



Role of Technology in Agricultural Value Chain Management

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INTRODUCTION

The agricultural value chain refers to the various stages involved in bringing agricultural products from the farm to the consumer. This includes activities such as production, processing, packaging, transportation, and distribution. Effective management of this value chain is crucial for the success of the agricultural industry, as it can help to increase efficiency, reduce costs, and improve the quality of the final products. One important aspect of value chain management in the agricultural industry is the use of technology. Advances in technology, such as precision farming and the use of data analytics, can help farmers to increase yields, reduce costs, and improve the quality of their products. Additionally, technology can also be used to improve supply chain management, by allowing for better tracking and coordination of activities such as transportation and distribution.

Another key aspect of value chain management in the agricultural industry is the development of effective partnerships and collaborations. By working together, farmers, processors, and distributors can share knowledge, resources, and expertise to improve the efficiency and effectiveness of the value chain as a whole. This can include partnerships between farmers and processors to improve post-harvest handling and storage, as well as collaborations between processors and distributors to improve logistics and marketing. This all has been led by technology in modern agriculture. One of the key areas where technology has contributed to value chain management is automation. Automation has helped to streamline various processes within the value chain, such as manufacturing and logistics. For example, the use of robots and automation in manufacturing has allowed for increased speed and accuracy in production, resulting in cost savings and improved product quality.

Automation has also been implemented in logistics, with the use of warehouse management systems and automated guided vehicles helping to improve the efficiency and accuracy of inventory management and distribution.

Data analysis is another area where technology has had a significant impact on value chain management. With the increasing availability of data, companies are now able to gain a better understanding of their operations and make more informed decisions. For example, data analysis can be used to optimize production schedules, identify potential bottlenecks, and improve supply chain visibility. Additionally, the use of big data and advanced analytics has allowed companies to gain a deeper understanding of customer behaviour, which in turn can be used to improve the customer experience and develop new products and services. Technology has also played a key role in communication and collaboration within the value chain. The rise of cloud-based and mobile technologies has made it easier for companies to share information and collaborate with partners and suppliers. For example, cloud-based collaboration tools such as Microsoft Teams and Google Docs have made it easier for teams to work together on projects, regardless of their location. Additionally, mobile technologies such as smartphones and tablets have allowed for greater flexibility and mobility within the value chain, making it easier for employees to access information and communicate with others when on the go.

Finally, technology has also contributed to the development of new business models and the disruption of traditional industries. For example, the rise of e-commerce and online marketplaces has led to the emergence of new business models such as drop shipping and subscription-based services. Additionally, the use of blockchain technology has the potential to revolutionize supply chain management by providing a more secure and transparent way of tracking goods and services.

In conclusion, technology has had a significant impact on value chain management, with advancements in automation, data analysis, communication and collaboration leading to increased efficiency and effectiveness. Additionally, technology has also contributed to the development of new business models and the disruption of traditional industries, making it a key enabler for companies to remain competitive in today's fast-paced business environment. To stay ahead of the curve, companies should continue to invest in technology and explore new ways to leverage it in their value chain management strategies.

In addition to technology and partnerships, there are other strategies that can be used to improve value chain management in the agricultural industry. These include:

Improving infrastructure: The agricultural value chain relies heavily on infrastructure such as roads, ports, and warehouses. Improving this infrastructure can help to reduce transportation costs and increase the speed and efficiency of the value chain.

Enhancing the skills of farmers and other value chain actors: Investing in the education and training of farmers and other value chain actors can help to improve their knowledge, skills, and abilities, which can in turn lead to better quality products and greater efficiency.

Implementing regulations and standards: Establishing regulations and standards for various aspects of the value chain, such as food safety and environmental sustainability, can help to ensure that products are of high quality and that the value chain is operating in a responsible and sustainable manner.

Implementing e-marketplace: An e-marketplace can provide more transparency and allow small farmers to sell their products directly to consumers, which can increase their income and reduce the costs associated with intermediaries.

Overall, effective value chain management is essential for the success of the agricultural industry. By using technology, developing partnerships, improving

infrastructure, enhancing the skills of farmers and other value chain actors, implementing regulations and standards, and implementing e-marketplace, the industry can become more efficient, cost-effective, and sustainable, ultimately benefiting farmers, processors, distributors, and consumers.

In conclusion, agricultural value chain management can be improved by leveraging technology, developing effective partnerships,

investing in infrastructure and human capital, implementing regulations and standards, and implementing e-marketplace. By doing so, the industry will become more efficient, cost-effective, and sustainable, ultimately benefiting farmers, processors, distributors, and consumers. This will lead to a more sustainable and profitable agricultural industry, which is vital for the growth and development of the economy.