



JoAgritech

High-Level Feasibility Study

Submitted to:

The Ministry of Digital Economy and Entrepreneurship

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Founders and investors considering this project are advised to conduct further analysis on projected adoption rates, development costs, and ongoing operational expenses. This additional scrutiny will help mitigate potential risks related to technology challenges, changes in regulations, market penetration, and competitive pressures.

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A National Entrepreneurship Policy Project



Ministry of Digital Economy
and Entrepreneurship



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Executive Summary

JoAgriTech is a Jordanian start-up within the agricultural technology sector, focused on improving farming through the integration of Internet of Things (IoT) solutions. Facing the critical challenges of water scarcity and harsh climatic conditions, JoAgriTech offers IoT-based soil and climate sensing technologies. These solutions empower farmers with precise data on soil moisture, nutrient levels, and environmental conditions, enabling them to optimize irrigation and fertilization, and so improving crop yields and conserving water. The technology's scalability allows it to cater to both small family farms and large agricultural operations, making it a versatile solution for Jordan's diverse agricultural landscape. By offering a comprehensive, user-friendly mobile application that delivers real-time insights and recommendations, JoAgriTech aims to enhance agricultural productivity while promoting sustainable farming practices. The company is well-positioned to take advantage of the growing market for smart agriculture technologies, which is increasingly important as Jordan faces pressures from climate change. JoAgriTech's commitment to leveraging advanced technology for sustainable farming not only addresses urgent environmental challenges but also aligns with national and global efforts towards efficient resource management and agricultural innovation. Through its focus on sustainability, JoAgriTech aims to improve agriculture in Jordan and beyond, contributing to economic growth and fostering a resilient agricultural sector.

I. Introduction

JoAgriTech is a Jordanian start-up strategically positioned within the Smart Agriculture Technologies sector. The Smart Agriculture Technologies sector involves integrating advanced technologies such as IoT, artificial intelligence, and data analytics within farming practices, thus enhancing productivity and sustainability by allowing precise monitoring and management of agricultural processes. By harnessing the power of the Internet of Things (IoT) to address the different critical challenges faced by Jordanian agriculture sector. The start-up will work on IoT-based soil and climate sensing technologies that provide precise data on environmental conditions, soil moisture levels, and nutrient statuses. This technology enables farmers to make informed decisions about irrigation and fertilization, optimizing resource use and improving crop yields in Jordan's arid and semi-arid climates and limited water resources.

Jordan faces significant agricultural challenges, primarily due to its limited water resources and harsh growing conditions. JoAgriTech's solutions are vital in this context, offering a means to combat water scarcity by reducing waste and maximizing the efficiency of available resources. The technology's scalability makes it suitable for both small family farms and larger agricultural operations, potentially transforming agricultural practices across the region.

The core of JoAgriTech's offerings is the deployment of advanced IoT sensors that monitor critical agricultural parameters in real-time. These sensors are linked to a cloud-based analytics platform that processes the data and provides actionable insights directly to farmers via user-friendly mobile applications. This system allows for scalable deployment, with the

flexibility to expand from individual farms to widespread agricultural networks without significant increases in marginal cost.

JoAgriTech's technology not only increases agricultural productivity but also promotes sustainable farming practices by reducing unnecessary water and fertilizer use. This contributes to environmental conservation efforts and aligns with global sustainability goals, particularly those related to efficient resource management and ecological preservation.

JoAgriTech is providing technology solutions that are important for the future of farming in Jordan and similar environments worldwide. By using IoT technology for farming, JoAgriTech addresses pressing environmental and economic challenges, aiming for more sustainable and productive agricultural practices.

2. Market Analysis

The market for smart agriculture technologies in Jordan is burgeoning, particularly in response to increasing pressures from climate change and water scarcity. As Jordan faces harsh climatic changes that adversely affect agricultural production, there is a significant need for technologies that can enhance productivity and sustainability. The adoption of Information and Communication Technologies (ICT) in agriculture is changing the sector, helping farmers through digital means to optimize production and conserve resources¹.

JoAgriTech's primary target audience includes:

- Small to medium-sized farms in Jordan, particularly those in arid and semi-arid regions.
- Agricultural cooperatives looking for sustainable farming solutions.
- Government and non-governmental organizations focusing on agricultural development and food security.

This audience is critical as they directly influence and benefit from innovations in smart agriculture, addressing the urgent needs imposed by climate challenges^{2 3}.

JoAgriTech operates in a competitive environment with traditional irrigation systems and other smart agriculture solutions, both locally and internationally. However, its unique value proposition lies in offering a comprehensive, integrated IoT solution specifically tailored to the needs of Jordanian agriculture, setting it apart from competitors who may not provide localized or integrated solutions⁴.

