Market Expansion Opportunity Analysis for Adigy Canada

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ABSTRACT

This project develops business and marketing strategies for the expansion of Adigy Canada, a medical heart telemetry device developer, into the golfing market. It researches the needs of this market, analyzes industry forces and recommends target market segments, a business model, distribution channels, and marketing strategies. The design and marketing of a training aid product is recommended as this segment of the golf industry seems to have a medium to high level of attractiveness. The recommended market segments to target are the average and good golfers clustered in the mid-west US. The golf equipment stores and online/phone channels are suggested as the distribution channels. The advised development and marketing strategy is to work closely with the leads generated during this research to develop the first version of the product followed by a second phase of design improvement consisting of working with pioneers of the market before introducing the product to the mass market.

This paper is dedicated to my parents who taught me how to live a life to be proud of, and to my sons, Navid and Yashar, the shining stars of my darkest hours who have given me the strength to fight, to survive and to keep going and the reason to smile, to be happy and to live.

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Acronyms and Abbreviations

Acronym or abbreviation	Meaning
CPGA	Canadian Professional Golfers' Association
LPGA	Ladies' Professional Golf Association
NA	North America
NSGA	National Sporting Goods Association
PGA	Professional Golfers' Association
TV	Television
US	United States
USA	United States of America
USGA	United States Golf Association

1 Introduction

1.1 Goal of Strategic Analysis

This paper analyzes market opportunity expansion possibilities and potential for Adigy Canada. Adigy, based in Vancouver, B.C., currently develops wearable cardiological monitoring devices that measure heartbeat rate and performance along with body position and activity levels. These data provide a rich description of a person's health, fitness and activity levels over time, and an opportunity for medical personnel to monitor their patients' conditions in greater detail. These devices transmit data wirelessly using cell phone networks or over the landline phone network to a medical facility for further analysis.

Adigy's goal is to use their core competency in wireless sensing to serve non-medical markets. Integrating the health and body position sensing and movement monitoring with wireless communication capabilities of their products, there is a potential sporting market. Adigy may design a new training aid product that addresses the needs of these markets to closely monitor, sketch, provide feedback for training purposes and improve the performance of the athletes. This could prove even more beneficial for professional athletes.

During the early discussions and considerations with Adigy's senior management, three sporting markets were considered, golf, ski and hockey. The question was: "what kind of training aid could Adigy design that would be beneficial to these markets?” At this time, the decision was made by Adigy’s CEO to initially pursue the golfing market. The reasons for this decision include 1) local access to one of Canada’s biggest golf populations 2) the year round active status of the sport 3) the attractive social and financial composition of the golf market’s customers and 4) the high degree of usefulness of the projected product to golfers.

The new training aid product for amateur and professional golfers will attempt to address the top three requirements of golfers concerning their training. Firstly, it will provide a means for mental exercise in order to achieve a higher state of relaxation and better stress control leading to better performance in high mental pressure situations. Secondly, it will sketch and record all movements of the player, the club shaft and its head during a game or practice session. Thirdly, it will provide a model of “best practices” for comparison purposes. These requirements have been identified during personal interviews conducted by the author with 13 golf instructors, golfing equipment store managers and golfers.

1.2 Analysis Framework

This paper consists of focused market opportunity research and analysis of the North American golfing market in general and the golf training aid equipment market in specific. Data is gathered by a combination of direct contact and interviews with golf professionals and enthusiasts as well as using existing market data from secondary sources. The findings are analyzed to determine the needs of the market, the best product configuration to serve the market, an acceptable price range, and strategies to capture the mass market, and the most appropriate business and distribution models.

The report starts with an introduction of Adigy Canada, its core competency, the technology and the new opportunities that these capabilities yield. A presentation of current industry and market conditions follow. In this section, the secondary source data were gathered on the golf industry and training aid segment size, growth rate, demographic and geographic profiles, spending habits and financial capacities in order to estimate potential obtainable profits. To obtain more in-depth information, also a series of interviews were conducted with golf professionals, mostly golfing instructors but also equipment distributors and store managers, golf course or driving range operators and golf players. These interviews were conducted in the Greater Vancouver, British Columbia region and their goal was to determine the golf markets' needs and trends, golf training's immediate problems that Adigy's technology can solve, and players' willingness to pay for the projected product. Then a study of the competitive landscape and differentiation methods, utilizing Michael Porter's "Five Forces Analysis" framework, Everett Roger's "Diffusion of Innovation" theory and Geoffrey Moore's "Crossing the Chasm" techniques, was also conducted to assess viable business and distribution models as well as marketing strategies. The next section contains a decision analysis based on Adigy objectives and the metrics to measure the success in achieving those objectives. Four business strategy alternatives are then developed and evaluated considering the market segments, geographical focus of these markets, and the available distribution channels. These alternatives are weighed considering Adigy's senior management priority and choices. Finally, recommendations based on all of this information are provided at the end of the report. Also attached to this report is a “Market Requirements Document (MRD) that has been created considering the existing opportunities in the golfing market and the company capabilities in order to assist the company with product management. This project does not include a financial business plan; however, it will provide some financial data and projections to assist with such a plan.

2 Strategic Opportunity Analysis

2.1 Adigy Canada

Adigy Canada is an early stage R&D company incorporated in July 2006 in Vancouver, BC, Canada. Adigy collaborates with CIBER laboratories of Simon Fraser University (www.ciber.ca) and designs and markets wearable medical sensors with integrated web services for unobtrusive physiologic surveillance to support rehabilitation and immediate detection of adverse events with heart patients. Their devices also monitor the activity and response of fit individuals under high physiologic stress (risky occupations, military maneuvers, athletic competition, rugged mountaineering, and rescue workers) and physical position and activities (such as laying, standing, sitting and walking). Their sensors are state of the art band-aid type devices that are very small, light and easy to wear that have defined a new dimension in wireless telemetry. They communicate with a small transceiver device that connects to either a land telephone line or a cellular network or a WiFi Internet line to communicate with a central medical facility to send data and also receive alerts and warnings that are transmitted back to the user. The location of the connecting node/patient can also be determined instantly with the geographical positioning systems where available.

The company also develops web-based applications to support heart health surveillance. It has partnership with Nokia Canada (www.nokia.ca) to integrate cellular phone technology with their personal health monitoring and also close collaboration with CMC Microsystems (www.cmc.ca) to develop the next generation of tiny inexpensive mass-produced embedded systems to measure and monitor humans and their immediate environment.

The founders of the company, Bozena Kaminska, CEO and William New, Chair, have decades of commercial and academic success in medical, technology and software areas. Professor Kaminska is internationally recognized in wireless sensor chip design and test methodologies. Dr. New combines expertise as an electronic design engineer and intensive care physician, a world leader in patient monitoring and physiologic measurement. As entrepreneurs, they have founded and built successful technology companies (Nellcor, Natus, Opmaxx, NCompass Labs), which have been acquired or taken public with significant returns on invested capital. Adigy Canada currently employs 12 developers and its senior management team consists of CEO, CFO, CTO, director of marketing and engineering manger. The organizational structure is shown in **Figure 1**.

