VirtuaLab

High-Level Feasibility Study

Submitted to:
The Ministry of Digital Economy and Entrepreneurship

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Executive Summary

This study examines the potential of VirtuaLab as an edtech startup addressing significant educational challenges in Jordan, including skill mismatches, resource constraints, and the need for more immersive learning experiences. Leveraging advanced 3D simulations and virtual reality (VR) technology, VirtuaLab transforms traditional education and training across K-12, higher education, and Technical and Vocational Education and Training (TVET). By working closely with educational institutions and integrating these technologies into existing curricula, VirtuaLab provides students with hands-on, real-world applications that enhance their learning experience and better prepare them for future careers. This modern approach not only addresses the shortage of physical labs but also ensures that students receive practical, engaging, and effective education.

The global market for VR in education is poised for substantial growth, expanding from $5.69 billion in 2024 to $42.40 billion by 2032. This surge reflects the increasing recognition of VR's potential to enhance student engagement and understanding by creating immersive, interactive learning environments. In the MENA region, including Jordan, the adoption of digital learning tools is accelerating, driven by the need to improve educational outcomes and align with global standards. VirtuaLab can tap into this growing market, by offering tailored VR solutions that meet the specific needs of schools, universities, and industries.

The business model for VirtuaLab is B2B, providing customized VR services to educational institutions and companies. Revenue streams include standard B2B subscriptions, bespoke module creation, and institutional partnerships, projected to grow from JOD 130,000 in the first year to JOD 683,000 by the fifth year. The company will employ a tiered pricing structure to cater to different client needs and budgets, ensuring scalability and widespread adoption.

VirtuaLab's financial projections indicate a steady increase in revenues and profitability, with a positive net profit expected from the first year of operations. Sensitivity analysis demonstrates the project's resilience to market fluctuations, further validating its feasibility.

In conclusion, VirtuaLab represents a promising venture that leverages VR technology to support education in Jordan, aligning with global market trends and addressing critical local educational needs.

1. Introduction

Education in Jordan faces significant challenges at the K-12, higher education and TVET levels. Employers report a critical skills mismatch, resulting in high unemployment rates[1]. The World Economic Forum predicts that by 2025, reskilling half the workforce will be necessary due to technological advances[2]. The K-12 system suffers from overcrowded classrooms affecting over 1.5 million students, with 65% impacted by extended COVID-19 closures[3]. Additionally, 2022 PISA results show students lagging behind OECD averages in math, reading, and science[4].

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[1] The Hashemite Kingdom of Jordan The Department of Statistics: The unemployment rate decreased to 21.4% during the fourth quarter of 2023. (2024). https://dosweb.dos.gov.jo/DataBank/News/Unemployment/2023/unemp_Q4_e_2023.pdf
[2] World Economic Forum. (2023). Future of Jobs Report 2023. https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf
[3] Education GPS - Jordan - Student performance (PISA 2018). (n.d.). Gpseducation.oecd.org. https://gpseducation.oecd.org/CountryProfile?primaryCountry=JOR&treshold=10&topic=PI
[4] ibid.

In the face of these challenges there is a need for more immersive and integrated learning which employs real world applications.

VirtuaLab is a startup that offers modern educational and training programs leveraging 3D simulations and VR integrated curriculums across diverse disciplines including sciences, engineering, medicine, architecture, among others. Working closely with schools, universities and TVET institutions, VirtuaLab integrates these technologies into existing curricula to create immersive learning experiences. This allows students to explore and practice concepts in virtual environments that closely replicate the real-world, overcoming challenges such as the lack of physical labs due to limited resources. This approach deepens practical learning and engagement, preparing students effectively for their future careers, while also allowing them to have multiple chances and trials at exploring and learning the application of concepts hands-on. Providing digital 3D and VR services enables VirtuaLab to offers its services virtually across Jordan, and internationally .

2. Market Analysis

The global market for virtual reality in education is expected to expand significantly, growing from \$5.69 billion in 2024 to \$42.40 billion by 2032.[5] Virtual reality (VR) enhances student learning by creating immersive environments that make complex concepts easier to understand. It is poised to increase engagement through interactive experiences, while allowing students to practice practical skills in a safe setting.[6] VR makes education more accessible by overcoming geographic and economic barriers[7] and enables personalized learning, adapting to individual student needs and learning styles, making the educational experience more effective and tailored.[8]

Global providers of VR services in education are transforming learning across disciplines. Companies like **Axon Park** offer AI-enhanced 3D platforms for personalized learning[9], while **Immerse** focuses on VR language classes[10], **Inspirit** provides free 3D STEM resources.[11]and **Prisms** focuses on math education[12],

