


# Building a Critical Mass of Users for Digital Healthcare Promotion Programs: A Teaching Case

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## ABSTRACT

Despite recent technological advancements, the slow adoption pattern of digital healthcare promotion programs continues to be a major problem plaguing many healthcare organizations today. The historical teaching case study is indispensable in improving our understanding of the complex and multifaceted nature of contemporary digital healthcare promotion programs. This historical teaching case presents information about e-health, the e-commerce unit of a large multinational healthcare insurance company. The teaching case shows how despite e-health's ability to persuade a large registered base of users to trial its healthcare promotion programs, over 90% of these registrants discontinued use after a short trial period of using the technology. This historical teaching case focuses on the social challenges involved in persuading users to adopt and continue using e-health's major healthcare promotion innovation: an online nutrition center. Despite extensive promotions and the use of incentives, less than 10% of the user base adopted and continued to use this healthcare promotion innovation. The case reports on the discontinuance among digital healthcare promotion users despite the intensive efforts to retain them. Students and practitioners will gain insight into the key social challenges involved in achieving a critical mass of users for digital healthcare promotion innovations. The teaching case requires important decisions to be made by students and practitioners about present digital healthcare promotion programs by drawing on inferences from past digital healthcare promotion programs. Finally, this historical teaching case study makes a convincing case for the value of historical insights in informing present day challenges facing contemporary digital healthcare promotion programs.

## KEYWORDS

Adoption, Electronic Health, Healthcare Informatics, Healthcare Promotion, Preventative Healthcare

## INTRODUCTION TO DIGITAL HEALTHCARE PROMOTION PROGRAMS

As the global population rises and life expectancy rates around the world continue to increase due to advances in science and technology and improvements to socio-environmental conditions, healthcare budgets are facing enormous pressure. On the 21st of November 1986, the Ottawa Charter initiated the advocacy of health promotion to improve healthcare globally (WHO, 1986). Health promotion is

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based on the premise that healthcare cannot be the sole responsibility of the health sector and therefore seeks to provide patients with better control over their health through information, health education, and life enhancing skills (Eriksson & Lindström, 2008). The benefit of empowering patients is not limited to the cost reduction of healthcare, but is also a risk mitigation factor for disease as well as a health-enhancing strategy.

Over the years, ICT began to be integrated into health systems and services worldwide. During the 1990s, e-commerce emerged and enabled new ways to conduct transactions via the Internet. eHealth was also enabled by the Internet. The term eHealth refers to the use of information and communication technologies to improve health and the health care system (Oh, Rizo, Enkin & Jadad, 2005). The Internet refers to the globally connected network of computers. Although the term Internet is used interchangeably with World Wide Web or 'the Web', the World Wide Web refers to multimedia-based documents that can be accessed online, over the Internet (Lupton, 2014). This became known as the Web 1.0 era or the so-called brochure web era. The Web 1.0 era began rapidly in 1990s because of the availability of browsers with user-friendly graphical interfaces. The World Wide Web had become a valuable channel for accessing and seeking health information. Rapid improvement in communication, hardware and software technologies also led to new and better health service offerings via the Internet. By the early 2000s, there was a noticeable shift in the use of the web and the development of web-based applications. This was termed Web 2.0 and involves users creating, organizing, sharing, critiquing and updating content. Web 2.0 connects people and content in unique ways. Web 2.0 facilitates an 'architecture of participation' – a design that encourages user interaction, empowerment and community contributions. Popular Web 2.0 applications include Flickr, Wikipedia, Facebook, MySpace, Twitter and YouTube. By the mid-2000s, Healthcare 2.0 emerged to take advantage of the network of Web 2.0 applications and services delivered through the Web platform. Health 2.0 uses social networking sites, blogs, email list services, online communities, podcasts, search, tagging, videos, and wikis to personalize health care and to collaborate and promote health education (Lupton, 2014).