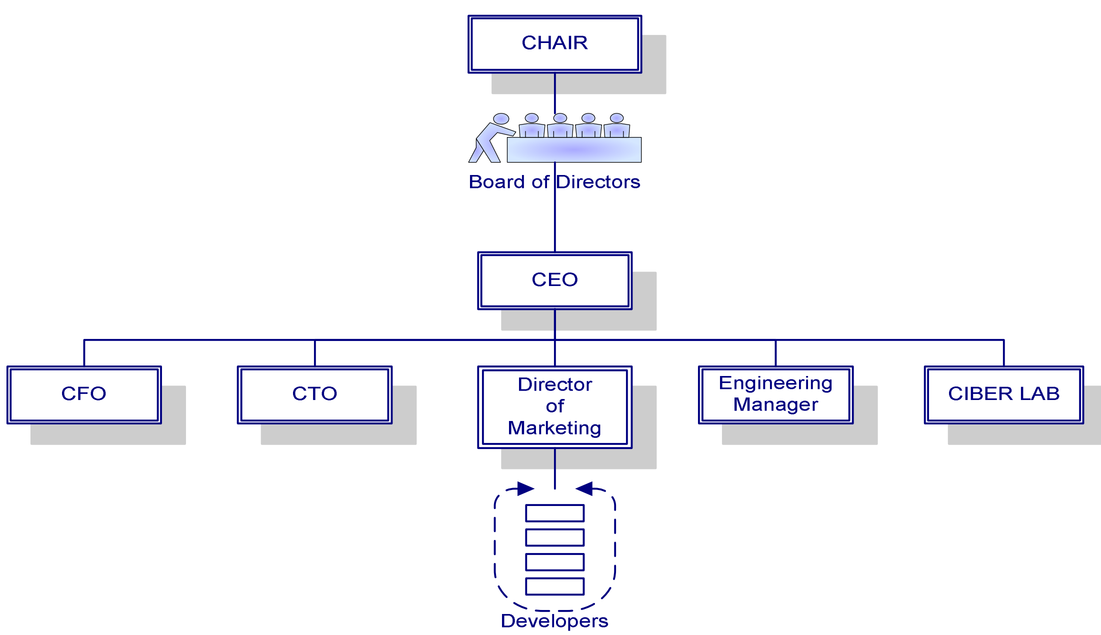

Figure 1: Adigy Organizational Chart

Adigy follows three business models, first is producing stand alone products for various medical organizations, second is producing OEM products that are integrated into other devices and offer joint services, and third is partnership in joint product development, marketing and support. Their current market is heart patients who have been discharged from hospital but could still experience heart problems, home care patients with unstable conditions, and elder or infirm individuals with chronic health conditions. These people could significantly benefit from continuous medical surveillance and timely response by care providers and avoid irreversible impairment and ensure a healthy recovery. Since these devices provide significant savings for health care organizations and also insurance companies, there is an increasing interest from their part for Adigy's products.

2.2 Company Core Competency

Adigy's core competency is in the sensor development and wireless communications areas. They also have an immense knowledge in heart health and its functions. These competencies have come together to serve the medical market at this time, but they are transferable to serve other markets as well. Movement sensing and monitoring expertise has applications in sporting markets and, combined with wireless data transfer technology, it creates a strong capability for monitoring various sporting activities and for transferring data for further analysis.

The first usage identified in sporting markets is training. A training aid device will capture and trace all the movements during a game or an exercise session and store them in its memory. A software program will then take the data and show them on screen for analysis and improvement of performance. This training aid could be used in any sport but the ones that appear to have the most to benefit are golfing, ski and hockey because of the usefulness of tracing the movements in these sports. Additionally the athletes' heart health and stress conditions can be monitored, as Adigy also has a proven expertise in this area.

At the early phases of this project, Adigy's CEO considered various possible sport markets and made the decision of pursuing the golf market. The decision was based on having local access to a big golf population with almost whole year active state, the social and financial composition of golfers and also because Adigy's technology could serve the golfers the best. More information on golf industry and market are provided in the following chapter.

3 Situation Analysis

This chapter introduces the golf industry and market. Golf industry, its constituent components, their functionality and role in the industry and their relations to each other are investigated. A golf market study follows the industry presentation in which golf market size, demographic and geographical distribution is discussed. The golf training aid industry and market are studied next. In this section, various training aid devices are introduced and their usefulness to the whole game is argued. Finally the needs and trends of the market concerning training aids are presented.

3.1 Golf Industry

Golfing is one of the largest industries in North America. In the US, it accounted for $76 billion worth of goods and services in the year 2005. This represents an average annual growth rate of 4.1 percent since 2000 ($62 billion)[1], and primarily reflects growth in golf facility revenues, real estate, and golf-related tourism. Golf industry growth over this five-year period stayed ahead of inflation, which averaged 2.5 percent per year from 2000. The US golfing industry is larger than the newspaper (information industry), performing arts and spectator sports, and motion picture and videos industries as shown in **Table 1**. (Golf 20/20, 2005, p.5)

[1] Based on a compound average annual growth rate

Table 1: Comparison of Golf Industry with others

Size of the US Golf Industry compared to other industries (2005) ($ billion)∗	
Newspaper Publishing	$50.1
Spectator sports and related industries (performing arts and spectator sports)	$64.7
Motion pictures and videos	$73.9
Golf	$75.9

∗ Adapted from Golf 20/20, 2005, p.5

This industry is comprised of such diverse components as golf course/range ownership and operation, equipment and clothing and their distribution channels, travel & lodging, media (TV, Internet, and magazines), tournaments and charities, instructors, coaches and training aid products (**Figure 2**). Each of these components is briefly reviewed in this section. Training aid component of the industry is of particular interest to this project as Adigy will enter this segment of the industry and compete with the existing training aid equipment and training possibilities in general. It is important to understand what training aid tools are serving the market, how important these are to the game and how they are perceived by the golfers.

Figure 2: Golf Industry Components

The largest and most central component of the golf industry is the golf course and driving range ownership and operation. Golf is one of the few ball games that do not use a standardized playing area; rather, the game is played on the golf courses, each one of which has a unique design creating a new dimension for competition and price differentiation. There are nearly 32,000 golf courses in the world, about 18,000 of which are in North America. The great majority of these courses are in English speaking countries, but the number of golf courses in other countries is rapidly growing (Golf

Digest, 2005). Golf courses are rated based on their “par” number. This is the number of shots that a professional golfer would use to finish all the 18 holes. The higher this number, the harder the course is. Most courses are 72-par, usually 4 shots per hole, but they may include 5 and 3 par holes too. A golf course includes the coarse section with long grass, fair section with very short grass, and various traps such as water (river, lake, open sea or ocean), sand and trees. Wind conditions also have a great effect on the score outcome.

The golf equipment industry stands out as the second largest sports equipment industry (NSGA, 2006) in the USA (**Table 2**). Golf equipment consists mainly of balls and clubs. The types of clubs include driver, wood, iron, pitching wedge, sand iron, and putter each designed to result in a different distance and angle of the ball’s movement after hitting. Golf balls also have their own categories of recreational and advanced. Recreational balls are for the average user with lower hitting speed (130 km/h or less) and are made of two layers with the cover firmer than the core. Advanced balls are for above average golfers with high hitting speed (greater than 130 km/h) and are made of multiple layers (three or more), with a soft cover and firm core. The compression of a golf ball must match a golfer's swing speed in order to avoid the lack of compression or over-compression which will result in achieving lower distances. Construction of golf clubs and golf balls is a very involved high technology drawing on the fields of physics and mechanical engineering. The materials used in building golf clubs are graphite and titanium, which are extremely strong but very light at the same time.

Table 2: 2006 US Sport Equipment Purchase Comparisons

Sport	2006 Purchases (In millions of dollars)
Exercise	$5,383
Golf	$3,809
Hunting and Firearms	$3,798
Fishing Tackle	$2,263
Camping	$1,571

Golf associations and governing bodies have created performance rules in making golf equipments to stop the technology from taking over the game and ruining it. Other equipments include golfing bags to carry the clubs and balls, comfortable and breathable clothing and performance golf shoes. Golf clothing has also become a "fashion" item for golfers and non-golfers equally. Golf equipments and accessories are distributed by big chain stores such as Golf Town and Perfect Lies, and also smaller stores scattered in shopping malls or busy city areas. Also each golf course usually has its own store (managed by a different body than the course operator) offering a selection of equipment. Online stores have also become popular recently, offering easy price and quality comparisons that may not be possible in a store setting.

The increased interest in golfing has boosted the travel and lodging component of the industry. There are more than 500 "Resort and Golf Club" in North America that offer vacation packages consisting of a few night's stay at the resort and playing golf at their artistically designed golf course, accompanied by high class restaurants and other complementary services. This combination enables the golf courses to be used by more customers than just the local population. The resort-golf combination usually encourages the area to grow into a cluster of vacationing recreation options, as this will attract even more customers and will increase the number of group and family guests when the members may be interested in different activities.

