ever-growing role in farming. However, there is room to improve. Three barriers prevent farmers from increasing their use of digital farming tools:

1. Unclear benefits
2. Lack of integration
3. Uncertain security

• **Unclear benefits**: Farmers want to see a clear return on investment before investing in more technology. What specific value will it bring to their operations? How can they be sure the data they share will remain secure?

Further, many products and services are difficult for farmers to use. There is opportunity cost associated with researching, understanding, and adopting new technology, especially if the market is complicated and benefits are unclear.

• **Lack of integration**: All farmers interviewed found lack of integration between platforms to be problematic, reporting difficulties with data sharing and data comparison. Service providers often operate in niche markets, limiting data sharing both internally and externally.

• **Uncertain security**: Only half of the farming experts interviewed indicated that their farms would fully trust their data with the USDA. Farmers expressed a willingness to share data if they have a solid relationship with the organization and are sure to receive something of equal value in return. Farmers want assurance that their agricultural data will remain secure if they do share it with the government.

Looking Forward: How Accenture Can Help

There is tangible potential for the USDA to tap into this digitization and increased investment by farmers. The USDA must begin to adopt effective digital solutions to align with the rural sector, and to ensure that there is adequate sharing of data. USDA should also support efforts to educate farmers on the uses and benefits of digital technologies in agriculture.

The USDA can then begin to generate detailed insights into operations and the environment, as well as assist farmers in making operational decisions based on shared data. There is a need for more data sharing and consolidation, areas that the USDA should begin to explore.

Accenture can work with the USDA to explore three of our in-house platforms that streamline and consolidate digital farming techniques.

**Digital Agriculture Service**: This service extracts unique insights from crop and other farm data to help farmers increase efficiency.

**Connected Crop Solutions**: This solves the problem of linking data from disparate platforms into a single comprehensive platform, enabling users to connect all stakeholders in a given rural agriculture system.

**Accenture Insights Platform**: This enables agencies and staff offices to use cutting edge technologies to answer mission objectives through data processing, analytics and visualization.

Accenture continues to leverage its extensive digital and analytics experience to solve farming operational issues with the USDA. For agencies like the Farm Service Agency (FSA), there is enormous potential to leverage these technologies further to measure farm size and reduce the burden on field office employees to manually aggregate necessary data. For agencies like Forest Service (FS), similar technologies can be utilized to identify unhealthy resources.

Our goal is to work with the USDA to solve critical issues, leveraging these digital agriculture technologies to help improve insight drawn from operations and to catalyze further growth.

“Technology is critical to our farm. We use a wide range of advanced technologies to better improve processes. We stay ‘up-to-date.’”

- Agriculture expert and farm owner
About Accenture

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