Recent advances in processor, memory, and disk storage capacity have made digital devices relatively inexpensive and access to online platforms have become more ubiquitous. Consequently, increasingly smaller digital devices from the personal computer to the tablet to smartphones to wearable computers are being used in healthcare (Lupton, 2015). m-Health or mobile health is defined as the use of mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants (PDAs), and other wireless devices to support health practices (Bert, Giacometti, Gualano & Siliquini, 2014). For example, tracking devices can be used to monitor a patient's calorie consumption, exercise and metabolic rate. These devices are being integrated with social media to provide support and motivation. Experts predict that the Web will evolve into Web 3.0 or the 'SemanticWeb' (Giustini, 2007). The Semantic Web aims to improve upon the meaningfulness of information on the Web thereby improving cooperation between digital devices, healthcare practitioners and patients.

Apart from the creation of digital content by healthcare users when they upload information to the Internet, sensors embedded in healthcare digital devices and physical healthcare environments are also generating massive data sets (Neves Stachyra, Rodrigues 2008; Panesar, 2019). These massive data sets are referred to as 'big data'. Cloud computing technologies are being used to facilitate the production, storage and sharing of these big data sets to provide digital healthcare solutions (Darwish, Hassani, Elhoseny, Sangaiah & Muhammad, 2019). Artificial intelligence and machine learning are being used to uncover hidden connections and patterns in these massive data sets to provide evidence-based digital healthcare solutions (Panesar, 2019). Today's healthcare ICT ecosystem is much more complex and involves network providers, network operators, digital device suppliers, platform, content and applications providers, healthcare companies, health agencies, governments and patients (Fransman, 2007). The term 'digital' is now being employed to describe paper-based elements that have been transformed into digital formats, and the devices, communication networks and software applications that use these formats.

ICTs have played a crucial role in providing a digital platform for publishing and disseminating health alerts and information to the general public, scientists and healthcare professionals. eHealth innovations like electronic health records, computer assisted prescription systems, and clinical databases have already directly benefited many patients and holds great promise for the future. Digital platforms are playing and will continue to play a crucial role in health promotion. eHealth innovations are expected to empower and provide cost-effective approaches for patient care and to help government agencies and healthcare organizations to cope with the challenges of increasing healthcare costs. However, the evidence shows that the levels of user uptake for many of these innovations are currently very low and that the diffusion of many of these eHealth innovations is being impeded by a number of significant barriers (Oderanti & Li, 2018; Gugglberger, 2018; Parasuraman & Colby, 2007). Despite the technological advancements and the potential of digital health promotion to tackle the global health crisis, some researchers argue that there continues to be a crisis in digital health promotion delivery (van Gemert-Pijnen, Nijland, van Limburg, Ossebaard, Kelders, Eysenbach & Seydel, 2011; Keshavarz Mohammad, 2019). The key challenges are not technological but social.

Healthcare promotion innovations have earned a reputation for diffusing relatively slowly compared to other healthcare innovations (Rogers, 2002; Rogers, 2010; Greenhalgh, Robert, Bate, Macfarlane & Kyriakidou, 2008). It may be simplistic to assume that strong monetary, and other forms of incentives for prevention, will resolve the complex problem of consumer health (Reichheld & Scheffer, 2000; Jost, 2007). Despite the mixed views about the efficacy of healthcare promotion programs in the literature (Adam & De Bont, 2003; Bandura, 2004; Lister, West, Cannon, Sax & Brodegard, 2014), information and communication technologies are deemed to be important enablers in healthcare services (Larkin, 2001; Schraefel & Churchill, 2014; Sulaiman & Wickramasinghe, 2014; Orji & Moffatt, 2018). However, healthcare promotion programs are quite complex (Solberg, Kottke, Conn, Brekke, Calomeni & Conboy, 1997), yet they continue to be handled poorly and fail to deliver on anticipated benefits (Ward, 2013; Ginter, Duncan, & Swayne, 2018; Greenhalgh, 2018). To manage this complexity, some scholars have suggested that these interventions need to address the social challenges (McLeroy, Bibeau, Steckler, & Glanz, 1988; Green, Richard, & Potvin, 1996; Iyengar & Nair, 2000; Schlosser, 2002; Porter and Teisberg, 2006).