¹ The fourth agriculture revolution, rural Jordan going digital, The United Nations in Jordan.

² The fourth agriculture revolution, rural Jordan going digital, The United Nations in Jordan.

³ Climate-smart agriculture key for Jordan in mitigating climate change impacts — WB report, Jordan Times.

⁴ The fourth agriculture revolution, rural Jordan going digital, The United Nations in Jordan.

JoAgriTech's strategic advantage is supported by the national push towards digital agriculture as part of Jordan's adaptation to climate change. This includes efforts by the government and international organizations to support climate-smart agriculture initiatives, which are increasingly vital for the country's food security and agricultural sustainability^{5 6}.

The sector offers vast opportunities for growth, especially in enhancing water productivity and creating high-value export chains. However, challenges such as the high initial cost of smart agriculture technologies and the need for significant training and adaptation by farmers must be addressed. Strategic investments and partnerships will be crucial in overcoming these barriers and capitalizing on the growth potential within the sector^{7 8}.

3. Business Model

JoAgriTech uses Internet of Things (IoT) technology to offer soil and climate sensing solutions. The core technology includes IoT sensors, which can be deployed across diverse agricultural landscapes to monitor soil moisture, nutrient levels, and climatic conditions. A cloud-based data analytics platform collects this sensor data and uses algorithms to analyze and interpret it, providing useful insights. Farmers can access real-time data and receive recommendations through a mobile application, enhancing their decision-making processes.

The development of JoAgriTech's IoT solutions involves several key phases. The first phase is the sensor design and assembly, where durable, energy-efficient sensors are used to operate in the environmental conditions typical of Jordan's climate. The second phase is software development, focusing on creating the data analytics platform and mobile applications with user-friendly interfaces. The final phase is system integration, ensuring smooth integration between the IoT hardware, software platforms, and user interfaces.

The modular nature of the IoT technology allows JoAgriTech to scale its solutions efficiently. The architecture is designed to handle an increase in the number of sensors and data points without significant increases in system overhead. The scalability is important for expanding the service across Jordan and potentially to other regions with similar agricultural challenges. JoAgriTech's technologies are developed with a focus on sustainability. The sensors help reduce water and fertilizer use, which not only lowers the cost for farmers but also minimizes environmental impact. The company's commitment to sustainable practices extends to its hardware design, opting for materials and technologies that reduce the ecological footprint.

JoAgriTech recognizes the challenges associated with the adoption of advanced technologies by traditional farmers and plans to address these through training programs and user-friendly technology designs. Ensuring reliable operation of IoT devices in remote and harsh environments requires strong support and maintenance strategies. JoAgriTech will provide technical support to provide ongoing assistance to users. Adhering to international standards for technology and data security is a priority, ensuring all devices and platforms meet

⁵ Climate-smart agriculture key for Jordan in mitigating climate change impacts — WB report, Jordan Times.

⁶ US\$125 million to Support Jordan's Agriculture Sector and Improve its Climate Resilience, World Bank.

⁷ Climate-smart agriculture key for Jordan in mitigating climate change impacts — WB report, Jordan Times.

⁸ US\$125 million to Support Jordan's Agriculture Sector and Improve its Climate Resilience, World Bank.

regulatory requirements for data protection and privacy. This compliance is essential for building trust with users and ensuring smooth operations.

JoAgriTech employs a hybrid business model that integrates product sales, subscription services, and consulting, tailored to enhance agricultural productivity through advanced technology solutions.

JoAgriTech sells IoT sensing devices that monitor various environmental and soil conditions. These services are sold directly to farmers, agricultural cooperatives, and research institutions, forming the initial revenue stream. As adoption of these devices increases, the revenue from product sales is projected to grow.

A key component of JoAgriTech’s business model is the subscription service for access to the cloud-based analytics platform. Subscribers pay a monthly or annual fee to use the platform which analyzes data collected by IoT devices and provides actionable insights and recommendations. This subscription model creates a steady stream of recurring revenue.

JoAgriTech also offers consulting services in farm optimization and smart agriculture practices. These services include implementation planning, system integration support, and ongoing optimization. Consulting fees contribute to the company’s revenue by helping clients effectively use and integrate smart technologies.

The revenue streams for JoAgriTech are:

- IoT Sensing Device Sales: Revenue from selling sensing devices is expected to grow as more farmers adopt the technology.
- Data Analysis and Recommendations Subscription fees: Regular income from users subscribing to the data analytics platform.
- Consulting Fees: Charges for consulting services provided to optimize agricultural operations and implement smart technologies effectively.

Revenue is projected to grow from JOD 53,500 in Year 1 to JOD 132,000 by Year 5 through the three revenue streams.

