JRSSEM 2026, Vol. 5, No. 8, March
E-ISSN: 2807 - 6311
P-ISSN: 2807 - 6494

Development of a Wearable Motion Plane Business Model for Beginner Golf Swing Training in Indonesia

Bagus Putu Agnichandra Putra*, Dimas Adiyasa Hartanto, Ina Agustini Murwani
Binus University, Indonesia
Email: bagus.putra007@binus.ac.id*, dimas.hartanto@binus.ac.id, imurwani@binus.edu

Keywords:
Beginner golf; wearable device; business model canvas; swing training; Motion Plane.

Abstract

This study is motivated by the increasing number of beginner golfers in Indonesia, particularly among younger age groups, which is not accompanied by adequate access to effective and affordable training. The main challenges faced by beginners include difficulties in performing consistent golf swings and the high cost of professional coaching. Therefore, this study aims to develop a wearable device business model, "Motion Plane," as a technology-based solution for independent training. The research employed a qualitative approach using Business Model Canvas (BMC) analysis and a survey of 81 beginner golfers. The results indicate that more than 76% of respondents show strong interest in wearable technology capable of providing real-time feedback. The Motion Plane product features a glove-based sensor integrated with an AI-powered mobile application for motion analysis and progress tracking. From a financial perspective, the investment feasibility analysis demonstrates a positive Net Present Value (NPV), an Internal Rate of Return (IRR) above the cost of capital, and a relatively short payback period across different scenarios. In conclusion, Motion Plane is an innovative and financially feasible solution with strong potential to enhance the effectiveness of beginner golf training in Indonesia.

INTRODUCTION

Golf is a sport that uses a stick to hit the ball into a predetermined hole. The goal is to put the ball into the hole with as few strokes as possible. Golf was first introduced in the 15th century in Scotland and has become an identical sport to business relationships, interpersonal relationships, and education (Santoso & Kwanda, 2024; Lee & Tan, 2023). According to Santoso & Kwanda in Mustafa (2024), initially, the majority of these golfers came from Gen X with the age of 40 – 50 years old and the upper-middle social class. However, with the development of technology and information, many of the golfers now come from the generation aged 18 – 30 years old as much as 40%. This development has occurred since the Covid-19 pandemic. There are around 200 thousand more golfers nationally, especially 18-35 years old, who are the main drivers of growth with increasing interest (Dewi et al., 2022; Lee et al., 2021).

Despite this, beginners face major obstacles in learning. The main challenge lies in accurate and consistent swing execution. Swings involve complex coordination between the upper and lower bodies, so they require repetitive exercises and proper feedback (Tan & Sihombing, 2021; Ronda et al., 2023). The cost to hire a trainer is relatively high, ranging from Rp 300 thousand to Rp 1 million per session, while training at the driving range does not provide detailed technical corrections, so it is difficult for beginners to know where their mistakes are (Katik & Putro, 2019; Wijaya & Anwar, 2022).

Based on a survey of 81 respondents, more than 66% percent of beginner golfers do not practice golf and 55% only learn informally from friends or online content. As a result, this causes the learning process to be slow, inefficient, and prone to causing frustration (Ronda et al., 2011; Suharto & Dewi, 2023). Without objective feedback, many beginners will have difficulty developing technical consistency, so the need for alternative solutions that are more affordable and accessible becomes high (Sari & Putra, 2022; Ardiansyah, 2021).

On the market side, the growth potential is also very promising. Globally, the golf equipment market is projected to grow from USD 12 billion in 2024 to USD 17.4 billion in 2033 at a CAGR of 4.21% (Data Horizon Research, 2025). Asia has more than 26 million active players, making it the region with the largest population of golfers in the world (Lee, 2023; Nguyen & Rahmawati, 2022). Indonesia itself is estimated to have a market value of more than USD 1 billion in golf equipment by 2028, with an annual growth of above 5% (Data Horizon Research, 2025; Lee & Haryadi, 2022).

Demographic changes also affect consumer behavior. If previously golf was synonymous with senior players, now the share of young people in Indonesia has increased from 5-10% to 20%. Millennials and Gen Z are making golf not only a means of health but also a lifestyle, networking, and entertainment. Social factors, prestige, and social media trends also strengthen their interest (Wang et al., 2023; Agustin & Sihombing, 2021).

The main motivations of golfers to play-pum are diverse. The study noted four main reasons: relaxation and togetherness (24%), social status (19%), economic benefits (15%), and business opportunities (14%) (Katik & Putro, 2019). In addition, golf is considered a challenging "game of mastery," triggering the satisfaction of hitting a good shot, as well as fostering a positive addiction to continue to grow (Putra et al., 2022; Kurniawan & Haryadi, 2023). However, the high cost of training and the lack of technological solutions make many beginners need new innovations (Zulkarnain & Haryadi, 2023). The high interest (>70%) in wearable technology to provide real-time feedback confirms the great opportunity to present innovative devices that support independent learning (Jufri & Rachmawati, 2022; Setiawan & Yuliana, 2023).

Studies show that there are 68.18% of beginner golfers who only practice on weekends which leads to a lack of continuous training (Katik & Putro, 2019). Without this regular exercise, beginners will find it difficult to develop the muscle memory needed to get a stable swing (Ronda et al., 2011; Ardiansyah & Dewi, 2023). Especially if the person has never played golf, it will be difficult for them to find and feel the right form (Dewi et al., 2021; Yuliana, 2023).

The survey of 81 respondents stated that >66% of respondents did not practice regularly and >55% learned informally with findings in the field in the form of no effective platform or assistance so that beginners did not get feedback that played a crucial role in improving their swing performance (Katik & Putro, 2019; Sihombing & Andriani, 2023). Data obtained by Katik and Putro (2019) states that 35.7% of golfers say that the cost of a golf membership is expensive. Especially for beginners who want to be able to do a good swing need a training method at an affordable price (Prasetyo & Santosa, 2022).