Golf is seen as a source of entertainment as well as a sport. Media coverage of the golf games, events, statistics, advertisements of new products are performed by special golf TV and radio channels that broadcast constant golf reports and news, as well as general sport and news channels. Beside TV and radio, magazines are also very popular within golfing community. Internet is the latest addition to the media tools in this industry and all of these are widely used for advertising and introduction of new products. A large portion of the media content consists of product advertisements and deals for courses, equipment, travel, instructions or training aid deals. Almost every new product introduced to the market is advertised in at least one of these outlets. Some golfers are themselves mini-advertising and product endorsement industries, often earning more off the golf course than on the golf course.

The tournaments and charities element of the industry consists of the players' associations and charitable giving through golf events. Tournaments can be amateur or professional. Amateur tournaments are organized by the clubs, business organizations, and national, provincial or city governments. Major professional tournaments are the PGA tour, Canadian and Nation wide tours, the PGA of America, the USGA and the LPGA.

Tournament revenue is generated by selling broadcast rights to tournaments, corporate sponsorship of events, and spectator ticket sales and merchandise purchases. Many fundraising events are held on golf courses each year, raising money for charitable causes across North America. Golfers typically pay fees to play charity golf tournaments at their local golf club or a neighboring facility, with proceeds going to local charities or local branches of national charitable foundations.

Instructors or coaches are a very important part of the golfing industry. Almost all golfers take lessons when they first take on the sport and many continue to take them regularly to improve their performance. Most instructors work either with an equipment store or golf course operators. In order for the instructors to teach in publicly or privately funded institutions, they must be a member of the Canadian Professional Golf Association (CPGA). This requires working rigorously for a few years and also taking teaching lessons before they are awarded the certification. There is a World Golf Teachers' Federation, an entity with 35 nation members including the Canadian Golf Teachers' Federation with over 1,500 members, and the United State Golf Teachers' Federation with over 17,000 teachers. There are four levels of certification by these organizations with level 4 being the fully certified level. A golf lesson session can be 45 to 60 minutes and it may cost from $50 up to a few hundred dollars.

Training aids are products that help players practice and improve their performance. Many different golf training aids are available that help players improve their swing, putting or chipping skills by improving their postures and movements, mostly by creating muscle memory. These are mostly simple mechanical products but some are more sophisticated with cameras, laser beams and software interfaces. They are priced from $20 up to a few hundred dollars. Training aids with computer analysis can cost more than $600. Refer to **section 3.3** for more information on this component of the industry.

There is a strong partnership between various components of the golf industry. Big name equipment and clothing store chains usually also offer instructions by accredited professionals. They also offer a wide variety of golf training aid products that also aim at training the players. Direct (from the manufacturers) purchase of equipment, clothing and training aid products is not very common in this industry. Academies owning and operating the courses also have their stores offering these products. They also usually team up with travel agencies and hotels to offer attractive golf vacation packages.

3.2 Golf Market Overview

There are 30.35 million golfers in North America (Canada and the USA). This includes 5.95 million Canadians, with a national participation rate of 21.5%, and 24.4 million Americans, with a national participation rate of 22.7%. These are among the highest golf participation rates in the world. Overall, the North American golf community spends $21.79 Billion dollars per calendar year on direct golf expenditures such as greens fees or membership, golf equipment, apparel and golf travel. The strong majority of golfers are males with an average age of 44 in Canada and 40 in the USA, constituting 71% of total golfers in Canada and 76% in the USA; but women's participation rate has been increasing and currently stands at 29% in Canada and 24% in the USA. Golf has not been doing as well with the younger demographic. Junior golfer (ages 12-17) participation rates have decreased 14.6% in Canada and 9.4% in the USA since the year 2001 (Ipsos, 2006) (NSGA, 2007).

Central Canada and the American Midwest boast the largest concentrations of golf players, followed by a region between the US capital and New York City. In Canada, Ontario has the largest golfing population (2.31 million), followed by Quebec (1.14 million), British Columbia (0.812 million), and Alberta (0.754 million). In the USA, Illinois has the largest golfing population (14 million), followed by Ohio (11.7 million), Pennsylvania (11.2 million) and South Carolina (4.6 million) (Ipsos, 2006) (NSGA, 2007).

3.3 Golf Training Aid Market

Golf has become the preferred sport of corporate North America and top level executives and mangers. Arguably more than any other sport, the game of golf requires self-discipline, determination, patience, calculation, resoluteness and networking ability - qualities that help to build character, personal strength and widen business horizons (Chattopadhyay, 2005). Golf players are known to check and compare their scores or "handicap", a numerical measure of an amateur golfer's playing ability, with each other and often have a hidden and polite competition that isn't externalized. The best golfers' score is considered to be 72-par, 4 shots per hole in an 18-hole course. Golfers can be categorized according to this score. The golfers who have scores less than 80 strokes are considered excellent golfers; they constitute 5% of golfer population. Golfers with scores of 80 to 100 are good golfers and they constitute 10% of golfers. About 60% of golfers are average performers and they have scores of 100 to 120. Beginners make up about 25% of golfers with scores of more than 120 strokes[2].

Golfers who have past the beginner phase of the game, have discovered an interest in golf, and want to continue with the sport, always want to improve their game performance, especially when this mixes with their professional lives and becomes part of their career and indirectly affects their business outcome. These average, good, and excellent golfers constitute 75% of the NA market, over 22 million golfers. Interest in becoming better golfers can be found in a good percentage of the beginner's population as well, the ones who will be the future serious players. The golf training aid industry has been formed to nourish this need.

There is a wide variety of training aid equipment to help golfers improve their games; but they can be categorized into two main groups: namely, muscle trainers that create muscle memory, and swing path/plane feedback providers used for analysis and adjustment of movements. The muscle trainers force the particular muscle group to stay and move in certain positions during the swing or shot in order to create muscle memory. Many of the products in this category are just practice equipment that can be set up at home or the backyard and have little intelligence built into them. Path feedback providers are either visible laser beams showing the path of the movement and the direction of the club, or they are videos taken of the movements that can be watched later and help with the adjustment of the movements.

[2] These numbers are obtained through author interviews with golf professionals

There are five elements in a game of golf at which the players must excel[3]. First is the full swing, with the goal of sending the ball the farthest with a good approximation to the hole. Second is the short game or chipping where the ball doesn't need to go far but still needs to get airborne and land close to the hole. Third is putting in which the ball rolls on the ground. Fourth is the course management in which the player must plan their shots to avoid traps such as sands, trees and water. The fifth and final element is the mental aspect of the game which needs to be controlled and stress free to allow for a good game.

Thus the training aid products can be categorized according to which part of the game they improve. 90% of golfers work and practice on their full swing and believe that is the most important skill to acquire[4] and as such most of the training aid products are also focused on the full swing. The five aspects of the game mentioned above are all equally important to a good game but each has more relevance during different phases of a golfer's development. Full swing is the more important to beginners while short game and putting are more important to advanced golfers, but they all have some degree of relevance throughout all phases. Course management is acquired by experience on the field. Stress management is known by all to be very important, but training aid products haven't developed around this need at all to this date. A list of examples of the available training aids is presented in **Table 3**.

[3] These information are obtained through author interviews with golf professionals
[4] According to interviewed instructors

Table 3: Golf Training Aid Categories

Category	Example of Products	Comments
Full Swing	Inside Approach, Power Release, Dynamic Swing Glove, Path Pro, Power Angle Pro, Swingscope, The plane stick	Muscle memory creators – focus on swing and arm movements
Short Game (chipping)	Swing Tempo, Swing Speed Radar with Tempo Timer, ReFiner Hinged Driver	Muscle memory creators, some with electronic speed measurement – focus on swing and arm movements
Putting	Z Factor Perfect Putting Machine, Boomerang Putting System, Putting Arch Deluxe, EyeLine Golf Putting Plane Alignment System	Mechanical systems – mostly mat and ball practice equipment
Course Management	None	Instructors mention briefly what needs to be done for this but mostly it is learned by experience
Stress Control	None	Instructors mention that controlling stress is important but they don't offer much help on it. The techniques used by players are the same as general stress control in life such as deep breathing and relaxing muscles

The golf training aid products are known by their brand names rather than the manufacturers' names. Most manufacturers are located in China or Hong Kong and export products to North America. None of these manufacturers are exclusively producing golf training aids; and, in fact, a very small percentage of their products are golf training aids. Some examples of these manufacturers and the number and type of the training aids products they produce are listed in **Table 4**.