In Jordan, companies such as **Immerstec**[13], **Vortigate**[14], and **ASFAN**[15] offer VR solutions. However, most of the companies may not necessarily be primarily education specific. Whereas VirtuaLab will excel by integrating educational rigor into animated and VR simulations, collaborating with educators to enhance curricula and student learning, tapping into a global market that is set to grow at a compound annual growth rate (CAGR) of 28.5%.[16]

5 Virtual Reality in Education Market Size, Share | Growth [2032]. (n.d.). www.fortunebusinessinsights.com. Retrieved May 12, 2024, from https://www.fortunebusinessinsights.com/industry-reports/virtual-reality-in-education-market-101696#

6 McGovern, E., Moreira, G., & Luna-Nevarez, C. (2020). An application of virtual reality in education: Can this technology enhance the quality of students' learning experience?. Journal of education for business, 95(7), 490-496.

7 ibid.

8 ibid.

9 Axon. (2023, May 12). Top VR Education Companies in 2024. Axon Park. https://axonpark.com/top-vr-education-companies-in-2024/

10 ibid.

11 ibid.

12 ibid.

13 Immerstec | VR Applications. (n.d.). www.immerstec.com. Retrieved May 12, 2024, from https://www.immerstec.com

14 VORTIGATE. (n.d.). Www.vortigate.com. Retrieved May12, 2024, from https://www.vortigate.com

15 Asfan International Trading Company. (n.d.). Asfanco.com. Retrieved May 12, 2024, from https://asfanco.com

16 Virtual Reality in Education Market Size, Share | Growth [2032]. (n.d.). www.fortunebusinessinsights.com. Retrieved May 12, 2024, from https://www.fortunebusinessinsights.com/industry-reports/virtual-reality-in-education-market-101696#

In Jordan, VirtuaLab targets universities, K-12 schools, TVET centers and industries looking to integrate 3D and VR technologies into their curricula and training programs. The total size of the current market for VirtuaLab therefore stands at approximately 3 million people in Jordan overall with 1.4 million students at the K-12 level[17], 0.33 million at the university level[18] and 1.2 million professionals[19]. Universities and K-12 institutions are starting to recognize the transformative potential of these tools for enhancing learning experiences, especially in STEM fields, by making abstract concepts tangible. Market trends show a growing demand for digital learning tools and practical skills, highlighting the relevance of 3D and VR technologies[20]. For industries, VirtuaLab offers immersive Learning and Development modules, enhancing workforce training and maintaining competitiveness in evolving sectors. This approach positions VirtuaLab as a pivotal player in shaping the future of education and professional development in Jordan and beyond by integrating digital learning assets.

3. Business Model

VirtuaLab will work on a B2B model by providing customized services to institutions of Higher Education and TVET, K-12 and companies. VirtuaLab will work with educators and administrators from schools, colleges, universities, centers, and companies to seamlessly integrate VR into their unique curricula, ensuring that 3D and VR simulations meet the specific needs of each educational program / training module at each institution.

For instance, taking a hypothetical situation where a school / college / company contacts VirtuaLab to integrate 3D and VR into its curriculum or L&D. The initiative begins with a comprehensive needs assessment and curriculum analysis, identifying key areas for VR application. A basic consultation fee is charged. VirtuaLab then suggests a detailed plan for 3D and VR integration, with the different tiers of subscription and the kind of services that the organization can receive based on which one they select. Thereafter, custom 3D simulations are developed, and existing repositories can be leveraged as well to align with educational standards, enhancing student engagement and understanding. Teachers and L&D teams receive thorough training to effectively utilize the VR technology, followed by a pilot phase to gather feedback and make necessary adjustments. The program is then fully implemented, with ongoing support and evaluation to ensure its success, fostering an interactive and immersive learning environment for students and professionals.

As mentioned, VirtuaLab offers a range of VR service tiers designed to meet the diverse needs of educational institutions and industries in Jordan. Each of these tiers are priced differently, and VirtuaLab will suggest the client to take up any of these tiers of subscription after the needs assessment:

1. **Basic Tier** provides introductory VR modules for partial foundational learning in science and math, ideal for preliminary levels in initial curriculum integration.

