Pathway Learning Hub

High-Level Feasibility Study

Submitted to:

The Ministry of Digital Economy and Entrepreneurship

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Executive Summary

Pathway Learning Hub is an edtech startup focused on remedial education for secondary and high school students in the Arab World, with an initial emphasis on STEM subjects. The platform uses advanced diagnostic assessments, AI tutors, and chatbots to provide personalized and engaging learning experiences in Arabic, addressing the needs of students who find traditional classroom environments challenging.

The global edtech market is experiencing rapid growth, projected to reach USD 348 billion by 2030, driven by advancements in AI, AR/VR, and machine learning. The MENA region, characterized by a young population and increasing internet penetration, presents a significant opportunity for Pathway Learning Hub. Despite the region's educational challenges, including poor performance in international assessments and pandemic-related disruptions, there is a strong demand for new educational solutions.

Pathway Learning Hub operates on a business model encompassing B2B, B2B, and B2G revenue streams. The B2C subscription offers personalized learning plans, AI tutors, and virtual tutoring sessions. B2B services involve partnerships with schools to integrate the platform into existing curricula, providing diagnostic assessments and personalized learning plans. B2G and donor-funded projects include collaborations with governments and donors to implement large-scale remedial education initiatives in public schools. Revenue projections indicate steady growth from JOD 142, 000 in Year 1 to JOD 1,050,000 in Year 5, driven by increasing demand across all service offerings.

Financial projections indicate increasing profitability, with net profits reaching 335, 158 in Year 5. The project demonstrates positive financial indicators in light of the potential risks which include technological issues, content relevance, data privacy concerns, and market penetration challenges. To address said risks, proposed mitigation strategies involve rigorous testing, cultural content review, robust data privacy policies, and targeted marketing campaigns.

Engaging educational and cultural experts will provide crucial to ensure content is pedagogically sound and culturally relevant. Launching pilot programs in various MENA countries will help gather feedback and refine the model.

Pathway Learning Hub presents an opportunity to address educational challenges in the MEAN region through personalized, technology-driven remedial education. With robust market demand, a well-defined business model, and proactive risk management the platform is well-positioned for growth and impact.

1. Introduction

Pathway Learning Hub is an edtech start-up offering remedial education for secondary and high school students in the Arab world. Focusing initially on STEM courses, the platform leverages advanced assessments, AI tutors, and study companions (chatbots) to deliver

personalized and engaging learning experiences in Arabic to secondary and high school aged students across the MENA region. Pathway Learning Hub addresses the diverse and complex learning needs of students who find traditional academic subjects and crowded classrooms challenging by providing individualized education solutions tailored to their unique needs.

The platform begins with comprehensive diagnostic assessments to identify each student's strengths and areas for improvement. Using these insights, Pathway Learning Hub crafts personalized learning plans that adapt in real-time to the student's progress and learning style. AI tutors and chatbots provide continuous support, delivering interactive lessons, practice exercises, and instant feedback, ensuring students stay engaged and motivated.

When used by schools and learning centers, teachers and educators are empowered with data-driven insights about students' performance, enabling them to better understand and address their challenges.

Initially focused on secondary and high school STEM courses, Pathway Learning Hub may consider expanding into other subjects and higher education, providing a scalable and adaptable solution for diverse educational needs across the Arab world.

Pathway Learning Hub aims to redefine remedial education and ensure every student can achieve their full potential with the help of its technology and content.

2. Market Analysis

The global EdTech market is experiencing substantial growth, driven by increasing investments in digital learning and advancements in technology. According to Research & Markets, the global education technology market size is expected to reach USD 348 billion by 2030, growing at a CAGR of 13.4% from 2024 to 2030[1]. This surge is propelled by the rising adoption of AI, AR/VR, and machine learning technologies, which enhance personalized learning experiences and improve educational outcomes. In the Middle East and North Africa (MENA) region, the EdTech market is also expanding significantly. Factors such as increased internet penetration, government initiatives supporting digital education, and a youthful population with a high demand for modern learning solutions contribute to this growth.

Demographically, nearly half of the MENA region's population is aged under 24, with one in five people between 10-24 years old, according to UNICEF[2]. The region has the potential to transform its youth into a powerful human capital force capable of actively addressing its most pressing issues and maximizing the demographic dividend. However, to realize this potential, young people need access to opportunities that allow them to learn and develop the necessary skills to earn a dignified living. Unfortunately, according to UNICEF, most MENA countries perform near the bottom in international assessments such as PIRLS and TIMSS, with all countries in the region falling below the CenterPoint of 500[3]. Traditional teacher-cantered

[1]https://www.researchandmarkets.com/reports/5415585/global-education-technology-market-size-share-and#:~:text=Education%20Technology%20Market%20Growth%20%26%20Trends,line%20with%20advances%20in%20technology.
[2] https://www.unicef.org/mena/education
[3] https://www.unicef.org/mena/education

approaches, rote learning, and outdated curricula contribute to these shortcomings, highlighting the urgent need for innovative educational solutions.