This case is about the difficulties involved in digital healthcare promotion programs attaining a critical mass of users. As students explore the case they will be required to address the many social challenges raised by digital healthcare promotion programs. This case highlights the challenges experienced by e-Health, the e-commerce channel for Health Insurance Company (HIC), and its Online Nutrition Center. After abandoning the Online Nutrition Center, some 15 years ago, HIC is revisiting whether or not to pursue a digital strategy for the promotion of nutrition among its customers, given the latest advances in technology. Before proceeding, the Executive has concluded that a review of the past Online Nutrition Center initiative is needed. They believe that such an assessment of the past could provide valuable insights and lessons learned to inform their decision about the future.

## SETTING THE STAGE

### Introducing the e-Health Case Study

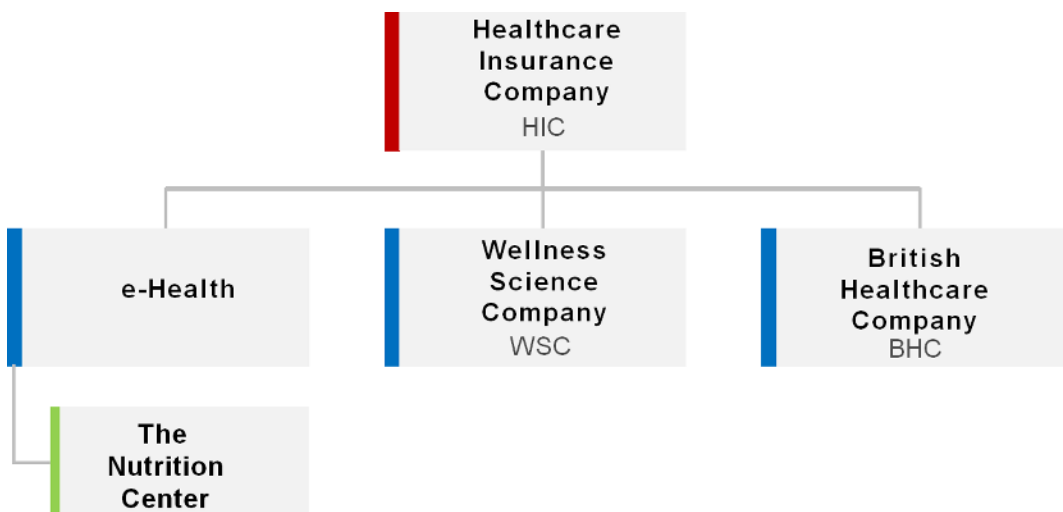
Terry Rossi burst into his office, walked directly to his desk and slumped into his chair. He had just arrived from another tough Exco meeting. The committee was concerned that the “wellness innovations” delivered on the Web had so far appealed to only a minority of customers and not the high numbers that had been promised by e-Health. At best, the healthcare promotion program, the online nutrition center, was serving as a complementary channel for a small captive audience. Terry wondered how he was going to improve the performance of the online nutrition center. Terry knew that if he were to convince the Exco that this healthcare promotion program was a success, this program would have to attain a critical mass of users. He was considering the steps he could take to ensure that e-Health built a critical mass of users.