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[17] *Education | Jordan | U.S. Agency for International Development. (2019, November 12). Usaid.gov. https://www.usaid.gov/jordan/education*
[18] *75. (2024, January 17). Jordan - Education. Www.trade.gov. https://www.trade.gov/country-commercial-guides/jordan-education#:~:text=With%20rapid%20population%20growth%2C%20the*
[19] *Jordan Employed Persons, 2000 – 2023 | CEIC Data. (n.d.). Www.ceicdata.com. https://www.ceicdata.com/en/indicator/jordan/employed-persons*
[20] *Familoni, B. T., & Onyebuchi, N. C. (2024). Augmented and virtual reality in us education: a review: analyzing the impact, effectiveness, and future prospects of ar/vr tools in enhancing learning experiences. International Journal of Applied Research in Social Sciences, 6(4), 642-663.*

2. **Intermediate Tier** includes advanced simulations for subjects like virtual field trips, biology dissections, medical training, historical site visits, among others allowing for deeper exploration (this requires the development of bespoke modules)

3. **Advanced Tier** features specialized training programs for professional development, with immersive, industry-specific scenarios and interactive training modules (this also requires the development of bespoke modules)

This multi-tiered approach enables clients to select services that align with their specific educational and operational goals, enhancing learning outcomes and professional skills development within available budgets, by taking a focused approach on the needs of the client organization through extensive consultation, and blending it with their own sector expertise in building 3D and VR content, VirtuaLabs becomes best placed to offer their services across categories.

Offering tiered pricing plans and flexible payment options allows institutions of varying sizes and budgets to access the VR services with features they feel they will need, fostering scalability across different market segments. Institutions can subscribe to various plans opting in or out of various services making the product's acceptability scalable to meet the unique needs of different institutions. As the business model starts maturing, partnerships for licensing the created bespoke content to other clients may also be explored further maximizing the return on investment (ROI) for partners and expanding the content repository and making it more appealing for new and existing clients. Additionally, VirtuaLab may also collaborate with donors and development agencies and nonprofits to create institutional partnerships to enable the creation of content to meet development needs such as the sustainable development goals (SDGs) and the like.

The revenue projections for the first five years of the start-up show a significant increase across the three main revenue streams: Standard B2B Subscription to access the educational modules and simulations, Bespoke Modules Creation, and Institutional Partnerships. Each service shows growth in demand over the five years:

- **B2B Subscriptions for Educational Modules and Simulations**: Quantity demand increases from 2000 student licenses to 6500, with stable pricing in the first three years leading to revenue growth from JOD 100,000 in Year 1 to JOD 455,000 in Year 5.

- **Bespoke Module Creation**: following a phased approach in increasing sales for this stream, starting with 10 modules and growing to 36 in year 5 with corresponding revenue increases to JOD 108,000 in that year.

- I**nstitutional Partnerships:** Starts with a smaller base but shows a consistent increase, starting in year 2 with revenue growing from JOD 40,000 to JOD 120,000 in year 5.

Starting with modest but realistic revenues given the need to build the content, technology and reputation, total revenues grow from JOD 130,000 in Year 1 to JOD 683,000 in Year 5, reflecting on the scaling of operations and market penetration.

Itemized revenues and total annual revenues are summarized in the table below:

Table 1: Revenue projection

Description / Year	1	2	3	4	5
Projected Demand (Quantity) B2B Subscriptions for Educational Modules & Simulations	2,000	4,000	5,000	5,750	6,500
B2B Subscriptions for Educational Modules & Simulations	50	50	50	70	70
Sub-total B2B Subscriptions for Educational Modules & Simulations	100,000	200,000	250,000	402,500	455,000
Projected Demand (Quantity) Bespoke Educational Modules	10	18	20	28	36
Price / Unit Bespoke Educational Modules	3,000	3,000	3,000	3,000	3,000
Sub-total Bespoke Educational Modules	30,000	54,000	60,000	84,000	108,000
Projected Demand (Quantity) Donor Funded Projects		2	3	4	6
Price / Unit Donor Funded Projects		20,000	20,000	20,000	20,000
Sub-total Donor Funded Projects	0	40,000	60,000	80,000	120,000
Total Revenues (JOD)	130,000	294,000	370,000	566,500	683,000