Education is a crucial element of human capital, fundamental to sustainable economic growth. According to the World Bank, the challenges facing education in the MENA region have been further exacerbated by the pandemic. School closures during the period of 2020 to 2022 averaging 22 weeks, which is equivalent to half a school year have resulted in significant learning setbacks. Despite efforts to implement remote schooling, recent data indicates that students have not achieved the typical learning progress. Consequently, each month spent out of the classroom equates to a month of lost learning. The immediate effects are alarming, and the long-term implications are immense. The Word Bank's research predicts that if these educational disruptions are not remediated, they could reduce future annual earnings for current students in the region by 10%, leading to a cumulative loss of $800 billion over their lifetimes[4].

Despite all this, there is hope for improving educational outcomes in the MENA region. Leveraging technology to scale the impact of high-performing teachers has significant potential, especially considering McKinsey's findings that such educators can boost student performance by 53 percentage points compared to their peers with lower-performing teachers[5].

These statistics paint a picture that highlights the vital need for Pathway Learning Hub's innovative, technology-driven approach to remedial education. Pathway Learning Hub aims to elevate educational outcomes and help students get unstuck in their learning journeys.

Pathway Learning Hub operates within a competitive landscape marked by several established players in the MENA region, offering K-12 and personalized learning. **Noon Academy** has gained popularity as a social learning platform, reaching more than 12 million learners, and scaling the impact of teachers. **Kamkalima** delivers high interest digital content in Arabic that is aligned with national and international curricula and covers the key language competencies of reading, writing, and listening. Kamkalima also offers learning and assessment tools, and deep data analytics to help teachers in lesson preparation, student progress reporting and follow up, and most importantly assessment of and for learning. In Jordan, **Jo Academy** specializes in high school courses aligned with Jordanian curricula and offers content for all grades in all subjects along with assessments aligned with the national curriculum. **Abwaab** is another leading e-learning platform offering secondary-school students in the MENA region the opportunity to learn at their own pace, test themselves and get ahead with expert tutors anytime and anywhere. By offering short, engaging video lessons aligned with national curricula, visualized learning journeys, continuous assessment and performance analytics, the platform seeks to change the way students learn outside the classroom.

[4]https://thedocs.worldbank.org/en/doc/e52f55322528903b27f1b7e61238e416-0200022022/related/WBG-LearningLosses-flier-10-09-22-e-version.pdf

[5]https://www.mckinsey.com/~/media/mckinsey/industries/public%20and%20social%20sector/our%20insights/what%20drives%20student%20performance%20in%20latin%20america/drivers-of-student-performance.pdf

Pathway Learning Hub is well-positioned to make an impact by offering AI-driven personalized learning focused on remedial education that cater to the diverse needs of secondary and high school students. The platform's potential for scalability into higher education and other subjects further enhances its growth prospects, making it a promising venture in the evolving EdTech market.

3. Business Model

Pathway Learning Hub will operate primarily on a business-to-consumer (B2C) model, and also tap into B2B and B2G revenue streams, providing tailored remedial education services in Arabic to students in secondary and high school. This approach allows for customized solutions that meet the diverse educational needs of its users, initially focusing on STEM subjects and later potentially expanding to higher education and other subjects.

B2C Subscription:

1. **Personalized Learning Plans:** This subscription service offers access to personalized learning plans created through assessments and bite-sized educational content focusing on key concepts within a topic. These plans are designed to address each student's unique learning needs, providing tailored lessons using such content as building blocks and resources to help them overcome educational challenges. Subscribers benefit from continuous progress tracking and adaptive content that evolves with their learning pace.
2. **AI Tutors and Study Companions:** Leveraging AI technology, Pathway Learning Hub provides AI tutors and study companions that offer real-time assistance and support. These AI-driven tools help students understand complex concepts, practice problem-solving, and receive immediate feedback. The subscription ensures ongoing access to these intelligent resources, enhancing the learning experience.
3. **Virtual Tutoring Sessions:** For families seeking more personalized support, Pathway Learning Hub offers one-on-one and small group virtual tutoring sessions. These sessions are conducted by experienced educators who provide targeted instruction and guidance, helping students improve their understanding and performance in specific subjects. This service is designed to accelerate learning and address individual academic needs.

B2B Services:

School Partnerships: Pathway Learning Hub will collaborate with schools to provide remedial education solutions that integrate seamlessly with existing curricula. Schools can subscribe to the platform or integrate it within their digital infrastructure to access diagnostic assessments, personalized learning plans, and AI tutors, helping teachers identify and address learning gaps among their students.

B2G and Donor-Funded Projects:

1. **Government Collaborations:** Pathway Learning Hub aims to partner with governments to implement large-scale remedial education initiatives. These collaborations can help address systemic educational challenges by providing access to personalized learning solutions for students across public schools. The platform's technology-driven approach can support national efforts to improve educational outcomes and close learning gaps.
2. **Donor-Funded Programs:** The platform seeks funding from international organizations, NGOs, and private donors to support remedial education projects in underserved communities. These programs aim to provide access to quality education for disadvantaged students, helping them overcome barriers to learning and achieve their full potential. By leveraging donor funds, Pathway Learning Hub can expand its reach and impact, addressing educational inequities on a larger scale.