Table 4: Golf Training Aid Manufacturers

Manufacturer	**Number and Type of Training Aid Products**
Xiamen Muyu Golf Goods Factory	5 products, practice set with re-tunable ball, mats and net
Hankey Asia	Laser point, putting practice set, adjustable shaft training set, mini training playground
CATIC Shenzhen Company – Catiway Golf & Facilities	2 products, mats and practice equipment
J & K Global Limited	1 product, practice set
FuZhou Qing Shuang leisure products	6 products, practice sets with net
Yong Xing Gifts Co	3 products, practice set
Ningbo MH Industry Co	1 product, putting practice set
Zhangjiagang Haitian Netting Industrial Co	4 Golf training aid products –net type products

While these training aids help golfers improve their moves somewhat, they don’t achieve the final goal of improving the game and the final score by much despite their advertised promises of reducing the players’ scores. The laser beams and videos do show a golfer’s movements, but most players can’t analyze this feedback and come to a helpful conclusion. It is known that there is no “perfect swing” that matches every player; the swing must fit the player’s body type, height and strength, so these training aids can’t by themselves provide much guidance and they require a professional coach or instructor to analyze the data and decide what needs to be adjusted and how[5].

Adigy Canada is planning to design a training aid device, TraceMe™, which will cover all five areas of a golfer’s training. This device consists of sensors that are attached to the player and the club shaft and head. These sensors send data wirelessly to a central control box which then sends the data to a wrist watch type of device and also to either a computer or PDA running software that is able to analyze the data and trace the player’s movements, provide feedback and suggest adjustments. The players are able to enter their gender, age, body type, weight, height, skill level and other information that will be used to determine the best moves for the player during the game. The wristwatch can be consulted for a subset of data including the stress level. The wrist device can be used to enter data by the user and can also provide stress management by the means of either simple display or playing a tune or vibration depending on user’s choice. TraceMe™ will act as a coach and personal trainer that are always with the player, constantly monitoring and ready to provide advice and help.

None of the currently available training aid devices come close to TraceMe™ in their offerings. The closest tool to TraceMe™ is a camera-based device that is used by instructors and only in the lab environment. These cameras are installed in the lab and they record the student’s swing, this recording then is compared to a professional swing and differences are shown to the student to help improve their posture and moves. The

[5] Information is obtained in the author’s interviews with golf professionals

comparison is visual and the data is not very exact, the angle of the head of the club at the time of hitting the ball is not easy to see and manually measure. Additionally, the professional swing to which the student's swing is being compared may not be a suitable swing for the student as he/she may have a completely different type of body and strengths.

Training aids are usually distributed by golfing equipment stores, general department stores and on Internet. They are advertised on golf TV and radio channels and also on Internet. The biggest distributors are Golf Town, Perfect Lies, In The Hole Golf and Golf Smith.

3.3.1 Needs and trends

According to Adam Scott in an interview with Lisa Taddeo published in Golf Magazine in 2007, there are two major requirements to becoming a good golf player. The first requirement is a good and adequate learning process. The second requirement is the ability to control one's stress level in all golfing situations.

> **Lisa Taddeo**: The Aussies are kicking ass on Tour. Supposedly the Australian 'grooming' process for cultivating great golf champs is fantastic. What do you do that we don't? Why aren't your young guys afraid to win like the young Americans?
>
> **Adam Scott**: Well, I don't think that young Americans are afraid. I just think we [Australians] are taught how to play the game better. We just learn how to play golf. We find our own way of doing it.
>
> **Lisa Taddeo**: How do you mean?
>
> **Adam Scott**: Well, it's set up very well in Australia. It's a good balance between coaching and physical strengthening and psychological work. I think it's really just the balance. And also, it's a little more relaxed, that's the attitude we take. There's a bit less pressure [than in the U.S.]

According to a recent study by Chicago Land (n.d.), affordability and access to instruction are rated as the top barrier to take-up of the game of golf among adults, and lack of playing partners and lack of free time rate also highly. The most mentioned barrier for the golf market's growth is the lack of training for juniors. The existing tracks are too hard for beginners and they soon give up on the sport. So the golf industry is failing to attract the new generation of golfers.

The need for good "training" is not very well satisfied at the moment, and most golfers have lowered their expectations and given up on "learning" golf, outside of taking lessons with golf instructors. When it comes to controlling their stress, they often think there is not much that can be done about the high stress situations while playing[6]. There is definitely a market for a good electronic "trainer" which can teach techniques of a good game and adapt them to the person's body type and shape and also help reduce and control the stress. Being good at golf is extremely important to most golfers but they have not found any effective training aid that would allow them reach their maximum potential. Most try various training aids, and take a few lessons, they don't see any significant results, and they give up and settle for less than their ultimate goal.

There is a strong need for a training aid that: can easily be carried everywhere with the golfer, is easy to use, can be consulted for feedback, provides guidance and tips, shows the golfer's stress level and suggests techniques to control it, and produces significant results. This training aid system will need to be competitively priced in order

[6] Information is obtained in the author's interviews with golfers

to capture young golfers attention who are trying to enter the game, and effective enough for the game to become rewarding in order to encourage them to continue the sport. Adigy's current technology and capabilities and the projected product, TraceMe™, can deliver the expected performance in providing custom tailored training and stress control (see attached Market Requirement Document).

4 Business Strategy Development

The business strategy development presented here is based on an assessment of industry attractiveness, environmental conditions, internal strengths and weaknesses, business model analysis, and the marketing literature on technology adoption. Michael Porter's five forces analysis (Porter, 1979) is used to understand where the power lies in the North American golf training aid industry. The environmental factors also affect an industry and to a great degree sometime, thus these are also evaluated in this section as well as internal forces of the company, its strengths and weaknesses. Once all the forces of the industry are presented, the business model is explored considering six different functions followed by a presentation of possible distribution channels. A general market penetration strategy concludes this chapter which will pave the way for further analysis and business strategy development in later chapters.

4.1 Analysis of the North American Golf Training Aid Industry Attractiveness

Porter's 5 forces analysis (Porter, 1979) is a framework deriving five forces that determine the attractiveness and profitability of an industry or a market. This general evaluation of an industry or market does not guarantee the profitability of every entrant or incumbent in the industry, but rather it offers an initial starting point to help with general qualitative evaluation and preliminary decision making. The five forces analysis of the golf training aid industry shows a medium threat of substitute products, a strong threat of new entrants, and weak rivalry, buyer power, and supplier power. Overall, this yields medium- high industry attractiveness.

4.1.1 Substitutes or Status Quo

Substitutes to TraceMe™ are different ways of training or practicing and also the status quo of “not doing anything”. Other available tools for training and practicing have mostly proven to be ineffective. They help minimally at the beginning stages of learning the game and offer almost nothing after the initial period of taking up the game. Their inefficiency has damaged the minds of players by not delivering results and causing the golfers to conclude that training aids are minimally useful. This in turn has created the state of “continuing with status quo”. This situation can be considered threatening to Adigy’s goal. It seems that most golfers have resigned to the fact that “there is nothing to be done” and that they just need to keep playing until the game gets better by itself. This may be hard to fight as the players’ previous disappointments have induced a negative attitude towards training aids in general. TraceMe™ must prove itself effective and be offered in a reasonable price range in order to fight the established negative opinion. Overall power of this force is medium.