The following charts show the product mix by revenue and by quantity. The analysis reveals a practical distribution between the three revenue streams, both in terms of quantity and revenue.
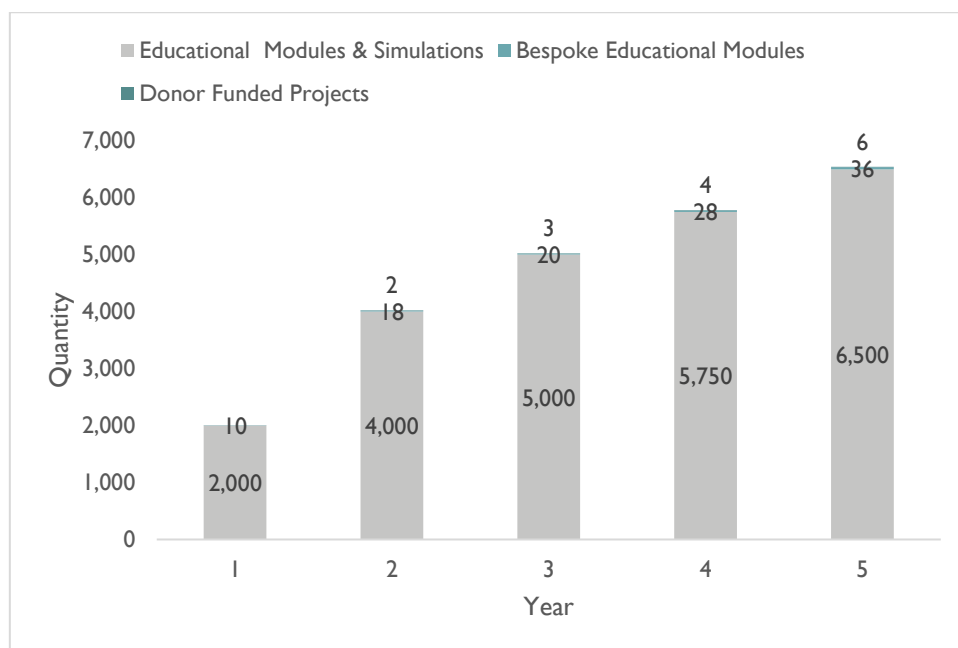
Figure 1: Product Mix by Quantity
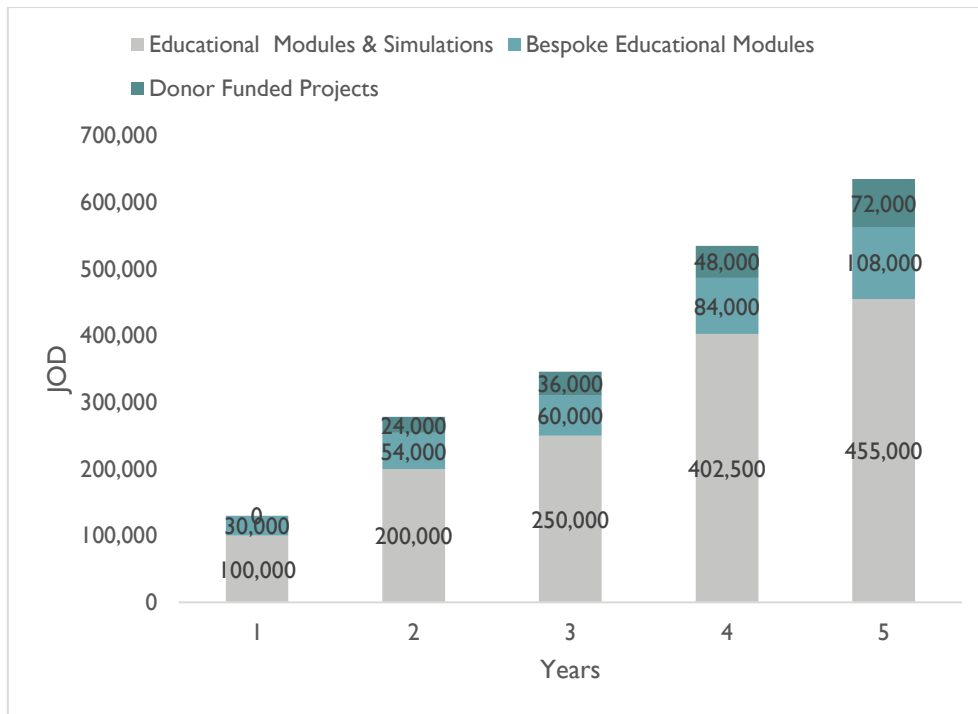
Figure 2: Product Mix by Revenue

4. Technical Analysis

The cost of goods sold (COGS) for each service are aligned with the quantity demanded, showing controlled costs across the services:

- **B2B Subscriptions for Educational Modules and Simulations**: COGS are 50% of the license fee per student primarily accounting for the investments needed to create more educational content.
- **Bespoke Module Creation**: This service has fixed COGS across the first 5 years, estimated at 50% of the revenue stream given its labor-intensive nature.
- **Institutional partnerships**: COGS is higher for this revenue stream due to the high level of customization per client reaching 60% throughout the first 5 years. This enables the startup to avoid increased manpower costs and allows it to hire subject matter experts on project-basis in line with each clients' requirements.

The total COGS increased from JOD 65,000 in Year 1 to JOD 288,500 in Year 5, which is a proportional increase relative to the growth in revenue, indicating improving operational efficiency and economies of scale.

