



EcoHome

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



Funded by
the European Union

Prepared by:



Table of Contents

Table of Contents.....	1
Table of Tables	2
Table of Figures	2
Executive Summary	3
1. Introduction	3
2. Market Analysis	4
3. Business Model.....	6
4. Technical Analysis.....	8
5. Financial Analysis.....	11
5.1 Financial Study Assumptions	11
5.2 Financial Study:	12
5.2.1 Projected Working Capital	12
5.2.2 Project Initial Cost.....	12
5.2.3 Projected Income Statement.....	12
5.2.4 Projected Free Cash Flow Statement.....	14
5.3 Sensitivity Analysis.....	14
6. Integration with Other Sectors	15
7. Entrepreneur Persona	15
8. Stakeholders	16
9. Risk Assessment and Mitigation	16
10. Conclusion.....	18

Table of Tables

Table 1: Revenue projection	7
Table 2: Cost of Goods Sold – Five Year Projection	9
Table 3 : Manpower recruitment plan – five-year projection:.....	9
Table 4: Manpower total cost – five-year projection	9
Table 5: Operational Expenditures – five-year projection	10
Table 6: Capital Expenditures Cost – five-year projection	10
Table 7: Working capital projection (JOD)	12
Table 8: Initial Cost Summary (JOD)	12
Table 9: Projected Income Statement (JOD)	12
Table 10 : Free Cash Flow (FCF) Projection (JOD)	14
Table 11: Sensitivity analysis outcomes	15

Table of Figures

Figure 1: Product Mix by Quantity	7
Figure 2: Product Mix by Revenue.....	8
Figure 3: Gross vs Net Profit Margin	13
Figure 4: Return on Investment.....	13

Executive Summary

EcoHome proposes a smart home energy management system designed to optimize energy usage and reduce costs for homeowners in urban and suburban Jordanian markets. The system integrates advanced sensors and software into existing electrical infrastructure, allowing for real-time monitoring and efficient energy consumption. Objectives include promoting sustainability and providing consumers with accessible tools for managing energy effectively.

Key findings from the feasibility study indicate strong market potential in Jordan due to rising energy costs and increasing consumer interest in sustainable living solutions. Technical feasibility assessments show the system's compatibility with household infrastructures, albeit with some integration complexities that require thorough testing. Financial viability projections are positive, driven by potential savings for consumers and strategic partnerships with energy providers. While the initial focus is local, EcoHome has global scalability potential given the universal demand for energy efficiency solutions.

Based on the feasibility study findings, EcoHome is well-positioned to meet market demands effectively with its sustainable and technologically advanced solution. The study highlights significant potential for adoption within Jordan, fuelled by increasing energy expenses and heightened consumer interest in energy-efficient solutions. With strategic partnerships and a clear pathway for growth, EcoHome is positioned to extend its influence beyond Jordan, capturing interest in smart home energy management systems.

I. Introduction

The increasing cost of energy and growing concern for environmental sustainability have created a pressing need for efficient energy management solutions. In urban areas of Jordan, homeowners face significant challenges in managing their energy consumption, leading to high electricity bills and a larger environmental footprint. Despite various efforts to promote energy efficiency, many households lack the tools and insights needed to optimise energy usage effectively.

The significance of this problem is twofold. Economically, high energy costs strain household budgets, particularly in urban centers like Amman, Irbid, and Zarqa where energy consumption is high¹. Environmental, inefficient energy usage contributes to increased greenhouse emissions, counteracting national efforts to combat climate change. The impact on the target market is substantial, as homeowners seek solutions that can help them reduce costs and contribute to a more sustainable future.

The proposed solution is EcoHome, a smart home energy management system that offers a comprehensive approach to monitoring and controlling energy consumption in real-time. Using sensors, advanced algorithms, and cloud-based data analysis, EcoHome provides homeowners with detailed insights into their energy usage patterns. This enables them to make informed decisions about energy consumption, ultimately reducing their electricity bills

¹ <https://dosweb.dos.gov.jo/DataBank/Expenses/table5.1.pdf>

and environmental impact. The system is user-friendly, accessible through a mobile app, and does not require any rewiring for added convenience.

The potential benefits of EcoHome are significant. Homeowners can achieve notable cost savings, reduce their carbon footprint, and gain greater control over their energy usage.

2. Market Analysis

The global economy is increasingly emphasising sustainability and energy efficiency. Driven by rising energy costs and environmental concerns. In Jordan, the government is actively promoting renewable energy initiatives through various policies and subsidies. The Economic Modernization Vision (EMV) cites low emphasis, action, and incentives for demand side management as key challenges for the Energy sector in Jordan. It also proposes the adoption of technology such as data analytics as a strategic focus for the country in response to that challenge ².