With the high cost of training, and the limitations of professionals, the help of technology is needed to support training for beginners. Primarily about objective feedback on their swings and progress. The Worldwide Wrist Golf GPS Market Research Report (2025) states that the

demand for wearable technology in sports is expected to grow at a CAGR of more than 20% in the next five years (Droomer & Bekker, 2020). Specifically for golf, Data Horizon Research (2025) states that the swing analysis lift market is projected to grow at a CAGR of 9.2% from 2025 to 2033, from USD 407.5 million in 2024 to USD 1.004 billion in 2033. This can be used for integration in golf equipment to help beginners learn more effectively in practicing their swings (Zulkarnain et al., 2025; Wahyudi et al., 2023). The survey results of 81 respondents stated that 76% were interested in technology, which is mainly in providing feedback and recommendations on swing techniques (Setiawan & Yuliana, 2021).

With qualitative methods and surveys of beginner golfers, the main questions can be formulated, namely: How do we help beginner golfers get live swing feedback without relying on expensive personal trainers?

RESEARCH METHOD

The Business Model Canvas (BMC) is a visual tool to help provide a holistic view of how an organization or company creates or captures value in their business (Black et al., 2019). BMC acts as a communication strategy to structure insights and turn them into knowledge for readers (Diderich, 2019). Overall, BMC is a flexible and efficient tool that can be applied in strategic planning in innovation to develop a business.

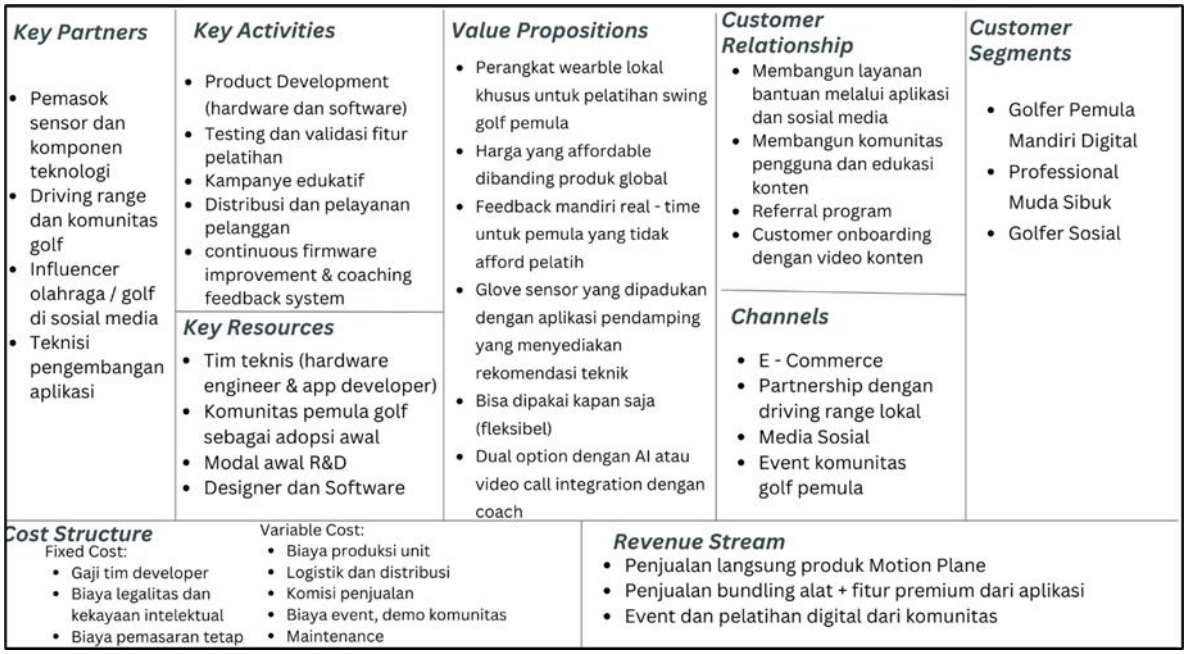

Figure 1. Business Model Canvas for the Development of the "Motion Plane" Wearable Device for Beginner Golf Swing Training
Source: Processed by the authors (2026)

RESULTS AND DISCUSSION

Business model overview

Motion Plane is a wearable technology business model to help beginner golfers learn independently without relying on coaches to improve the quality of their swings. The business will focus on a segment of beginner and young golfers (18 – 35 years old) who practice

informally and are open to technology-based solutions. *The main value proposition* of this product is its ability to provide accurate and direct feedback on the quality of the swing without relying on the personal trainer. In addition, this product also supports the self-learning process and allows users to track the progress of exercises that have been done over time. The company generates revenue through the sale of *wearable devices* (*glove* sensors), subscriptions to premium cloud analytics-based applications, and potential partnerships with driving ranges and professional trainers. Product distribution will be carried out through *e-commerce*, golf community reseller channels, and cooperation with *driving ranges*. This strategy is strengthened by social media campaigns, digital education, and *endorsements* from local golf figures. The cost structure includes software and hardware development, *wearable production*, digital marketing, technical and operational team salaries, and day-to-day operational costs. By focusing on the gap between the growth of beginner golfers and the availability of trainers, *Motion Plane* has the potential to be a solution to this problem.

Marketing Strategy

1. Product

Products can be in the form of what the company offers to consumers to satisfy their desires or needs so that it becomes the main thing of marketing activities (Alessandrina, 2022). Smart wearable devices for beginner golf practice are becoming the main product as an alternative solution for beginners who want to learn independently without relying on conventional trainers. This device consists of a glove sensor that is connected to an AI-based mobile application so that it can provide real-time *feedback* and *progress tracking* to users. The goal is to reduce the cost and complexity of the product. Then there is the future development that adds a waist sensor as a future *add-on* to improve accuracy. The product features *social sharing*, a structured training mode with target-based exercises, weekly progress tracking, and *an online* community for discussion. This not only helps beginners to practice continuously, but also creates a fun and accessible learning experience without having to rely on personal trainers. AI features also do not completely replace the role of coaches, but can support coaches as partners or coaches can become affiliate partners. The coach can get a *referral commission* from every purchase of his students and can provide additional feedback through video call integration in the application. These two things can still support coaches while addressing the gap between the growth of golfers and the versatility of coaches.

