A SUMMARY OF SOCIAL INNOVATION IN HEALTHCARE AND IT IMPORTANCE IN THE SOCIAL OBJECTIVES OF THE SKIN DETECTIVE PROJECT

I- Brief introduction of the social innovation in healthcare

Social innovation in healthcare are solutions created that can serve the needs of users with human-centered processes, especially related to health. The focus on people in relevant social innovation solutions has been paid much attention to and expanded in recent years [1, 2]. Data from many sources [3, 4], including trials, and systematic evaluation of solutions, have shown that the application of social innovation in health can achieve high efficiency and solve many social problems decisive for health [5].

The concept of social innovation in the health sector dates back to 1978, when the Alma-Ata Declaration emphasized the importance of social community and innovative solutions in health systems was established calling for the formation and emphasizing local participation [6]. At the same time, WHO, UNICEF, World Bank, and UNDP have implemented, supported and funded a series of programs related to research and intervention in low- and middle-income countries (LMICs)... In the past, when the participation of social communities was not seen as a key feature for improving health because most health systems and services would be developed and implemented through regulatory processes by top-down experts. However, applying social innovation in the community, especially in LMIC countries, is more effective [7].

From the above, it can be seen that social innovation in health is also a comprehensive health improvement process with the participation of the community based on the diversity and strengths of each locality.

In 2014, the Social Innovation in Health Initiative (SIHI) was formed based on the departments in social innovation in health. SIHI is a large network of diverse members, such as researchers, innovators, and government leaders, with the main objective of creating an enabling environment for social innovation in healthcare through advocacy, research and strengthening of local capacity. SIHI aspires to be able to promote and unlock the capacities of all participants and health stakeholders, including healthcare professionals, academics, innovators, … and more. Community involvement. The community here is understood as people and groups who, while working together, have similar geographical similarities, interests and situations that lead to their health status [8].

Organizations, leaders and the global community have many plans and paths to develop and invest in healthcare for people. The United Nations has set an ambitious health target number 3 for the goal of inclusive development, but there are still many difficulties to achieve, such as ensuring uniform physical conditions. , universal health insurance has not yet been fully implemented,... [9] Especially in 2020, when facing the Covid-19 pandemic, the health system, whether strong or weak, is subject to many challenges. Unprecedented pressure to maintain, improve and serve the people's health, and many have failed. In addition to global epidemics, the health system is under greater pressure when faced with other factors such as natural disasters, economic recession, climate change, and migration. and military conflict.

Although in the past, social innovation was seen as a rapid approach to solving social problems or challenges across most fields, including health. However, the advent of the SDGs and the emergence of the Covid-19 pandemic have spurred more social innovations in healthcare to emerge.

Based on the knowledge and background of social innovations in health that have occurred before, challenging health issues need to be solved with innovative solutions. We conceived and developed a social innovation solution called Skin Detective, which brings AI-powered holistic skin care to users wherever they live.

II- Social innovation in the Skin Detective

1. *Introduction to the problem*

Countries in the Asia Pacific region have quite unique social and economic characteristics, including populous nations such as China, India, Indonesia and small Pacific island nations such as Tokelau and Niue. Many countries in the region have experienced rapid economic growth in recent decades, and their health systems have undergone significant changes in health financing reform and development. private. The distribution of healthcare workers in the Asia Pacific region is a top concern for many countries. Most health workers tend to be concentrated in urban areas, leading to a shortage of medical staff in remote and isolated areas. This imbalance is more severe in low- and middle-income countries. For example, in India in 2015, the distribution of doctors was 1 in 2,000 people in urban areas, whereas in rural areas, it was only 1 in 20,000 [10]. Another example is in Vietnam; the ratio of doctors to ten thousand people in Vietnam is 8.6, which is 4-8 times lower than that of countries with more advanced and developed healthcare [11]. This disproportionate distribution leads to an inadequate supply of essential health services and negatively affects the health status of people, especially vulnerable people in rural areas. villages and remote

areas. Besides, this shortage of human resources in the health system will not meet the demand for quality and quantity in implementing activities to prevent non-communicable diseases, including dermatology... Although WHO has tried to make recommendations, including education, policy support, and financial support and develop them based on existing information to improve the attraction and retention of health workers in these regions. However, there is very little convincing evidence that such measures work optimally.

In a more isolated context, the shortage of dermatologists is especially acute. According to a statistic in China, there are 150 million people with skin diseases in this country, but only 20,000 registered and licensed dermatologists [12]. This leads people with dermatological diseases to visit general doctors for examination and treatment. However, the diagnostic accuracy of GPs has been reported to be only 0.24-0.70 (compared to 0.77-0.96 for dermatologists), leading to repeated referrals and poor efficacy [13]. It also leads to delays in care, and errors in diagnosis and treatment, especially without good screening from the early stages of the disease. Screening and treating the disease at an early stage is very important when people's thinking tends to assume that most of these skin diseases are not fatal, so they often apply their own treatment according to the information they learned. However, if these methods are not appropriate and selective, they will make the disease worse and can be life-threatening [14].

Another serious problem that is very concerning is the fear of going to a doctor, especially dermatological diseases in young people, which is very alarming. There are many reasons for this, especially in developing countries, low- and middle-income countries. When the financial capacity is not high compared to the expensive examination and treatment costs, the economic dependence from the family the teenagers, especially the shy psychology. When going to the doctor for diseases that affect appearance, although dermatology is a non-communicable disease, the fear of spreading is still there.