4.1.2 Established Rivals

The current producers of training aids do not possess the technology and capability of designing a comparable product to TraceMe™. At most, these are considered substitutes that are much cheaper but don’t offer any of the features that TraceMe™ offers. A strong rival would be one that offers an easily portable product with simple user interface, able to gather user data and provide coaching and useful tips, basically an interactive device that above all, delivers results. Such rival doesn’t exist in today's market while TraceMe™ is designed to meet all of these expectations plus a way of mental training and stress control. (See attached Market Requirement Document). As a result, already existing products are considered a weak threat to Adigy.

Another segment of the industry that can be considered an established rival is the instructors and coaches. They could be more of a threat to TraceMe™ as they offer some of the same services and serve the same needs of the market. The golfing population is in unanimous agreement that in order to learn golf and to continue constant improvement one must take lessons. While TraceMe™ can be used by the instructors to make their lessons more efficient, and all of the instructors interviewed during this project have expressed immense interest to work with Adigy during the development of the product and to buy the final product, in the end they may be considered competitors to this product.

As instructors are well established and accepted by all in golfing industry, TraceMe™ will offer significant advantages over traditional lessons to be noticed and recognized. While instructors and their tools are the best "trainers" in the market, they have shortcomings that open up opportunities for introduction of new possibilities and improvements on the old techniques. TraceMe™ is a very much differentiated product that offers new ways of learning, practicing and enjoying the golf while serving the same market and the same needs as instructors and coaches. Overall, the established rivals are considered a rather weak power within the training aid market.

4.1.3 New Entrants

When Adigy introduces its new product and proves its efficiency, others may consider entering the same market. The only barriers to entry are the time and funding needed to conduct the research and development. This barrier is not a strong one because while Adigy will be slightly ahead of these new entrants it won't be able to secure a long term ownership of the market. The gaming industry veterans already have the technology and huge amount of data gathered by measuring and monitoring the best players of each sport in order to create games that simulate the real game. These organizations are not in sport market but it will not be hard for them to enter as they already have extensive technological knowledge and data. They would just need to customize their technology for the golfing market, establish a relationship with big industry powers, create a brand image, and choose a distribution channel. If Adigy has already established the market with its product, new entrants will be able to take advantage of the customer awareness of this type of training aid. To create a strong barrier to entry, Adigy must secure a patent for the particular application of this technology. This is absolutely necessary for Adigy's success. Without a patent, new entrants are considered a strong threatening force in this analysis.

4.1.4 Bargaining Power of Suppliers

Adigy's suppliers are electronic component and board manufacturers, and mechanical enclosure designers and builders. The entire components used to build TraceMe™ are off the shelf products, the board and mechanical enclosure manufacturing are readily available locally and globally with standard practices and there is no need for any kind of customization. Since Adigy can choose from within a number of manufacturers and component providers, the suppliers won't have a strong bargaining power to drive up the cost.

4.1.5 Bargaining Power of Customers

The customers are the end users and they will not have much bargaining power as they are scattered and don't have an organized system for buying products in golfing industry. The price sensitivity is rather low in this market as customers mostly have higher incomes and don't consider the price the first factor in purchasing products. If Adigy decides to use existing distributor channels to sell the product, then these channels may possess certain bargaining power. This power depends on the number of the distributors chosen. To decrease this power, TraceMe™ can be distributed by more than a few distributors and also be sold directly by phone or Internet. Overall the bargaining power of customers in driving the price down is a weak one.

4.2 Environmental Factors

There are two environmental factors that will affect this market, economic and social. The North American economy has been weak for several years now but it is expected to pick up its previous pace in the near future. With the US presidential election drawing closer, a big change in its political power is expected and inevitably, this will have a positive effect on its economy. Thus the recession may last for another year or two but the economy is expected to become strong by then. This will fit Adigy's development and marketing schedule nicely; by the time Adigy is ready to market the product to the mass market, the economy will have picked up.

The social, in particular business-social, factor will work in Adigy's favor all the time. The trend of golf-as-business is only growing and it has extended itself to overseas and non-English speaking countries such as India and China in recent years. This is all very promising for Adigy's new product and its new venture.

4.3 Internal Strengths and Weaknesses

Adigy's core competencies are in the area of sensing technology, wireless communications and heart health knowledge. The extensive and advanced state of sensing technology enables them to develop any kind of sensor for any kind of application. The sensors that they have developed are electronic or electro-mechanic type of sensors. They can sense the position, movement, impact, temperature and other important factors that will contribute to the analysis of a variety of subjects and situations. They have been able to send their sensor data over wireless cell phone networks and also over the land telephone lines. They have a team of exceptionally skilled electronics and software designers who can develop superior applications in a short period of time.

Adigy is a small R&D company which makes it easier for them to shorten the development times and have easy connections and communications between different departments and also with the potential market representatives. Their small size allows them to comfortably maneuver with the market and technology changes. They have had a good start in creating excellent golf industry contacts by means of this project that they can maintain by building a strong product management team that will lead the follow up activities to produce good results.

The only identified weakness is the lack of financial expertise at Adigy. To develop a workable business plan they need to acquire expert and dependable financial capability. There is also a lack of sales force but at the starting point this is not considered a weakness. The marketing research and activities will generate excellent leads for the sales representatives to follow up with. The sales group can be formed further in the future when prototype stage is nearing its end.

4.4 Business Model

Chesbrough and Rosenbloom (2002) specify six functions for a business model. These are 1) articulating the value proposition, 2) identifying a market segment 3) defining the structure of the firm's value chain, 4) specifying the revenue generation mechanisms, 5) describing the position of the firm within the value network and 6) formulating the competitive strategy. These aspects are discussed in the following paragraphs.

4.4.1 Value proposition

According to Chesbrough and Rosenbloom (2002), value proposition is the definition of what the product or service will offer to customers and how they will use it. The value proposition helps to define the market segments to which the product or service will be appealing. The projected product TraceMe™, offers an easy and practical way to monitor and analyze the game of golf, help control stress level and record user input during the game for later reviewing. Golfers will know why their game went the way it did and will be able to correct their moves as they go. This device is easy to put on and take off; it is configurable so that the users can use it the way they want and for what they want. The software can be used on a laptop or a small PDA device or, in its simplest functionalities, on a wristwatch type of device. One of the significant advantages is that the users can carry this with them during the game and enter their input or check out their performance or stress levels at any time. This has the potential to boost their confidence level and improve their games dramatically. Golf is not as enjoyable if a player's performance is poor; TraceMe™ is expected to offer measurable improvement in players' scores and be fun to use.

Various segments of the golfing market will benefit from different set of features offered by TraceMe™. Excellent golf players will see this device as a data recorder and interactive tool that gives them the possibility of going back and looking at each individual move and their own entries of how the result was. Good and average players will primarily use the training features to get better in their games; while instructors will use the software to compare, highlight, zoom in and out, and isolate certain moves to find the areas that need improvements.

4.4.2 Profit potential

Profit potential refers to an estimated profit if a market is captured. To have a good estimate of profit, cost and price must be projected. Different segments of the market will be willing to pay different prices for the device. According to the Ipsos study on behalf of RCGA (2006), a golfer spends an average of $2168 per year on direct golf costs, thus a price of $500 - $600 for TraceMe™ has been examined during the direct interviews with golfers and this seems to be an acceptable price for average and good golfers. Excellent golfers usually buy the best equipment, such as a good driver (club) that may cost up to $500. For this group a higher price of $700-$800 is expected to be acceptable. Instructors are willing to spend more than $1000-$1200 on such a device. The beginners' willingness to pay for a training aid device has been lower than $100[8].

