

## CHAPTER 1

### INTRODUCTION

#### 1.1 Project Background

Martial arts is a type of sport that evaluates the physical talents of each individual through physical contact, strikes, and techniques to win according to the specified rules (Holmes, 2022). Martial arts enthusiasts are increasing as people's perceptions of martial arts change so that they can develop rapidly, and access becomes easier and more economical, allowing all groups to participate (Monterossa, 2022). The martial arts sector in Indonesia has witnessed a significant transition in recent years. Several factors contribute to this increase, including easier and more inexpensive internet connection, which allows individuals to access martial arts content like the Ultimate Fighting Championship (UFC), ONE Championship, and local martial arts matches like BYON Combat and ONE Pride. As depicted in Figure 1, BYON Combat collaborated with Bank Saqu to promote access to streaming services for IDR 1 to watch live broadcasts on OTT Vidio platforms. All of this stuff is accessible through everyone's gadgets and devices. Another element influencing the growth of the martial arts industry in Indonesia is the number of celebrities and influencers who have begun to practice martial arts as amateurs and professionals, allowing the martial arts industry to reach a wider audience.



## **Figure 1. BYON Promotion with Bank Saqu**

Byon Combat (2024) announced the results of Byon Combat 4, showing extraordinary achievements such as 23.2 million viewers on YouTube, more than 416 thousand Pay Per Views (PPV) purchases on the OTT Vidio platform, and more than 4900 live viewers in the arena. The rise of the martial arts trend in Indonesia has had an impact on the awareness of martial arts practitioners or enthusiasts in physical training, particularly strengthening exercises, because strengthening exercises are an important component in increasing adaptive reserves and providing explosive power in attacks, which can improve athlete performance (Chernozub, 2023). Strength training forms have been developed to improve ergonomics, simplify design, and make this exercise technique more accessible to people of all ages and circumstances (Aloui et al., 2019).

### **1.2 Martial Art Equipment to Increase Strength**

In physical activities such as sports and martial arts, good athletes must be able to control speed and strength precisely and maximally, maintain body balance, regulate the direction of body coordination, and move accurately to the desired position quickly in response to the surrounding environment (Jin, 2020). During the development of good athlete performance markers, such as strength, speed, and endurance. Using appropriate and ergonomic supporting equipment can improve athlete performance in terms of sports ability and physical fitness (Luo & Yang, 2020).

Some forms exercise and equipment used in the strengthening training, such as body weight exercises, tools that use gravity to produce loads such as dumbbells, and tools that need the user to release force to use them such as resistance training using sand bag, handgrip, and resistance band (Sanchez & Rodriguez, 2022). These pieces of equipment are designed to help increase the training potential of the human body that cannot be achieved with bodyweight training alone.

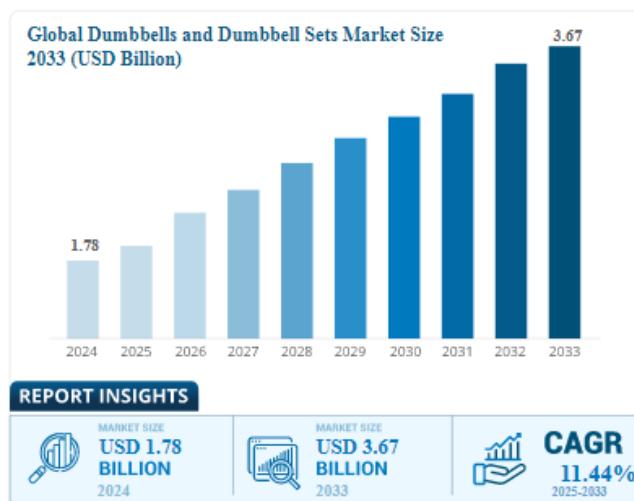
#### **1.2.1 Dumbbell**

Dumbbells are weight-training instruments with short handles and weights on either

end. Typically constructed of cement or iron, with noticeable variances in load sizes. Dumbbells are useful for building muscle strength, particularly in the upper body (arms, shoulders, and chest). One advantage of dumbbells is that they have a distinct load size, allowing users to know exactly what their training limits are.