The revenue projections for the first five years of the start-up show a significant increase across the three main services: **B2C Subscription, Virtual Events and Tutoring Session.** Each service shows growth in demand over the five years:

- **B2C Subscription**: Quantity demand increases from 1,200 to 7,500 subscriptions generating revenues amounting to JOD 120,000 in Year 1 scaling to JOD 750,000 in year 5.
- **Premium B2C Subscription:** Includes tutoring services, this subscription package starts with JOD 2,000 projected revenues in year 1 growing to JOD 30,000 in year 5.
- **B2B Subscription**: Starts with 2 schools in year one at an average subscription package of JOD 10,000 and growing to 12 subscriptions in year 5 taking the revenue from JOD 20,000 to JOD 120,000.
- **B2G or Donor-funded Projects:** Starts in year 2, this revenue stream starts with one deal projected at JOD 50,000 and grows to 3 deals in year 5 to generate JOD 150,000.

Total revenues show steady growth from JOD 142,000 in Year 1 to JOD 1,050,000 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) B2C	1,200	2,000	3,500	5,500	7,500
Price / Unit B2C	100	100	100	100	100
Sub-total B2C	120,000	200,000	350,000	550,000	750,000
Projected Demand (Quantity) Premium B2C Subscription	20	50	100	200	300
Price / Unit Premium B2C Subscription	100	100	100	100	100
Sub-total B2G and Premium B2C Subscription	2,000	5,000	10,000	20,000	30,000
Projected Demand (Quantity) B2B	2	4	8	10	12
Price / Unit B2B	10,000	10,000	10,000	10,000	10,000
Sub-total B2B	20,000	40,000	80,000	100,000	120,000
Projected Demand (Quantity) B2G and Donor Funded Projects	0	1	2	2	3
Price / Unit B2G and Donor Funded Projects	0	50,000	50,000	50,000	50,000
Sub-total B2G and Donor Funded Projects	0	50,000	100,000	100,000	150,000
Total Revenues	142,000	295,000	540,000	770,000	1,050,000

The following charts show the product mix by revenue and by quantity. The analysis reveals a balanced distribution between the four revenue streams, both in terms of quantity and revenue with B2C Subscriptions being the core of the revenues.