Jordan's energy sector has historically relied heavily on imports, which accounted for 92.3% of its total energy supply in 2021³. Despite the establishment of the Renewable Energy and Energy Efficiency Law in 2012 and the ambitious targets set by the Jordan Energy Strategy 2020 - 2030, which aims for a 9% annual reduction in energy consumption across all sectors, Jordan's electricity usage has increased, climbing to 19,306 GWh in 2021 from 17,574 GWh in 2017⁴.

The energy management sector in Jordan is poised for significant growth. The industry outlook is positive, indicating steady growth in the adoption of home energy management systems. The competitive landscape includes various players offering complementary products, such as smart meters and home automation systems. However, the focus on energy management software that can be easily deployed into the home and tailored to the local market needs, positions EcoHome advantageously.

Key economic indicators relevant to the start-up's success include:

- **Population Growth and Urbanization:** The population in Jordan is likely to reach 12.5 million by 2028 representing a 7.8% growth compared to 2024⁵. Jordan's population urbanization rate is currently 92%⁶.
- **Electricity Prices:** Electricity prices are very high in Jordan, compared to neighbouring countries⁷ and stands at 113% the Asia average for the residential sector⁸.
- **Electricity Consumption:** Electricity consumption per capita in Jordan increased by 32% from 2000 to 2021. The residential sector was the largest electricity-consuming sector in 2021, accounting for 46% of the total consumption⁹.

² <https://www.jordanvision.jo/img/vision-en.pdf>

³ <https://www.iea.org/countries/jordan/energy-mix>

⁴ <https://jordantimes.com/news/local/electricity-consumption-reaches-new-heights-kingdom>

⁵ <https://jordantimes.com/news/local/jordans-population-reach-125-million-2028-%E2%80%94-hpc>

⁶ <https://www.statista.com/statistics/455851/urbanization-in-jordan/#:~:text=Urbanization%20in%20Jordan%202022&text=In%202022%2C%20the%20share%20of.in%20Jordan%20with%2091.83%20percent.>

⁷ <https://jsf.org/uploads/2022/12/energy.pdf>

⁸ https://www.globalpetrolprices.com/jordan/electricity_prices/

⁹ <https://www.iea.org/countries/jordan/electricity>

- Government subsidies: Financial incentives for renewable and energy efficiency energy projects reduce the investment burden, encouraging adoption.
- Consumer Awareness: Increasing awareness about energy conservation and sustainability drives demand for energy management solutions.

The macroeconomic analysis suggests a favourable environment for EcoHome in Jordan.

The target market for EcoHome includes middle to high-income households in urban and suburban areas of Jordan, particularly in cities like Amman and Irbid. These consumers are tech-savvy and likely to be motivated by cost savings. The primary demographic includes homeowners who are looking for ways to reduce their electricity bill. Households in this target market typically have monthly electricity bills of at least JOD 130, indicating a higher-than-average electricity consumption that EcoHome aims to optimize.

Recent market research shows that the revenue in the energy management market in Jordan is projected to reach USD 1.4 million in 2024. The market is expected to show an annual growth rate (CAGR 2024 - 2028) of 5.93% resulting in a projected market volume of USD 1.8 million by 2028. The number of active households using energy management solutions is expected to reach 68,000 by 2028, with household penetration increasing from 2.1% in 2024 to 3.5% in 2028 ¹⁰.

The competitive landscape in Jordan's energy management sector includes several players offering related products such as smart meters and home automation systems. However, these competitors primarily focus on hardware components rather than an integrated energy management software solution.

A notable global success story related to EcoHome is Sense, a US-based start-up. Sense developed an advanced home energy system using machine learning to provide detailed insights into energy usage, helping users improve efficiency and reduce costs. Sense's innovative technology, which detects individual devices using machine learning, set it apart from competitors. Their user-friendly mobile app made energy tracking simple, boosting customer adoption and satisfaction. Strategic partnerships with energy providers and smart home ecosystems expanded their market reach and added value¹¹.

EcoHome's value proposition lies in its comprehensive energy management capabilities that are tailored to the needs of the local market. Its ease of deployment, without the need for rewiring, and user-friendly mobile application make it an attractive option for homeowners.

The total number of residential electricity subscribers in Jordan is 2 million. Ecohome's total addressable market comprises households that consume more than 1,000 kWh per month, which are about 24,000 subscribers¹².

EcoHome targets several key customer segments which includes cost-conscious households looking to reduce their monthly electricity expenses through efficient energy management and tech-savvy homeowners who seek innovative ways to manage their consumption.