2. Price

This component refers to how much the company will sell its products by considering other costs, including looking at the price of competitors' products (Alessandrina, 2022). The price offered for the Motion Plane device takes into account the results of the survey and *the value-based pricing* approach so that it is decided that this product is priced at IDR 1,200,000. This price is considered competitive and also affordable compared to the cost of conventional training that uses the services of a trainer which averages up to IDR 300,000 per session. This model allows users to benefit in the long run with just one device purchase. To create *recurring revenue*, Motion Plane also offers a cloud-based premium app subscription plan. In the free plan, it only provides limited swing analysis and basic tracking, while the Pro plan (Rp 49,000/month) offers unlimited analysis, *AI-based coaching*, and access to social and community features. With this *freemium* model, new users can try the service first before deciding to subscribe.

3. Square

This component is determined by the company where the product or service will be distributed to consumers (Alessandrina, 2022). The distribution strategy of this product will prioritize efficiency and broad reach through digital channels and strategic partnerships. This product is available through *national e-commerce* such as Tokopedia and Shopee, as well as the official website of Motion Plane. This *direct-to-consumer* strategy makes it easier for users from all regions of Indonesia to get products without geographical barriers. In addition, selling through *websites* allows companies to collect user data directly and build closer customer relationships. In addition to digital, Motion Plane will also build an offline distribution network by building partnerships with *driving ranges*, especially coaches, golf academies, and golf equipment stores in big cities. This distribution aims to provide a direct experience to potential buyers through product demos or *trials*. There are plans to collaborate with the local community of golfers and independent training is a key strategy to build market trust and expand product penetration.

4. Promotion

This component refers to all the marketing and communication that companies do in showing the benefits of their products or services in the market (Alessandrina, 2022). Looking at the *customer journey* of customers, in obtaining information comes from 3 sources, namely from social media, the internet, and also asking friends. This convinced Motion Plane to promote its products to be better known by the wider public through educational content, *targeted ads*, and campaigns. The campaign will use the tagline "*Train Solo, Swing Like a Pro*" as the main theme in differentiating products. Additionally, paid advertising will use *Google Ads* and *Meta Ads* to reach a segment of beginners who have shown interest in golf. Motion Plane will rely on a digital-based and community-based promotional strategy to create *awareness* and *conversions.* To increase the consideration of customers in buying products, in addition to the information available on social media (Instagram, TikTok, and Youtube) and the internet from *browsing*, it is important to hold free product demos in the driving range. This will help potential buyers to see firsthand the effectiveness and how the product works so as to increase the potential to buy. Other promotional programs will involve collaborations with local golf coaches or golf influencers who have credibility. In addition, the referral program will be used to encourage the growth of early users by providing discounts or free access to Pro features if you successfully invite friends. The *marketing* strategy for *Motion Plane* should be *multi-channel*, educational, and community-based with the main focus on TikTok and Instagram because the target segment is the younger generation.

Financial Planning

1. Initial Capital

The initial capital of Motion Plane came from 3 owners, which was detailed for CAPEX and OPEX costs for the initial year of the business's establishment. For details of the calculation, you can see the following tables.

Modal Awal Motion Plane

Tabel 1. Structure Modal Awal Motion Plane

No	Type of Capital	Amount	Ownership Percentage
1	Owner 1	Rp300.000.000	27%
2	Owner 2	Rp400.000.000	36%
3	Angel Investor	Rp400.000.000	36%
	TOTAL	Rp1.100.000.000	100%

Data Source: Motion Plane company data, processed by researchers (2026).

Component of CAPEX and OPEX Motion Plane

Tabel 2. Component CAPEX dan OPEX Motion Plane

No	Component	Modal Awal	Percentage
1	CAPEX	Rp109.500.000	13%
2	OPEX	Rp747.650.000	87%
	TOTAL MODAL	Rp857.150.000	100%

Source: Motion Plane business planning data, processed by researchers (2026).

***Capital Expenditure* (CAPEX) Motion Plane**

Tabel 3. Capital Expenditure (CAPEX) Motion Plane

No	Component	Value	Depreciation Period	Depreciation per Year
1	Laptops and Engineer Equipment	Rp30.000.000	5 years	Rp6.000.000
2	Product testing equipment (sensors, jigs, tools)	Rp25.000.000	5 years	Rp5.000.000
3	Software Licensing & Tools Development	Rp20.000.000	5 years	Rp4.000.000
4	Design and Initial Prototype	Rp10.000.000	2 years	Rp5.000.000
5	Office and Desk Equipment	Rp15.000.000	5 years	Rp3.000.000
6	Business Licensing Fees	Rp9.500.000	-	-
	TOTAL CAPEX	Rp109.500.000		Rp23.000.000

Source: Motion Plane business planning data, processed by researchers (2026)

***Operational Expenditure* Motion Plane**

Tabel 4. Operational Expenditure Motion Plane

No	Component	Per Bulan	2026	2027	2028	2029	2030	Inflation
1	Warehouse Rental	Rp2.000.000	Rp24.000.000	Rp25.200.000	Rp26.460.000	Rp27.783.000	Rp29.172.150	5%
2	Employee Salary	Rp39.000.000	Rp468.000.000	Rp491.400.000	Rp515.970.000	Rp541.768.500	Rp568.856.925	5%
3	Marketing	Rp22.000.000	Rp231.000.000	Rp231.000.000	Rp231.000.000	Rp219.000.000	Rp219.000.000	-

No	Component	Per Bulan	2026	2027	2028	2029	2030	Inflation
4	Odoo System Barcodes	Rp137.500	Rp1.650.000	Rp1.650.000	Rp1.650.000	Rp1.650.000	Rp1.650.000	-
	TOTAL BIAYA	Rp63.137.500	Rp724.650.000	Rp749.250.000	Rp775.080.000	Rp790.201.500	Rp818.679.075	
5	Depreciation	-	Rp23.000.000	Rp23.000.000	Rp23.000.000	Rp23.000.000	Rp23.000.000	
	TOTAL OPEX		Rp747.650.000	Rp772.250.000	Rp798.080.000	Rp813.201.500	Rp841.679.075	

Source: Motion Plane business planning data, processed by researchers (2026).