Table 1: Revenue Projection

Description / Year	1	2	3	4	5
Sale of IoT Sensing Devices (units)	300	400	450	500	550
Price / Unit Sale of IoT Sensing Devices (JOD)	100	100	100	100	100
Sub-total Sale of IoT Sensing Devices (JOD)	30,000	40,000	45,000	50,000	55,000
Subscription Services for Data Analysis and Recommendations (units)	40	50	80	100	125
Price / Unit Subscription Services for Data Analysis and Recommendations (JOD)	400	400	400	400	400
Sub-total Subscription Services for Data Analysis and Recommendations (JOD)	16,000	20,000	32,000	40,000	50,000
Consulting Services for Farm Optimization (unit)	25	40	55	70	90
Price / Unit Consulting Services for Farm Optimization (JOD)	300	300	300	300	300
Sub-total Consulting Services for Farm Optimization (JOD)	7,500	12,000	16,500	21,000	27,000
Total Revenues (JOD)	53,500	72,000	93,500	111,000	132,000

Sales of IoT Sensing Devices consistently remains the largest contributor to both total units sold and total revenue, with its share of units sold decreasing from 82.2% (300 units) in Year 1 to 71.9% (550 units) in Year 5, and its share of revenue decreasing from 56.1% (JOD 30,000) in Year 1 to 41.7% (JOD 55,000) in Year 5. The second revenue stream, Subscription Services for Data Analysis and Recommendations shows significant growth with the share of units sold increasing from 11.0% (40 units) in Year 1 to 16.3% (125 units) in Year 5. Whereas its share of revenue increases from about 30% (JOD 16,000) in Year 1 to about 38% (JOD 50,000) in Year 5. The contribution of Consulting Services gradually increases over the years from 6.8% of units sold (25 units) in Year 1 to 11.8% (90 units) in Year 5, and revenue contribution grows from 14.0% (JOD 7,500) in Year 1 to 20.5% (JOD 27,000) in Year 5. The Product Mix proportions are shown in Figures 1 and 2 below.