¹⁰ <https://www.statista.com/outlook/cmo/smart-home/energy-management/jordan>

¹¹ <https://sense.com/>

¹² [https://www.facebook.com/RoyaNews?__cft__\[0\]=AZVPI3tSe2zHJlCsjXG-6GvmW9IEEMc-I TwnGAlh8mWTFIjOG_FjZGyqg-Ld7kFkmv8dz_53ZwjDaDdOpC9gGHUPNlgiCXsXOU4_-wbYjkcY5prJgYKi9s_lcg3zpAaYhD_b-4Gkmi6R02r8cYMBJc4lnOE-uBohlgG76ADFTg&_tn_=-UC%2CP-R](https://www.facebook.com/RoyaNews?__cft__[0]=AZVPI3tSe2zHJlCsjXG-6GvmW9IEEMc-I TwnGAlh8mWTFIjOG_FjZGyqg-Ld7kFkmv8dz_53ZwjDaDdOpC9gGHUPNlgiCXsXOU4_-wbYjkcY5prJgYKi9s_lcg3zpAaYhD_b-4Gkmi6R02r8cYMBJc4lnOE-uBohlgG76ADFTg&_tn_=-UC%2CP-R)

3. Business Model

EcoHome’s business model aims to offer homeowners in Jordan a practical solution for enhancing energy efficiency, reducing costs, and promoting environmental sustainability through the integration of technology and user-friendly interfaces.

The operational structure of EcoHome is centered around strategic deployment and marketing efforts. Strategic deployment involves selecting target urban and suburban areas such as Amman and Irbid, where middle to high-income households reside. This includes the installation and setup of the system within homes, requiring technical expertise to integrate sensors and connect to the electric panel without rewiring. System configuration and optimization follow, focusing on fine-tuning the algorithms to detect and monitor energy usage patterns for personalized and efficient energy management. App development supports these efforts by creating a multi-platform app that enables real-time monitoring. Marketing and consumer outreach activities include educating consumers about the benefits and ease of energy saving through campaigns.

EcoHome relies on essential resources such as advanced sensors integrated into electric panels for accurate data collection. The mobile application is a critical tool for homeowners to monitor and manage energy usage conveniently. A dedicated team of technical experts including a technical engineer, technician, and technician assistant ensure reliable service and customer satisfaction.

Management and operational procedures at EcoHome cover the procurement of the system, its deployment in the target areas, system configuration and optimization, customer support and education, and continuous improvement based on user feedback and system integrity, following by testing to ensure reliability and functionality. Marketing efforts include educating consumers about energy-saving benefits and building lasting customer relationships.

Homeowners acquire EcoHome by purchasing the system through one-time payment or a 12-month instalment plan. They can also opt for a maintenance contract for a small annual fee.

EcoHome’s revenue model consists of two streams: the initial installation, which includes both hardware and software, priced at JOD 1,000, and annual maintenance contracts priced at JOD 150 per year. As illustrated in the table below

As illustrated in the table below, annual revenues demonstrate significant growth, starting with approximately seven systems and maintenance contracts sold per month in the first year. Sales are projected to increase by about 20% annually, leading to an estimated 15 systems and maintenance contracts sold per month by the fifth year.

Table 1: Revenue projection

Description / Year	1	2	3	4	5
Projected Demand (Quantity) One-Time System purchase	85	120	144	188	210
Price / Unit One-Time System purchase (JOD)	1,000	1,000	1,000	1,000	1,000
Sub-total One-Time System purchase (JOD)	85,000	120,000	144,000	188,000	210,000
Projected Demand (Quantity) Subscription	85	120	144	188	210
Price / Unit Subscription (JOD)	150	150	150	150	150
Sub-total Subscription (JOD)	12,750	18,000	21,600	28,200	31,500
Total Revenues (JOD)	97,750	138,000	165,600	216,200	241,500

The analysis shows that while the units sold for one-time system purchases and subscriptions are equal each year, the revenue contribution of the one-time system purchases is significantly higher. In the first year, one-time system purchases contribute 87% of the total revenue, and this proportion remains consistent through the fifth year. On the other hand, subscriptions contribute 13% to the total revenue, highlighting the importance of initial installations as the primary revenue driver.

This revenue distribution underscores the significance of one-time system purchases in generating substantial upfront revenue while the subscription model provides a steady and growing revenue stream over time.