2. Opportunities in challenges

Besides the difficulties mentioned above, there are also challenging opportunities that are opened to be able to solve those difficulties. The rapid development of smartphones and telecommunications during the epidemic has exploded rapidly.

As the demand for tools to support decision-making and access to clinical information at the hospital site grows, mobile technology is gradually transforming the healthcare business landscape increase. Smartphones will simplify information delivery to

medical practitioners compared to the complexity of paper or electronic records, which will lead to better time management. effectively. Recent developments in mobile technology, its widespread use, and the creation of artificial intelligence (AI) algorithms with an emphasis on healthcare have created a fertile environment for efficient, all-encompassing, and affordable healthcare solutions.

Smartphones' potential to transform medical practice is already a reality, making them ideal for specialties like dermatology, where imaging examinations are crucial to evaluating a case. a field of study that naturally relies on visual examination for diagnosis, observation, and care. Smartphone image quality has significantly increased. The image's resolution and the light glare are significantly improved. More specifically, there are 3.2 billion smartphone users worldwide [15], which is a relatively high number of users. This makes it possible to quickly and conveniently analyze skin on a smartphone. Through teledermatology, users will have easier access to medical professionals to accurately assess their acne condition without having to visit medical facilities. Treatment costs are reduced, and the burden on medical facilities will significantly reduce. In particular, the huge image data through smartphone capture is important for more accurate skin analysis using artificial intelligence algorithms.

Smartphones have the potential to completely change the way doctors practice their craft, especially in fields like dermatology, plastic surgery, maxillofacial surgery, and orthopedics, where imaging plays a crucial role in case evaluation. Dermatology is a field of medicine where diagnosis, observation, and therapy all depend on visual examination. The aforementioned has caused a rise in skin-related inventions, self-care options, and telemedicine. Early identification of skin conditions will facilitate monitoring and facilitate simpler access to healthcare services for the issue, eliminating needless doctor visits. The field of dermatology is one where this is particularly true. Healthcare professionals increasingly use digital clinical photography to document wounds and skin lesions and conduct remote consultations.
A dermatologist will have to treat more patients with skin lesions as a result of increased strain on dermatology experts to address rising healthcare needs. Although it might seem at first that using such tools would only help patients and professionals in rural and remote areas, they also help patients in urban areas who have trouble accessing specialized healthcare services.

And based on existing problems and emerging opportunities, a social innovation solution in healthcare called Skin Detective-a mobile app that integrates artificial intelligence and connects with Dermatologists was created to address holistic skin care for people wherever they are.

3. Social goals of the solution

Skin Detective is a social technological solution to solve existing social problems in the medical industry, especially in dermatology. The social impacts that Skin Detective aims at are:

- Improve skin health for everyone. Help users see exactly their initial skin condition for appropriate treatment.
- Improve mental health for users in Genz age (15-24 years old) because of low self-esteem when suffering from dermatological diseases.
- Save time, money, and effort for users.
- Limit the use of cosmetics and harmful chemicals floating on the market.

In which the beneficiaries of the project are:

- Users in remote areas, mountainous areas, islands, and rural areas do not have specialized medical facilities or specialized doctors. For example, a person has dermatosis but does not know what disease it has, whether severe or not and how to treat it. They must go to specialized dermatology facilities in big cities (time-consuming and sometimes unnecessary) or to local hospitals such as communes and districts to see a general practitioner. However, the accuracy of a general practitioner is much lower than that of a dermatologist.
- Users are limited in terms of time and economy. For example, people who work during office hours do not have much time to go to the doctor. The cost is more expensive if you check out the service after hours.
- GenZ people are afraid to go to the doctor and depend economically on their parents' guardians.

From the project's targeted social impacts, it also aligns with the United Nations' main goals for social impact. Those goals include [16]:

- Goal 3-Ensure healthy lives and promote well-being for all at all ages. This includes:
  - ❖ 3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.
  - ❖ 3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol.
  - ❖ 3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.
- Goal 12-Ensure sustainable consumption and production patterns. This includes:

- ❖ 12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment
- ❖ 12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

4. ***Challenges and difficulties encountered in implementing the project's social objectives***

- The first is an existing competitor to solve existing social problems. This includes direct competitors, remote consulting pharmacies, and telemedicine solutions and indirect competitors: traditional pharmacies, traditional medical facilities and over-the-counter brands. forms of e-commerce.
- The second is state policy. Although currently, the state has policies and programs to support the development of telemedicine in health, especially artificial intelligence in health. However, there are still many difficulties in the mechanism, which makes it very difficult for investors to accompany startups.
- The third is user trust. While traditional methods of medical examination and consultation support are still more trusted by users, sometimes, it still causes a lot of unnecessary difficulties. But psychology, especially old habits, has greatly influenced this. To change users' perception of the benefits that telemedicine brings, it is a matter of time, government policies and the appropriateness of solutions in each situation.
- Fourth, technology is both an opportunity and a challenge. When the rapid development of technology forces projects to catch up promptly and improve accordingly so as not to fall behind.

5. ***Social creative features of the project.***

Although the project's innovative social solution is not new to the world. But in the local area, especially Vietnam, it is a new and innovative solution, especially in the AI technology for dermatology that the solution is using.

III- Conclusion

The project has a character as a social builder when it has explored the gaps in existing problems, making it difficult to examine and treat dermatological diseases, and has solved past problems that gap.

Although there are many difficulties and challenges, the project will still try to learn and improve social solutions to solve the social problems that the project aims at. In addition, there is a desire to cooperate with stakeholders to solve this social problem for a better life jointly.

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