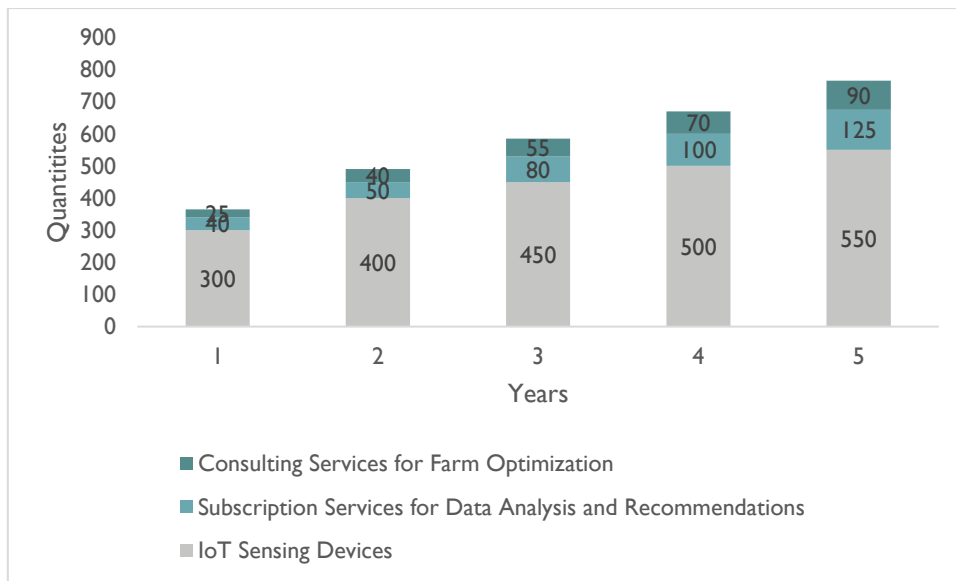


Figure 1: Product Mix by Quantity

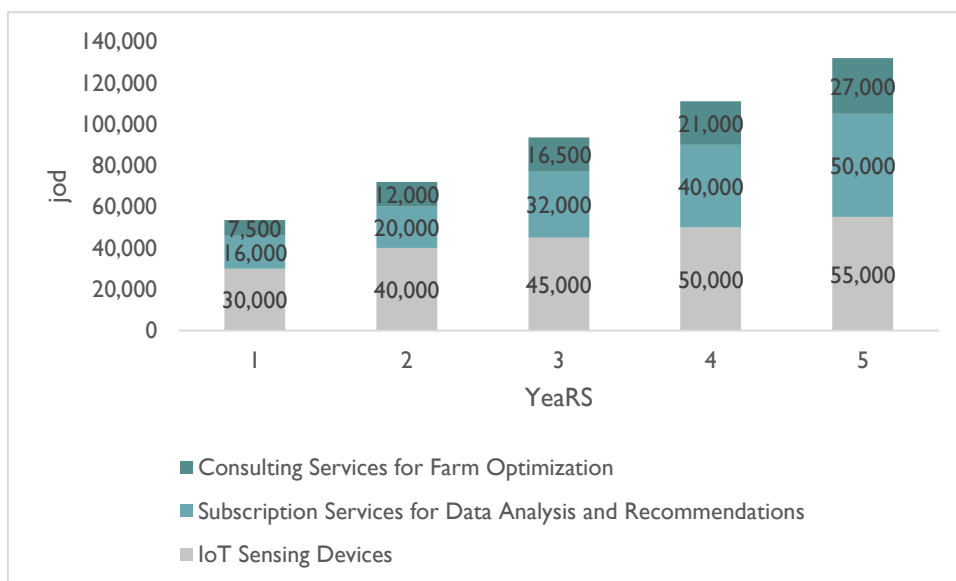


Figure 2: Product Mix by Revenue

4. Technical Analysis

The cost of goods sold (COGS) for JoAgriTech demonstrates a detailed projection over five years, reflecting the expected increase in demand for the company’s products and services. For IoT sensing devices, the projected demand starts at 300 units in Year 1 and increases to 550 units by Year 5, with a consistent COGS per unit of JOD 30. This results in a gradual increase in the subtotal COGS for these devices from JOD 9,000 in Year 1 to JOD 16,500 in Year 5. Similarly, the subscription services for data analysis and recommendations show an increase in projected demand from 40 units in Year 1 to 125 units in Year 5. The COGS per unit for these services is maintained at JOD 20 throughout the period, leading to a rise in subtotal COGS from JOD 800 in Year 1 to JOD 2,500 in Year 5. For consulting services in farm optimization, the projected demand grows from 25 units in Year 1 to 90 units in Year 5.

Overall, the COGS reflects a steady upward trend, beginning at JOD 10,300 in Year 1 and reaching JOD 20,800 by Year 5. This increase corresponds to the anticipated growth in demand across all product lines, reflecting a planned scalability in operations.

Table 2: Cost of Goods Sold – Five-year projection.

Description / Year	1	2	3	4	5
Projected Demand (Quantity) IoT Sensing Devices	300	400	450	500	550
COGS / Unit IoT Sensing Devices (JOD)	30	30	30	30	30
Sub-total IoT Sensing Devices (JOD)	9,000	12,000	13,500	15,000	16,500
Projected Demand (Quantity) Subscription Services for Data Analysis and Recommendations	40	50	80	100	125
COGS / Unit Subscription Services for Data Analysis and Recommendations (JOD)	20	20	20	20	20
Sub-total Subscription Services for Data Analysis and Recommendations (JOD)	800	1,000	1,600	2,000	2,500
Projected Demand (Quantity) Consulting Services for Farm Optimization	25	40	55	70	90
COGS / Unit Consulting Services for Farm Optimization (JOD)	20	20	20	20	20
Sub-total Consulting Services for Farm Optimization (JOD)	500	800	1,100	1,400	1,800
Total COGS (JOD)	10,300	13,800	16,200	18,400	20,800

The manpower plan for JoAgriTech outlines the staffing approach to support growth over five years. Starting with a core team of a CEO/Founder, an IoT Engineer, and a Data Analyst in Year 1, the plan ensures a solid foundation. In Year 2, an Agricultural Consultant is added, increasing the team to four members, which remains stable through Year 3. By Year 4, another Agricultural Consultant is included, raising the total team size to five, reflecting the growing need for agricultural expertise. This structure is maintained in Year 5. The gradual expansion of JoAgriTech has the necessary skills and expertise to support the technology and agriculture initiatives effectively as it scales operations.

Table 3: Manpower recruitment plan – five-year projection

Title / Year	1	2	3	4	5
CEO/Founder	1	1	1	1	1
IoT Engineer	1	1	1	1	1
Data Analyst	1	1	1	1	1
Agricultural Consultant	0	1	1	2	2
Total Cumulative HR	3	4	4	5	5

The total manpower cost for JoAgriTech reflects an increase over five years, aligned with the company's growth. In Year 1, the total HR cost is JOD 28,891, covering salaries for the CEO, IoT Engineering, and Data Analyst. As the team expands, an Agricultural Consultant is added in Year 2, increasing the total HR cost to JOD 38,148. The HR cost continues to rise every year until it reaches JOD 53,021 in Year 5.

