

Thailand AI in Agriculture Market By Technology (Machine Learning, Computer Vision and Predictive Analytic), By Offering (Hardware, Software, AI-As-A-Service), By Application (Precision Farming, Livestock Monitoring, Agriculture Robots, Drone and Others), By Region, Competition, Forecast and Opportunities, 2019-2029F

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Abstracts

Thailand AI in Agriculture Market was valued at USD 80.33 Million in 2023 and is anticipated to project steady growth in the forecast period with a CAGR of 6.08% through 2029. Artificial Intelligence (AI) in the agricultural sector of Thailand is a burgeoning market. It pertains to the implementation of machine intelligence tools like machine learning, predictive analytics, and robotics in farming and related activities. These technologies are making a substantial impact on Thailand's agriculture, enhancing yield, reducing waste, and fostering sustainable practices. From automating irrigation systems to predicting weather patterns for crop optimization, AI is revolutionizing the farming landscape in Thailand while contributing to the market's growth and the country's economic prosperity.

In April 2024, the National Innovation Agency (NIA) of Thailand launched the AGROWTH platform to accelerate the development of deep-tech agricultural startups, focusing on artificial intelligence (AI), robotics, automation, and biotechnology. This initiative aims to foster partnerships between startups and major farming businesses, enhancing the integration of advanced technologies in agriculture. Currently, Thailand has 81 agricultural startups, with fewer than 15 specializing in deep technology, and the agri-tech industry has attracted investments exceeding 1.7 trillion baht.

The Thai government's commitment to modernizing agriculture through technological innovation is evident in its strategic initiatives. The Bio-Circular-Green (BCG) economic model emphasizes the adoption of smart agriculture technologies, including AI, to promote sustainability and efficiency. AI applications such as machine learning, predictive analytics, and robotics are being utilized to optimize farming practices, enhance crop yields, and reduce waste.

Key Market Drivers

Increasing Demand for Precision Farming

The increasing demand for precision farming in Thailand is propelling a noteworthy surge in the demand for Artificial Intelligence (AI) in agriculture. Precision farming practices, which involve optimizing inputs such as water, fertilizers, and pesticides based on real-time data, are gaining prominence as farmers seek more efficient and sustainable ways to manage their crops. AI technologies, including machine learning algorithms and data analytics, play a crucial role in transforming traditional farming methods into intelligent and data-driven processes. These technologies enable farmers to analyze vast amounts of data, make informed decisions, and implement precise interventions to enhance crop yields and resource efficiency.

As Thai agriculture embraces the digital revolution, the demand for AI solutions is expanding across various farming operations. AI-driven applications provide insights into soil health, crop growth patterns, and pest management, empowering farmers to make proactive decisions for better outcomes. The adoption of AI in agriculture aligns with Thailand's commitment to modernize its farming practices, increase productivity, and address environmental sustainability challenges. This growing intersection of precision farming and AI technologies signifies a transformative shift in the agricultural landscape, promoting smarter and more resource-efficient farming practices in response to the evolving needs of the Thai agricultural sector.

Availability of Affordable AI-Based Agri-Tech Solutions

The availability of affordable AI-based agri-tech solutions is a key driver behind the increasing demand for Artificial Intelligence (AI) in agriculture in Thailand. As technology becomes more accessible and cost-effective, farmers in Thailand are keen to leverage AI applications to enhance their agricultural practices. Affordable AI-based solutions offer a range of benefits, including precision farming, crop monitoring, predictive analytics, and efficient resource management. These tools empower farmers to make

data-driven decisions, optimize input usage, and improve overall productivity.

The affordability of AI-based agri-tech solutions is particularly significant for small and medium-sized farmers who may have budget constraints. The accessibility of these technologies democratizes the adoption of AI in agriculture, allowing a broader spectrum of farmers to harness the benefits of smart farming practices. With reduced barriers to entry, more farmers in Thailand are embracing AI solutions to streamline their operations, increase yields, and contribute to the sustainability of the agricultural sector. This trend highlights the transformative impact of accessible AI technologies, ushering in a new era of precision agriculture and efficiency in Thailand. As affordability continues to drive demand, the integration of AI in agriculture is poised to play a crucial role in shaping the future of farming practices in the country.