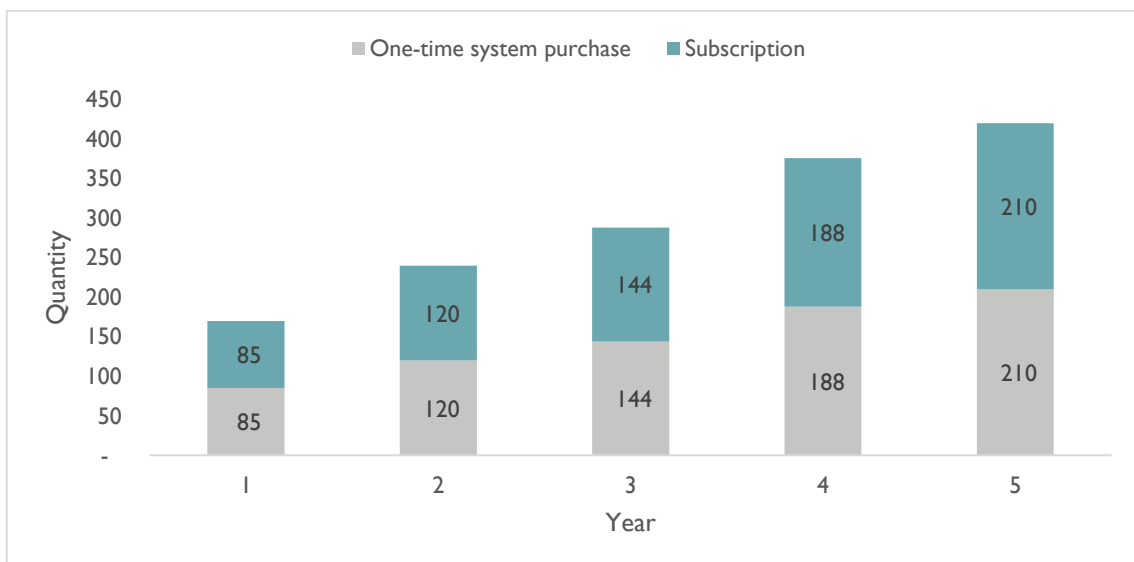


Figure 1: Product Mix by Quantity

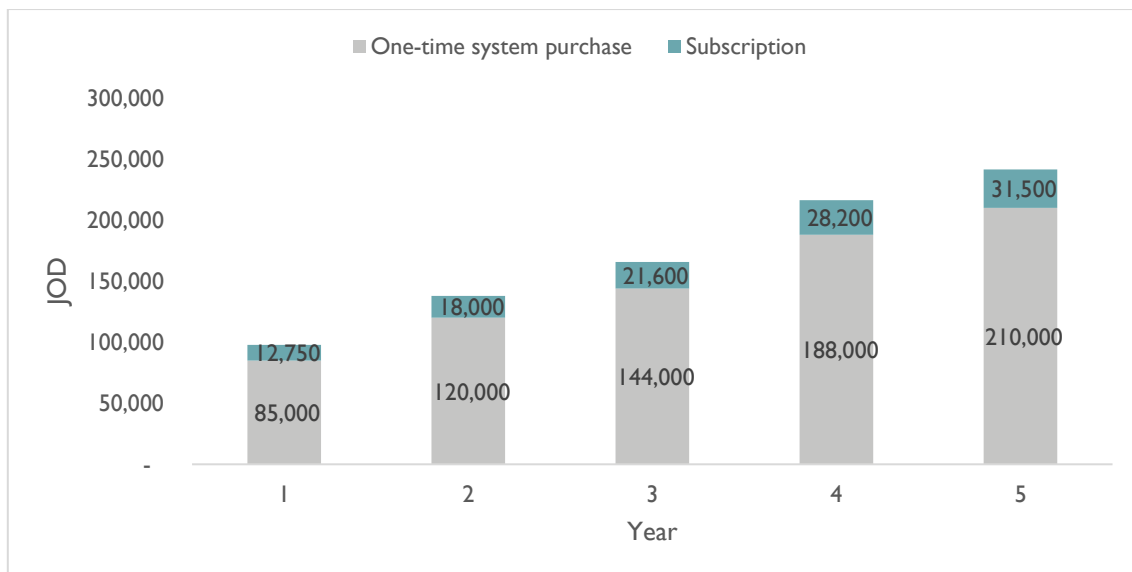


Figure 2: Product Mix by Revenue

4. Technical Analysis

EcoHome's technical feasibility underpins its start-up potential through several key advantages. Integrating advanced sensors into existing electrical panels without requiring rewiring not only enhances overall system efficiency but also simplifies installation processes and lowers costs for homeowners. Skilled technical engineers dedicated to system configuration and installation ensure reliable operation, facilitating timely deployment and ongoing maintenance to uphold service reliability over the long term.

Moreover, developing a user-friendly mobile app for iOS, Android, and web platforms enhances the user experience by enabling seamless energy monitoring, personalized insights, and remote-control capabilities. The app's capability underscores EcoHome's commitment to technological innovation and customer satisfaction.