Table 2: Cost of Goods Sold – Five Year Projection

Description / Year	1	2	3	4	5
Projected Demand (Quantity) B2B Subscriptions for Educational Modules & Simulations	2,000	4,000	5,000	5,750	6,500
COGS / Unit B2B Subscriptions for Educational Modules & Simulations	25	25	25	25	25
Sub-total Educational Modules & Simulations (JOD)	50,000	100,000	125,000	143,750	162,500
Projected Demand (Quantity) Bespoke Educational Modules	10	18	20	28	36
COGS / Unit Bespoke Educational Modules	1,500	1,500	1,500	1,500	1,500
Sub-total Bespoke Educational Modules (JOD)	15,000	27,000	30,000	42,000	54,000
Projected Demand (Quantity) Donor Funded Projects	-	2	3	4	6
COGS / Unit Donor Funded Projects		12,000	12,000	12,000	12,000
Sub-total Donor Funded Projects (JOD)	-	24,000	36,000	48,000	72,000
Total COGS (JOD)	65,000	151,000	191,000	233,750	288,500

Team composition grows over the years, starting with CEO and Content Development Manager in the first year adding customer success and marketing & sales officers in later years. This composition is only feasible in the presence of operating and financial models that rely on consultants and service providers to set up the platform and create the content who are hired on project basis.

Table 3: Manpower recruitment plan – five-year projection

Title / Year	1	2	3	4	5
CEO	1	1	1	1	1
Content Development Manager	1	1	1	1	1
Customer Success		1	1	2	2
Sales & Marketing		1	1	1	1

The table below provides an overview of human resource costs, accounting for social security and health insurance expenses. Social security contributions were computed at 14.25% of the gross salary, following the guidelines set by the Social Security Corporation.

Table 4: Manpower total cost – five-year projection

Title / Year	1	2	3	4	5
CEO	24,000	26,400	30,000	32,400	36,000
Content Development Manager	12,000	13,200	14,400	15,600	16,800
Customer Success	-	7,200	8,400	19,200	19,200
Sales & Marketing	-	9,600	10,800	12,000	13,200
Total HR Salaries	**36,000**	**56,400**	**63,600**	**79,200**	**85,200**
Social Security Cost	**5,130**	**8,037**	**9,063**	**11,286**	**12,141**
Health Insurance Cost	**2,000**	**4,000**	**4,000**	**5,000**	**5,000**
Total HR Cost	**43,130**	**68,437**	**76,663**	**95,486**	**102,341**

Operational costs for VirtuaLab include standard line items such as office rental (might be best to license a space in serviced business center), advertising and digital marketing, hosting and subscriptions (non-linear increase reflecting the growth of user base), consultants and freelancers, legal and accounting fees starting with a total of JOD 55,143 and growing to JOD 163,175 in year 5.

Table 5: Operational Expenditures – five-year projection

Description / Year	1	2	3	4	5
Serviced Office in Business Center	3,000	6,000	6,000	6,000	6,000
Advertising		10,000	15,000	20,000	25,000
Hosting & Subscriptions	2,000	4,000	5,500	6,500	8,000
Consultants & Freelancers		10,000	10,000	5,000	5,000
Legal & Accounting Fees	2,000	2,000	2,000	2,000	2,000
Sub-total OpEx	**50,130**	**100,437**	**115,163**	**134,986**	**148,341**
Other Costs	5,013	10,044	11,516	13,499	14,834
Total OpEx	**55,143**	**110,481**	**126,679**	**148,485**	**163,175**

The setup costs for VirtuaLab will include the development of the platform which includes Content Management System, Learning Interface for users as well as the development of the first few educational modules. Additionally, the management team should focus on getting the bespoke content creation deals as early as possible in the year to be able to explore leveraging them for the standard library offering until it is further populated over the years. Significant initial investments are planned in Year 1 with JOD 35,000 allocated to platform and foundational library development. A total of JOD 5,000 is also required for setting up the company and covering hosting and other subscriptions. Starting year 2, investment in advertising and marketing is required to be able to reach more clients and achieve the target figures. Year 2 also marks the beginning of investing in freelancers and consultants to support the creation of content and other operational and strategic needs.

Table 6: Capital Expenditures Cost – five-year projection

Description / Year	0	1	2	3	4	5
Platform Development	20,000	15,000	6,000	3,000	3,000	3,000
Total CapEx	**20,000**	**15,000**	**6,000**	**3,000**	**3,000**	**3,000**

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 90 days of projected annual operational expenses, ensuring robust liquidity management.

· **Accounts Receivable (A/R) Collection Period:** The average collection period for receivables is 30 days, reflecting expected credit sales conversion into cash.

· **Accounts Payable (A/P) Payment Period:** The average payment period for payables is 30 days, indicating the timeframe for settling supplier obligations.