Table 4: Manpower total cost – five-year projection

Title / Year	1	2	3	4	5
CEO	11,200	11,760	12,348	12,965	13,614
IoT Engineer	6,300	6,615	6,946	7,293	7,658
Data Analyst	7,000	7,350	7,718	8,103	8,509
Agricultural Consultant	-	6,615	6,946	14,586	15,315
Total HR Salaries (JOD)	24,500	32,340	33,957	42,948	45,095
Social Security Cost (JOD)	3,491	4,608	4,839	6,120	6,426
Health Insurance Cost (JOD)	900	1,200	1,200	1,500	1,500
Total HR Cost (JOD)	28,891	38,148	39,996	50,568	53,021

The operating expenditures (OpEx) for reflect a stable approach to managing ongoing costs. Recurring expenses, such as electricity, water, rent, stationery, maintenance, telecommunication, website charges, and cleaning materials, remain constant over the five-year period. Advertising costs show a planned increase from JOD 2,000 in Year 1 to JOD 6,000 in Year 5, aligning with the company's growth. Legal and accounting fees are reduced slightly after the first two years. Overall, the total OpEx increases from JOD 36,311 in Year 1 to JOD 64,241 which also include manpower costs.

Table 5: Operational Expenditures – five-year projection

Description / Year	1	2	3	4	5
Electricity	300	300	300	300	300
Water	30	30	30	30	30
Rent	3,000	3,000	3,000	3,000	3,000
Stationary	30	30	30	30	30
Maintenance	100	100	100	100	100
Telecommunication	100	100	100	100	100
Website Charges	10	10	10	10	10
Advertising	2,000	4,000	5,000	5,000	6,000
Cleaning Material & Consumables	50	50	50	50	50
Research & Development	1,000	1,000	1,000	1,000	1,000
Legal & Accounting Fees	800	800	600	600	600
Total OpEx	36,311	47,568	50,216	60,788	64,241

The capital expenditures (CapEx) for JoAgriTech is allocated to support the company’s initial setup and ongoing technological advancements. In Year 1, the significant initial investment of JOD 11,000 covers R&D and technology, component assembly setup, and office equipment.

In Years 3, and 4, a planned additional CapEx is required for R&D and technological improvements.

Table 6: Capital Expenditures Cost – five-year projection

Description / Year	0	1	2	3	4	5
R&D and Technology	4,000	2,000			2,000	
Manufacturing Setup	4,000			4,000		
Office and Equipment	1,000					
Total CapEx	9,000	2,000	0	4,000	2,000	0

5. Financial Analysis

5.1 Financial Study Assumptions

The feasibility study is based on the following key assumptions:

Discount Rate: The study employs a conservative discount rate of 14%, reflecting a cautious approach to valuation.

Financing Structure: The project is entirely financed by equity. This conservative approach avoids the financial leverage and thus underestimates project value, given the lower cost of debt compared to equity.

Terminal Value: The project assumes a zero-terminal value at the end of year five, aligning with the study's conservative outlook.

Cash Flow Projection: Cash flows beyond year five are excluded from the analysis, focusing on the initial project phase.

Tax Rate: The assumed tax rate of 0% complies with Jordan's income tax law.

Depreciation Rate: Capital expenditure (CapEx) is depreciated at an annual rate of 20%. Any deviation from this rate may impact projected profitability but not project feasibility, as depreciation is a non-cash expense.

Working Capital Assumptions

Operational liquidity requirements are guided by the following assumptions:

- **Cash Reserves:** The project will maintain cash equivalent to 30 days of projected annual operational expenses, ensuring robust liquidity management.
- **Accounts Receivable (A/R) Collection Period:** The average collection period for receivables is 45 days, reflecting expected credit sales conversion into cash.

- **Accounts Payable (A/P) Payment Period:** The average payment period for payables is 0 days, indicating the timeframe for settling supplier obligations.
- **Inventory Management:** Inventory levels will be maintained to cover an average of two months of sales quantity, ensuring optimal stock levels to meet demand efficiently.

Capital expenditures expected to be incurred in the first year were included as part of the initial costs of the project.

Provisions were made within the initial cost to cover any potential negative net free cash flow that may arise during the first five years of operation, if needed.

5.2 Financial Study:

5.2.1 Projected Working Capital

This table shows that the net working capital needed for the project for the first year of operation is JOD 11,733, which has to increase steadily year over year to reach JOD 25,855 in the fifth year of operation. The steady increase in the working capital comes to cover the rapid increase in the project operations and mainly the increase in the projected revenues.

Table 7: Working capital projection (JOD)

Description/Year	1	2	3	4	5
Cash	3,329	4,360	4,603	5,572	5,889
Accounts Receivable (A/R)	6,688	9,000	11,688	13,875	16,500
Inventory	1,717	2,300	2,700	3,067	3,467
Accounts Payable (A/P)	-	-	-	-	-
Net Working Capital	11,733	15,660	18,991	22,514	25,855
Changing in Working Capital		3,928	3,330	3,523	3,342

5.2.2 Project Initial Cost

The project's initial cost is projected to be JOD 22,733, comprising JOD 11,000 as CapEx and JOD 11,733 as net working capital.

