Case Study: Internationalization of Auto Train Brain

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***Abstract*—This case study examines the internationalization strategy of Auto Train Brain, a startup in Türkiye that has developed an innovative mobile application to provide solutions for children with neurodiversity, including dyslexia, autism, ADHD, and intellectual disability. The application uses neurofeedback and multi-sensory learning techniques based on EEG signals. The case study delves into the company's journey to global expansion, with a focus on the challenges encountered in new markets such as the U.S., Japan, and the U.K. Additionally, the discussion section offers recommendations for successfully navigating challenges related to market growth strategies, product definition, and adaptation of the product to different cultural environments and regulations.**

Keywords—Neurodiversity; Neurofeedback; Mobile Application; Internationalization; Case Study; Marketing Strategies.

I. INTRODUCTION

Auto Train Brain has started as a startup in Türkiye, founded by a mother of an engineering profession, Günet Eroğlu, with a vision to offer solutions for kids with neurodiversity as dyslexia, autism, attention deficit and hyperactivity, and intellectual disability. Auto Train Brain is an innovative mobile application that uses neurofeedback and multi-sensory learning techniques to help improve reading skills and promote brain maturation while mitigating the effects of disconnection syndrome [1]. Customers can benefit from personalized training programs tailored to their unique neurological patterns owing to the use of EEG signals that monitor slow brain waves [2].

At the heart of Auto Train Brain's approach is using advanced artificial intelligence to analyze EEG signals, which monitor slow brain waves. This enables the creation of personalized training programs tailored to each user's unique neurological patterns. As a non-invasive solution, it is recommended that users engage with the application for 30-minute sessions at least three times a week, ensuring a consistent and user-friendly experience.

The mission of Auto Train Brain is aligned with the goals of the United Nations Development Program (UNDP) by promoting access to quality education and ensuring continuous learning opportunities in nurturing environments [3]. Its objectives include fostering sustainable health, supporting language development in line with peers, and implementing preventive measures to address developmental delays in children [4].

What began as a local venture has quickly gained traction, propelling the company into the international arena. Auto Train Brain has achieved significant success within its domestic market but, at the same time, recognizes the need to tap into global markets to sustain growth and competitiveness. The new internationalization strategy aims to leverage the company's technological and field expertise and competitive advantage to penetrate new markets.

II. THE CASE

Günet Eroğlu, the visionary founder of Auto Train Brain, had a passion for finding innovative solutions for children with specific learning disabilities after realizing that learning disability is the most common of all neurodiversity. The source of her passion was her personal experiences within her own family, motivating her to create a mobile application that could help children with similar neurodiversity. She decided to develop a mobile application rather than traditional methods since the traditional interventions for learning disorders were expensive and hard to reach, and satisfactory results could only be obtained in the long term. Hence, Auto Train Brain (ATB) was launched as a non-invasive and affordable option for

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children with learning disorders to help them enhance their cognitive capacities at home.

ATB offers a hybrid product that includes both physical and digital components as a mobile application and EEG headset. To fulfill the promise of supporting cognitive development of children with learning disorders at home, the ATB team integrated an EEG headset device into the mobile application, which captures the slow brain waves of the users. The EEG Headset transfers the EEG data to the application, and Artificial Intelligence (AI) was used to analyze these data. There are seven protocols in the application developed to train different parts of the brain, and with the help of AI, the best-suited protocol can be suggested to the user. After completing personalized 30-minute neurofeedback training, which includes various games and activities, users receive the cognitive reports. These cognitive reports are designed to inform, especially the parents, about the improvements observed after the activities. Studies using the pre-test and post-test data have supported the effectiveness of the application. The results showed a 70% improvement in reading comprehension, a 45% increase in reading speed, an 18% improvement in speech, a 36% increase in socialization, a 50% improvement in attention, and a 41% enhancement in cognitive activity [2].

As stated, besides the EEG headset, ATB also provides personalized online services, such as one-to-one assessment of EEG results, psychological consultation, and neurological consultation. Additionally, optional services such as psychological and dietician consultancies, blood tests, and epigenetic tests are also available. This comprehensive approach makes ATB a powerful tool that addresses various cognitive and physical health aspects for children with learning disabilities.

Their breakthrough product, an innovative mobile application, has caught the attention of families with kids having such disabilities in Türkiye. Buoyed by the initial achievements, the founder has recognized the potential for expansion beyond domestic borders and set sights on international markets, especially the United States.