While navigating regulatory compliance and adapting to market dynamics present challenges, they also provide opportunities for EcoHome to differentiate itself. By adhering to local regulations and meeting evolving consumer preferences for sustainable energy solutions, EcoHome can establish a strong presence in Jordan's market. Overall, EcoHome's technical foundations position it well to meet the growing demand for smart home energy management solutions.

The technical analysis for EcoHome focuses on the feasibility and practicality of implementing and operating the energy-saving solution in Jordanian homes. The system will use advanced sensors and technology integrated into the electrical panel without the need for rewiring. These sensors will provide real-time data and are estimated to cost JOD 425 per system, including hardware and software. Regular maintenance will be performed to ensure optimal performance and reliability. The mobile app, available on iOS, Android, and web platforms, will facilitate easy access for users, allowing efficient energy management and remote-control capabilities.

The cost of goods sold (COGS) account for hardware and software cost, the products provided must always be up-to-date and of high quality, as they form the foundation of the installed systems. Additionally, the software integration should be responsive and efficient, therefore as the table below illustrates the COGS of each system is constant throughout the years at 425 JODs while the COGS of maintenance contracts are none:

Table 2: Cost of Goods Sold – Five Year Projection

Description / Year	1	2	3	4	5
Projected Demand (Quantity) One-Time System purchase	85	120	144	188	210
COGS One-Time System purchase	425	425	425	425	425
Sub-total One-Time System purchase	36,125	51,000	61,200	79,900	89,250
Projected Demand (Quantity) Subscription	85	120	144	188	210
COGS Subscription	-	-	-	-	-
Sub-total Subscription	-	-	-	-	-
Total COGS (JOD)	36,125	51,000	61,200	79,900	89,250

EcoHome anticipates a gradual increase in manpower over the first five years to accommodate its expanding operations. Initially, the team will consist of three key members: an Operations (Sales) Manager, a Technical Engineer, and a technician. By the fifth year, the workforce is expected to expand to seven employees, in response to the company's growth and the increased need for support to uphold service quality and operational efficiency. Having sufficient ground operatives to meet demand and provide timely appointments are crucial operational priorities to succeed in the market.

Table 3 : Manpower recruitment plan – five-year projection:

Title / Year	1	2	3	4	5
Operation (Sales) Manager	1	1	1	1	1
Technical Engineer	1	1	1	2	2
Technician	1	1	2	2	2
Technician Assistant	0	0	2	2	2

Below is a summary table detailing the annual salaries and costs associated with the proposed team structure.

Table 4: Manpower total cost – five-year projection

Title / Year	1	2	3	4	5
Operation (Sales) Manager	9,600	10,080	10,584	11,113	11,669
Technical Engineer	8,400	8,820	9,261	19,448	20,421
Technician	5,400	5,670	11,907	12,502	13,127
Technician Assistant	-	-	9,240	9,702	10,187
Total HR Salaries	23,400	24,570	40,992	52,766	55,404
Social Security Cost	2,925	3,071	5,124	6,596	6,925
Health Insurance Cost	3,000	3,000	6,000	7,000	7,000
Total HR Cost	29,325	30,641	52,116	66,361	69,329

EcoHome's operating expenses (OpEx) consist of several components, including maintaining a multipurpose facility for operations and storage. These expenses also encompass insurance, legal and accounting fees, as well as costs related to marketing, advertising, and personnel. The table below illustrates the expenses in detail over the first 5 years with manpower expenses included.

Table 5: Operational Expenditures – five-year projection

Description / Year	1	2	3	4	5
Electricity	300	300	300	300	300
Rent	2,000	2,000	2,000	2,000	2,000
Water	30	30	30	30	30
Insurance	200	250	300	400	450
Stationary	30	30	30	30	30
Maintenance	100	100	100	100	100
Telecommunication	100	100	100	100	100
Website Charges	1,000	1,000	1,000	1,000	1,000
Advertising	2,000	2,000	2,000	2,000	2,000
Cleaning Material & Consumables	50	50	50	50	50
Hospitality Exp.	900	900	900	900	900
Legal & Accounting Fees	800	800	800	800	800
Other Costs	80	80	80	80	80
Sub-total OpEx	36,915	38,281	59,806	74,151	77,169
Other Costs	3,692	3,828	5,981	7,415	7,717
Total OpEx (JOD)	40,607	42,109	65,787	81,566	84,886

