



WindSign

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

WindSign aims to revolutionize outdoor advertising by introducing a pioneering concept: integrating wind energy into advertising screens to create a new demand for eco-friendly advertising solutions in urban environments. This innovative approach not only promotes sustainability but also addresses the increasing need for environmentally conscious advertising practices.

The feasibility study underscores WindSign's technical feasibility in seamlessly integrating wind turbines with advertising structures, ensuring efficient energy conversion and operational maintenance. Financially, initial investments in equipment and setup are balanced by revenue streams from sales, installations, and long-term maintenance contracts.

Furthermore, WindSign's potential for global impact is substantial, positioned to inspire similar initiatives worldwide and contribute to sustainable development goals. Recommendations strongly support proceeding with the project, given its alignment with emerging environmental trends, robust feasibility indicators, and promising revenue forecasts.

Key strategic priorities include refining marketing strategies to maximize market acceptance, forging strategic partnerships to streamline operations, and continuous innovation to maintain a competitive edge. By leveraging these strengths, WindSign is poised to lead in sustainable advertising technology, fostering environmental stewardship while achieving sustainable business growth.

I. Introduction

WindSign is a start-up that seeks to address the high energy consumption associated with electricity-powered advertising signs. Current advertising solutions, which depend heavily on the power grid, face limitations due to their significant energy demands. This inefficiency leads to increased operational costs, impacting both the advertising industry and urban infrastructure.

This problem is particularly relevant given the rising energy costs and increasing focus on sustainability. Advertisers are finding it more challenging to operate profitably due to outdated energy practices and escalating operational expenses.

WindSign offers a practical solution by using vertical wind turbines to power on-grid advertising signs. These turbines are efficient in low-wind speeds, allowing for notable reductions in power consumption. This technology ensures continuous operation even in areas with slow wind speeds and decrease dependence on the electrical grid. By integrating this approach, WindSign can help lower energy costs and reduce reliance on traditional power sources.

I Market Analysis

Jordan is increasingly committed to renewable energy as part of its national energy strategy to reduce reliance on imported energy and enhance energy security. The country has set ambitious targets for integrating renewable energy sources, including wind and solar power, into its energy mix. According

to the Ministry of Energy and Mineral Resources, Jordan targets a 31% share for renewables in total power generation capacity and 14% of the total energy mix by 2030¹.

WindSign's integration of renewable energy solutions into advertising aligns well with Jordan's national goals for sustainable development. The potential for such a solution is significant as businesses and government entities seek to reduce operational costs as well. WindSign's ability to minimize the signs' reliance on the power grid offers a competitive advantage in terms of cost savings and sustainability.

The Jordanian government has implemented several policies and incentives to promote renewable energy projects. It has also introduced new electricity tariffs in 2022 which included the commercial sector at reduced rates. Nevertheless, the cost of electricity has an implication on businesses reliant on grid power, making renewable energy solutions like WindSign more attractive.

Several key economic indicators are relevant to the success of WindSign in Jordan:

Investment in Renewable Energy: Jordan went from zero investments in solar and wind projects in 2013 to attracting more than \$4 billion in investments in renewable energy projects by 2023².

Energy costs: The electricity tariffs for the commercial sector emphasize the need for cost-effective energy solutions³.

Government Incentives: Jordan offers various incentives for renewable energy projects, which can help lower financial barriers.

Technological Advancements: Continuous advancements in renewable energy technologies are improving efficiency and reducing cost, making projects like WindSign more viable.

WindSign's target market includes advertising agencies and city municipalities that seek innovative and sustainable advertising solutions. These entities are focused on reducing operational costs and enhancing their environmental credentials through energy-efficient technologies. The decision-makers within these organizations typically range from marketing executives to city planners, who are responsible for enhancing visibility and public engagement through effective advertising mediums.

Geographically, the target market spans urban and rural areas where traditional power grid access is expensive. WindSign's solutions are particularly relevant for locations such as highways, public parks, and urban centers where there is high visibility and foot traffic.

Since 2020, Jordan's out-of-home (OOH) advertising industry has been steadily growing. Despite the growth in digital advertising, traditional OOH advertising continues to dominate the market, with a market volume of USD 16 million in 2024⁴. In 2021, OOH advertising was second only to digital media advertising, capturing 23% of the market share⁵.