Auto Train Brain embarked on an internationalization path, aiming to establish a global presence. Their journey began with meticulous market research and analyses, identifying lucrative opportunities in other markets such as the U.S., Japan, and the U.K. According to their study, the U.S. emerged as an attractive market with high search volume (37 million per month) and household income. However, intense competition would increase marketing costs. In Japan, results showed that search volume (16 million) and household income are lower than in the U.S. market. Creating appropriate content designed according to the language and culture of the Japanese Market was assumed to be more challenging than addressing the U.S. market. The U.K., with metrics similar to Japan's (13-million search volume), was seen as a promising opportunity with ease of doing business compared to Japan. After these analyses, ATB decided to enter the U.S. market, recognizing it as the most promising opportunity despite the challenges of high competition and costs.

ATB had already started the promotion campaigns in the U.S. market. One day, while Mrs. Eroğlu and the global markets team were working on the project, she received a call from the marketing team. There was something wrong with the latest ads. Very little recognition was achieved, and the conversion rate was much lower than expected. Mrs. Eroğlu set a meeting with the whole marketing team to discuss why the campaigns were underperforming in their new market. They realized that the road to international market development was fraught with challenges, such as cultural differences, regulatory changes in the new market, and human resources.

Assume that you are a member of the marketing team. Please discuss the following questions and provide suggestions to the company to overcome these challenges and reach success.

III. CASE DISCUSSION QUESTIONS

1) What are the main issues or challenges presented in the case study?

2) Are there any underlying issues that must be addressed to solve the problem effectively?

3) What potential strategies or approaches could be applied to address the problem?

4) Given the company's resources, capabilities, and constraints, how feasible are these strategic options?

5) Based on the analyses, what specific recommendations would you propose to address the problem?

IV. CASE DISCUSSION

There are two main issues and challenges in the case of Auto Train Brain: product definition and product/market growth strategies. The product can be defined as a learning tool, software as a medical device, or a hybrid combination of software and services. Defining the product as a learning tool is the most manageable version across these alternatives since simplifying ATB as only a learning tool makes the product and process basic. In this case, the product can fulfill the promise of Serious Games (SG) that are simplified but still effective tools for education and training [5]. This also utilizes the core competency of the founder the most, as the product evolves only to be software. The negative side is that the price may decrease since there are different services like neurological and psychological consultations in the present hybrid form. The second alternative is defining the product as Software as a Medical Device that collects medical data through an EEG headset, analyzes the data coming from the headset, and uses this information to diagnose and provide suggestions for treatment. Applying this alternative would make the product unique in the market; however, this version needs official approval from the health authorities (e.g., FDA approval in U.S.), which has many procedures and requires the most significant changes in the product. The last alternative is the hybrid combination of software and services, as in the present version. This version distinguishes the product in the market; however, working with Turkish doctors and psychologists complicates and precludes the internationalization process. Hence, they must engage local

doctors and other team members to effectively manage different markets. The complexity is relatively high in this case since it requires legal approvals and a local network. Moreover, this alternative may challenge the relative price advantage ATB is currently enjoying.

Based on the Product/Market expansion grid (also known as Ansoff Matrix), several strategies could be considered for ATB. Ansoff Matrix is a strategic planning tool for organizations to decide on suitable marketing strategies for their product and market [6]. The five possible strategy alternatives are as follows: First, continuing with the existing product in the current market, focusing on Turkish children, to determine whether the market has reached its penetration potential or further growth is possible in individually owned segment of the market. Second, adapting the product for use in schools and special education institutions across Türkiye, making it a more collective/shared product. Third, expanding to different demographic groups with specific needs, such as creating a geriatric version for Alzheimer's patients within Türkiye. Fourth, leveraging existing languages (Turkish and English) to enter other markets, like Azerbaijan, without needing a major language adaptation. Lastly, developing the product for entirely new languages and markets such as Kyrgyzstan or Bulgaria. Based on these alternatives, the final course of action entails major product development efforts as it also includes adaption of new alphabets.

In conclusion, internationalization of ATB includes challenges and well as opportunities. We recommend that internationalization process of ATB can be initiated from neighboring countries with a basic product (an EEG assisted learning software) as opposed to the hybrid product (basic product & additional/optional services). Additionally, new customer segments such as institutional customers and diverse demographic groups within the local market could enhance the market potential of ATB.

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