Table 8: Initial Cost Summary (JOD)

Description/Year	JOD
CapEx	11,000
Net Working Capital	11,733
Total Initial Cost	22,733

5.2.3 Projected Income Statement

The projected income statement indicates that the project will generate a profit of JOD 1,058 in the first year of operation. Furthermore, net profits are expected to increase gradually over the study period, reaching JOD 37,135 in the fifth year of operation.

Table 9: Projected Income Statement (JOD)

Description/Year	1	2	3	4	5
Total Revenues	53,500	72,000	93,500	111,000	132,000
COGS	10,300	13,800	16,200	18,400	20,800
Gross Profit	43,200	58,200	77,300	92,600	111,200
OpEx	39,942	52,325	55,237	66,867	70,665
Net Profit Before Tax and Depreciation	3,258	5,875	22,063	25,733	40,535
Depreciation	2,200	2,200	3,000	3,400	3,400
Net Profit Before Tax	1,058	3,675	19,063	22,333	37,135
Tax Expense			-	-	-
Net Profit	1,058	3,675	19,063	22,333	37,135

In the first year of operation, the project is expected to generate positive profit margins, and revenue growth will dramatically increase the gross and net profit margins in the following years. In the fifth year of operations, the gross profit margin is expected to be 84.2%, and the net profit margin is 28.1%.

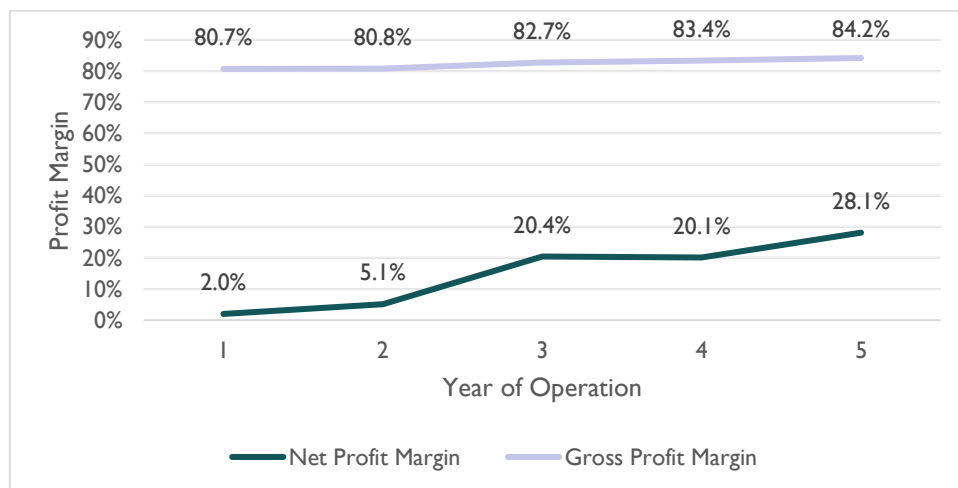


Figure 3: Gross vs Net Profit Margin

On the asset management side, the study shows that the return on investment will increase steadily from 4.7% in the first year of operation to 129.2% in the fifth year.

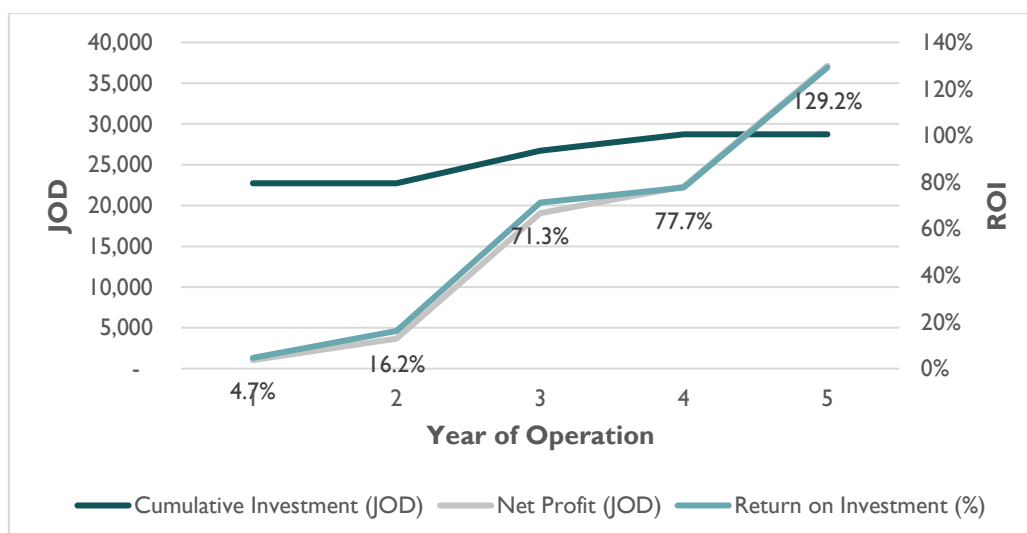


Figure 4: Return on Investment

5.2.4 Projected Free Cash Flow Statement

The table below demonstrates that the project can generate a positive free cash flow from the first year of operation, JOD 3,258. Moreover, due to the projected expansion in business operations, the project is expected to generate a steady positive net free cash flow growth in the following years. By the end of your five, the projected free cash flow will reach JOD 37,193.