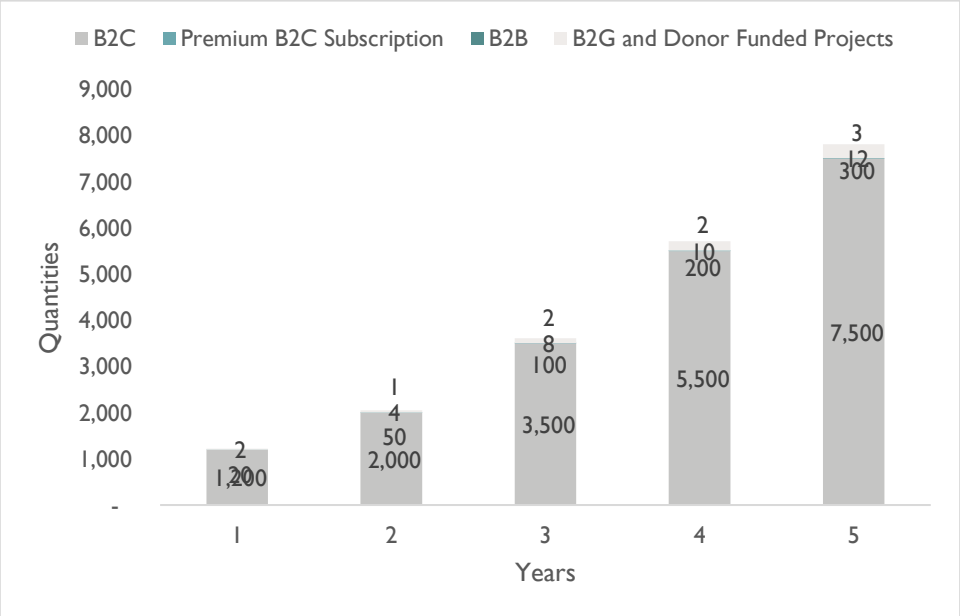

Figure 1: Product Mix by Quantity

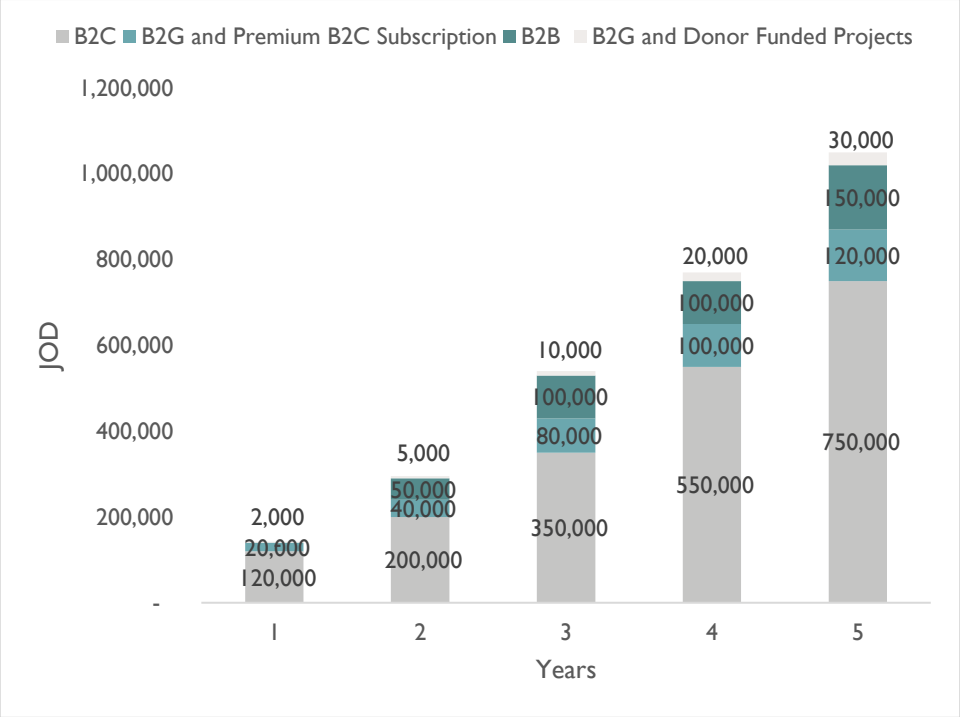

Figure 2: Product Mix by Revenue

4. Technical Analysis

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

- **B2C Subscription**: There is no COGS associated with this revenue stream at least for the first years as the costs for creating the platform, assessments and content are accounted for in the manpower, Capex and OpEx. Should the founder find the need to expand the content library or platform features based on user needs and market trends, then he or she may consider either covering these costs from the profit margins or start factoring them into the COGS for this service as part of the business model.
- **Premium B2C Subscription:** the COGS of this revenue stream are marked at 65% of the revenues indicating the need to cover additional costs associated with delivering the extra services such as tutoring. Starting with JOD 1,300 in year one, COGS for this service will grow to JOD 19,500 in year 5.
- **B2B Subscription**: reaching 50% of the revenues generated by this service, COGS in year 1 are expected to be around JOD 10,000 and will grow to JOD 60,000 in year 5
- **B2G or Donor-funded Projects:** given the level of customization needed for this service and additional resources needed for its implementation, the COGS under this revenue stream reach 50% of the revenues starting with JOD 25,000 in the second year when this service is first launched and growing to JOD 75,000 in year 5.

The total COGS increased from JOD 11,300 in Year 1 to JOD 154,500 in Year 5, which is a significant increase reflecting the growth in revenues yet indicating improving operational efficiency and economies of scale.

The table below outlines the projected COGS over five years:

Table 2: Cost of Goods Sold – Five Year Projection

Description / Year	1	2	3	4	5
Projected Demand (Quantity) B2C	1,200	2,000	3,500	5,500	7,500
COGS / Unit B2C					
Sub-total B2C	-	-	-	-	-
Projected Demand (Quantity) B2G and Donor Funded Projects	20	50	100	200	300
COGS / Unit B2G and Donor Funded Projects	65	65	65	65	65
Sub-total B2G and Donor Funded Projects	1,300	3,250	6,500	13,000	19,500
Projected Demand (Quantity) B2B	2	4	8	10	12
COGS / Unit B2B	5,000	5,000	5,000	5,000	5,000
Sub-total B2B	10,000	20,000	40,000	50,000	60,000
Projected Demand (Quantity) B2G and Donor Funded Projects	0	1	2	2	3
COGS / Unit B2G and Donor Funded Projects		25,000	25,000	25,000	25,000
Sub-total B2G and Donor Funded Projects	-	25,000	50,000	50,000	75,000
Total COGS	11,300	48,250	96,500	113,000	154,500

Team composition grows gradually throughout the years, covering the following roles: CEO, CTO, Content Development Specialist, Media Production Manager, Software Engineer, Customer Care Specialist, Project Manager, Marketing Specialist, Sales, and Business Development Specialist and finally an HR and Finance Officer. The team size is expected to grow from 3 in year 1, to 13 in year 5.

