

# CHAPTER I

## INTRODUCTION

### 1.1 Background

The development of Science and Technology (Iptek) is basically aimed at improving people's welfare in order to build and advance the country's civilization. Along with the new paradigm in the global era, namely techno-economics, technology has become a factor that provides a significant contribution to improving the quality of life of a country, one of which is Health Tech. Health Tech is one method that is expected to overcome the problem of distance in health services. In general, Health Tech is a broad concept and is defined as the use of electronic means or digital technology to convey information, resources, and services related to health. IDI noted that doctors involved in the five largest Health Tech applications in Indonesia were not only general practitioners, but also specialist doctors. The details are Alodokter (21,500 general practitioners, 4,500 specialist doctors), Halodoc (12,000 general practitioners, 8,000 specialist doctors), KlikDokter (9,000 general practitioners, 2,000 specialist doctors), Aido Health (100 general practitioners, 1,000 specialist doctors), while Good Doctor (150 general practitioners, 250 specialists) [1]. Referring to the Republic of Indonesia Law Number 36 of 2009 concerning Health Article 42-45 which states that "Health technology and technology products are held, researched, distributed, developed, and utilized for public health" [2]. In terms of regulation, the factors that influence the need for adaptive regulations with existing regulations, especially related to data protection and security, as well as the quality of services offered by Health Tech.

Health Tech itself refers to the use of ICT (Information and Communication Technologies) to help people and enable them to receive health services more efficiently, effectively, and safely. Health Tech uses ICT together with the principles of e-commerce and e-business to change the way health services are delivered. Based on a number of studies, the application of Health Tech in Indonesia has been carried out since 1985 [3]. However, the study shows that since then, the number and variety of technologies and features provided have decreased and the focus has shifted to further analysis of the problems that need to be solved

and the provision of technology and features that are only relevant to those problems. The development of Health Tech applications in Indonesia has provided promising results in providing health services, but is still carried out by certain educational institutions and its use is not evenly distributed throughout Indonesia. Health Tech policies in Indonesia are also still unclear. [4]. Although regulations governing digital health services in Indonesia are still limited [5], it has been regulated through the Regulation of the Minister of Health of the Republic of Indonesia Number 20 of 2019 concerning the Implementation of Telemedicine Services Between Health Service Facilities which aims to realize safe, quality, anti-discrimination, and effective telemedicine services and prioritize the interests and safety of patients so that special regulations are needed regarding telemedicine services between health service facilities [6].

From a technological perspective, there is a significant gap between the potential of health technology and its application in remote areas or in communities that have limited access to technology. Meanwhile, from an economic perspective, the influence of the growth of the Health Tech industry and its economic contribution to national economic growth and job creation in various regions. The development of the use of technology in the health sector has given rise to several studies on the use of Health Tech in Indonesia. Therefore, this study analyzes Techno-Economics and Regulations related to Health Tech in Indonesia and is expected to provide input on the development of Health Tech applications and Regulations and address the equality of health service quality in Indonesia.

## **1.2 Formulation of the problem**

Based on several problems that have been described, the following problems can be formulated:

1. How is the analysis of the feasibility of technology related to Health Tech in Indonesia?
2. How is the analysis of the economic feasibility of Health Tech in Indonesia?
3. How is the Formulation of Regulations and Rules related to Health Tech in Indonesia?

### **1.3 Objectives and Problem Limitations**

Based on the main problem in the formulation of the problem above, the purpose of this study is to provide input related to Health Tech in Indonesia both in terms of technology, economy, and what its regulations are like. From the technology side, this study only covers the Application of Health Tech, while from the economic side it discusses Investment Feasibility Analysis, and from the regulatory side it provides recommendations and regulatory input on Health Tech.

### **1.4 Research Method**

There is also a methodology that will be used in this research as follows:

#### **1.4.1 Literature Study**

Studying from references in the form of journals, books, and articles that support Health Tech technologically, Health Tech economically, and Health Tech regulations.

#### **1.4.2 Consultation with Supervisor**

Not only from literature studies, other methods used are consulting with the supervisor. Consultations are conducted every week regarding the material and writing in this study. Consultations aim to obtain input and direction regarding the topic, methodology, analysis, and results of the research to be conducted. In addition, consulting with the supervisor can help avoid mistakes that affect the quality of the research.

#### **1.4.3 Technology Analysis**

This is done on several aspects of Health Tech Technology such as System Architecture which includes Applications, Servers, Data Communication Networks, and Health Tech Services which are then studied and processed to obtain the desired information and then analyzed.

#### **1.4.4 Economic Analysis**

It is carried out on several aspects of Health Tech Economics such as Health Tech Business Process, Revenue Modeling, Cost Structure which includes CAPEX (Capital Expenditure) and OPEX (Operational Expenditure), NPV (Net Present Value), IRR (Internal Rate of Return), Pay Back Period, and PI (Profitability Index), and then makes an Investment Feasibility Analysis which is then studied and processed to obtain the desired information and then analyzed.

#### **1.4.5 Regulatory Analysis**

Conducted on several aspects of Health Tech Regulation such as Government Regulations, Regulatory Policies, and related Laws that regulate the use of Health Tech in Indonesia. Regulatory Analysis is a process that involves assessing the rules that have an impact on the development, marketing, and implementation or use of a product or technology. Regulatory Analysis is also very helpful in planning business strategies and seeing new potentials and potential obstacles in the market.

#### **1.4.6 Conclusion**

At this stage is the conclusion after conducting an analysis of several aspects of Technology, Economy, and Regulation related to Health Tech in Indonesia. Several things that must be considered when drawing conclusions such as, taken based on the results of the analysis based on valid facts, not based on assumptions, Conclusions must be concise and concise so that they are easy to understand, sourced from reliable literature, and related to the research objectives to be achieved.

### **1.5 Hypothesis**

Based on the existing knowledge and background, the results of this study will provide input from various aspects of Health Tech in terms of technology, Health Tech in terms of economy, and regulations of Health Tech. From the technological side, the level of adoption of Health Tech in Indonesia is related to accessibility factors, user understanding, and digital infrastructure as well as wider use of Health Tech which will increase the efficiency of the overall health system. From the economic side, the growth of the Health Tech industry and investment in Indonesia is worth continuing or not. From the regulatory side, flexible but effective regulations that will encourage the growth of innovation in the Health Tech sector. This study will also discuss the Law of the Republic of Indonesia concerning Personal Data Protection. Hypotheses - These hypotheses will be the basis for conducting further analysis and research related to the impact, benefits, and challenges of Health Tech in Indonesia in terms of technology and economy as well as the role of regulation in regulating the development of Health Tech in Indonesia.

## **1.6 Writing Systematics**

The systematics of writing this thesis are as follows.

**a. CHAPTER I INTRODUCTION**

The first chapter consists of the background, which discusses the phenomenon of the research problem, then consists of the formulation of the problem, objectives and limitations of the problem, research method, hypothesis, and writing systematics.

**b. CHAPTER II LITERATURE REVIEW**

The second chapter contains a literature review taken from several references to strengthen the theory, namely books, journals, articles that will explain the meaning and definition, and also contains previous research.

**c. CHAPTER III RESEARCH METHODS**

The third chapter explains the research stages, network infrastructure design, application technology, economic analysis, data collection techniques and data sources.

**d. CHAPTER IV DATA ANALYSIS AND SIMULATION**

In the fourth chapter, the results of the data analysis and discussion of the results of the data analysis will be explained.

**e. CHAPTER V CONCLUSION**

The fifth chapter contains conclusions and suggestions from this research.