Details regarding employee salaries (OPEX) and business licensing fees (CAPEX) will be included in the attachment.

Sales Projections

Motion Plane has a projection in the next 5 years with 3 projections based on estimates and plans from the company. In addition, from the overall revenue projection, as much as 80% comes from the driving range in the first year with a commission of 10%. With the first year of the forecast is the focus for market validation with each starting number of pessimistic projections of 2%, *most likely* projections of 6%, and optimistic projections of 10%. This figure is taken from *the target market capture* for 30,400 people

Table 5. Wearable Product Revenue Projections (Pessimistic Conditions)

Years	Average Daily Sales	Annual Sales Estimates	Selling Price	COGS	Estimated Total Revenue	Total COGS Estimate
2026	2	608	Rp 1.200.000	Rp 833.000	Rp 729.600.000	Rp 506.464.000
2027	7	2432	Rp 1.260.000	Rp 874.650	Rp 3.064.320.000	Rp 2.127.148.800
2028	8	3040	Rp 1.323.000	Rp 918.383	Rp 4.021.920.000	Rp 2.791.882.800
2029	10	3648	Rp 1.389.150	Rp 964.302	Rp 5.067.619.200	Rp 3.517.772.328
2030	13	4560	Rp 1.458.608	Rp 1.012.517	Rp 6.651.250.200	Rp 4.617.076.181

Table 6. Wearable Product Revenue Projection (Most *Likely Condition*)

Years	Average Daily Sales	Annual Sales Estimates	Harga Jual	COGS	Estimated Total Revenue	Total COGS Estimate
2026	5	1824	Rp 1.200.000	Rp 833.000	Rp 2.188.800.000	Rp 1.519.392.000
2027	8	3040	Rp 1.260.000	Rp 874.650	Rp 3.830.400.000	Rp 2.658.936.000
2028	13	4560	Rp 1.323.000	Rp 918.383	Rp 6.032.880.000	Rp 4.187.824.200
2029	15	5472	Rp 1.389.150	Rp 964.302	Rp 7.601.428.800	Rp 5.276.658.492
2030	17	6080	Rp 1.458.608	Rp 1.012.517	Rp 8.868.333.600	Rp 6.156.101.574

Table 7. Wearable Product Revenue Projections (Optimistic Conditions)

Years	Average Daily Sales	Annual Sales Estimates	Harga Jual	COGS	Estimated Total Revenue	Total COGS Estimate
2026	8	3040	Rp 1.200.000	Rp 833.000	Rp 3.648.000.000	Rp 2.532.320.000
2027	13	4560	Rp 1.260.000	Rp 874.650	Rp 5.745.600.000	Rp 3.988.404.000
2028	17	6080	Rp 1.323.000	Rp 918.383	Rp 8.043.840.000	Rp 5.583.765.600
2029	21	7600	Rp 1.389.150	Rp 964.302	Rp 10.557.540.000	Rp 7.328.692.350
2030	25	9120	Rp 1.458.608	Rp 1.012.517	Rp 13.302.500.400	Rp 9.234.152.361

Furthermore, the following 3 tables are sales projections from the driving range which contribute 80% of the total sales in the first year and 10% commission.

Table 8. Sales Projections in *the Driving Range* (Pessimistic Conditions)

Years	**Annual Sales Estimates**	**Selling Price**	**Estimated Total Commission**
2026	486	Rp 1.200.000	Rp 58.368.000
2027	1459	Rp 1.260.000	Rp 183.859.200
2028	1216	Rp 1.323.000	Rp 160.876.800
2029	1094	Rp 1.389.150	Rp 152.028.576
2030	1368	Rp 1.458.608	Rp 199.537.506

Table 9. Sales Projections in *Driving Range* (Most *Likely Conditions*)

Years	**Annual Sales Estimates**	**Selling Price**	**Estimated Total Commission**
2026	1459	Rp 1.200.000	Rp 175.104.000
2027	1824	Rp 1.260.000	Rp 229.824.000
2028	1824	Rp 1.323.000	Rp 241.315.200
2029	1642	Rp 1.389.150	Rp 228.042.864
2030	1824	Rp 1.458.608	Rp 266.050.008

Table 10. Sales Projections in *Driving Range* (Optimistic Conditions)

Years	**Annual Sales Estimates**	**Selling Price**	**Estimated Total Commission**
2026	2432	Rp 1.200.000	Rp 291.840.000
2027	2736	Rp 1.260.000	Rp 344.736.000
2028	2432	Rp 1.323.000	Rp 321.753.600
2029	2280	Rp 1.389.150	Rp 316.726.200
2030	2736	Rp 1.458.608	Rp 399.075.012

Apart from the sale of wearable devices, *Motion Plane* will also get *recurring revenue* from the premium application subscription feature at a price of IDR 49,000/month which will start in the third year. The three scenarios are also expected to get a percentage of users who

have subscribed for the last 3 years with 10% for the third year, 15% for the fourth year, and 20% for the fifth year, respectively. The projections will be listed in the appendix

2. Projected Profit and Loss

This report summarizes the opinions, expenses, and profit or loss of Motion *Plane* in conducting its business over a period of time. This report is provided with three different conditions in its projections for the next 5 years. This report already includes *recurring revenue* from app subscriptions.