¹https://www.irena.org/media/Files/IRENA/Agency/Publication/2021/Feb/IRENA_RRA_Jordan_Summary_2021_EN.pdf?la=en&hash=DE5015E14770A43E9BFF2DFF8FAE684CED6E8EEB

² <https://www.ifc.org/en/stories/2023/powering-up-jordan-s-renewable-energy-market>

³ <https://www.jepco.com.jo/ar/Home/%D9%81%D8%A6%D8%A7%D8%AA-%D9%88%D8%B4%D8%B1%D8%A7%D8%A6%D8%AD-%D8%AA%D8%B9%D8%B1%D9%81%D8%A9-%D8%A7%D9%84%D9%83%D9%87%D8%B1%D8%A8%D8%A7%D8%A1>

⁴ <https://www.statista.com/outlook/amo/advertising/out-of-home-advertising/jordan#ad-spending>

⁵ <https://www.ipsos.com/en-jo/mena-2021-ad-spend>

In the evolving market of sustainable advertising solutions, WindSign stands out by merging the advertising sector with renewable energy, specifically wind power. While there is no direct competition offering the same combination of wind-powered advertising infrastructure, indirect competitors include grid-powered digital OOH advertising solutions and off-grid solar-powered billboards. In global markets, off-grid solar-powered billboards are gaining traction⁶.

WindSign differentiates itself by integrating vertical wind turbines into on-grid advertising signs, providing a unique proposition that combines sustainability with effective advertising capabilities. This approach not only enhances visibility and brand awareness but also aligns with global trends towards eco-conscious advertising practices.

Potential weaknesses of WindSign may include the higher initial investment and the need for customer education on the benefits of wind-powered solutions. Addressing these challenges through targeted marketing and demonstrating the long-term value proposition will be crucial.

A successful start-up like WindSign is Eco-Ad from South Korea, which uses solar panels and LED displays in outdoor structures like bus shelters. This method offers sustainable advertising and reduces energy costs, aligning with environmental goals.

Eco-Ad's success is due to its focus on innovation and sustainability, appealing to eco-conscious advertisers and municipalities seeking green solutions. WindSign can replicate this by integrating vertical wind turbines into advertising structures, highlighting cost savings and environmental benefits. By focusing on sustainability and partnering with environmentally committed clients, WindSign can pioneer eco-friendly advertising, driving growth and market expansion.

2. Business Model

WindSign's business model emphasizes operational excellence, efficient production, and sustainable advertising solutions. By utilizing wind energy for advertising signs, the startup aims to establish a unique market position and encourage adoption in the advertising sector while contributing to environmental sustainability.

WindSign's primary target market includes signage and billboard service providers and Greater Amman Municipality. These private sector entities are interested in reducing their operational costs and the Municipality may be interested in innovative and s

In terms of management and operational procedures, WindSign focuses on the efficient production of durable wind turbines integrated into advertising structures. The turbines themselves can be purchased from international vendors. This approach ensures reliability and longevity of the systems deployed. Marketing efforts utilize both digital and traditional channels to highlight WindSign's advertising solutions, emphasizing their cost-effectiveness and sustainability benefits. The sales team engages with advertising agencies, municipalities, and businesses to secure contracts and installations, showcasing the energy savings and environmental impact of WindSign solutions. Customer service remains a priority, offering

⁶ <https://oohtoday.com/can-your-ooh-campaign-generate-its-own-power/>

responsive support for installation queries, maintenance requests, and ongoing client needs through dedicated service channels.

The operations team includes an operations manager who oversees daily operations, logistics, project execution, and sales activities. Additionally, the team includes a lead technician responsible for technical installations and quality assurance, supported by a technician who assists with installations, maintenance, and customer support.

Marketing efforts utilize both digital and traditional channels to highlight WindSign’s added value to advertising solutions. The operations team engages with advertising agencies, and Greater Amman Municipality to secure contracts and installations.