Table 10: Free Cash Flow (FCF) Projection (JOD)

Description/Year	0	1	2	3	4	5
Cash-in Flow						
Net Profit		1,058	3,675	19,063	22,333	37,135
Depreciation		2,200	2,200	3,000	3,400	3,400
Injected Capital	22,733					
Total Cash-inFlow	22,733	3,258	5,875	22,063	25,733	40,535
Cash-out Flow						
Initial Cost	22,733			4,000	2,000	
Changes in Working Capital			3,928	3,330	3,523	3,342
Total Cash-out Flow	22,733	-	3,928	7,330	5,523	3,342
Free Cash Flow	-	3,258	1,947	14,732	20,210	37,193

Based on these results, the project's feasibility indicators demonstrate its viability, with a net present value of JOD 22,849.7 and a profitability index of 2.01. Moreover, the project's internal rate of return (IRR) is expected to be 36.76%, indicating feasibility is not sensitive to changes in market conditions.

Feasibility Indicators	
Net Present Value (NPV)	22,850
Profitability Index (PI)	2.01
Internal Rate of Return (IRR)	36.8%

5.3 Sensitivity Analysis

To assess the project's sensitivity to market conditions, a sensitivity analysis was conducted involving six unfavourable scenarios:

- Decrease projected revenues by 5% while keeping other variables constant.
- Decrease projected revenues by 10% while keeping other variables constant.
- Increase operational expenditure by 5% while keeping other variables constant.
- Increase operational expenditure by 10% while keeping other variables constant.
- Increase initial costs by 5% while keeping other variables constant.
- Increase initial costs by 10% while keeping other variables constant.

Table 11: Sensitivity analysis outcomes

Sensitivity Scenario	Net Present Value (NPV)	Profitability Index (PI)	Internal Rate of Return (IRR)
Original case	22,850	2.01	36.76%
Drop in revenues by 5%	7,864	1.35	22.14%
Drop in revenues by 10%	- 7,122	0.69	6.25%
Increase in OpEx by 5%	13,155	1.57	27.18%
Increase in OpEx by 10%	3,460	1.15	17.49%
Increase in initial cost by 5%	21,713	1.91	34.97%
Increase in initial cost by 10%	20,576	1.82	33.29%

The sensitivity analysis shows that the project is feasible and not sensitive to unfavourable market conditions. Except for the drop in revenues by 10% scenario, the project's economic feasibility is strong and viable under all the above-mentioned scenarios. The drop in revenues has a more dramatic impact on the project viability than the increase in the OpEx or initial cost by the same magnitude. It is recommended that investors check and further study the market to ensure that the projected revenues are achievable within the thresholds of the proposed initial cost and operational expenditures.

6. Integration with Other Sectors

JoAgritech's integration with other sectors offers opportunities for enhancing agricultural efficiency and sustainability. By collaborating with the agricultural supply chain, JoAgriTech can improve transparency and traceability, ensuring efficient operations from farm to table.

In the food processing industry, JoAgriTech's farming techniques help ensure a consistent supply of quality raw materials, benefitting food production standards. Partnering with the renewable energy sector can promote the use of solar panels, wind turbines, and bioenergy solutions, reducing the carbon footprint of farming practices.

JoAgriTech's collaboration with technology companies can lead to the development of smart farming solutions, such as IoT devices and automated equipment, making farming more data-

driven and efficient. Environmental conservation efforts can be supported by promoting eco-friendly farming practices, focusing on soil health, water conservation, and biodiversity.

Finally, partnerships with educational institutions can provide training and knowledge dissemination, helping farmers adopt the latest agricultural techniques and technologies.

In summary, JoAgriTech's integration with other sectors can drive improvements in agricultural practices, economic efficiency, and environmental sustainability. These collaborations pave the way for a more resilient and forward-thinking agricultural industry.