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 19,202, which has to increase steadily year over year to reach JOD 73,669 in the fifth year. 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	13,786	27,620	31,670	37,121	40,794
Accounts Receivable (A/R)	10,833	24,500	30,833	47,208	56,917
Accounts Payable (A/P)	5,417	12,583	15,917	19,479	24,042
Net Working Capital (JOD)	19,202	39,537	46,586	64,850	73,669
Change in Working Capital (JOD)	-	20,334	7,050	18,264	8,818

5.2.2 Project Initial Cost

The project's initial cost is projected to be JOD 54,202, comprising JOD 35,000 as CapEx and JOD 19,202 as net working capital.

Table 8: Initial Cost Summary (JOD)

Description / Year	JOD
CapEx	35,000
Net Working Capital	19,202
Total Initial Cost	**54,202**

5.2.3 Projected Income Statement

The projected income statement indicates that the project will generate a profit of JOD 2,286 in the first year of operation. Moreover, the net profit is expected to increase gradually starting from the second year of operation, reaching JOD 177,060 in the fifth year.

Table 9: Projected Income Statement (JOD)

Description / Year	1	2	3	4	5
Total Revenues	130,000	294,000	370,000	566,500	683,000
COGS	65,000	151,000	191,000	233,750	288,500
Gross Profit (JOD)	**65,000**	**143,000**	**179,000**	**332,750**	**394,500**
OpEx	55,143	110,481	126,679	148,485	163,175
Net Probit Before Tax and Depreciation (JOD)	**9,857**	**32,519**	**52,321**	**184,265**	**231,325**
Depreciation	7,000	8,200	8,800	9,400	10,000
Net Profit Before Tax (JOD)	**2,857**	**24,319**	**43,521**	**174,865**	**221,325**
Tax Expense	571	4,864	8,704	34,973	44,265
Net Profit (JOD)	**2,286**	**19,455**	**34,817**	**139,892**	**177,060**

In the first year of operation, the project is expected to generate a positive net profit margin of 1.8%. However, the net profit margins are expected to increase gradually throughout the study. In the fifth year of operations, the gross profit margin is expected to be 57.8%, and the net profit margin is 25.9%.
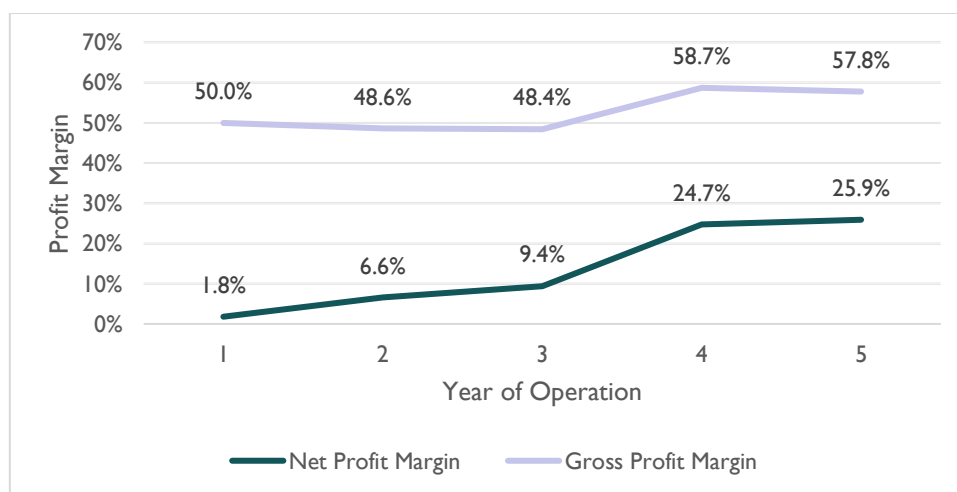