WindSign operates on a diversified revenue model encompassing three key streams: Firstly, the sales and installation of its flagship product, the on-grid wind-powered outdoor advertisement screens, priced at JOD 3,500 each. Secondly, the sales and installation of wind energy conversions for existing advertisement screens, priced at JOD 1,200 per unit. Lastly, annual maintenance contracts are offered at JOD 300 per year. Over time, as WindSign establishes itself and increases brand visibility, the customer base is expected to grow. Building trust through targeted marketing and widespread deployment of WindSign products in public spaces will bolster customer confidence. With continued experience in the Jordanian market, WindSign aims to refine its offerings to better meet customer expectations, thereby strengthening its reputation and driving further demand.

As shown in the table below, annual revenues exhibit consistent growth. The demand for new Energy Saving Advertisement Screens is expected to increase steadily over the years, while demand for conversions is likely to remain stable. Customers may find it more practical to replace old existing screens with newer, energy-efficient models that offer updated features.

Table 1: Revenue projection

Description / Year	1	2	3	4	5
Projected Demand (Quantity) Energy Saving Adv Screens	30	35	40	45	50
Price / Unit Energy Saving Adv Screens	3,500	3,500	3,500	3,500	3,500
Sub-total Energy Saving Adv Screens	105,000	122,500	140,000	157,500	175,000
Projected Demand (Quantity) Conversions	8	8	8	8	8
Price / Unit Conversions	1,200	1,200	1,200	1,200	1,200
Sub-total Conversions	9,600	9,600	9,600	9,600	9,600
Projected Demand (Quantity) Annual Maintenance Contracts	38	42	48	53	58
Price / Unit Annual Maintenance Contracts	300	300	300	300	300
Sub-total Annual Maintenance Contracts	11,400	12,600	14,400	15,900	17,400
Total Revenues	126,000	144,700	164,000	183,000	202,000