Table 3: Manpower recruitment plan – five-year projection

Title / Year	1	2	3	4	5
CEO	1	1	1	1	1
CTO	1	1	1	1	1
Content Development Specialist	1	1	2	2	3
Media Production Manager		1	1	1	1
Software Engineer		1	2	2	2
Customer Care		1	1	1	1
Project Manager			1	1	1
Marketing Specialist		1	1	1	1
Sales and Business Development Specialist		1	1	1	1
HR and Finance			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	25,200	28,000	30,800	33,600	35,000
CTO	28,000	29,400	30,800	32,200	33,600
Content Development Specialist	11,200	12,600	25,200	28,000	46,200
Media Production Manager	-	12,600	14,000	15,400	16,800
Software Engineer	-	15,400	33,600	39,200	42,000
Customer Care	-	7,000	8,400	9,800	11,200
Project Manager	-	-	14,000	15,400	16,800
Marketing Specialist	-	9,800	12,600	14,000	15,400
Sales and Business Development Specialist	-	9,800	12,600	14,000	15,400
HR and Finance	-	-	14,000	15,400	16,800
Total HR Salaries	**64,400**	**124,600**	**196,000**	**217,000**	**249,200**
Social Security Cost	9,177	17,756	27,930	30,923	35,511
Health Insurance Cost	7,500	20,000	30,000	30,000	32,500
Total HR Cost	**81,077**	**162,356**	**253,930**	**277,923**	**317,211**

As for the operational expenses (OpEx) they include office rent and utilities, platform hosting and subscription fees, advertising, and legal & accounting fees, and they start with JOD 119,215 in year 1 and reach JOD 432,752 in year 5.

Table 5: Operational Expenditures – five-year projection

Description / Year	1	2	3	4	5
Electricity	250	250	250	250	250
Water	250	250	250	250	250
subscriptions	1,500	2,500	3,500	4,500	5,500
Website Hosting	2,100	3,500	5,000	7,000	10,000
Advertising	15,000	15,000	20,000	40,000	50,000
Rent	6,000	6,500	7,000	7,500	8,000
Legal & Accounting Fees	2,200	2,200	2,200	2,200	2,200
Sub-total OpEx	**108,377**	**192,556**	**292,130**	**339,623**	**393,411**
Other Costs	10,838	19,256	29,213	33,962	39,341
Total OpEx	**119,215**	**211,811**	**321,343**	**373,585**	**432,752**

The setup costs for Pathway Learning Hub include a capital investment of JOD 78,000 to develop the platform, design and develop the content, set up the office and acquire the license. The founder may decide to invest this amount in phases initially using a simple version or an MVP as a proof of concept and to verify demand and gradually create content. The founder should consider using AI and other content building tools that can help minimize media production costs. Starting in year 2, the founder may also decide working with consultants to

cover any needed additional expertise for achieving product-market fit. During the 5 years, the projected Capex reaches JOD 219,000.

Table 6: Capital Expenditures Cost – five-year projection

Description / Year	0	1	2	3	4	5
Platform Development	15,000	15,000	10,000	10,000	10,000	10,000
Content Development	15,000	15,000	15,000	20,000	25,000	25,000
Office Setup including Laptops	10,000	5,000	2,000	1,000	500	500
Consultancies		3,000	3,000	3,000	3,000	3,000
Total CapEx	**40,000**	**38,000**	**30,000**	**34,000**	**38,500**	**38,500**

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 40,695, which has to increase steadily year over year to reach JOD 182,813 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	29,804	52,953	80,336	93,396	108,188
Accounts Receivable (A/R)	11,833	24,583	45,000	64,167	87,500
Accounts Payable (A/P)	942	4,021	8,042	9,417	12,875
Net Working Capital	40,695	73,515	117,294	148,146	182,813
Change in Working Capital		32,820	43,779	30,852	34,667

5.2.2 Project Initial Cost

The project's initial cost is projected to be JOD 136,936, comprising JOD 78,000 as CapEx, JOD 18,241 provisions for the second-year negative free cash flow and JOD 40,695 as net working capital.

Table 8: Initial Cost Summary (JOD)

Description / Year	JOD
CapEx	78,000
Provisions for the first year(s) negative cash flow(s)	18,241
Net Working Capital	40,695
Total Initial Cost	**136,936**

5.2.3 Projected Income Statement

The projected income statement indicates that the project will generate a loss of JOD 4,115 in the first year of operation. However, from the second year onwards, the net profit is expected to be positive and increase gradually over the study period, reaching JOD 335,158 in the fifth year of operation.

Table 9: Projected Income Statement (JOD)

Description / Year	1	2	3	4	5
Total Revenues	142,000	295,000	540,000	770,000	1,050,000
COGS	11,300	48,250	96,500	113,000	154,500
Gross Profit (JOD)	**130,700**	**246,750**	**443,500**	**657,000**	**895,500**
OpEx	119,215	211,811	321,343	373,585	432,752
Net Profit Before Tax and Depreciation	**11,485**	**34,939**	**122,157**	**283,415**	**462,748**
Depreciation	15,600	21,600	28,400	36,100	43,800
Net Profit Before Tax	**-4,115**	**13,339**	**93,757**	**247,315**	**418,948**
Tax Expense		1,845	18,751	49,463	83,790
Net Profit	**-4,115**	**11,494**	**75,006**	**197,852**	**335,158**

In the first year of operation, the project is expected to generate a negative net profit margin of 2.9%. However, the net profit margins are expected to be positive and increase gradually from the second year onwards. In the fifth year of operations, the gross profit margin is expected to be 85.3%, and the net profit margin is 31.9%.

