

AGRICULTURAL TECHNOLOGY AND ENTREPRENEURSHIP

EXECUTIVE SUMMARY

Agricultural technology is a growing field, and Kansas is home to many agricultural technology companies that vary widely in their size and specialization. Potential exists for new, innovative ideas to take root in Kansas and develop into successful businesses. Advances in technology that reduce costs and increase productivity will be key to long-term agricultural growth in Kansas. Technological innovations are an important element of the KC Animal Health corridor, with improved potential for investment and workforce due to the concentration of animal health companies that currently exists from Manhattan to Kansas City. The state's commitment to water conservation creates a need for new water-saving technologies to increase efficiency in the region. Institutions of higher education in Kansas offer strong technology and aviation programs to grow the workforce. The strong customer base of farmers and ranchers makes Kansas a prime location for advancements in agricultural technology.

Alongside the vast potential for this industry there exist some challenges which could present barriers to growth. Establishing a reliable workforce can be challenging in an industry that requires specific technical knowledge. Engaging the agricultural industry in new technologies or new innovative ideas can be difficult, especially when data does not yet exist to prove a return on investment for the producers. Similarly, new products and technologies face uncertainty in regard to policies and regulations which might limit their acceptance. It can be difficult for small entrepreneurs to get a foothold in the industry and market their products.

The agricultural technology and entrepreneurship industry offers huge potential for growth, with unlimited possibilities. To foster this potential will require ongoing input and discussion among key partners as a long-term strategy for growth is developed to guide the industry. Many current resources that encourage business growth could be directed toward agricultural technology entrepreneurs. Programs that have been successful in other areas and other states could be developed to encourage agricultural entrepreneurship in Kansas. A strategic growth plan created out of collaborative efforts from both public and private stakeholders will be key in the growth of this industry.



STATUS

Kansas is home to agricultural technology companies of all sizes as well as entrepreneurs who are working to discover the next big idea. Technology companies offer great potential to adapt their products and services to serve the agricultural industry. Nearly 90 percent of Kansas's land mass is devoted to farming and ranching, providing ample customers for agricultural technology applications.

Agricultural technology is a vast industry, present in all agricultural sectors and includes any advancement — digital or concrete — that leads to increased agricultural production and/or production at the lowest cost and with the most efficient natural resource use. Technology companies may produce the next greatest application to organize data or a physical product that reduces water use.

Agricultural technology companies encompass numerous agriculture and technology sectors. A majority of these sectors have economic multipliers of 1.75-2, among the highest of all sectors in the Kansas economy. Therefore, growth in these sectors can lead to large economic ripple effects throughout the economy.

Projects such as the relocation to Kansas of both the American Royal and Dairy Farmers of America are strong signals that Kansas is on the frontier for the latest agricultural technology advancements, with strong growth potential in both urban and rural areas.

Pairing the prevalence of the agricultural industry with Kansas' pro-business climate and Midwest values makes Kansas a prime location for entrepreneurs to create or expand their businesses. Potential exists to create an environment for growth in technology and a pro-entrepreneurial culture that can establish Kansas as the Silicon Valley of agricultural technology.

OPPORTUNITIES

In order to develop a strategic growth plan for agricultural technology and entrepreneurship, it is important to understand the areas where Kansas has a comparative advantage and the best opportunities for growth or expansion.

Factor	Implications for Growth and Development Opportunities
<p>Animal Health Corridor</p>	<p>Kansas is located within the KC Animal Health Corridor, the world's largest concentration of animal health companies. The combination of private companies, research facilities, technical training programs and transportation capabilities make the Kansas City region an attractive location for animal health businesses — from initial start-ups to relocations or expansions. The discovery of new technologies in the animal health sector can include therapeutics, diagnostics, biologics, and nutrition and feed products.</p> <p>Since 2009, bioscience firms in Kansas have received \$110 million in venture capital investments, with the majority directed toward animal biotechnologies. The Kansas State University Institute for Commercialization is dedicated to the start-up and expansion of technology-based, high-growth enterprises. Other key communities and regions within the Corridor have also taken proactive steps to recruit and support animal health and high tech enterprises to the region, including Knowledge Based Economic Development partnership in Manhattan and the Bioscience & Technology Business Center in Lawrence.</p>

OPPORTUNITIES

Factor	Implications for Growth and Development Opportunities
<p>Existing Customer Base</p>	<p>46.1 million acres are devoted to farming and ranching in Kansas, nearly 90 percent of the state's total land mass. Kansas has an abundance of potential customers for agricultural technology companies.</p> <p>Kansas is also home to multiple agricultural equipment manufacturers, which serve as another potential customer for agricultural technology companies to develop strategic partnerships to enhance equipment with the latest precision technologies.</p>
<p>Human Capital</p>	<p>Kansas State Polytechnic boasts a strong aviation and technology component and now offers one of the nation's first bachelor's degree programs in unmanned aircraft systems.</p>
<p>Natural Resources</p>	<p>Kansas is recognized nationwide for its proactive practices of conserving water for future generations. Kansas is implementing proactive water conservation practices allowing farmers and ranchers to manage their own water while still preserving the aquifer for generations to come. Water-saving irrigation technologies can assist in addressing key challenges in other agriculture sectors, such as reducing water usage by increasing efficiency of water application consistent with the <i>Vision for the Future of Water Supply in Kansas</i>.</p>
<p>Policy Environment</p>	<p>Kansas tax law allows sales tax exemption for farm machinery and equipment and various ag-based inputs. These state tax code provisions make Kansas a more attractive state for growth or expansion.</p> <p>The High Performance Incentive Program (HPIP) provides sales tax exemption on the construction, reconstruction, and remodeling of facilities for projects greater than \$50,000. Sales tax exemptions are also present for farm machinery and equipment and various ag-based inputs. These state tax code provisions make Kansas a more attractive state for growth or expansion.</p> <p>Also at the state level, Kansas works closely with the agricultural industry to ensure its protection from overreaching federal regulation.</p> <p>At the federal level, Kansas is fortunate to have elected members of Congress who strongly support the agricultural industry. The Kansas congressional delegation will play an important role in influencing positive changes related to federal regulations or legislation, international trade, federal taxes, transportation rules, natural resources and more.</p>