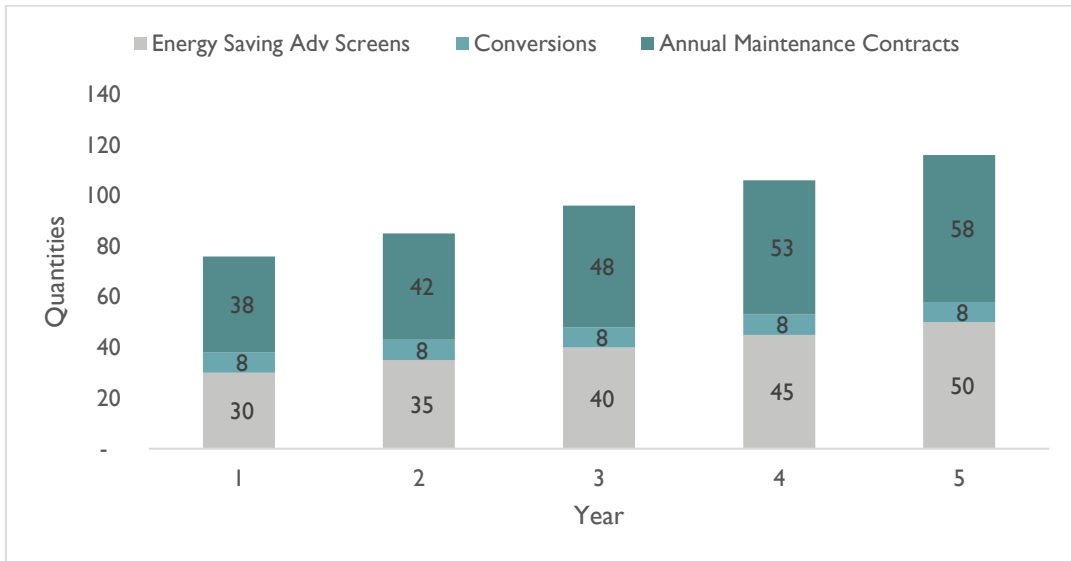


Figure 1: Product Mix by Quantity

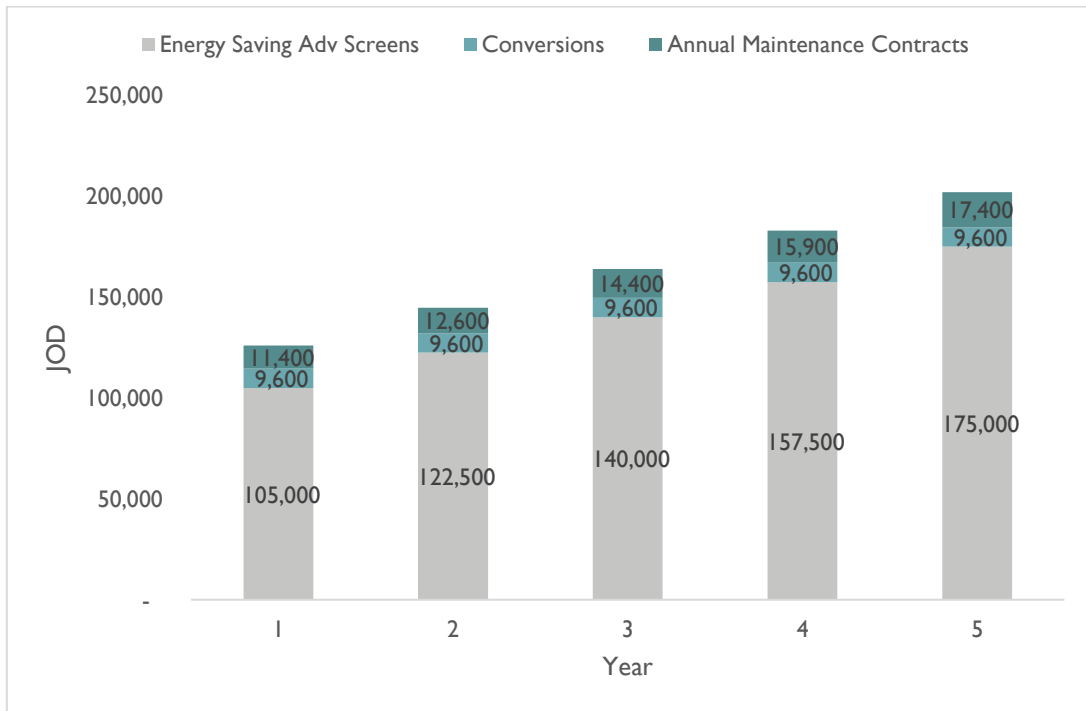


Figure 2: Product Mix by Revenue

3. Technical Analysis

The technical analysis for WindSign centres on evaluating the implementation and operational viability of its wind-powered advertising solutions. The system integrates vertical wind turbines into advertising structures, designed to harness wind energy efficiently in low wind speed environments typical of highways and urban areas. Each unit's technical components, including the wind turbines and LED display screens, are carefully sourced and combined in a workshop setting to ensure safe and efficient installation. Operational costs are structured

around the integration of these components, aiming to optimize energy efficiency and reduce overall power consumption. Additionally, ongoing maintenance protocols are essential to uphold system reliability and performance, ensuring continuous operation and customer satisfaction.

The cost of goods sold (COGS) account for wind energy generation and connection hardware, and frame to join the system together. As the table below illustrates the COGS of each system is constant throughout the years at JOD 1,500 for the complete setup and JOD 600 for the wind energy conversion 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) Energy Saving Adv Screens	30	35	40	45	50
COGS / Unit Energy Saving Adv Screens	1,500	1,500	1,500	1,500	1,500
Sub-total Energy Saving Adv Screens	45,000	52,500	60,000	67,500	75,000
Projected Demand (Quantity) Conversions	8	8	8	8	8
COGS / Unit Conversions	600	600	600	600	600
Sub-total Conversions	4,800	4,800	4,800	4,800	4,800
Projected Demand (Quantity) Annual Maintenance Contracts	38	42	48	53	58
COGS / Unit Annual Maintenance Contracts					
Sub-total Annual Maintenance Contracts	-	-	-	-	-
Total COGS	49,800	57,300	64,800	72,300	79,800

WindSign plans to scale its workforce gradually over the initial five years to support its expanding operations. At the outset, the team will comprise three pivotal roles: an Operations Manager, a Technical Engineer, and a technician. As the company grows and demand rises, the workforce is projected to increase to four employees by the third year. This expansion is essential to uphold service standards and operational efficiency, ensuring that the company can effectively meet market demands and sustain its growth trajectory.