Despite its numerous benefits, the usage of dumbbells normally necessitates certain weight changes because each person's talents vary and can improve over time, thus users must purchase dumbbells with larger weights. It will require a set of dumbbells of varied weights, which might be a major financial expenditure. In terms of portability, one piece of dumbbell is possible to move, but a full set is hard to carry compared to a resistance band. Furthermore, dumbbells only train upper body strength and cannot exercise the entire body, particularly the legs. Dumbbell prices vary according to material and weight, ranging from Rp 50,000 to Rp 8,000,000. In addition, buying a dumbbell online has a significant impact on shipping expenses.

The dumbbell and dumbbell set market is estimated to be valued at USD 1.78 billion in 2024 and USD 3.67 billion by 2033, with a compound annual growth rate (CAGR) of around 11.44% between 2025 and 2033. The dumbbell industry has enormous potential because dumbbells are required equipment in gyms and fitness facilities due to their simplicity and sustainability. However, dumbbell sets are not a suitable choice for individual customers and home use.



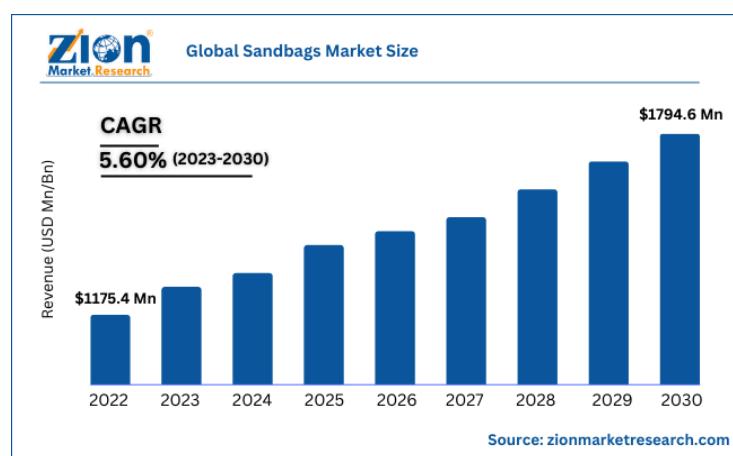
**Figure 2: Dumbbell Market Size**

### 1.2.2 Sand Bag

A sandbag is a tool shaped like a bag filled with solid materials such as sand, rags, vulcanized rubber powder, and water. Sandbags are usually used as targets hung from a bar to train accuracy and strength. Sandbags can also be used for weight training to develop muscle strength (Babu et al., 2024).

In practice, sandbags can be utilized collaboratively, allowing multiple individuals to use them simultaneously. However, there are several limitations associated with their use. Primarily, sandbags lack portability as they need to be permanently positioned in a specific location. Compared to resistance bands, sandbags are generally less portable due to their weight and size. Furthermore, their dimensions and weight contribute to increased shipping costs, making them more expensive to transport than typical materials; thus, their economic cost varies according to size and material quality, typically falling in the middle of resistance bands and more expensive equipment.

The cost of sandbags can differ significantly based on several factors, including the quality of the material, the type of filling used, as well as their size and weight. On e-commerce platforms, prices for basic, low-quality sandbags begin at Rp 220,500, while those of superior quality, such as a human mannequin or Body Opponent Bag (BOB), can reach up to Rp 5,650,000.



### **Figure 3: Sand Bag Market Size**

In 2022, figure 4 shows that the market size of sandbags reached USD 1175.4 million globally and is expected to grow to USD 1794.6 million by 2030 with a CAGR of approximately 5.60% between 2023 and 2030. The market size and CAGR of sandbags are still much smaller compared to resistance bands.

#### **1.2.3 Handgrip**

Martial arts employ a variety of methods, with some emphasizing grip strength, such as Brazilian Jiu-Jitsu (BJJ), Judo, and wrestling. A handgrip is a tool used to train grip strength. A handgrip is a tool that is used to test a person's grip strength by holding as hard as possible. The handgrip trains muscles in the fingers, hands, and forearms, which affect grip strength.

Handgrips are reasonably priced due to their simple design and ease of availability. Handgrip costs on e-commerce range from IDR 21,000 to IDR 100,000. Although inexpensive, handgrips have significant limitations as a martial arts training equipment compared to other equipment like resistance bands and weight tools, including a narrow concentration on the lower arm and fingers, which prevents them from being used for strength training on other parts of the body.

The market was valued at USD 1.1 billion in 2023 and is expected to reach USD 1.9 billion by 2031, increasing at a 5.3% CAGR from 2024 to 2031. Among other sports and martial arts equipment, handgrips have the smallest market size and CAGR and have lower appeal in the market.