Capital investments are crucial for EcoHome's operational strategy, focusing on key areas. Firstly, purchase of tools and specialized equipment supports efficient installation and maintenance processes. Workbenches and storage setups are essential for organizing equipment, optimizing workflow, and enhancing productivity. Investment in system hardware replacement units ensures the reliability and longevity of installed systems, swiftly addressing any technical issues. Additionally, resources allocated to app development are vital for improving user experience and functionality, ensuring the mobile platform meets customer needs effectively. Details of these Capital Expenditures (CapEx) are outlined in the table below:

Table 6: Capital Expenditures Cost – five-year projection

Description / Year	0	1	2	3	4	5
Tools	1,000	1,000	-	-	-	-
Storage & workbenches	2,000	2,000	-	-	-	-
Replacement Units	2,200	2,500	3,000	3,700	4,500	5,200
App development	7,500	7,500				
Total CapEx	12,700	13,000	3,000	3,700	4,500	5,200

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 20% 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 in its first year of operation is JOD 21,623, which has to increase steadily year over year to reach JOD 52,136 in its fifth year. The steady increase in working capital covers the rapid rise in project operations and the increase in projected revenues.

Table 7: Working capital projection (JOD)

Description / Year	1	2	3	4	5
Cash	3,384	3,509	5,482	6,797	7,074
Accounts Receivable (A/R)	12,219	17,250	20,700	27,025	30,188
Inventory	6,021	8,500	10,200	13,317	14,875
Net Working Capital	21,623	29,259	36,382	47,139	52,136
Change in Working Capital		7,636	7,123	10,757	4,997

5.2.2 Project Initial Cost

The project's initial cost is projected to be JOD 47,323, comprising JOD 25,700 as CapEx and JOD 21,623 as net working capital.

Table 8: Initial Cost Summary (JOD)

Description / Year	JOD
CapEx	25,700
Net Working Capital	21,623
Total Initial Cost	47,323

5.2.3 Projected Income Statement

The projected income statement indicates that the project will earn JOD 12,703 in its first year of operation. Moreover, the net profit is expected to increase gradually over the study period, reaching JOD 47,155 in its fifth year of operation.

Table 9: Projected Income Statement (JOD)

Description / Year	1	2	3	4	5
Total Revenues	97,750	138,000	165,600	216,200	241,500
COGS	36,125	51,000	61,200	79,900	89,250
Gross Profit	61,625	87,000	104,400	136,300	152,250
OpEx	40,607	42,109	65,787	81,566	84,886
Net Profit Before Tax and Depreciation	21,019	44,891	38,613	54,734	67,364
Depreciation	5,140	5,740	6,480	7,380	8,420
Net Profit Before Tax	15,879	39,151	32,133	47,354	58,944
Tax Expense	3,176	7,830	6,427	9,471	11,789
Net Profit	12,703	31,321	25,707	37,883	47,155

The project is anticipated to generate a 13.0% profit margin in its first year of operation. Moreover, the net profit margin is expected to gradually increase in subsequent years, reaching 19.5% in the fifth year of operations.

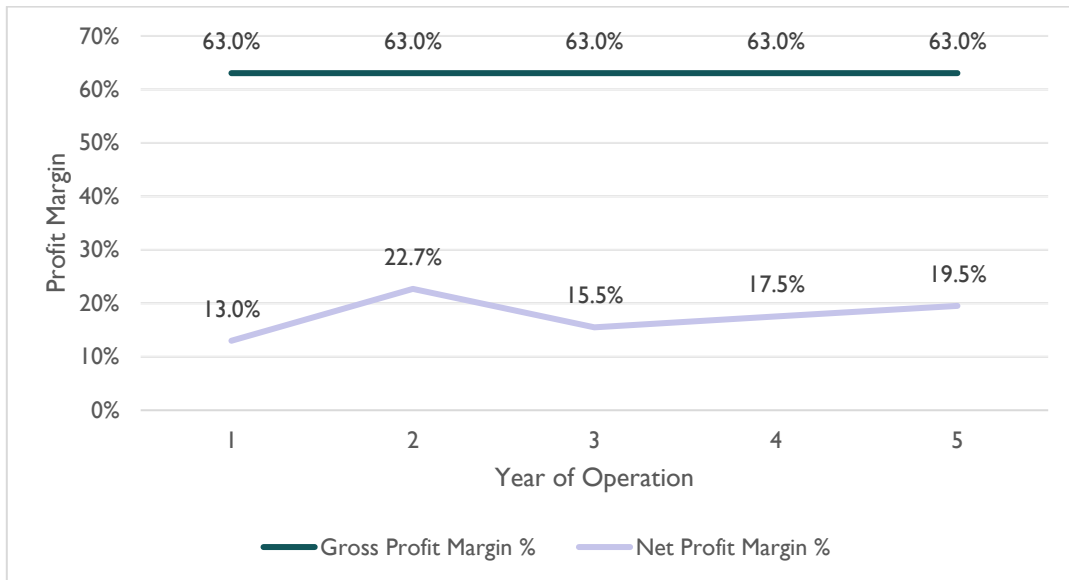


Figure 3: Gross vs Net Profit Margin

On the asset management side, the study shows that the return on investment will increase steadily from 26.8% in the first year of operation to 74.0% in the fifth year.