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

Title / Year	1	2	3	4	5
Operations Manager	1	1	1	1	1
Lead Technician	1	1	1	1	1
Support Technician	1	1	2	2	2

The table presented below outlines 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
Operations Manager	9,600	10,080	10,584	11,112	11,664
Lead Technician	7,200	7,680	8,184	8,712	9,264
Support Technician	5,400	5,670	11,907	12,502	13,127
Total HR Salaries	22,200	23,430	30,675	32,326	34,055
Social Security Cost	2,775	2,929	3,834	4,041	4,257
Health Insurance Cost	7,500	7,500	10,000	10,000	10,000
Total HR Cost	32,475	33,859	44,509	46,367	48,312

Operating expenses (OpEx) for WindSign include maintaining a flexible operational facility for storage and logistics, alongside costs for insurance, legal services, accounting, marketing, advertising, and personnel. The table below provides a detailed breakdown of these expenses over the first five years, inclusive of manpower costs.

Table 5: Operational Expenditures – five-year projection

Description / Year	1	2	3	4	5
Rental Fees	2,400	2,400	2,400	2,400	2,400
Electricity	300	300	300	300	300
Insurance	35	40	45	55	60
Water	30	30	30	30	30
Transportation	1,500	1,700	1,900	2,100	2,300
Stationary	30	30	30	30	30
Tools	200	200	200	200	200
Maintenance	100	100	100	100	100
Telecommunication	200	200	200	200	200
Website Charges	10	10	10	10	10
Advertising	2,000	2,000	2,000	2,000	2,000
Cleaning Material & Consumables	50	50	50	50	50
Legal & Accounting Fees	800	800	800	800	800
Sub-total OpEx	40,130	41,719	52,574	54,642	56,792
Other Costs	4,013	4,172	5,257	5,464	5,679
Total OpEx	44,143	45,891	57,832	60,106	62,472

WindSign allocates significant resources to capital investments as a core element of its operational strategy. These investments focus on acquiring essential components for the wind energy system and advertisement screens, as well as funding for specialized tools and equipment that enhance the efficiency of installation and maintenance processes. Organizational efficiency is further bolstered by the implementation of effective workbenches and optimized storage solutions. Moreover, investments in replacement hardware units are prioritized to ensure the longevity and reliability of installed systems, effectively addressing any technical issues as they arise. Detailed breakdowns 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
Street Advertising Screens Purchase	10,000					
Wind Systems Purchase	25,000					
Replacement units at 6%		2,700	3,150	3,600	4,050	4,500
Tools	1,500	1,500				
Storage	2,000	1,000				
Total CapEx	38,500	5,200	3,150	3,600	4,050	4,500

WindSign's technical feasibility centers on integrating vertical wind turbines into advertising structures, ensuring structural integrity and energy efficiency in low wind speeds typical of roadside environments. Sourcing suitable wind turbine technology and compatible hardware components is crucial. Regulatory compliance and ongoing maintenance to optimize performance are key challenges that must be managed effectively. Addressing these factors will be essential for ensuring the project's technical viability and long-term success.

4. Financial Analysis

6.1 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.

6.2 Financial Study:

6.2.1 Projected Working Capital

This table shows that the net working capital needed for the project in its first year of operation is JOD 27,729, which has to increase steadily year over year to reach JOD 43,756 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	3,679	3,824	4,819	5,009	5,206
Accounts Receivable (A/R)	15,750	18,088	20,500	22,875	25,250
Inventory	8,300	9,550	10,800	12,050	13,300
Net Working Capital	27,729	31,462	36,119	39,934	43,756
Change in Working Capital		3,733	4,658	3,815	3,822

6.2.2 Project Initial Cost

The project's initial cost is projected to be JOD 71,429, comprising JOD 43,700 as CapEx and JOD 27,729 as net working capital.

Table 8: Initial Cost Summary (JOD)

Description / Year	JOD
CapEx	43,700
Net Working Capital	27,729
Total Initial Cost	71,429

6.2.3 Projected Income Statement

The projected income statement indicates that the project will earn JOD 18,654 in its first year of operation. Moreover, the net profit is expected to increase gradually over the study period, reaching JOD 38,343 in its fifth year of operation.