OPPORTUNITIES

Factor	Implications for Growth and Development Opportunities
Supporting Infrastructure	<p>Kansas is home to world renowned technology companies and a host of aviation companies in Wichita. Together with their allied industries they create an atmosphere with a workforce and supporting infrastructure that promotes and supports future technology development.</p> <p>Kansas is home to an intermodal freight facility in Edgerton with full federal customs along with adjoining Smart Warehouses, providing great support for importing and exporting components of all sizes.</p>

SUCCESS STORIES

Key successes in the industry:

- An employee-owned company in Atwood, Kansas, specializes in providing solutions for the control and application of fertilizer and seed. The company was founded in 2007 with a focus on combining technology with classic rural Kansas “know-how,” and now serves customers in 47 states and international markets.
- A family-owned irrigation company in Ulysses, Kansas, specializes in reducing water use through irrigation technology. Their mobile drip irrigation product was named top new irrigation product of 2016 by the International Irrigation Association.

CHALLENGES

While Kansas is poised for potential expansion in the agricultural technology and entrepreneurship sector, the following factors represent challenges serving as barriers to achieving the objective of the strategic growth plan.

Challenge	Details of Challenge
Critical Infrastructure	A lack of adequate housing in rural areas compounds the issue of a shortage of agricultural workers.
International Trade	Access to international markets for technology products is a great potential revenue stream. Resistance to free trade agreements at the federal level can hinder this access.
Policy	Though not unique to Kansas, there exist significant challenges due to federal laws and regulations that affect technology. Other federal laws and regulations impacting the agricultural community as a whole include Waters of the U.S., the Endangered Species Act and more.
Retention of Entrepreneurs	Other regions in the country have established reputations as strongholds for technology entrepreneurs; Kansas must provide an enticing alternative to keep these individuals in the state, as a great place to live, work and start a business.

CHALLENGES

Challenge	Details of Challenge
Small Entrepreneurs	<p>It is difficult for small food entrepreneurs to get their products in stores to make them accessible to consumers.</p> <p>Marketing assistance is also difficult, particularly when it comes to finding sufficient scale to make an economic impact on marketing efforts outside of Facebook and social media.</p>
Uncertainties of Industry	<p>Technology and entrepreneurial endeavors are often forging new ground, testing new products and concepts. This may mean uncertainty in the regulatory environment, as policies adapt to new ideas and new businesses. It can also mean uncertainty in the return on investment for untested products, which can be difficult for entrepreneurs seeking investors and capital.</p>
Workforce Development	<p>Graduates with technical knowledge in engineering, agriculture, computers and technology will be necessary to fill the workforce needs of the technology industry.</p>

NEXT STEPS IN STRATEGIC DEVELOPMENT

Leaders from throughout the Kansas agriculture technology and entrepreneurship industry will continue to collaborate in the development and implementation of a long-term strategic growth strategy with input and discussion among key partners. Industry-identified desired growth outcomes, initially developed in 2016, will be implemented by industry and key partners and updated annually at the Kansas Governor's Summit on Agricultural Growth.

AGRICULTURAL TECHNOLOGY & ENTREPRENEURSHIP INDUSTRY OUTCOMES



Growth Objective:

Establish Kansas as a premier state for start-ups in agricultural technology and entrepreneurship by fostering a business environment that supports new and expanding enterprises.

The following outcomes will be the result of industry collaboration and effort to grow the Kansas agricultural technology and entrepreneurship industry:

Phase 1 (Begin within two years)

- Dynamic network between small and mid-sized technology companies, agricultural entrepreneurs, investors and mentors.
- State-sponsored economic development incentives which meet the needs of agricultural technology start-ups and entrepreneurs.
- Effective array of “soft” incentives (e.g. mentorships, internships and training on interaction with financiers) which are accessible to agricultural companies to ensure they have the information, workforce and financing they need to economically grow and thrive in Kansas communities.
- Program of study in agricultural technology and data management available at Kansas institutions that meet the needs of start-up companies.
- Investment forum to encourage networking of start-ups and potential investors.
- Start-up capital available to agricultural entrepreneurs through investor-funded programs or state programs such as JumpStart Kansas Entrepreneur.
- Increase in agricultural technology companies and other entrepreneurial efforts in the state of Kansas.

Phase 2 (Begin within 2-4 years)

- Agricultural entrepreneurship internships, projects and mentorships in conjunction with Kansas high schools and colleges.
- Agricultural technology incubator network to support faster company timelines.