7. Entrepreneur Persona

The ideal entrepreneur for JoAgriTech should possess a strong background in agronomy and IoT technologies, with a keen understanding of the unique demands of smart agriculture. They should exhibit exceptional business acumen, capable of strategizing, managing finances, and securing funding to sustain and grow the enterprise. Expertise in sustainable water management is essential to address Jordan's water scarcity challenges effectively. The entrepreneur should demonstrate strong leadership qualities, able to build and guide a multidisciplinary team towards collaboration and innovation. A commitment to promoting sustainable practices, aligning business goals with environmental stewardship and community benefit, is crucial. Adaptability is key, enabling the entrepreneur to respond to technological, market, or regulatory changes, ensuring the company remains at the forefront of the agricultural sector. This combination of technical knowledge, strategic business operations, and a focus on sustainability is vital for pioneering smart agriculture technologies in challenging environments like Jordan's.

8. Stakeholders

JoAgriTech's stakeholders encompass a diverse group crucial to the company's success. Farmers and agricultural cooperatives are the primary users of IoT technologies, directly benefiting from enhanced farming practices. Government agencies play a significant role as regulators and collaborators, supporting agricultural development initiatives. Investors and financial institutions provide the necessary funding and financial support to drive growth and sustainability. Research institutions partner with JoAgriTech to innovate and validate new technologies, ensuring continuous improvement. Technology partners and suppliers are essential for providing key components and software that underpin IoT solutions. NGOs and international aid organizations support sustainable agricultural practices, helping extend the benefits of technology to broader communities. Local communities also benefit from improved agricultural productivity and practices, enhancing overall socio-economic conditions. Effective engagement with these stakeholders through training, support, and collaborative projects is vital for the successful implementation and scaling of JoAgriTech's smart agriculture solutions.

9. Risk Assessment and Mitigation

Successfully deploying JoAgriTech in Jordan entails navigating several risks:

Risk	Impact	Likelihood	Risk Mitigation Technique
Technological Risks	Rapid technological advancements could render current devices obsolete.	Moderate	Invest in continuous research and development to keep pace with technological innovations and integrate emerging technologies into product offerings.
Market Adoption Risks	Potential resistance from traditional farmers unfamiliar with smart technology.	Moderate	Implement comprehensive training and education programs to demonstrate the value and ease of use of IoT solutions.
Regulatory and Compliance Risks	Evolving regulations around data privacy and IoT devices could impact operations.	Moderate	Stay informed of regulatory changes and engage with policymakers to advocate for favourable conditions.

To ensure the successful implementation and long-term sustainability of JoAgriTech, several key recommendations are proposed. First, continuous investment in research and development is essential to keep pace with rapid technological advancements. This will help mitigate technological risks, ensuring that JoAgriTech's devices remain relevant and competitive. Establishing a dedicated R&D team focused on integrating emerging technologies into product offerings will further strengthen this strategy. Additionally, fostering strong relationships with technology partners and suppliers can provide insights into future technological trends and innovations.

Second, addressing market adoption risks requires a comprehensive training and education program tailored for traditional farmers who may be unfamiliar with smart technology. Demonstrating the value and ease of use of IoT solutions through pilot projects and hands-on workshops can enhance acceptance and adoption. Creating user-friendly interfaces and providing ongoing technical support will further ease the transition for farmers, ensuring they fully benefit from the technology.

The sensitivity analysis revealed that a 10% drop in projected revenues would lead to a negative net present value (NPV) and a profitability index (PI) of less than 1. A negative NPV indicates that the project would lose value over time, failing to generate sufficient returns to justify the initial investment. Similarly, a PI of less than 1 means that the project's returns would not cover its costs, making it financially unviable. To mitigate this risk, it is crucial to conduct thorough market research to ensure revenue projections are realistic and achievable. Additionally, strategic pricing and cost management practices should be implemented to maintain financial stability. Engaging with policymakers to advocate for favorable regulatory conditions and staying informed about evolving regulations around data privacy and IoT devices are also crucial for compliance and smooth operations. By focusing on these risk mitigation techniques, JoAgriTech can navigate potential challenges and achieve sustainable growth in the agricultural technology sector.

6 Conclusion

JoAgriTech is well-positioned to make a positive impact in the agricultural technology sector through careful investments in research and development, training programs for market adoption, and attention to regulatory compliance. By addressing potential risks and ensuring realistic revenue projections, JoAgriTech can overcome challenges and achieve steady growth.

In conclusion, the project demonstrates promising feasibility indicators based on the assumptions formed during the development of this study. Nonetheless, entrepreneurs are advised to conduct additional analysis on projected demand, initial costs, and operational expenses to mitigate potential risks associated with adverse market conditions that could jeopardize its validity.

Disclaimer

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Founders and investors considering this project are advised to conduct further analysis on projected adoption rates, development costs, and ongoing operational expenses. This additional scrutiny will help mitigate potential risks related to technology challenges, changes in regulations, market penetration, and competitive pressures.

The report does not constitute any form of commitment or recommendation on the part of MoDEE or Istdama Consulting.