#### **1.2.4 Resistance Band**

Resistance band training is a form of strength training that employs flexible rubber straps with varied degrees of resistance. This type of workout can include a variety of movements, such as lateral band walks, tricep extensions, and bicep curls (Haapala, 2020). Resistance bands are used because they have many advantages, such as being flexible for

various exercise variations, because they can be combined with various supporting tools such as ankle straps, wrist cuffs, and foam grips (RyherCompany, 2017). Resistance bands can be a form of anaerobic exercise that focuses on improving muscle strength by training muscle strength (Liu et al., 2022).

Some of the advantages of resistance bands: resistance bands are particularly portable because of their lightweight and compact design, allowing practitioners to exercise anywhere, including at home, at the gym, or while traveling (Page et al., 2012). Resistance bands are far less expensive than many other types of training equipment, such as dumbbells or weight machines, making them an affordable option for those on a tight budget (Sundstrup et al., 2014). Resistance bands can be used for a wide range of exercises that target a variety of muscle groups, including those important in martial arts such as the legs, core, back, and shoulders, and they are especially effective for dynamic movements and increasing muscular endurance (Behm et al., 2010). However, resistance has certain drawbacks when compared to other instruments, such as the fact that it can only be used by one person and is not appropriate for group use, and its longevity is lower than that of weight equipment such as dumbbells and sandbags.

**Table 1: Resistance Band Comparison in Shopee**

Single Resistance Band	Set of Resistance Band
<p>There are several differences and variations in the strength and weight of the bands.</p>  	<p>Prices vary based on the amount of supporting equipment, quality of materials, and brand popularity</p>   

There are two sorts of resistance bands for sports that are commonly marketed online: independently and as a whole set of equipment. Several stores in Shopee sell individual resistance bands for Rp 20,000 - Rp 50,000; the price difference occurs because resistance bands have varying spring sizes and weights. A full set of resistance band equipment costs between Rp 60,000 for a set with 7 components, Rp 258.542 and Rp 539,100 for a set with 11 components, depending on the amount of supporting equipment, quality, and brand. The resistance band set includes the following supporting components:

1. Resistance tube
2. Wrist Cuffs
3. Ankle Strap
4. Foam Grip



**Figure 4: Full set of Resistance Bands**

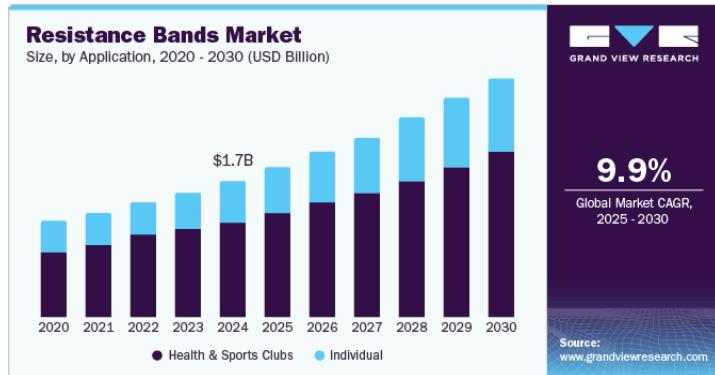
Modified resistance bands have been adapted to overcome the limits of generic resistance bands by lowering the danger of harm by attaching the load to the user's body, as well as boosting user comfort by adding thumb locks to the wrist cuffs and foot locks to the ankle straps. In Figure 10, the spider band has a quality advantage when compared to a generic set of resistance bands, and has a competitive price and when compared to specially designed resistance bands set products, the spider band has a fairly lower quality



**Figure 5: Perceptual Map of Resistance Band**

Globally, resistance bands will have a market value of USD 1.66 billion in 2024, with a CAGR of 9.9% between 2025 and 2030, as shown in the figure below. The growing demand for home exercise equipment, particularly during the COVID-19 pandemic, has pushed more people to invest in portable and space-saving training goods like resistance bands. Resistance bands have a higher market value and compound annual growth rate (CAGR) than sandbags

and hand grips. This demonstrates that resistance bands have a reasonable possibility in the sports and martial arts equipment industry.