The device's manufacturing cost will be about $100[7], the one-time R&D costs may go up to one million dollars and continuous costs of marketing, sales and technical support must also be accounted for. A preliminary estimate of these costs shows a moderate margin of profit with the lowest price range of $500 - $600. Considering that North America has 30 million golfers, the size of each of these segments is 1.5 million excellent golfers (5% of golfers), 21 million good and average golfers[8] (70% of golfers), and 18,500 golf instructors (United States and Canadian Golf Teachers Federation)[9]. The beginners are not considered a suitable segment to target as Adigy cannot realistically reduce the cost to meet their price expectations profitably. If we assume that the total cost per unit will be $200[7], including manufacturing and all other costs, and that the device will be sold for $800, $600 and $1200 to each of the segments mentioned above, the profit margin is $600, $400 and $1000 respectively. Assuming an 100% market

[7] This price is only an assumption and needs to be investigated during the development phase
[8] Information is obtained in the author's interviews with golfers
[9] The actual number of golf teachers may be more than this since there are teachers who are not a member of these federations.

adoption, the potential profit for excellent golfers segment is 1.5 million x $600= $900 million, for the good and average golfers segment is 21 million x $400=$8.4 billion, and for the instructors' segment is 18,500 x $1000 = $18.5 million. If all segments are targeted and 100% of that is captured, the potential profit is the sum of these three as there is no overlap of the segments. This will be $900 million + $8.4 billion + $18.5 million = $9.32 billion.

4.4.3 Revenue model

A revenue model shows how revenue will be generated with the operation of a business. Adigy will generate revenue by selling TraceMe™ and charging the customers directly. This device could be manufactured in North America or off shore; it will be marketed and sold in North America using either direct or indirect distribution channels. Developing partnership with distribution channels is a possibility that could increase total revenue but will also require revenue and profit sharing. Advertising of the product could be done in magazines, on TV and radio channels and also on Internet, through online searches (such as Google) on the word "golf".

4.4.4 Target market

According to Chesbrough and Rosenbloom (2002), the business model must specify a group of customers or a market segment to which the value proposition will be appealing. A customer can value a technology according to its ability to reduce the cost of a solution to an existing problem, or its ability to create new possibilities and solutions. As explained in **section 4.4.1**, Adigy's target market could be one of the three segments of excellent golfers, good and average golfers, instructors or any combination of these. Geographically, either all the big clusters or one or two cluster(s) could be targeted. The biggest golf clusters are Illinois, Ohio, Pennsylvania and South Carolina in the US. There are additional smaller but still big clusters in other parts of US and Canada that could be added to the list for a broader marketing strategy.

4.4.5 Competitive advantage

> When two or more firms compete within the same market, one firm possesses a competitive advantage over its rivals when it earns (or has the potential to earn) a persistently higher rate of profit. Competitive advantage, then, is the ability of the firm to outperform rivals on the primary performance goal – profitability. (Grant, 2002, page 227)

Adigy is projecting to offer a superior technology and an effective product that is not matched by any other product in the market. A patent must protect this technology and its new application, otherwise Adigy will be vulnerable to new entrants' threat. Also, the product should be offered in the price range that is found acceptable by this study to capture the majority of the target market. It may also be possible to develop some network effect with this product when players start comparing their TraceMe™ data or sending them to each other or to their instructors or coaches for evaluation or comparison. This idea should be considered and examined during the alpha and beta phases of the product development. These capabilities and advantages over rivals are expected to create the desired competitive advantage if legally protected.

4.4.6 Value network

> The value network created around a given business shapes the role that suppliers, customers and third parties play in influencing the value captured from commercialization of an innovation. The value network increases the supply of complementary goods on the supply side, and can increase the network effects among consumers on the demand side. (Chesbrough and Rosenbloom, 2002, page 8)

Adigy may develop a value network with its distributors and also the instructors by creating the possibility of new business dimensions for them. Golf academies and clubs can make their center more attractive by offering TraceMe™ as a rental device and also open a new revenue stream for themselves. Golf equipment stores can gain a good margin by promoting TraceMe™ and instructors can advertise better services and results by adding it to their toolset. Adigy may in turn offer promotion for the services or products of various clubs, stores or instruction via its direct sales channel. This cooperation and partnership will increase the value offered to the customers and also to the partnering companies. It is also likely to create some network effect among the customers while building a brand image.

4.5 Distribution Model

TraceMe™ could be distributed via two main channels, golf equipment stores and direct sales over the phone and Internet (**Figure 3**). Golf academy and golf clubs may also buy the device themselves and offer it as a rental kit, as they don't usually sell equipment themselves. Rental offering could be very beneficial in the early stages of the product as it would be an easy and cheap way of trialing the product. One or a number of software license(s) could be held by the academy or club on their computer(s) for the renters to look up their data and performance.

Adigy must offer an attractive mark-up to the stores and provide technical training and support to make the sale. The big chain stores are the rational choice to be contacted first, because they have more capital to invest in a new product line and the support staff to promote the product and handle the sale. Adigy may choose to distribute TraceMe™ through smaller stores as well at a later time. Direct sales are also attractive as they offer a higher profit margin for Adigy. To promote cooperation and a sense of partnership, coupons and savings towards various golf travel and green fees or equipment purchase could be offered with direct sales.

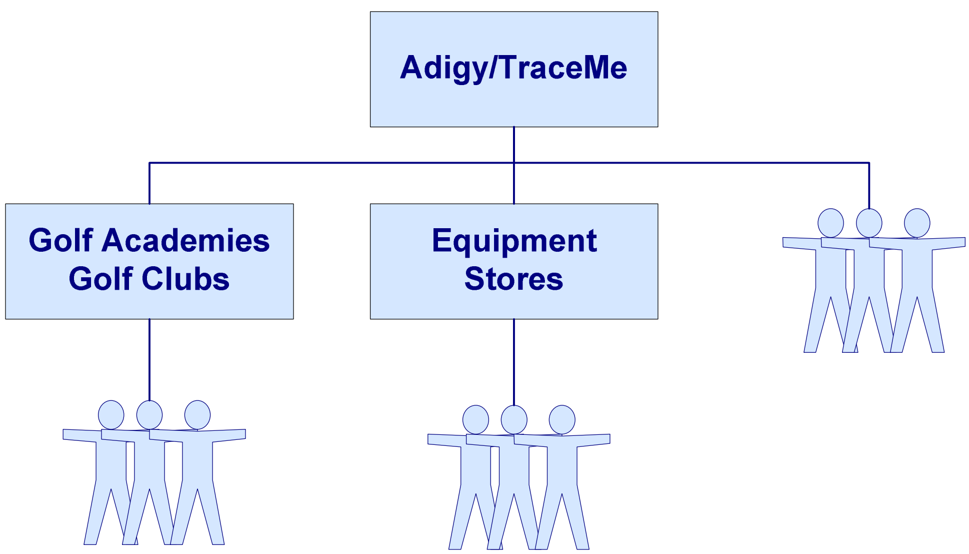

Figure 3: Proposed Distribution model

4.6 Marketing Strategy

According to Everett Rogers, (1962), innovations and new products will spread through society in an S curve starting with early adopters of the technology followed by the majority to finally become common. He stated that the diffusion of innovation is based on people's attitude which has five stages: knowledge, persuasion, decision, implementation and confirmation. Innovation adaptation is also influenced by other factors such as the ability of the new technology to be adapted to the real needs of the majority customers from its initial form adopted by the early adopters.

Rogers' theory is explored and further expanded by Geoffrey Moore in his book "Crossing the Chasm - 1999". Moore broadened the technology adaptation's entire lifecycle to define five groups in a market for high technology products and their distribution on a bell curve: innovators, early adopters, early majority, late majority and laggards (**Figure 4**). Moore argues that there are cracks in the technology adaptation lifecycle curve, between each group that represent a difference between them in the way and the reason they will adopt the new technology. He then demonstrates that the crack between early adopters and early majority is so big that it is considered a chasm. According to Moore, early adopters or visionaries are driven by a dream and are able to see what an emerging technology can bring, while early majority or pragmatists are looking for established and working products with good quality, proper infrastructure and known technology leaders behind it that can provide support when needed.