Figure 3: Gross vs Net Profit Margin

On the asset management side, the study shows that the return on investment will increase steadily from 4.2% in the first year of operation to 255.9% in the fifth year.
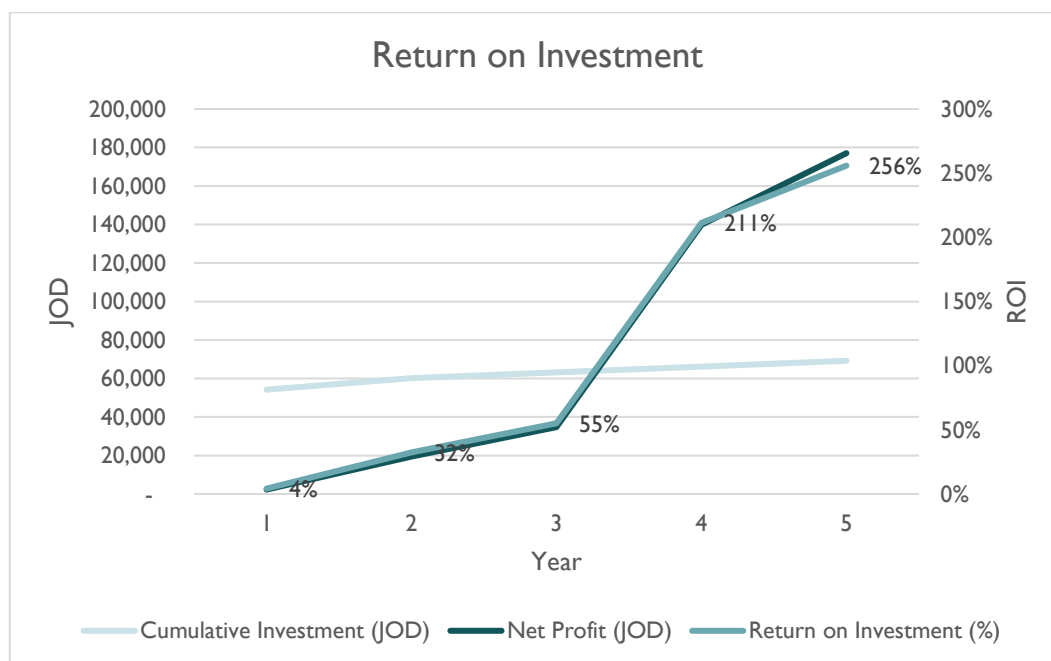

Figure 4: Return on Investment

5.2.4 Projected Free Cash Flow Statement

The table below demonstrates that the project can generate a positive free cash flow in the first year of operation, JOD 9,286. Moreover, the free cash flow is expected to increase gradually from the second year onwards. By the end of your five, the projected free cash flow will reach JOD 175,241.

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

Description / Year	0	1	2	3	4	5
Cash-In Flow						
Net Profit		2,286	19,455	34,817	139,892	177,060
Depreciation		7,000	8,200	8,800	9,400	10,000
Injected Capital	54,202	-	-	-	-	-
Total Cash-In Flow (JOD)	**54,202**	**9,286**	**27,655**	**43,617**	**149,292**	**187,060**
Cash-Out Flow						
Initial Cost	54,202	-	6,000	3,000	3,000	3,000
Changes in Working Capital	-	-	12,762	11,589	8,141	10,299
Total Cash-Out Flow (JOD)	**54,202**	**-**	**26,334**	**10,050**	**21,264**	**11,818**
Free Cash Flow (JOD)	**-**	**9,286**	**1,321**	**33,567**	**128,028**	**175,241**

Based on these results, the project's feasibility indicators demonstrate its viability, with a net present value of JOD 144,434.1 and a profitability index of 3.66. Moreover, the project's internal rate of return (IRR) is expected to be 57.28%, indicating feasibility is not sensitive to changes in market conditions.

Feasibility Indicators	
Net Present Value (NPV)	144,434
Profitability Index (PI)	3.66
Internal Rate of Return (IRR)	57.28%

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	144,434	3.66	57.28%
Drop in revenue by 5%	86,796	2.43	39.29%
Drop in revenue by 10%	15,013	1.19	17.88%
Increase in OpEx by 5%	127,157	3.32	51.85%
Increase in OpEx by 10%	105,796	2.77	44.06%
Increase in initial cost by 5%	141,724	3.49	55.29%
Increase in initial cost by 10%	132,024	2.98	49.11%

The sensitivity analysis shows that the project is feasible and not sensitive to unfavourable market conditions. 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

<u>Urban Planning</u>: Various agencies can use VirtuaLab's VR solutions to simulate urban development projects, allowing planners to visualize and adjust plans for infrastructure, zoning, and environmental impact assessments.[21]

<u>Disaster Preparedness</u>: Emergency services can leverage VR simulations for disaster response training, providing first responders with immersive, realistic scenarios to improve their readiness for natural disasters, accidents, and other emergencies.[22]

<u>Tourism and Cultural Preservation</u>: VR can be used to create virtual tours of historical sites and cultural landmarks, preserving heritage and promoting tourism. This can be particularly valuable for regions with rich cultural histories, offering virtual access to sites that might be difficult or expensive (if requiring travel to Jordan) to visit in person for the public.[23]

<u>Environmental & Healthcare Education</u>: Environmental & Healthcare organizations can integrate VR to educate the public or various segments of their target beneficiaries about conservation efforts, wildlife protection, and sustainable practices[24] as well as health related fields and topics. Interactive simulations can help raise awareness and build capacity.

<u>Psychological Therapy</u>: Mental health professionals can use VR for exposure therapy, helping patients confront and overcome fears in a controlled virtual environment.

7. Entrepreneur Persona

The optimal entrepreneur for leading VirtuaLab in Jordan combines several key attributes:

<u>Technical Knowledge</u>: The leader must have a robust understanding of both VR technology and educational applications. This includes expertise in the latest VR hardware and software[25], immersive content creation[26], and the ability to integrate VR seamlessly into various educational curricula.