Table 11. Profit and Loss Report Projection (Pessimistic Condition)

Description	**2026**	**2027**	**2028**	**2029**	**2030**
Wearable Product Revenue	Rp 729.600.000	Rp 3.064.320.000	Rp 4.021.920.000	Rp 5.067.619.200	Rp 6.651.250.200
Application (Recurring Revenue)	-	-	Rp 357.504.000	Rp 858.009.600	Rp 1.680.268.800
Total Revenue	Rp 729.600.000	Rp 3.064.320.000	Rp 4.379.424.000	Rp 5.925.628.800	Rp 8.331.519.000
Sales Commission (10%)	Rp 58.368.000	Rp 183.859.200	Rp 160.876.800	Rp 152.028.576	Rp 199.537.506
Net Revenue	Rp 671.232.000	Rp 2.880.460.800	Rp 4.218.547.200	Rp 5.773.600.224	Rp 8.131.981.494
CO					

Description	**2026**	**2027**	**2028**	**2029**	**2030**
Warehouse Rental	Rp 24.000.000	Rp 25.200.000	Rp 26.460.000	Rp 27.783.000	Rp 29.172.150
Employee Salary	Rp 468.000.000	Rp 491.400.000	Rp 515.970.000	Rp 541.768.500	Rp 568.856.925
Marketing	Rp 231.000.000	Rp 231.000.000	Rp 231.000.000	Rp 219.000.000	Rp 219.000.000
Odoo System Barcodes	Rp 1.650.000	Rp 1.650.000	Rp 1.650.000	Rp 1.650.000	Rp 1.650.000
Depreciation	Rp 23.000.000	Rp 23.000.000	Rp 23.000.000	Rp 23.000.000	Rp 23.000.000
Total Operating Expenses	Rp 747.650.000	Rp 772.250.000	Rp 798.080.000	Rp 813.201.500	Rp 841.679.075

Description	2026	2027	2028	2029	2030
PBT (Profit Before Tax)	-Rp 582.882.000	Rp 18.938.000	Rp 628.584.400	Rp 1.442.626.396	Rp 2.673.226.239
Pajak (0.5%)	Rp 823.840	Rp 3.766.560	Rp 7.133.322	Rp 11.279.139	Rp 17.574.527
Net Profit / Loss	-Rp 583.705.840	Rp 22.704.560	Rp 621.451.078	Rp 1.431.347.257	Rp 2.655.651.712

Table 12. Projected Profit and Loss Report (Most Likely Condition)

Description	2026	2027	2028	2029	2030
Wearable Product Revenue	Rp 2.188.800.000	Rp 3.830.400.000	Rp 6.032.880.000	Rp 7.601.428.800	Rp 8.868.333.600
Application (Recurring Revenue)	-	-	Rp 554.131.200	Rp 1.313.827.200	Rp 2.466.777.600
Total Revenue	Rp 2.188.800.000	Rp 3.830.400.000	Rp 6.587.011.200	Rp 8.915.256.000	Rp 11.335.111.200
Sales Commission (10%)	Rp 175.104.000	Rp 229.824.000	Rp 241.315.200	Rp 228.042.864	Rp 266.050.008
Net Revenue	Rp 2.013.696.000	Rp 3.600.576.000	Rp 6.345.696.000	Rp 8.687.213.136	Rp 11.069.061.192
COGS	Rp 1.519.392.000	Rp 2.658.936.000	Rp 4.187.824.200	Rp 5.276.658.492	Rp 6.156.101.574
Gross Profit	Rp 494.304.000	Rp 941.640.000	Rp 2.157.871.800	Rp 3.410.554.644	Rp 4.912.959.618

Description	2026	2027	2028	2029	2030
Warehouse Rental	Rp 24.000.000	Rp 25.200.000	Rp 26.460.000	Rp 27.783.000	Rp 29.172.150
Employee Salary	Rp 468.000.000	Rp 491.400.000	Rp 515.970.000	Rp 541.768.500	Rp 568.856.925
Marketing	Rp 231.000.000	Rp 231.000.000	Rp 231.000.000	Rp 219.000.000	Rp 219.000.000
Odoo System Barcodes	Rp 1.650.000	Rp 1.650.000	Rp 1.650.000	Rp 1.650.000	Rp 1.650.000
Depreciation	Rp 23.000.000	Rp 23.000.000	Rp 23.000.000	Rp 23.000.000	Rp 23.000.000
Total Operating Expenses	Rp 747.650.000	Rp 772.250.000	Rp 798.080.000	Rp 813.201.500	Rp 841.679.075

Description	2026	2027	2028	2029	2030
PBT (Profit Before Tax)	Rp 253.364.000	Rp 169.390.000	Rp 1.359.791.800	Rp 2.597.353.144	Rp 4.071.280.543
Tax (0.5%)	Rp 2.471.520	Rp 4.708.200	Rp 10.789.359	Rp 17.052.773	Rp 24.564.798
Net Profit / Loss	Rp 255.871.520	Rp 164.681.800	Rp 1.349.002.441	Rp 2.580.300.371	Rp 4.046.715.745

Table 13. Income Report (Most Optimistic Condition)

Description	2026	2027	2028	2029	2030
Wearable Product Revenue	Rp 3.648.000.000	Rp 5.745.600.000	Rp 8.043.840.000	Rp 10.557.540.000	Rp 13.302.500.400
Application (Recurring Revenue)	-	-	Rp 804.384.000	Rp 1.876.896.000	Rp 3.575.040.000
Total Revenue	Rp 3.648.000.000	Rp 5.745.600.000	Rp 8.848.224.000	Rp 12.434.436.000	Rp 16.877.540.400
Commission Sales (10%)	Rp 291.840.000	Rp 344.736.000	Rp 321.753.600	Rp 316.726.200	Rp 399.075.012
Net Revenue	Rp 3.356.160.000	Rp 5.400.864.000	Rp 8.526.470.400	Rp 12.117.709.800	Rp 16.478.465.388
COGS	Rp 2.532.320.000	Rp 3.988.404.000	Rp 5.583.765.600	Rp 7.328.692.350	Rp 9.234.152.361
Gross Profit	Rp 823.840.000	Rp 1.412.460.000	Rp 2.942.704.800	Rp 4.789.017.450	Rp 7.244.313.027