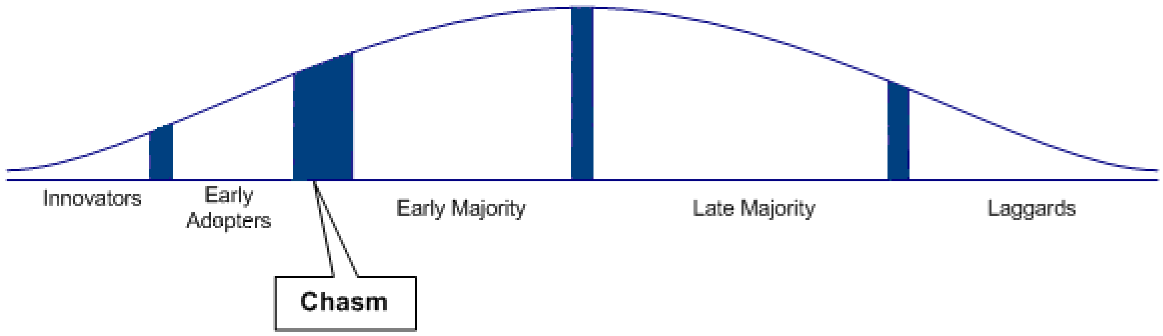

Figure 4: Technology Adaptation Lifecycle

Based on this perception of the market and the nature of the technology adaptation lifecycle, Moore then suggests techniques to successfully cross this chasm and capture the majority of the market. He suggests first defining a target niche market and focusing on dominating it, secondly considering the product in relation with the required infrastructure and supporting products, thirdly identifying and evaluating the competitors and finally to launch the product with the most suitable distribution channels and the right price.

During the author's personal interviews with golf enthusiasts and professionals, many "innovators" were encountered and they have all mentioned that they want to work with Adigy during their development period and that they would buy the product when it is ready. Adigy may work with these individuals to design a product that is "efficient" and "useful". During this period, the product may be improved to reach an acceptable level by enthusiasts and visionaries. Visionaries have also been encountered during the interviews. These have been mostly the instructors who see the product as a tool that will strengthen their competitiveness. It seems reasonable to start the adaptation cycle locally, in Vancouver, BC, where the development team is, to allow the innovators and development team to work together. During this period, an early adopters group may be identified based on the chosen target market. This group is expected to spread geographically broader than the innovators. Early adopters will see a functioning product but are expected to demand many adjustments to it. This will constitute the second round of product development and improvement, as Adigy will see how the product is accepted in the business world. During this time, the general public introduction and advertisement of the product may also be planned. This plan may include attending the golf trade shows, preparing for advertisements on TV, radio, magazines and Internet. Capturing the early majority group will follow the execution of this marketing plan.

5 Decision Analysis

Adigy Canada currently is serving the medical market with their wearable sensors that monitor patients' heart health, their activities and stress levels, and transmit the data to a remote center for surveillance and analysis. The company's expertise in these areas yields an opportunity to enter other markets that may benefit from these capabilities. Tracing movement and being able to analyze the data has been proven to be important in sport markets because it creates the possibility of better training and practicing which enhances performance levels for amateur and professional athletes.

Initially the golf, ski and hockey were considered as the potential sportive markets. The golf market was chosen by Adigy's CEO to be pursued as the initial target because of the unique opportunities that it offers such as the size of the local market, its year round active state, the financial composition of customers and the solvability of the identified needs by Adigy. A training aid device has been proposed that offers tracing of players' movements and the golf club along with a software application that offers analysis and evaluation of players' performance. This device will also monitor the stress level of the player and provide some type of feedback chosen by the user from within a selection of vibration or music playing or just a simple display of data.

This analysis has been performed to identify the market potential and business model options based on the industry conditions, the company's strategic objectives and its internal strengths and preferences. A balanced scorecard based on Kaplan & Norton's research (1996) has been used to define the objectives, and also measures and initiatives that need to be taken for achieving each objective. The priorities and importance of these objectives are then rated by Adigy's CEO. The outcome of this evaluation is used to determine the most suitable strategic business option from within a set of alternatives.

5.1 Strategic Objectives

Adigy's strategic objectives were determined through discussions with the CEO of the firm. Adigy's objectives in relation to this project can be grouped into four main categories as defined by Kaplan & Norton in their work on the balanced scorecard (1996). These are financial, customers, internal and growth and learning. Adigy's financial objectives are creating revenue and profit quickly while minimizing risk and cost. Their customer related objectives are addressing the right problem with the right solution at the right price, creation of brand image, obtaining high growth rate of the adaptation, minimizing the need for customers' technical knowledge, and maintaining good communication and feedback channels. Their internal objectives are to strengthen product management and marketing, improve agile product development processes, enhance legal side of the business, improve communication between various internal teams as well as external contacts, and increase accessibility and transparency to the investors and board members. And their growth and learning objectives are to enrich the golf market knowledge base, continue to acquire new technical abilities and tools, and create reference base for future sport markets.

To develop strategic measures that will help with choosing a strategy to enter the golf training aid market and also with the selection of a business model, a subset of the objectives mentioned above are selected. The developed measures define how the achievement of the objective will be judged. Then initiatives that need to be taken in order to achieve these objectives are suggested. The objectives, their related measures and initiatives, and their importance to Adigy are listed in **Table 5**.

Table 5: Strategic Objectives, measures and their degree of importance

	Strategic Objective	Measures	Initiatives	Degree Of Importance
Financial	Revenue generation	Duration of time to generate revenue	Go after the whole market (all segments-all areas)	15%
	Profitability	Duration of time to breakeven	Minimize cost	15%
	Minimize risk	Quality of the final product	• Hire experienced employees • Seek design consulting • Have a proven product • Strengthen the management team • Go after a small segment of the market and test results	15%

Customer	Addressing the right problem and creating the right solution	Number of satisfied customers	Identify the problem correctly by working closely with innovators & early adopters group of the market	35%
	Brand image and customer base	• Brand referencing in media • Sales growth rate	• Widespread marketing • Professional endorsement	5%
Internal	Strengthen product management and marketing	Number of product management and marketing team employees	Build a strong product management and marketing team	5%
Growth & Learning	Develop partnerships with other establishments	Number of partners	Seek partnership opportunities	10%

The final decision on whether to enter the market or not, what type of product to design, what business model to follow and what price to offer depends on the data and analysis of market trends, market needs that can be served by Adigy, existing business models the market's willingness to pay for these solutions and also Adigy's objectives and preferences on the ways to achieve them. Four alternative business strategies are proposed in section 5.2 based on Adigy's technology offering and the marketing analysis in this report. A recommended business strategy is selected in section 5.3 based on Adigy's objectives and preferences, as captured in **Table 5**.

As shown in **Table 5**, the most important factor for Adigy's success in this industry and market, according to Adigy's CEO is the ability of designing the right product and addressing the right problem with the right solution. Financial objectives of creating revenue and profit are also in the top priority of the company. Company's CEO believes that the best way to minimize risk is to have a superior quality product and to ensure this level of quality, the best design and management teams must be sought. Another important objective for Adigy is to develop partnerships with other strong entities in the industry as this will strengthen the company image and will also open new doors for new product configurations leading to new markets or boosting the existing ones.

5.2 Alternative Business Strategies

Golf training aid alternative business strategies can be developed based on three main components, 1) the target market segment, 2) geographical target location, and 3) distribution channel to be used. The existing market segments may be configured to constitute four different targets 1) good and average golf players, 2) excellent golf players, 3) instructors and 4) all segments (see **section 4.4.2** for more information). Geographical locations may be chosen in two different ways, either all the big clusters or one or two cluster(s). The distribution channels can be selected in three different arrangements, 1) sell only in the golf equipment stores, 2) sell only direct via Internet or phone, and 3) sell using both channels. Advertisement is also another factor that is important in business strategy development as it is one of the largest expenses of introducing a new product. The amount and method of advertisement depends on the choices of the three main components.

Variation and combination of the three main components mentioned above yields four different viable business strategy alternatives. The first is to “go big” and target all the segments of the market, use both distribution channels and sell to all clusters of golf industry. The second is to “go bulk”, target the good and average players, use both distribution channels and sell to big clusters of golf industry. The third is to “go specialized”, target the excellent golf players, use direct sales channels and sell to all clusters of golf industry. The fourth is to “go professional”, target the golf instructors, use direct sales channels and cover all geographical areas. The product feature will also be slightly different depending on which alternative is chosen. If the “go bulk” alternative is chosen, the emphasis will be on “teaching” and “coaching” while the “go specialized” alternative dictates a personal data recorder, features to gather user input and a fun device. Targeting instructors will place the emphasis on comparison and demonstration techniques and the “go big” model will require all of these features.