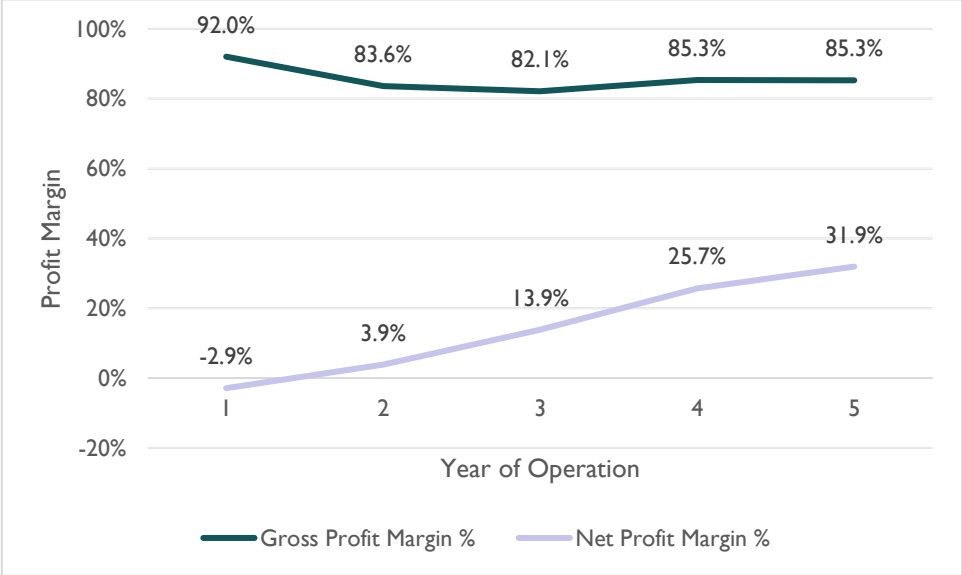

Figure 3: Gross vs Net Profit Margin

On the asset management side, the study shows that the return on investment will increase steadily from -3.5% in the first year of operation to 129.1% in the fifth year.

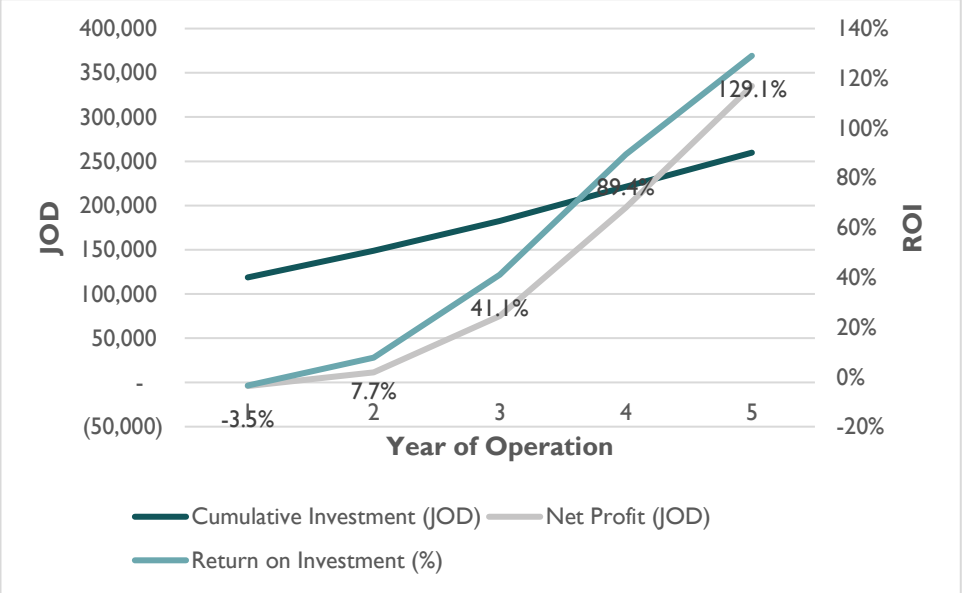

Figure 4: Return on Investment

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 11,485. However, due to the expansion of its operations, the project will be in need to inject JOD 30,000 as CapEx and JOD 32,820 as working capital, resulting in the second year experiencing a negative free cash flow of JOD 29,726. Furthermore, the free cash flow is expected to be positive and increase gradually from the third year onwards. By the end of your five, the projected free cash flow will reach JOD 305,791.

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

Description / Year	0	1	2	3	4	5
Cash-In Flow						
Net Profit		-4,115	11,494	75,006	197,852	335,158
Depreciation		15,600	21,600	28,400	36,100	43,800
Injected Capital	136,936					
Total Cash-In Flow	**136,936**	**11,485**	**33,094**	**103,406**	**233,952**	**378,958**
Cash-Out Flow						
Initial Cost	118,695		30,000	34,000	38,500	38,500
Changes in Working Capital			32,820	43,779	30,852	34,667
Total Cash-Out Flow	**118,695**	**-**	**62,820**	**77,779**	**69,352**	**73,167**
Free Cash Flow	**18,241**	**11,485**	**-29,726**	**25,627**	**164,600**	**305,791**

Based on these results, the project's feasibility indicators demonstrate its viability, with a net present value of JOD 123,838 and a profitability index of 1.90. Moreover, the project's internal rate of return (IRR) is expected to be 31.22%, indicating feasibility is not sensitive to changes in market conditions.