Description	**2026**	**2027**	**2028**	**2029**	**2030**
Warehouse Rental	Rp 24.000.000	Rp 25.200.000	Rp 26.460.000	Rp 27.783.000	Rp 29.172.150
Employee Salary	Rp 468.000.000	Rp 491.400.000	Rp 515.970.000	Rp 541.768.500	Rp 568.856.925
Marketing	Rp 231.000.000	Rp 231.000.000	Rp 231.000.000	Rp 219.000.000	Rp 219.000.000
Odoo System Barcodes	Rp 1.650.000	Rp 1.650.000	Rp 1.650.000	Rp 1.650.000	Rp 1.650.000
Depreciation	Rp 23.000.000	Rp 23.000.000	Rp 23.000.000	Rp 23.000.000	Rp 23.000.000
Total Operating Expenses	Rp 747.650.000	Rp 772.250.000	Rp 798.080.000	Rp 813.201.500	Rp 841.679.075

Description	**2026**	**2027**	**2028**	**2029**	**2030**
PBT (Profit Tax)	Rp 76.190.000	Rp 640.210.000	Rp 2.144.624.800	Rp 3.975.815.950	Rp 6.402.633.952
Tax (0.5%)	Rp 4.119.200	Rp 7.062.300	Rp 14.713.524	Rp 23.945.087	Rp 36.221.565
Net Profit / Loss	Rp 72.070.800	Rp 633.147.700	Rp 2.129.911.276	Rp 3.951.870.863	Rp 6.366.412.387

Cash Flow Projections

Projections of *cash flow* help to estimate the flow and amount of money that comes in and out of the Motion Plane business over a period of time. This projection will help businesses to organize their financial planning and management. This report is calculated and presented under three different conditions over the next 5 years.

Table 14. Projected Cash Flow *Report* (Pessimistic Condition)

Description	2026	2027	2028	2029	2030
Gross Profit	Rp 164.768.000	Rp 753.312.000	Rp 1.426.664.400	Rp 2.255.827.896	Rp 3.514.905.314
OPEX	Rp 747.650.000	Rp 772.250.000	Rp 798.080.000	Rp 813.201.500	Rp 841.679.075
Depreciation	Rp 23.000.000	Rp 23.000.000	Rp 23.000.000	Rp 23.000.000	Rp 23.000.000
Tax (PPh Final 0,5%)	Rp 823.840	Rp 3.766.560	Rp 7.133.322	Rp 11.279.139	Rp 17.574.527
Net Cash from Operations	-Rp 560.705.840	Rp 295.440	Rp 644.451.078	Rp 1.454.347.257	Rp 2.678.651.712

Description	2026	2027	2028	2029	2030
CAPEX	Rp 109.500.000	-	-	-	-

Description	2026	2027	2028	2029	2030
Owner's Capital	Rp 1.100.000.000	-	-	-	-

Description	2026	2027	2028	2029	2030
Beginning Cash Balance	Rp 0	Rp 429.794.160	Rp 430.089.600	Rp 1.074.540.678	Rp 2.528.887.935
Ending Cash Balance	Rp 429.794.160	Rp 430.089.600	Rp 1.074.540.678	Rp 2.528.887.935	Rp 5.207.539.646
Net Cash Flow	-Rp 670.205.840	Rp 295.440	Rp 644.451.078	Rp 1.454.347.257	Rp 2.678.651.712

Balance Sheet Projection

This balance sheet is a report that summarizes the financial condition of the Motion plane over a certain period of time. This report includes details about the capital, assets, and liabilities that the company needs to pay. This report is presented with three different conditions for the next 5 years projections.

Table 15. Balance Sheet *Projections* (Pessimistic Conditions)

Description	2026	2027	2028	2029	2030
Kas dan Setara Kas	Rp 429.794.160	Rp 430.089.600	Rp 1.074.540.678	Rp 2.528.887.935	Rp 5.207.539.646
Total Current Assets	Rp 429.794.160	Rp 430.089.600	Rp 1.074.540.678	Rp 2.528.887.935	Rp 5.207.539.646
Description	**2026**	**2027**	**2028**	**2029**	**2030**

Years	Total Assets
2026	Rp 516.294.160
2027	Rp 493.589.600
2028	Rp 1.115.040.678
2029	Rp 2.546.387.935
2030	Rp 5.202.039.646

Laptops and Engineer Equipment	Rp 30.000.000	Rp 30.000.000	Rp 30.000.000	Rp 30.000.000	Rp 30.000.000
Product testing equipment	Rp 25.000.000	Rp 25.000.000	Rp 25.000.000	Rp 25.000.000	Rp 25.000.000
Software Licensing & Tools Development	Rp 20.000.000	Rp 20.000.000	Rp 20.000.000	Rp 20.000.000	Rp 20.000.000
Initial Design and Prototype	Rp 10.000.000	Rp 10.000.000	Rp 10.000.000	Rp 10.000.000	Rp 10.000.000
Office and Desk Equipment	Rp 15.000.000	Rp 15.000.000	Rp 15.000.000	Rp 15.000.000	Rp 15.000.000
Accumulated Depreciation	-Rp 23.000.000	-Rp 46.000.000	-Rp 69.000.000	-Rp 92.000.000	-Rp 115.000.000
Total Fixed Assets	Rp 77.000.000	Rp 54.000.000	Rp 31.000.000	Rp 8.000.000	-Rp 15.000.000
Description	**2026**	**2027**	**2028**	**2029**	**2030**
Business Licensing	Rp 9.500.000	Rp 9.500.000	Rp 9.500.000	Rp 9.500.000	Rp 9.500.000
Total Non-Current Assets	Rp 9.500.000	Rp 9.500.000	Rp 9.500.000	Rp 9.500.000	Rp 9.500.000

Years	Total
2026	Rp 516.294.160
2027	Rp 1.077.295.440
2028	Rp 1.721.451.078
2029	Rp 2.531.347.257
2030	Rp 3.755.651.712

Investment Feasibility

Investment feasibility is an evaluation process in determining whether an investment opportunity is feasible or not. This evaluation is prepared based on three conditions for the Motion Plane, namely, pessimistic, *most likely*, and optimistic conditions. For *the Cost of Capital* in the calculation of investment feasibility, the *BI Risk-Free Rate* value of 5.25% is added to the *Risk Premium Average* value of 10% of the global market for *wearable technology* devices for sports.

