ADITI CONSULTING

AI + Automation, Data + Analytics

USING AI-DRIVEN APPLICATIONS TO OPTIMIZE AGRICULTURAL PRODUCTIVITY

OVERVIEW

To address the challenges faced by farmers when optimizing agricultural operations, Aditi partnered with one of the world's leading software technology companies and the Ventura County Department of Agriculture to develop a streamlined AI-driven application environment based on Azure Data Manager for Agriculture. Following a UX study, Aditi software engineers developed a web portal and the "Growers AI" application environment to support data distribution, acquisition, and management for farming using state-of-the-art, AI-enabled technology.

THE CHALLENGE

The Ventura County Department of Agriculture and the Farm Bureau, as representatives of farmers throughout the state, were aware of the technical and economic pressures the state's farms faced. These challenges included organic-carbon depletion in the soil, ground water management, dramatic fertilizer-price increases, and so on.

Large commercial farms were already using advanced technology such as GPS to improve yields and reduce input costs, but there was still a need for state-of-the-art digital tools to improve the precision of farming techniques and optimize soil conditions, water usage, and chemical application.

The farm community had access to a variety of digital applications used to address these issues and others, but the existing application environment was excessively fragmented. Farmers needed a more streamlined way to acquire and manage data relevant to their farms and make the decisions needed for profitability.

OUR SOLUTION

One of the world's leading software technology companies' government sales team contacted Aditi to develop a robust and streamlined application environment for the farmers of Ventura County using the AI-driven Azure Data Manager for Agriculture (ADMA) platform. ADMA is a specialized data platform designed to harness the power of data and analytics in the agriculture industry. Built on one of the world's leading software technology companies' Azure, this platform offers a comprehensive suite of tools and services tailored to meet the unique challenges of farming.

To initiate this project, Aditi performed a user-experience research study in which we asked the farmers and farming consultants to determine what a powerful and accessible ADMA-based system would look like. This preliminary study resulted in the development of two complementary parts of the application environment:
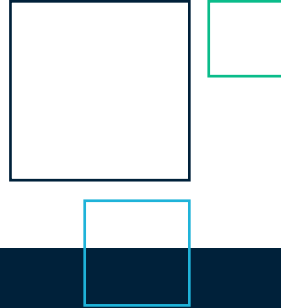
- **A local agricultural web portal.** The portal is available to farmers to distribute local agricultural data and generate interest in the application environment.

- **The Growers A.I. application.** This application, run on smartphones or PCs, can be configured to address the soil and weather conditions of individual farms. It contains eight major features that provide the tools the farmers requested in the research study. The app is designed to be a flexible, enterprise-level tool that can be configured for farms with different sizes, shapes, locations, and equipment. Various sensors, including drones, soil sensors, water meters, weather stations, and more, feed real-time data via UHF. Machine learning-enabled algorithms then process the data.

Aditi built a working ADMA proof-of-concept system based on four ADMA workbooks. A workbook presents AI functions in a template that provides various features for crop moisture, soil, sunlight, and pest analysis. This proof-of-concept technology was designed to run the backend for both solutions. In addition, Aditi built a clickable prototype in Figma to allow growers to see how the site and applications would operate in the real world.

BUSINESS OUTCOMES

The Web Portal and the Growers AI App are poised to provide a wealth of knowledge and analytical power for farmers across the country. This includes support for:

- **Precision farming.** Leverages data and optimizes planting schedules, irrigation, and harvesting for maximum efficiency.

- **Supply chain optimization.** Monitors and manages the agricultural supply chain from farm to market.

- **Sustainability initiatives.** Track and reduce environmental impacts through data-driven practices.

ADITI EMPOWERS DATA AND ANALYTICS WITH AI APPLICATIONS

At Aditi, we provide the talent, AI-enabled tools, and project support you need to optimize your data environment. Whether it's our experienced consultants specializing in the design, development, and implementation of critical digital frameworks or our client leadership team managing project funding, goal tracking, and governance, our team provides full-cycle support. Contact us today to discover how we can help you leverage the power of data and AI-driven analytics.

Want to learn more about our AI-driven applications? Contact us today.

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Aditi is a leading digital engineering services company. We partner with established and emerging enterprises by leveraging borderless talent across three continents to achieve transformative outcomes that will reshape their trajectory. We lead and support our clients' efforts to design, build, and operate the products, systems, and processes required to deliver impact by leveraging deep insights, practical knowledge, and human spirit.

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