High Penetration of Smartphones & Internet

The high penetration of smartphones and internet connectivity is catalyzing an increased demand for Artificial Intelligence (AI) in agriculture across Thailand. With a significant portion of the population having access to smartphones and reliable internet infrastructure, farmers are leveraging these technologies to access AI-based solutions that enhance agricultural practices. Mobile applications and online platforms equipped with AI algorithms provide real-time information on weather patterns, crop health, and market trends, enabling farmers to make informed decisions on resource management and optimize their yields.

The widespread use of smartphones has democratized the adoption of AI in agriculture, allowing farmers to easily integrate these technologies into their daily operations. Whether through crop monitoring apps, predictive analytics tools, or AI-driven advisory services, the accessibility of information on handheld devices empowers farmers to address challenges more effectively. This surge in demand reflects a broader trend of digital transformation in the agricultural sector, where connectivity and AI contribute to increased efficiency, sustainability, and competitiveness in Thailand's farming landscape. As the synergy between smartphones, internet connectivity, and AI continues to grow, the agriculture industry in Thailand is poised to benefit from innovative solutions that harness the power of technology for optimal farm management.

Increase in AI Startup Ecosystem

The burgeoning AI startup ecosystem in Thailand is significantly elevating the demand

for Artificial Intelligence (AI) in agriculture. The rise of innovative startups specializing in AI-driven solutions tailored for agriculture has captured the attention of the farming community. These startups bring forth cutting-edge technologies, including machine learning algorithms and data analytics, designed to enhance various aspects of agricultural operations. With a growing number of entrepreneurs focusing on AI applications in farming, there is an expanding range of solutions catering to precision agriculture, crop monitoring, predictive analytics, and smart decision-making for farmers.

The increasing number of AI startups fosters a competitive environment, spurring advancements and affordability in AI-based agri-tech solutions. Farmers are increasingly drawn to these startups, seeking tailored solutions that address specific challenges in Thai agriculture. This dynamic ecosystem not only introduces innovative tools but also encourages the adoption of AI by making these technologies more accessible and adaptable to diverse farming needs. As the AI startup ecosystem continues to flourish, it creates a positive ripple effect, fostering a culture of technological innovation and collaboration within the Thai agricultural landscape. The demand for AI in agriculture is poised to grow further as these startups contribute to the evolution of smart and sustainable farming practices in Thailand.

In line with this growth, the Thai government has set ambitious targets to develop a workforce of 50,000 individuals in artificial intelligence (AI) over the next five years. This initiative aims to establish Thailand as a high-tech hub, with a focus on integrating AI into various sectors, including agriculture. The government's commitment to building a skilled workforce underscores the importance of AI in the nation's economic development and its application in enhancing agricultural practices.

Key Market Challenges

Shortage Of Skilled Professionals In AI

The shortage of skilled professionals in Artificial Intelligence (AI) is emerging as a limiting factor, decreasing the demand for AI in agriculture in Thailand. While the adoption of AI technologies holds great promise for the agricultural sector, the scarcity of individuals with the requisite skills to develop, implement, and maintain AI-driven solutions hampers its widespread application. The intricate nature of AI applications in agriculture demands a specialized skill set that includes proficiency in machine learning, data analytics, and domain-specific knowledge in farming practices. The shortage of professionals proficient in these areas acts as a barrier, limiting the deployment of AI

technologies on farms.

Farmers and agricultural enterprises in Thailand may be hesitant to invest in AI solutions due to concerns about the availability of skilled talent to effectively integrate and manage these technologies. Addressing the shortage of skilled professionals is crucial to unlocking the full potential of AI in agriculture, as it would enable a more seamless implementation of smart farming practices, leading to increased productivity and sustainability. Initiatives focused on upskilling the workforce and educational programs tailored to AI applications in agriculture can play a pivotal role in bridging this skill gap and fostering a more robust demand for AI technologies in Thailand's agricultural landscape.