**Figure 6: Resistance Band Market Size**

### 1.3 Resistance Bands for Indonesian Martial Arts

Boxing, taekwondo, karate, judo, and pencak silat are examples of different martial arts disciplines and styles. Each martial art has its own distinct identity and traits. Based on popularity, pencak silat is in the first position among other martial arts. According to Romadlan et al. (2025), Pencak silat has become one of the most popular martial arts in Indonesia due to numerous factors, including:

1. Pencak Silat as Part of the Education Curriculum: Learning about pencak silat has become one of the mandatory topics for students, especially in physical education subjects. In addition, pencak silat has become a mandatory extracurricular activity for most public schools in Indonesia.
2. Number of community participation: For the community, pencak silat is not only a martial art or sport but has become part of Indonesian culture, so that pencak silat is used in several traditional rituals such as weddings and traditional ceremonies.
3. Military special defense: Pencak silat has been used as a special military martial art. The implementation of the pencak silat curriculum in military martial arts has significantly increased the number of pencak silat practitioners.

Based on the above factors, pencak silat can represent the martial arts disciplines that exist in Indonesia.

Pencak silat techniques combine various fighting styles such as striking, grappling, and the use of various weapons. These movements require a high degree of strength, power, flexibility, agility, and endurance. While traditional training methods have been effective, there is a growing recognition of the potential for modern training tools to enhance performance and reduce the risk of injury.

According to Onder & Gercek (2024), ergonomically designed equipment enables users to maintain good form while exercising, reducing the risk of injury. Simultaneously, it increases the likelihood that users will utilize this equipment frequently. Non-ergonomic equipment can increase the danger of damage to users, reducing motivation to exercise. Resistance bands are a useful and convenient tool for strength training. While there is rising interest in using resistance bands in physical activities such as martial arts, the market currently lacks items that are expressly designed to meet the unique demands of this discipline. Generic resistance bands may not be appropriate for martial arts-specific movement patterns, biomechanics, and training requirements. This indicates a market needing creative resistance band solutions that can improve strength, reduce injury risk, and assist the expansion of martial arts trends in Indonesia.

Aside from the foregoing, there is a strong interest in simple but effective strengthening exercises that are affordable and can be performed in the same way as traditional weight equipment or free weights. From this perspective, resistance band training is a safe and effective progressive loading strategy that does not require any specific equipment and can be done at home to activate all muscle groups. It is also a time-saving strategy for increasing muscle strength and functional ability over the long term (Colado et al., 2020).

#### **1.4 Project Objectives**

This project is a form of reaction to the growing trend of martial arts in Indonesia, based on increasing awareness of healthy living and martial arts-based entertainment. Some of the focuses in this project include:

1. To analyze the opportunities of modified resistance bands in the martial arts market in

Indonesia.

2. To design and develop a prototype of a modified resistance band based on these identified needs.
3. To conduct a pre-launch qualitative market research to assess the feasibility and potential acceptance of the modified resistance band
4. To develop a preliminary marketing strategy (product, price, place, promotion) for the modified resistance band

## **1.5 Project Scope**

1. The project only focuses on martial arts equipment to increase strength.
2. The project will focus on the Indonesian market for martial arts equipment.
3. The primary product focus is the initial market assessment and the development of a prototype.
4. The market research will be qualitative in nature, focusing on gathering in-depth feedback on the prototype, exploring the 4P marketing mix aspects.

## **1.6 Project Limitations**

The initial market assessment is based on secondary data. The product launching budget used is limited to Rp 8,000,000, including prototype development. Research and prototype development, launch, and selling the product will be done by one person. Financial calculation of the project based on the assumption that the initial production will be sold out in 3 months

## **1.7 Project Outlines**

Chapter 1 described the background for the project implementation based on market assessment using secondary data on the development of martial arts trends in Indonesia and the opportunities created by this phenomenon, such as the martial arts equipment industry. The development of the framework in chapter 2 explains the process of exploring the martial arts equipment industry and the competencies possessed by the company so that it can design the right marketing strategy for resistance band products based on the data and analysis that have been carried out. The methodology in chapter 3 provides a detailed explanation of the

methods, approaches, and tools used in the research by qualitative research methods. The results of qualitative market research will be described and analyzed in Chapter 4 to determine the findings obtained during the market research process. In chapter 5, the results of the analysis of the entire research process will be summarized, and conclusions drawn from the summary, along with an explanation of the end of the project. In addition, providing further recommendations for further project development and how the limitations of this study can be overcome in further research.