The “go bulk” option will dictate a broad advertising campaign requiring significant capital investment; but it is more likely to generate revenue quickly as it is targeting the largest number of golfers (21 million), increasing the number of possible sales . If fully adopted, this option is estimated to have an overall potential profit of $8.4 billion (see **section 4.4.2**). The “go bulk” option will create a strong brand image as a result of the broad advertising strategy and this in turn will have a positive effect on the sales growth rate. This broad customer base will also create the strongest sport market knowledge base for Adigy that can be used to improve the product features and improve customer satisfaction. The broad contact and customer base will also create more opportunities to develop partnerships with other existing players in the industry.

The “go specialized” option will require a different advertising strategy as the number of excellent golfers is much smaller (1.5 million) and they are influenced by different factors. They seek less of training features and more of data recording and entry capabilities and they seem to be less influenced by general TV and magazine ads compared to Internet search, trade shows, professional endorsements and direct contacts. The advertisement with this option will need less capital investment, but it will be harder to capture the market, revenue generation will arrive later, sales growth will be slower, and the fully adopted potential profit is smaller at $900 million (see **section 4.4.2**). There will not be a strong brand image creation or a big knowledge database inventory with this business strategy option because of the lower number of customers. This will in turn reduce the amount of customer feedback that could be used to improve product and customer satisfaction. Opportunities for partnership development may also be lower with this alternative because of the limited contacts and customers.

The “go professional” alternative will require only direct marketing and introduction of the product, thus a low capital investment. The revenue generation will arrive later and sales growth will have a slower speed as direct contacts and proof of the product’s usefulness will take time to result in sales. The potential profit with this method is the smallest by far, at only $18.5 million (see **section 4.4.2**). There will be a weaker brand image and smaller sport knowledge database inventory, likely reducing the percentage of satisfied customers. Partnership development may also be limited for the same reasons.

The greatest capital investment is needed for the “go big” business strategy alternative, as it requires a full advertisement campaign that covers all clusters in North America and also occupies all advertising channels. Revenue generation is expected to be achieved faster with higher rates of sales growth and the fully adopted profit potential is the greatest of all at $9.32 billion (see **section 4.4.2**). The brand image will be strong with this option, while offering a big inventory of sport market knowledge database leading to more opportunities for partnership and also product improvements. However, the huge customer base will divide company’s attention to customers, with a negative effect on the expected customer satisfaction rate. The large variety of customer needs will also reduce the focus of the product features, further reducing the percentage of satisfied customers.

Regardless of the business strategy alternative chosen, the marketing strategy will follow the guidelines presented in **section 4.6** based on Moore’s suggested methods of “crossing the chasm” (Moore, 1999). This means starting with a small market and working locally and directly on the innovators and early adopters groups of customers. After capturing innovator and early adopters’ group and refining the product accordingly, Adigy will focus on the intended target market of the chosen business strategy alternative and on capturing the early majority group of that market.

5.3 Assessment of Alternatives

In this section, the Business strategy alternatives (see section 5.2) are evaluated based on the measures defined in **Table 5.** For each business strategy alternative, all measures are rated as to what potential outcome they are most likely to achieve. The ratings range from -2 to 2. If a business strategy alternative is very promising on the particular measure, it is given a number 2, but if it is likely to result in a negative result, it is rated -2 with two other ratings in between. After this initial rating, Adigy's priorities of the objectives are taken into account by multiplying each rating with the weighting presented in **Table 5**. At the end, each alternative's total rating is calculated by a simple addition of all ratings. The assessment summary is presented in **Table 6**.

Table 6: Business Strategy Alternative Assessment: Balanced Scorecard

Alternatives Measures	**Go Big**	**Go Bulk**	**Go Specialized**	**Go professional**	**Degree Of Importance**
Duration of time to generate revenue	2	2	-1	-2	15%
Duration of time to breakeven	1	2	-1	-1	15%
Quality of the final product	1	2	-2	-1	15%
Number of satisfied customers	1	2	-1	-1	35%
Brand referencing in media and sales growth rate	2	2	-1	-2	5%
Number of product management and marketing	1	1	1	1	5%

team employees					
Number of partners	2	2	-1	-2	10%
Total considering Adigy's priority rating	1.3	1.95	-1.05	-1.2	100%

Each business strategy alternative was assessed on each measure based on the logic provided in section 5.2. Based on this assessment, the most promising alternative is the "go bulk" option, that is to target the largest segment of the market, good and average players, use the two distribution channels of direct and established golf equipment stores, and sell to big clusters of golf industry that are mostly in the USA. This strategy will likely require external financing to raise the capital required for advertising, inventory and distribution. Such investment would be sought after further validity is established through the local market and feedback is received from innovators and early adopters.

6 Recommendations and Implementation

In this section, a business strategy, a business model, and implementation methods are recommended. These recommendations are based on the primary and secondary market information obtained during this study, various academic theories of business, marketing and strategy development, and preferences of Adigy's senior management. The analysis of the golf training aid industry attractiveness performed in **section 4.1** is also taken into consideration.

The golf training aid industry attractiveness is identified to be medium-high and is promising a good return if a suitable strategy is developed and the right segment of the market is targeted. As shown in **Table 6**, the best business strategy option is to target the good and average players segment of the golf market in the big clusters of industry concentrations mostly in mid west US. Two distribution channels are recommended for this product. First is to use the existing golf equipment stores to introduce the product and follow by establishing a direct sales channel and Internet search engine agreements to promote the product. The recommended price range for this segment of the market is \$500 to \$600 and the manufacturing cost must be brought down to \$100 per unit in order to enjoy the margin profits assumed in this paper. Adding sales, marketing and R&D costs onto product manufacturing costs, this project assumes a total cost of \$200/unit. It must be noted that, while this option promises great returns, it also naturally carries more risks as it requires a substantial amount of investment. These risks can be mitigated by following the recommendations made in this paper, in particular, further developing and refining the product with innovators and early adopters.

It is recommended that Adigy starts implementing this strategy by working closely with the volunteers and enthusiasts that have been found during this study to further develop the product features and functions. It would be beneficial for the team of developers, the product management and the enthusiast group of the market to define and refine the product features to make it easy to use, effective and fun. Adigy would gain from testing and further refining the product with a broader range of beta test subjects once the product is designed to the satisfaction of the enthusiasts. It is suggested to then start establishing direct contacts within the early adopters of the market, the instructors, stores that offer lessons, and the academy or club operators. To be recognized by the early majority group (pragmatists), direct sale contacts with known members of the group is recommended. Seeking professional endorsement is another branding option to be considered. Adigy is also encouraged to establish the distribution channels at the time of creating contacts in pragmatists' group by preparing the direct sales channel and contacting golf equipment stores.

Once the product is sold to some leading pragmatists, they can be used as the reference for further advertisement and endorsement of the product. When a satisfactory level of the early majority in North America is captured, the late majority is expected to follow, at which time the marketing focus may change to a global market. A summary of the suggested marketing progress is shown in **Figure 5**.

Figure 5: Marketing stages

The author would like to add two additional suggestions to complement this research work. Firstly, it is strongly recommended that, at the time of starting the development of the product, a broader survey of the chosen market be performed to enrich the data obtained during this study. This study is based on a small sample of the general market and doesn't cover a big geographical area. As the project progresses and more data become available the performed analysis in this paper may be revisited to ensure that the path chosen is being correctly re-adjusted to the changes of the market needs and trends. Secondly, it will be extremely beneficial to develop a business plan with extended financial and cost analysis to further help with the investments and strategic moves of the company. The costs and profits presented in this paper are only assumptions and need further investigation and analysis to reflect a more realistic scenario of the market.

Attachments

TraceMe™ Market Requirements Document (MRD)

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