Table 9: Projected Income Statement (JOD)

Description / Year	1	2	3	4	5
Total Revenues	126,000	144,700	164,000	183,000	202,000
COGS	49,800	57,300	64,800	72,300	79,800
Gross Profit	76,200	87,400	99,200	110,700	122,200
OpEx	44,143	45,891	57,832	60,106	62,472
Net Profit Before Tax and Depreciation	32,057	41,509	41,368	50,594	59,728
Depreciation	8,740	9,370	10,090	10,900	11,800
Net Profit Before Tax	23,317	32,139	31,278	39,694	47,928
Tax Expense	4,663	6,428	6,256	7,939	9,586
Net Profit	18,654	25,712	25,023	31,755	38,343

The project is anticipated to generate a 14.8% profit margin in its first year of operation. Moreover, the net profit margin is expected to increase slightly in subsequent years, reaching 19.0% in the fifth year of operations.

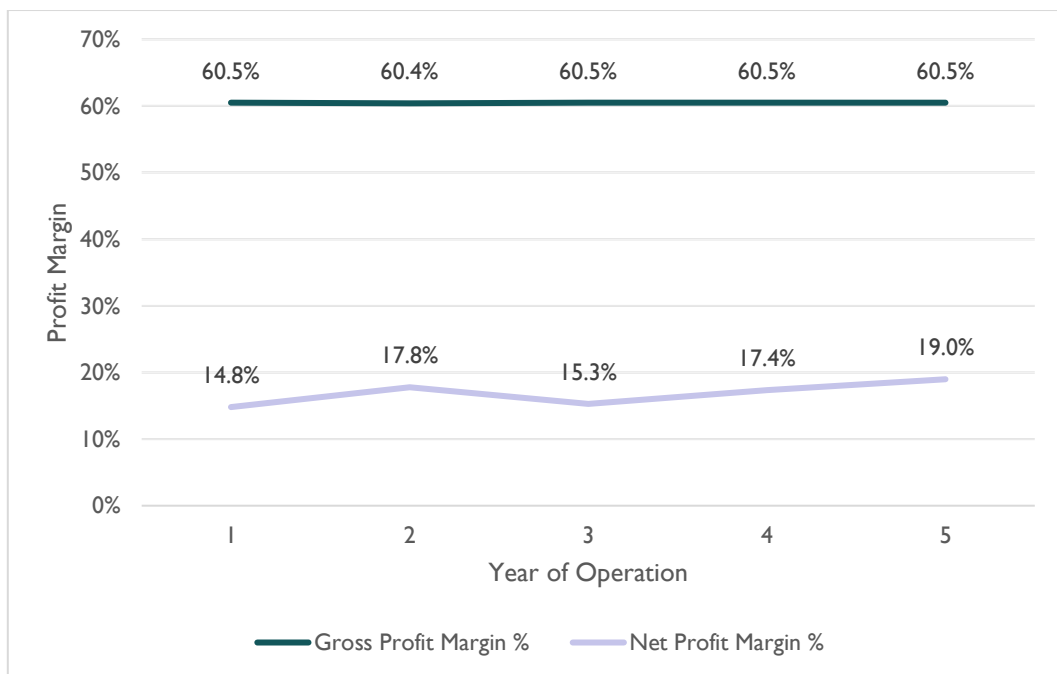


Figure 3: Gross vs Net Profit Margin

On the asset management side, the study shows that the return on investment will increase steadily from 26.1% in the first year of operation to 44.2% in the fifth year.