Table 16. NPV, IRR, PI, and *Payback Period* (Pessimistic Conditions)

Description	0	1	2	3	4	5
Investment	Rp 1.100.000.000	-	-	-	-	-
Net Cash Flow	-Rp 1.100.000.000	-Rp 670.205.840	Rp 295.440	Rp 644.451.078	Rp 1.454.347.257	Rp 2.678.651.712
Cumulative NCF	-Rp 1.100.000.000	-Rp 1.770.205.840	-Rp 1.769.910.400	-Rp 1.125.459.322	Rp 328.887.935	Rp 3.007.539.646

Indicator	**Nilai**
Cost of Capital	15,25%
PV (Present Value)	Rp 1.981.402.205,38
NPV	Rp 881.402.205
IRR	28%
Profitability Index	2,03
Payback Period	3,77 years

In a pessimistic scenario, the initial projection relies on low market penetration in the first year with an initial investment of Rp 1.1 billion. This caused a fairly large negative *net cash flow* at IDR 670 million. The occurrence of the initial burden of production, distribution, and operational costs, is not covered entirely by total sales. However, considering that the first year is a market validation phase with the main strategy to introduce the product to the initial user and not to the orientation to profit.

Continuing into the second year, cash flow began to improve although it was still thin (Rp 295 thousand) which indicates a market response. Then it continued in the third year onwards, which began to generate positive cash flow with the contribution of *premium application subscriptions*. With an IRR of 28% and an NPV of IDR 881 million, this

pessimistic scenario still shows the feasibility of investment even though the payback period is relatively long (3.77 years)

Table 17. NPV, IRR, PI, and Payback Period *Projections* (Most *Likely Conditions*)

Description	0	1	2	3	4	5
Investment	Rp 1.100.000.000	-	-	-	-	-
Net Cash Flow	-Rp 1.100.000.000	Rp 342.317.520	Rp 187.681.800	Rp 1.372.002.441	Rp 2.603.300.371	Rp 4.069.715.745
Cumulative NCF	-Rp 1.100.000.000	-Rp 1.442.317.520	-Rp 1.254.635.720	Rp 117.366.721	Rp 2.720.667.092	Rp 6.790.382.837

Indicator	**Nilai**
Cost of Capital	15,25%
PV (Present Value)	Rp 4.217.623.730,78
NPV	Rp 3.117.623.731
IRR	56%
Profitability Index	4,64
Payback Period	2,91 years

The *most likely scenario* illustrates a more realistic projection assuming market penetration grows consistently according to the roadmap from the first year. In the first year, *negative net cash flow* of IDR 342 million still occurred, but it was smaller than the pessimistic scenario. Loss expenses also decreased significantly in the second year with a figure of IDR 187 million followed by the third year with positive cash flow income of IDR 1.37 billion. This figure shows the success of a multi-channel distribution strategy that is starting to be effective.

This scenario shows that there is an NPV financial indicator of IDR 3.117 billion and an IRR of 56% with a payback period of 2.91 years. The profitability index was 4.64 which was followed by a healthy investment value. Although it was not a big profit at the beginning of the year, this business was able to show strong and sustained growth since the third year.

Table 18. NPV, IRR, PI, and Payback Period *Projections* (Optimistic Conditions)

Description	0	1	2	3	4	5
Investment	Rp 1.100.000.000	-	-	-	-	-
Net Cash Flow	-Rp 1.100.000.000	- Rp 14.42 9.200	Rp 65 6.147.0 00	Rp 2.15 2.91 1.27 6	Rp 3.9 74. 87 0.8 63	Rp 6.3 89. 412 .38 7

Description	0	1	2	3	4	5
Cumu	-Rp	-	-	Rp	Rp	Rp
lative	1.100.0	Rp	Rp	1.69	5.6	12.
NCF	00.000	1.1	45	4.62	69.	058
		14.	8.2	9.77	50	.91
		42	81.	6	0.6	3.0
		9.2	50		39	26
		00	0			

Indicator	**Nilai**
Cost of Capital	15,25%
PV (Present Value)	Rp 7.283.206.362,64
NPV	Rp 6.183.206.363
IRR	88%
Profitability Index	8,21
Payback Period	2,21 years

In an optimistic scenario, the initial market penetration went very well with net cash flow in the first year only a slight minus at IDR 14 million. Continuing in the second year, it immediately jumped positively due to the scale up of production and a very positive market response. In the third year, growth experienced a significant increase (IDR 2.15 billion) to reach IDR 6.38 billion in the fifth year. This reflects an excellent market response, rapid and even distribution, coupled with additional revenue from *premium subscriptions.*

The figures in this optimistic scenario are very interesting: NPV of IDR 6.183 billion, IRR of 88%, and the payback period is only 2.21 years. The profitability index is 8.21 which indicates an exceptional rate of return on investment assuming aggressive market penetration goes as planned. This projection is the most ambitious scenario that can occur if the execution of marketing, partnerships with coaches, and premium subscription penetration runs optimally.