Feasibility Indicators	
Net Present Value (NPV)	123,838
Profitability Index (PI)	1.90
Internal Rate of Return (IRR)	31.22%

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	123,838	1.90	31.22%
Drop in revenue by 5%	34,750	1.22	18.66%
Drop in revenue by 10%	-105,281	0.54	2.04%
Increase in OpEx by 5%	100,520	1.84	29.14%
Increase in OpEx by 10%	58,787	1.48	22.84%
Increase in initial cost by 5%	116,991	1.81	29.82%
Increase in initial cost by 10%	88,139	1.51	24.73%

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

Pathway Learning Hub holds potential for integration with other sectors, enhancing its utility and marketability. This integration can drive innovation and efficiency in various ways:

Healthcare Sector: Pathway Learning Hub can collaborate with healthcare providers and mental health organizations to create educational modules tailored for students with learning disabilities or special needs. These partnerships can ensure that students receive customized support through AI-driven tools, addressing their unique learning requirements. By integrating mental health resources, the platform can offer features that help manage stress and anxiety related to academic performance, fostering a holistic approach to education.

Technology Development: By partnering with technology companies specializing in AI, AR, and VR, Pathway Learning Hub can continuously enhance its educational content and interactive experiences. Advanced AI can personalize learning paths for students, adapting to their individual progress and learning styles. AR and VR technologies can bring STEM subjects to life, offering immersive learning experiences that make complex concepts easier to understand. This collaboration can result in cutting-edge educational tools that set Pathway Learning Hub apart in the market.

Private Sector: Pathway Learning Hub can engage with corporations to develop corporate social responsibility (CSR) programs that sponsor educational initiatives. These partnerships can provide resources and funding to expand the platform's reach, particularly in underserved areas.

Governmental and Non-Profit Sectors: Pathway Learning Hub can work with educational ministries and NGOs to implement large-scale remedial education programs. These collaborations can address systemic educational challenges by providing access to personalized learning solutions for public school students. Leveraging donor funds, the platform can extend its reach to underserved communities and refugees, contributing to educational equity and development across the region. Such partnerships can help Pathway Learning Hub play a significant role in national efforts to improve educational outcomes and close learning gaps.

7. Entrepreneur Persona

The startup founder and leader of Pathway Learning Hub needs to embody a blend of several key attributes: expertise in educational technology, a deep understanding of the educational landscape in the Arab world, and strong entrepreneurial skills to navigate and grow in a competitive market.

Educational and Cultural Knowledge: The leader must possess a robust understanding of educational technology and the specific educational challenges in the MENA region. This dual expertise is crucial for developing content that is both pedagogically sound and culturally

relevant, ensuring that the platform effectively meets the educational needs of its users while addressing regional educational gaps.

Entrepreneurial Skills: Strong business acumen is essential for navigating the complexities of launching and scaling an edtech platform in an emerging market and the competitive edtech space. Skills in strategic planning, marketing, and financial management will help establish and expand the business effectively. The entrepreneur should be adept at identifying and leveraging market opportunities, building partnerships, securing funding, ensuring the start-up's growth and sustainability.

Vision and Leadership: The ability to inspire and lead a team toward a shared vision of innovative and impactful education is critical. The leader must also be capable of fostering partnerships across various sectors, including education, technology, civil society, and governmental institutions, to enhance the platform's offerings and market presence. Effective communication and leadership skills are essential for motivating the team, building a strong organizational culture, and driving the start-up toward its goals.

This entrepreneurial profile not only suits the immediate needs of launching Pathway Learning Hub but also supports its long-term vision of providing personalized and effective remedial education across the Arab world. By leveraging innovative technology and strategic partnerships, the leader can help the start-up make a significant impact on the region's educational landscape and ensure that students reach their full potential.

8. Stakeholders

Families and Students: As primary users, their feedback and engagement are pivotal for refining Pathway Learning Hub's offerings. Ensuring a positive and enriching user experience and demonstrating value for money will be critical for building a loyal customer base and encouraging ongoing use of the platform.

Educational Institutions: Schools and educators can integrate Pathway Learning Hub into their curricula, using it as a supplemental tool for STEM education. Their involvement can enhance the platform's educational impact, providing tailored learning experiences that address individual student needs and support academic success.

Investors and Financial Backers: Financial support from investors interested in educational technology and digital learning initiatives will be crucial for funding the development and expansion of Pathway Learning Hub. Their involvement will also bring strategic guidance and credibility to the venture, helping to navigate market challenges and capitalize on growth opportunities.