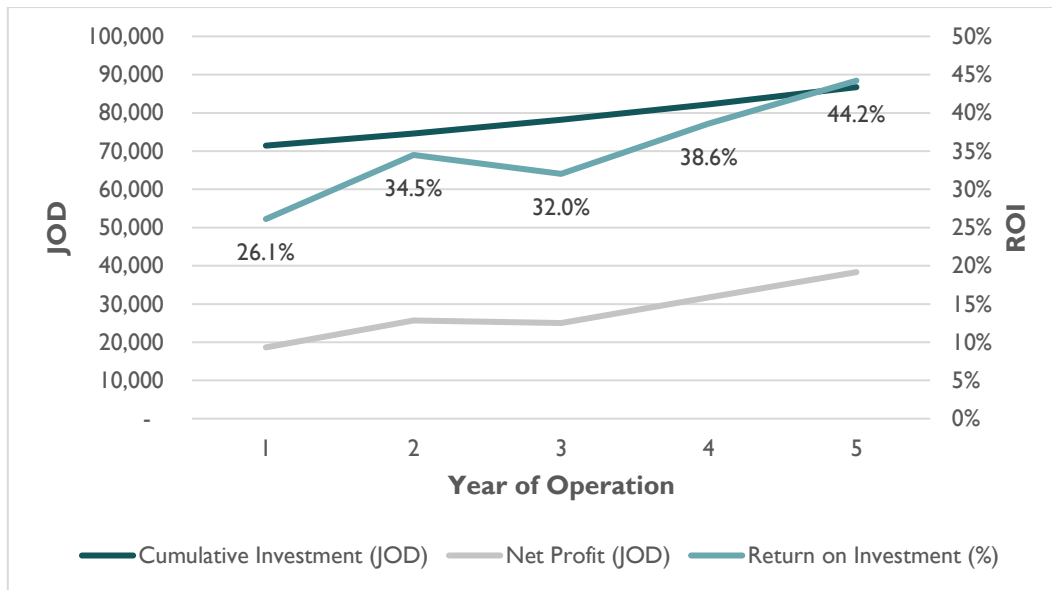


Figure 4: Return on Investment

6.2.4 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 27,394. Moreover, in the following years, the free cash flow is expected to increase gradually to reach JOD 41,821 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		18,654	25,712	25,023	31,755	38,343
Depreciation		8,740	9,370	10,090	10,900	11,800
Injected Capital	71,429					
Total Cash-In Flow	71,429	27,394	35,082	35,113	42,655	50,143
Cash-Out Flow						
Initial Cost	71,429		3,150	3,600	4,050	4,500
Changes in Working Capital			3,733	4,658	3,815	3,822
Total Cash-Out Flow	71,429	-	6,883	8,258	7,865	8,322
Free Cash Flow	-	27,394	28,198	26,855	34,790	41,821

Based on these results, the project's feasibility indicators demonstrate its viability, with a net present value of JOD 34,743.9 and a profitability index 1.49. Moreover, the project's internal rate of return (IRR) is expected to be 31.35%, indicating feasibility is not sensitive to changes in market conditions.

Feasibility Indicators	
Net Present Value (NPV)	34,744
Profitability Index (PI)	1.49
Internal Rate of Return (IRR)	31.35%

6.3 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	34,744	1.49	31.35%
Drop in revenue by 5%	12,911	1.18	20.78%
Drop in revenue by 10%	-8,922	0.88	9.00%
Increase in OpEx by 5%	27,266	1.38	27.79%
Increase in OpEx by 10%	19,788	1.28	24.14%
Increase in initial cost by 5%	31,173	1.42	28.97%
Increase in initial cost by 10%	27,601	1.35	26.78%

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.

5. Integration with Other Sectors

WindSign's integration with sectors beyond advertising expands its impact and value proposition. Partnering with urban development entities allows for integrating vertical wind turbines into city planning and architectural designs, promoting sustainable urban development and energy independence.

In the hospitality sector, collaborations with resorts and hotels leverage WindSign's technology to provide sustainable power solutions, reducing operational costs and enhancing the eco-friendly profile of tourist destinations. This supports sustainable travel trends and improves guest experiences.

Integration with the telecommunications industry offers opportunities to power cellular towers and communication infrastructure with renewable energy, ensuring reliable energy

supply in remote areas. This strengthens communication networks while advancing sustainability goals.

Partnering with educational institutions facilitates the installation of wind energy systems on campuses, providing hands-on learning experiences in renewable technology and promoting sustainability awareness among students.

These integrations showcase WindSign's versatility in driving renewable energy adoption and sustainability across various sectors, enhancing operational efficiency, and supporting environmental stewardship.