Lack Robust Technological Infrastructure in Rural Areas

The lack of robust technological infrastructure in rural areas is acting as a significant impediment, decreasing the demand for Artificial Intelligence (AI) in agriculture in Thailand. While AI has the potential to revolutionize farming practices, particularly in precision agriculture and data-driven decision-making, the absence of reliable connectivity and advanced technological infrastructure in rural farming communities limits the widespread adoption of AI technologies. Access to high-speed internet, a crucial component for deploying AI solutions, remains a challenge in many rural areas, hindering farmers' ability to leverage the full spectrum of AI-driven applications.

Farmers in these regions may be reluctant to invest in AI technologies due to concerns about connectivity issues, data accessibility, and the overall reliability of technology infrastructure. Addressing this digital divide is essential for unlocking the transformative potential of AI in agriculture. Initiatives focusing on expanding technological infrastructure, increasing internet connectivity, and providing support for the integration of AI technologies in rural farming areas can play a vital role in stimulating demand and enabling farmers to harness the benefits of AI for enhanced productivity and sustainable agricultural practices in Thailand.

Key Market Trends

Technological Advancements in AI & Machine Learning

Technological advancements in AI and machine learning are driving a significant increase in the demand for Artificial Intelligence (AI) in agriculture throughout Thailand. The continuous evolution of AI algorithms and machine learning capabilities has led to

the development of sophisticated solutions tailored for the agricultural sector. Farmers are now able to harness the power of AI to analyze vast datasets, predict crop outcomes, optimize resource utilization, and make informed decisions in real-time. The integration of AI-driven technologies is transforming traditional farming practices into data-driven, precision agriculture, providing farmers with invaluable insights for crop management.

The versatility of AI and machine learning applications spans various aspects of agriculture, including crop monitoring, disease detection, yield prediction, and efficient resource allocation. These technological advancements not only enhance productivity but also contribute to sustainable farming practices by minimizing environmental impact and optimizing resource usage. As technological capabilities continue to advance, the demand for AI in agriculture is poised to escalate in Thailand. Farmers increasingly recognize the potential of AI to revolutionize their operations, increase efficiency, and adapt to the evolving challenges of modern agriculture. The ongoing technological evolution in AI and machine learning reinforces the pivotal role these innovations play in shaping the future of agriculture in Thailand.

Advent of Drone Technology in Farming

The advent of drone technology in farming is generating a substantial increase in the demand for Artificial Intelligence (AI) in agriculture across Thailand. Drones equipped with advanced sensors and imaging capabilities provide farmers with a bird's-eye view of their fields, enabling efficient monitoring and data collection. AI algorithms process the vast amount of data gathered by drones, offering valuable insights into crop health, pest infestations, and optimal irrigation practices. The synergy between drone technology and AI enhances precision agriculture, allowing farmers to make data-driven decisions for improved yields and resource management.

The use of drones in agriculture addresses challenges related to large-scale field monitoring, making it a game-changer for farmers seeking to enhance productivity and reduce operational costs. As the adoption of drone technology becomes more widespread, the demand for AI-driven solutions to analyze and interpret drone-captured data is on the rise. The combination of these technologies not only streamlines farming practices but also contributes to sustainability by minimizing the environmental impact of traditional farming methods. The increasing demand for AI in agriculture driven by drone technology underscores the transformative impact of these innovations on the Thai agricultural landscape. Farmers are embracing the potential of AI to augment their capabilities and navigate the complexities of modern farming, fostering a more efficient

and technologically advanced sector in Thailand.

Segmental Insights

Technology Insights

Based on the Technology, in Thailand's AI in Agriculture market, Machine Learning is rapidly emerging as the dominant technology, revolutionizing the industry by leveraging its immense potential. With the power of Machine Learning, farmers can not only enhance crop yields but also streamline farming operations, leading to increased efficiency and productivity. The precise identification of crop diseases through Computer Vision technology enables proactive measures to be taken, ensuring healthier crops and minimizing losses. The integration of Predictive Analytics plays a crucial role in accurately forecasting harvests, allowing farmers to make informed decisions and optimize resource allocation. The seamless interplay of these cutting-edge technologies in Thai agriculture is pushing the boundaries of innovation, paving the way for sustainable practices and long-term growth in the sector.