<u>Educational Knowledge</u>: The leader must have knowledge and understanding of how to best deliver educational content. They must be familiar with UDL[27], Culturally Relevant Pedagogy[28],

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[21] *Virtual Horizons. (n.d.). American Planning Association. Retrieved May 12, 2024, from https://www.planning.org/planning/2019/oct/virtualhorizons/*

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SEL[29], Adult Learning[30] and other relevant concepts for better delivering the best quality education through technology integration.

Entrepreneurial Skills: Strong business acumen is essential for navigating the complexities of starting and scaling a tech-based company in an emerging market. The leader should possess skills in strategic planning to set clear goals and define the company's direction. The leader should also excel in stakeholder management, forging partnerships with educational institutions, government agencies, and industry leaders to expand VirtuaLab's reach and impact.

Vision and Leadership: The ability to inspire and lead a team towards a shared vision of innovative and accessible education is critical. Effective leadership involves building a strong organizational culture, fostering teamwork, and encouraging innovation.

8. Stakeholders

The success of VirtuaLab in Jordan will hinge on engaging a diverse array of stakeholders, each playing a unique role in the ecosystem:

Education (High School, Higher Education and TVET) Institutions /Educational Institutions / Companies: Schools, Colleges, Universities and Companies are users and validators of VirtuaLab's solutions. Their participation in pilot programs and research helps to improve VR applications, providing real-world feedback and demonstrating effectiveness.

Educators and Curriculum Developers: These primary users provide insights to refine VR content, ensuring it aligns with educational goals and student engagement. Their feedback helps tailor simulations to different learning styles and subjects, ensuring practical relevance.

Government Regulators: Coordination with regulatory bodies ensures compliance with local education and technology laws. This includes adhering to data privacy regulations, educational standards, and potentially influencing policy adjustments to favor the integration of VR technology in education.

IT Support Specialists: These professionals ensure the seamless integration and operation of VR systems, addressing technical challenges, maintaining system performance, and providing user support. Their role is critical for the smooth functioning of VirtuaLab's offerings.

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Suppliers: Providers of VR hardware and accessories are essential for the availability and quality of VirtuaLab's tools. Reliable suppliers ensure that educational institutions have access to the necessary equipment to fully utilize VR technology.

Students: As the ultimate beneficiaries, students' feedback is essential for the continuous improvement of VR content. Understanding their learning experiences and outcomes helps VirtuaLab adapt and enhance its offerings to better meet educational needs.

9. Risk Assessment and Mitigation

Risk	Impact	Likelihood	Risk Mitigation Technique
Technical Risks	VR technology evolves quickly, which could render current VR hardware and software obsolete, requiring constant updates and investments. Ensuring the VR labs seamlessly integrate with existing educational infrastructure and software platforms can be complex and resource intensive.	Moderate	Establish a dedicated R&D team to monitor technological advancements and ensure continuous updates. Allocate a budget for annual hardware and software upgrades. Partner with leading VR tech providers for access to the latest innovations and training programs.
User Adoption Challenges	There might be resistance from educators and students due to the learning curve associated with adopting new technology, impacting the effectiveness of the VR labs.	Moderate	Develop a comprehensive onboarding program, including workshops and webinars for educators and students. Provide user-friendly step-by-step tutorials. Establish a feedback loop to gather user input and continuously improve the experience.
Privacy and Data Security	VR applications often collect sensitive user data. Ensuring the privacy and security of this data is critical, and breaches could have severe consequences.	Moderate	Implement advanced encryption for all data transfers and storage. Conduct bi-annual security audits and compliance checks. Develop a strict data privacy policy in line with international standards and train staff on data protection practices. Install intrusion detection systems and regularly update security protocols.

Maintenance and Support Risks	VR systems require ongoing maintenance and technical support. There is a risk of operational disruptions if these systems encounter issues or if there's inadequate support for users.	Low	Establish a 24/7 technical support team to handle maintenance and user issues. Develop a preventative maintenance schedule for all VR equipment. Create detailed documentation and training programs for in-house IT staff to manage minor repairs and updates.

Given the considerations, VirtuaLab's innovative VR approach is essential for Jordan's educational and workforce development. VirtuaLab addresses urgent issues like upskilling, reskilling, revamping outdated curricula and creating immersive learning with technology adaptation. This approach enhances engagement and aligns educational outcomes with market demands. With the global VR education market projected to grow rapidly, VirtuaLab can leverage this growth by offering scalable, tiered services. Despite challenges like rapid tech evolution, data privacy, adoption, and maintenance, the benefits outweigh the drawbacks, making it crucial for Jordan's future of education and training.

10. Conclusion

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.