CONCLUSION

Motion Plane is an innovative wearable solution that answers the fundamental needs of beginner and amateur golfers in developing their swing techniques independently and in a targeted manner. By utilizing a glove equipped with a 6-axis IMU sensor and Bluetooth, this product is able to provide real-time feedback on the quality of the movement of the users' swings. Motion Plane is a gift to answer this need so that it is able to close the gap that has not been touched by conventional solutions such as personal coaches or high-cost premium devices. Based on the results of market research and validation of severe, more than 76% of respondents expressed high interest in this kind of product with a willingness to pay around Rp 1,200,000. From a financial point of view, the results of the investment feasibility analysis show that *the Motion Plane business project* is feasible to run. The three scenarios (pessimistic, *most likely*, and optimistic) provide a positive NPV, an IRR greater than the *cost of capital*, and a *payback period* that is still within a reasonable range for a *startup* based on technology products. Although in the first year it suffered losses due to the market validation phase, the

project was still able to generate positive cash flow in the second or third year. The existence of premium subscription revenue, which came into effect in the third year, added a new source of income, thereby strengthening business sustainability. Thus, it can be concluded that *Motion Plane* is not only feasible but also has the potential to become an innovative solution in the golf ecosystem in Indonesia. With the right penetration strategy, partnerships with driving ranges and coaches, and online distribution, *Motion Plane* can develop into a product on a national scale. Despite its great potential, the Motion Plane business model still has a number of limitations that need to be anticipated. The first thing that comes to light is that the main market is currently still classified as a niche, namely the community of beginner golfers aged 18 – 35 years, who have an interest in self-training technology, and do not use the services of a coach. Market penetration can be hampered if product education is not optimal or if segmentation is not developed more widely in an effort to reach other segments such as golf coaches, driving ranges, or senior users who have higher purchasing power. Operationally, the reliance on imported components (such as IMU sensors and BLE microcontrollers) makes the supply chain vulnerable to global price fluctuations and the risk of delays in delivery. This model also does not take into account the potential for post-sales technical glitches that have the potential to affect the reputation of the product if not handled properly. Therefore, strengthening operational risk mitigation strategies, diversifying supply chains, and adapting business models to digital services needs to be designed as part of a long-term development roadmap.

REFERENCE

Agustin, R., & Sihombing, J. (2021). Consumer behavior in the Indonesian golf market: The role of demographics and social media. Journal of Marketing Studies, 14(1), 22-34. https://doi.org/10.1016/j.jms.2021.02.008

Ardiansyah, A., & Dewi, R. (2023). The influence of regular practice on swing performance for beginner golfers. Journal of Sports Education, 25(3), 130-142. https://doi.org/10.1016/j.jse.2023.01.006

Data Horizon Research. (2025). Swing analysis lift market in golf: Growth projections and trends. Retrieved from www.datahorizonresearch.com

Dewi, R., & Haryadi, A. (2021). Golf practice and performance: A review of motor skills development in beginners. Journal of Sports Science, 10(3), 143-154. https://doi.org/10.1016/j.jss.2021.02.009

Droomer, M., & Bekker, C. (2020). Privacy concerns in wearable technology in sports. Journal of Data Privacy in Sports, 8(2), 57-68. https://doi.org/10.1016/j.jdps.2020.03.005

Jufri, M., & Rachmawati, T. (2022). The potential of technology in enhancing beginner golf training. Journal of Sports Technology Innovation, 19(2), 121-135. https://doi.org/10.1016/j.jsti.2022.07.009

Katik, I., & Putro, M. (2019). Economic barriers in learning golf for beginners: A case study on affordability of golf training. Journal of Sports Economics, 23(2), 234-245. https://doi.org/10.1016/j.jseco.2019.01.005

Kurniawan, T., & Pratama, S. (2022). Trends in the golf equipment market in Southeast Asia. Journal of Marketing in Sports, 18(3), 200-211. https://doi.org/10.1016/j.jms.2022.07.002

Lee, W., & Tan, H. (2021). Golf participation trends in Indonesia post-pandemic: Implications for the market. Journal of Asian Sports, 34(1), 99-112. https://doi.org/10.1016/j.jas.2021.02.004

Li, F., & Sunaryo, S. (2020). Digital trends in the sports industry and consumer behavior.

Journal of Consumer Behavior in Sports, 22(4), 214-228. https://doi.org/10.1016/j.jcb.2020.04.008

Mustapa, A. (2024). Millennial golf trends and the digital transformation in sports. Journal of Sports Management, 10(1), 34-47. https://doi.org/10.1016/j.jsm.2024.03.003

Oka, D., & Sutanto, E. (2022). The role of feedback technology in golf training for beginners. International Journal of Sports Education, 20(5), 150-162. https://doi.org/10.1016/j.ijse.2022.04.004

Putra, A. (2020). Golf swing techniques: Analysis and feedback in training for beginners. Journal of Sport Science, 13(4), 234-246. https://doi.org/10.1016/j.jss.2020.01.003

Prasetyo, H., & Santosa, M. (2022). Training costs in golf and the barriers for beginners. Journal of Sports Economics, 30(2), 56-67. https://doi.org/10.1016/j.jseco.2022.05.001

Ronda, J., & Fitri, A. (2011). Building muscle memory in golf swing: A study on beginners. Journal of Physical Education, 17(3), 184-197. https://doi.org/10.1016/j.jpe.2011.02.002

Setiawan, M., & Yuliana, F. (2021). The need for real-time feedback technology in golf training for beginners. Journal of Sports Technology, 19(3), 89-99. https://doi.org/10.1016/j.jst.2021.06.005

Sihombing, J., & Andriani, H. (2022). Technology integration in golf training for beginners: The rise of wearables. Journal of Interactive Sports Technology, 16(2), 120-131. https://doi.org/10.1016/j.jist.2022.01.007

Wahyudi, D., & Yuliana, R. (2023). Wearable technology for swing analysis in golf: A case study. Journal of Sports Innovation, 10(1), 65-78. https://doi.org/10.1016/j.jsi.2023.02.009

Yang, M., & Wang, Y. (2022). Market trends in the golf equipment industry in Asia. Asian Sports Business Journal, 19(4), 75-85. https://doi.org/10.1016/j.asb.2022.06.003

Zulkarnain, F., & Haryadi, M. (2023). Improving golf performance using wearable technology and feedback systems. Journal of Interactive Learning, 22(2), 91-103. https://doi.org/10.1016/j.jil.2023.02.006