Offering Insights

Based on the Offering, in the Thailand AI in Agriculture market, AI-As-A-Service emerges as the dominating segment. This trend is driven by the growing need for predictive analytics to optimize farming practices and make data-driven decisions. Farmers, who are the backbone of the agriculture industry, are increasingly looking for cost-effective and scalable AI solutions that can provide real-time insights and recommendations without the need for significant upfront investment in hardware and software infrastructure. By leveraging AI-As-A-Service, farmers can access state-of-the-art AI technologies and expertise, enabling them to improve crop yields, reduce resource wastage, and enhance overall agricultural productivity. With the adoption of AI-As-A-Service, farmers can benefit from the latest advancements in artificial intelligence. They can leverage machine learning algorithms to analyze vast amounts of data, including weather patterns, soil conditions, and crop growth indicators. This data-driven approach empowers farmers to make informed decisions about irrigation, fertilization, and pest control, leading to optimized resource allocation and improved crop health.

AI-As-A-Service offers scalability and flexibility, allowing farmers to adjust their AI solutions based on their specific needs and requirements. They can easily scale up or down their usage of AI services, depending on factors such as seasonal variations or changes in farming practices. This flexibility eliminates the need for significant upfront

investments and provides a cost-effective solution for farmers of all sizes. By embracing AI-As-A-Service, the agriculture industry in Thailand is experiencing a transformational shift towards sustainability and efficiency. This shift not only empowers farmers with advanced tools but also contributes to the overall sustainable development of the agriculture sector. With optimized farming practices, reduced resource wastage, and improved productivity, AI-As-A-Service is paving the way for a more sustainable and prosperous future for Thai farmers and the entire agriculture industry.

Regional Insights

The AI in Agriculture market in Thailand is highly competitive, with various regions making significant strides. However, Eastern Thailand has emerged as a frontrunner, dominating the market with its advanced farming solutions. This region is witnessing considerable investment in AI-powered applications for precision farming, crop monitoring, and pest management, significantly boosting the agricultural productivity and sustainability. In Eastern Thailand, the adoption of AI in agriculture has been driven by several factors. The region benefits from a favorable climate, fertile soil, and a strong agricultural tradition. Local farmers and agricultural businesses have embraced technology and innovation, leveraging AI to optimize their operations and maximize yields.

Through the implementation of AI-powered solutions, Eastern Thailand has achieved remarkable results in precision farming. Sensors and drones are deployed to monitor crops and collect real-time data, enabling farmers to make informed decisions regarding irrigation, fertilization, and pest control. This data-driven approach not only improves crop health and yield but also minimizes the use of resources, making agriculture more sustainable and environmentally friendly.

The integration of AI technology in pest management has revolutionized agricultural practices in Eastern Thailand. Machine learning algorithms analyze data from various sources, such as weather patterns, pest populations, and crop health, to predict and prevent pest outbreaks. This proactive approach reduces the reliance on chemical pesticides, decreasing the environmental impact while ensuring crop protection. As a result of these advancements, Eastern Thailand has become a hub for AI-driven agriculture, attracting investments and collaborations from local and international stakeholders. The region's success serves as a model for other areas in Thailand and beyond, showcasing the transformative potential of AI in revolutionizing the agricultural sector.

Key Market Players

Microsoft (Thailand) Company Limited

Deere & Company (Global Fleet Sales (Thailand) Ltd.)

IBM Thailand Company Limited

True Digital Group Co., Ltd.

HG Robotics Co., Ltd.

Varuna (Thailand) Co., Ltd.

FarmInno (Thailand)

ATi Technologies Co., Ltd.

Syngenta Co., Ltd.

jDrones & Co.

Report Scope:

In this report, the Thailand AI in Agriculture Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Thailand AI in Agriculture Market, By Technology:

Machine Learning

Computer Vision

Predictive Analytic

Thailand AI in Agriculture Market, By Offering:

Hardware

Software

AI-As-A-Service

Thailand AI in Agriculture Market, By Application:

Precision Farming

Livestock Monitoring

Agriculture Robots

Drone

Others

Thailand AI in Agriculture Market, By Region:

Bangkok

Eastern Thailand

Northern Thailand

Northeast

Southern Thailand

Western Thailand

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Thailand AI in Agriculture Market.

Available Customizations:

Thailand AI in Agriculture Market By Technology (Machine Learning, Computer Vision and Predictive Analytic), B...

Thailand AI in Agriculture Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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