Technology Providers: Partnerships with technology companies specializing in AI, AR, and VR will enhance Pathway Learning Hub's capabilities, ensuring it remains innovative and effective in delivering personalized learning experiences. These collaborations will drive the development of advanced features that optimize educational outcomes and engagement.

Government and Policy Makers: Engagement with government bodies can align Pathway Learning Hub with national educational goals and initiatives, facilitating integration into public school systems or programs and ensuring compliance with educational standards. Support from policymakers can also open doors to funding opportunities and regulatory approvals that enhance the platform's accessibility and impact.

Community Leaders and Advocates: Influential figures within education and community leadership can advocate for Pathway Learning Hub, building trust and credibility within diverse communities. Their endorsement and support can amplify awareness, drive adoption, and foster meaningful engagement, ensuring the platform meets the educational needs of students across the MENA region.

9. Risk Assessment and Mitigation

Successfully deploying Pathway Learning Hub involves navigating several risks:

Risk	Impact	Likelihood	Risk Mitigation Technique
Technological Issues	Issues such as platform crashes or connectivity problems can disrupt the learning experience, leading to user dissatisfaction and attrition.	Moderate	Plan proper hosting upgrades, implement rigorous testing protocols, regular updates, and maintain high-quality technical support to mitigate risks of technical failures.
Content Relevance and Cultural Sensitivity	Failure to provide culturally accurate and engaging content could alienate the target audience and lead to negative perceptions.	Moderate	Develop a solid framework using learning science and the right pedagogical approach. Establish a content review committee with cultural and educational experts and gather continuous user feedback.
Data Privacy Concerns	Parents' concerns over sharing children's data could hinder user adoption and retention.	High	Implement robust data privacy policies aligned with international standards. Transparently communicate measures to build user trust and ensure compliance.
Market Penetration and Adoption Rates	Slow adoption within a competitive market	Moderate	Conduct comprehensive outreach campaigns, offer trial periods, and optimize user interfaces. Develop a robust digital marketing strategy to acquire and convert potential customers.
Revenue Drop	A 10% drop in revenues results in a negative net present value and a profitability index of less than 1.	Moderate	Conduct regular market analysis to adjust pricing strategies, improve service offerings, and enhance customer retention efforts.

Engage with Educational and Cultural Experts: Establish a robust content development and review process, involving cultural and educational experts. This ensures all materials are culturally accurate and pedagogically effective, enhancing the platform's credibility and relevance.

Pilot Programs and Iteration: Launch pilot programs in various MENA region countries starting with Saudi Arabia, Egypt, and Jordan to gather feedback and refine the business model. Use insights from these pilots to optimize operations, financial models, and educational outcomes, fostering continuous improvement.

Comprehensive Marketing Campaigns: Develop targeted marketing strategies to highlight the unique value proposition of Pathway Learning Hub. Utilize social media,

community events, and partnerships with educational institutions to raise awareness and drive adoption. Consider implementing an Ambassador program to leverage community influencers.

Continuous Innovation and Product Development: Invest in ongoing research and development to stay ahead in educational technology. Regularly update the platform with new features, content enhancements, and technological advancements - especially AI, ensuring it meets evolving user needs and preferences.

Lean Approach for Development: Adopt a lean development approach to maximize resource efficiency. Build and iterate on a minimum viable product (MVP) based on user feedback, focusing on rapid prototyping and iteration cycles to deliver a polished and effective learning experience.

User-Centric Design: Prioritize user experience (UX) and user interface (UI) design that enhances the learning journey for students and facilitates ease of use for parents and educators. Create intuitive, engaging interfaces that cater to diverse learning styles and technological capabilities.

Implementing these recommendations will position Pathway Learning Hub as a leader in personalized, STEM-focused education in the MENA region, ensuring scalability, impact, and sustained user engagement.

10. Conclusion

The feasibility study for Pathway Learning Hub highlights a compelling opportunity within the rapidly expanding educational technology sector, particularly in addressing remedial education needs for secondary and high school students across the MENA region. With an initial focus on personalized STEM education and leveraging advanced technologies like AI and data analytics, Pathway Learning Hub aims to redefine how students learn and achieve academic success.

The project shows strong feasibility indicators, including robust market demand driven by educational advancements and government support for digital learning initiatives. Key strengths include a well-defined business model, strategic market positioning, and proactive risk mitigation strategies to address potential challenges such as technological issues, content relevance, and market competition.

Moving forward, it is recommended that stakeholders further analyse projected user adoption rates, initial development costs, and ongoing operational expenses to ensure financial sustainability and scalability. This thorough evaluation will be instrumental in navigating potential hurdles and seizing growth opportunities in the competitive edtech landscape.

Overall, Pathway Learning Hub stands poised to make a significant impact by empowering students with personalized learning experiences tailored to their unique educational needs, thereby contributing to enhanced academic outcomes and educational equity across the MENA region.

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

Disclaimer

The Ministry of Digital Economy and Entrepreneurship (MoDEE) and Istidama 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.

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