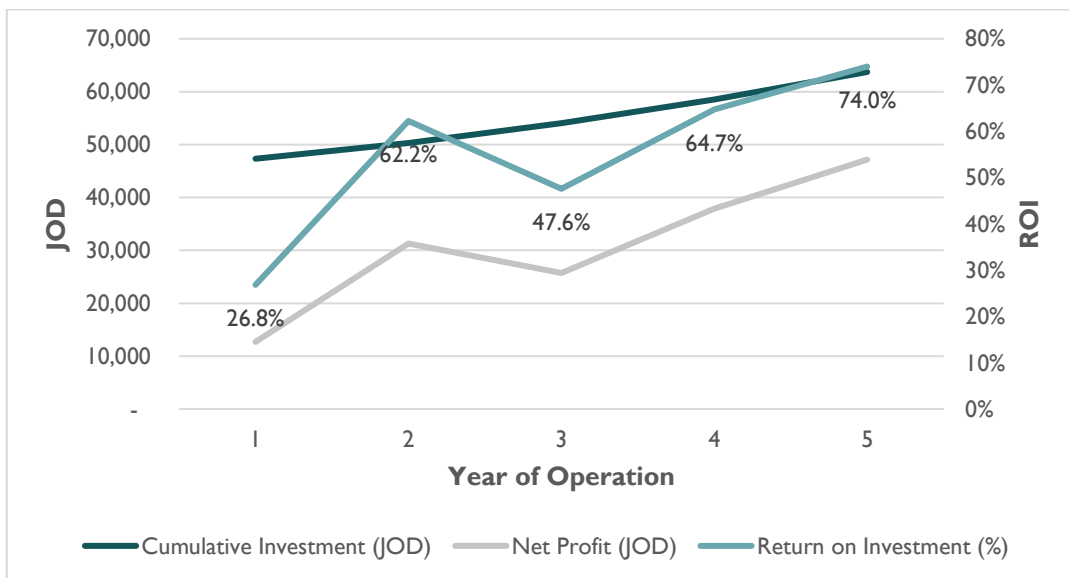


Figure 4: Return on Investment

5.2.4 Projected Free Cash Flow Statement

The table below demonstrates that the project will generate a positive free cash flow in its first year of operation, JOD 17,843. Moreover, in the following years, the free cash flow is expected to increase gradually to reach JOD 45,377 in its fifth year of operation.

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

Description / Year	0	1	2	3	4	5
Cash-In Flow						
Net Profit		12,703	31,321	25,707	37,883	47,155
Depreciation		5,140	5,740	6,480	7,380	8,420
Injected Capital	47,323					
Total Cash-In Flow	47,323	17,843	37,061	32,187	45,263	55,575
Cash-Out Flow						
Initial Cost	47,323		3,000	3,700	4,500	5,200
Changes in Working Capital			7,636	7,123	10,757	4,997
Total Cash-Out Flow	47,323	-	10,636	10,823	15,257	10,197
Free Cash Flow	-	17,843	26,425	21,364	30,006	45,377

Based on these results, the project's feasibility indicators demonstrate its viability, with a net present value of JOD 44,414.7 and a profitability index 1.94. Moreover, the project's internal rate of return (IRR) is expected to be 43.17%, indicating feasibility is not sensitive to changes in market conditions.

Feasibility Indicators	
Net Present Value (NPV)	44,415
Profitability Index (PI)	1.94
Internal Rate of Return (IRR)	43.17%

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	44,415	1.94	43.17%
Drop in revenue by 5%	22,129	1.47	29.59%
Drop in revenue by 10%	-157	1.00	13.88%
Increase in OpEx by 5%	35,936	1.76	38.08%
Increase in OpEx by 10%	27,457	1.58	32.83%
Increase in initial cost by 5%	42,048	1.85	40.59%
Increase in initial cost by 10%	39,682	1.76	38.21%

The sensitivity analysis shows that, in general, the project is feasible and not sensitive to unfavourable market conditions. Apart from the 10% drop in revenues 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

EcoHome's integration across various sectors strengthens its market position and value proposition. These partnerships create a synergistic approach, integrating smart energy solutions with existing services to enhance overall customer satisfaction.