6. Entrepreneur Persona

An entrepreneur suited for WindSign should have a strong foundation in renewable energy technologies and advertising solutions, along with a firm dedication to environmental sustainability. They should demonstrate excellence in project management and leadership, overseeing a team that includes an operations Manager responsible for both operational oversight and sales strategy, a technical engineer, and installation specialists. Creativity and strategic thinking are essential due to the innovative blend of wind energy systems with advertising displays, navigating both sectors effectively.

Effective communication skills are crucial for articulating WindSign's unique value to clients and stakeholders, fostering trust and driving adoption. By leveraging technical expertise and entrepreneurial vision, this leader will innovate processes, optimize operations, and position WindSign as a leader in sustainable advertising solutions. Their passion for sustainability and ability to inspire a team will be pivotal in advancing eco-friendly practices and integrating renewable energy within the advertising industry.

7. Stakeholders

WindSign engages with a diverse array of stakeholders critical to its objectives and activities. Primary stakeholders include businesses and organizations seeking innovative advertising solutions powered by renewable energy, benefitting from reduced operational costs and enhanced sustainability credentials. Local municipalities and regulatory bodies are pivotal in providing support through permits and regulations conducive to renewable energy initiatives. Suppliers of wind turbine technology and advertising display systems play a crucial role in ensuring the quality and reliability of WindSign's products. Environmental advocacy groups and sustainability organizations endorse WindSign's efforts to promote green advertising practices, aligning with broader environmental conservation goals. Investors and financial institutions provide essential funding and strategic guidance, facilitating WindSign's growth and market expansion. Together, these stakeholders collaborate to advance WindSign's mission of integrating renewable energy into outdoor advertising, fostering sustainable and eco-friendly urban landscapes.

8. Risk Assessment and Mitigation

Below is a table detailing potential risks associated with the implementation of WindSign's project, covering market dynamics, technical challenges, operational complexities, and financial considerations.

Risk	Impact	Likelihood (High/Medium/Low)	Risk Mitigation Technique
Regulatory Changes	High	Low	Stay updated with regulatory changes and adapt business strategies
Market Acceptance	High	Medium	Conduct thorough market research and pilot studies
Technical Failures	High	Low	Partner with reputable suppliers
Delays in installation and setup	Medium	Medium	Develop efficient logistics and supply chain management
Cost overruns in procurement/installation	Medium	Low	Maintain rigorous financial planning and establish contingency funds
Economic Downturn	Medium	Low	Monitor economic trends and adjust financial strategies

It is essential to implement the proposed solutions to ensure WindSign's successful launch and long-term sustainability.

Regulatory Changes: WindSign is likely to face high impact due to potential shifts in regulations, although the likelihood is low. Staying updated and adjusting business strategies swiftly will mitigate these risks effectively.

Market Acceptance: This risk is likely to pose high impact and medium likelihood for WindSign. Conducting extensive market research and pilot studies will ensure the advertising solutions meet customer expectations and gain broad acceptance.

Technical Failures: While technical failures are likely to have a high impact on WindSign, their likelihood is low. Partnering with reputable suppliers will ensure reliability and minimize risks associated with system malfunctions.

Delays in Installation: WindSign is likely to face medium impact and likelihood regarding delays in installation. Developing efficient logistics and supply chain management strategies will streamline processes and prevent potential setbacks.

Cost Overruns: WindSign anticipates medium impact and low likelihood of cost overruns. Maintaining rigorous financial planning and establishing contingency funds will mitigate unexpected increases during procurement and installation.

Economic Downturn: WindSign is likely to prepare for medium impact and low likelihood of economic downturns. Close monitoring of economic trends and proactive adjustments to financial strategies will ensure resilience against fluctuations in consumer spending.

The sensitivity analysis revealed that a 10% drop in revenues results in a negative Net Present Value (NPV) and a profitability index of less than 1, indicating that the project would become unprofitable and may not generate sufficient returns to justify the investment in that case.

The overall risk profile for WindSign is assessed as high, primarily due to significant operational and financial risks. Market and technical risks are moderate but require careful management to ensure project success. Implementing robust mitigation strategies and maintaining flexibility in operations will be critical to mitigate these risks effectively.

9. 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.