Embedding smart energy solutions into new developments, in collaboration with the construction and real estate sectors, promotes energy-efficient building practices. This contributes to sustainable urban development and increases value for property developers and homeowners. These integrated approaches advance smart home technologies and support environmentally conscious living practices across diverse industries.

7. Entrepreneur Persona

The ideal entrepreneur for EcoHome should have a solid background in technology and energy management, combined with a deep commitment to sustainability. They must excel in project management and team leadership, guiding and motivating a compact team of technical experts, engineers, and marketing professionals. Adaptability and resilience are crucial for navigating the dynamic energy sector and start-up environment effectively.

Effective communication skills are essential for clearly articulating the value of EcoHome's smart home energy management system to consumers, fostering understanding and trust. By blending technical expertise with entrepreneurial acumen, this leader will drive innovation, streamline operations, and position EcoHome as a pioneer in sustainable smart home solutions. Their passion for sustainability and ability to lead a small but dedicated team will be

instrumental in advancing energy efficiency and environmental responsibility within the market.

8. Stakeholders

EcoHome interacts with a diverse range of stakeholders crucial to its mission and operations. Key stakeholders include homeowners and residential communities benefiting directly from the system's efficiency and cost-saving features. Government bodies and regulatory authorities provide essential support through incentives and policies that promote energy efficiency solutions. Suppliers of smart home technologies and components play a pivotal role in integrating essential hardware and software. Environmental advocacy groups and sustainability organizations endorse EcoHome's objective of reducing carbon footprints and promoting sustainable practices. Moreover, investors and financial institutions contribute capital and resources to facilitate EcoHome's market expansion and innovation. Together, these stakeholders play integral roles in advancing EcoHome's mission to enhance sustainable living through advanced energy management solutions.

9. Risk Assessment and Mitigation

The following table outlines potential risks associated with EcoHome's project implementation, spanning market dynamics, technical challenges, operational complexities, and financial considerations.

Risk	Impact	Likelihood (High/Medium/Low)	Risk Mitigation Technique
Regulatory Shifts	High	Low	Adapt to regulatory changes and comply accordingly.
Market Competition	Medium	Medium	Focus on superior technology and customer service.
Market Acceptance	High	Medium	Conduct thorough market research and pilot testing.
Integration Complexity	High	Low	Ensure rigorous compatibility testing.
Logistics Challenges	Medium	Medium	Maintain diverse suppliers and buffer stocks.
App Reliability	High	Low	Regular updates and ensure compatibility across systems.

Economic Downturn	High	Low	Provide flexible financing options for customers.
Legal Challenges	Medium	Low	Obtain necessary certifications and ensure legal compliance.

Implementing the proposed solutions is crucial for ensuring EcoHome's successful launch and sustainable future.

Regulatory Shifts: EcoHome should monitor regulatory changes closely and swiftly adapt its operations to comply with evolving legal requirements in the energy management sector.

Market Competition: To differentiate itself in the competitive smart home energy solutions market, EcoHome should emphasize advanced technology integration and superior customer service.

Market Acceptance: EcoHome should conduct extensive market research and pilot testing to ensure its smart home energy management system meets consumer expectations and achieves broad market acceptance.

Integration Complexity: EcoHome should conduct thorough compatibility testing to ensure seamless integration of its systems with existing household infrastructures and technologies.

Logistics Challenges: Maintaining a diversified supplier base and buffer stocks will help EcoHome mitigate potential disruptions in its supply chain logistics, ensuring smooth operations.

App Reliability: EcoHome should prioritize regular updates and compatibility checks to improve the reliability and functionality of its mobile application, crucial for enhancing user satisfaction and system performance.

Economic Downturn: Offering flexible financing options will enable EcoHome to mitigate the impact of economic downturns, providing customers with accessible payment solutions despite fluctuations.

The sensitivity analysis indicated that a 10% drop in revenues causes negative Net Present Value (NPV). This means that under such scenario, the project's financial viability is compromised, and the return on investment would not meet the expected targets. This outcome highlights the importance of achieving the projected revenue targets and underscores the need for robust market research, effective marketing strategies, and continuous monitoring of market conditions to mitigate this risk.

Legal Challenges: EcoHome should proactively seek and maintain necessary certifications to ensure compliance with legal standards, mitigating risks associated with regulatory uncertainties.

6 Conclusion

In conclusion, the project demonstrates promising feasibility indicators under very restrictive assumptions. Nonetheless, investors 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 viability.

Disclaimer

The Ministry of Digital Economy and Entrepreneurship (MoDEE) and Istadama Consulting have prepared this report using information supplied by its advisors as well as information available in the public domain.

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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 Istadama Consulting.