## CASE DESCRIPTION

### e-Health's Nutrition Centre

E-Health is the individual brand name of the website for Healthcare Insurance Company (HIC) (Figure 1). HIC is composed of two other business units: Wellness Science Company (WSC), a company that provided wellness and loyalty programs for customers, and British Healthcare Insurance Company (BHC) which focuses on offering “consumer-engaged healthcare products” for UK’s private medical insurance market. The aim of WSC is to provide members with tools to “prevent disease and improve their well-being”. WSC was launched in 1997 in response to the growing trend towards a healthier, more active lifestyle, based on the premise that healthier lifestyles could translate into long-term savings on health care costs. WSC provides members with access to selected health and fitness facilities, and creates strong incentives for their customers to use them. Members are persuaded to earn incentive points to improve their wellness status. The greater the status, the more access to benefits, such as discounted travel and leisure prices. WSC also provides all sorts of incentives to use e-Health and e-Health’s Nutrition Center (Figure 2). By the end of 2005, HIC was covering more than 1.8 million lives (Figure 6) while WSC was covering more than 1.2 million lives (Figure 7). At the same time, e-Health’s registered user base exceeded 430,000 (Figure 8).

Figure 1. HIC's organisation structure



The Nutrition Centre was conceived in 2002. The objective was to provide an online mechanism that promoted healthy eating habits among WSC’s members. The design process was managed by a wellness nutrition panel, composed of dietitians, clinicians and nutrition academics. There was a huge emphasis on designing the tool with a strong scientific basis.

The Nutrition Centre project team aimed to establish an integrated nutrition programme using ‘scientific guidelines, periodic reviews, and data collection’. Meanwhile the clinical team who were now driving the project selected a panel that consisted of three nutrition academics from the various Universities around South Africa. This panel was tasked to review the design of the application and provide guidance. They were also involved in a number of workshops with the software development team. The design of the tool had to get their stamp of approval specifically on the “scientific basis”.

Figure 2. Screen shot of e-Health's landing page (2004 website redesign)



Despite this aim, there were different opinions among the panel members about certain topics, such as the fibre content of a healthy diet, and so on.

At the time the Nutrition Centre had not put in any specific programs that involved members going to consult registered dieticians. While members could go and see a dietician there was nothing in place that “pushed” members to dieticians. So the only way that members could get nutritional information initially was via communication through the magazine, email and the weighless program. However the weighless program did not appeal to everybody because it was obviously seen more as a program specifically for people who wanted to lose weight and the objective of the online nutrition centre was to appeal to a broader population. The panellists had the view that the team needed to create an online dietician and the development team were transfixed by this concept. It soon occurred to the panel that just the concept of providing an online meal planner for a user was a complicated task. User inputs were required for gender, activity, height, weight, waist, and blood type, among other inputs. The tool also had to rely on the self-reported measurements of the user to establish the effectiveness of the proposed diet.

When using the online nutrition centre at a coffee shop, the user remotely operates their nutrition self-assessment form so that the system could provide them with a meal plan recommendation. In this process the user captures a range of inputs related to their current weight, age, height, and waist measurements into the system. Thus, it enables the users control by acting at a distance. The rationale is that there is no need to schedule an appointment with their dietician.

While the Nutrition Center did attract users, it was not as popular as the applications that were concerned with the members' health plans. The monthly management report indicated that applications related to health plan issues, such as the online claims tracker application, were used as much as three times for every single use of the nutrition centre. Page impressions were on average fewer than 3 000 per week.

The survey results reported in Figure 3 shows that despite the high level of awareness as espoused by the diffusion of innovation theory (Rogers, 2010; Ward, 2013), and agreement by users on the utility and ease of use as espoused by the technology acceptance model (Davis 1989; Holden & Karsh, 2010), discontinuance of the Nutrition Center remained extremely high.

Figure 3. Nutrition center survey. Source: Bataleur, Customer Satisfaction Survey.



### Promoting the Adoption of Healthcare Promotion Programs

Terry's strategy to market the Nutrition Centre resulted in enticing many users to register to trial the technology. The campaigns promoted the company's vision of "improving people's health and enhancing their lifestyles" in an online environment. The Nutrition Centre was promoted in various mediums:

- **Healthcare Insurance Fact File:** The Nutrition Centre was promoted in the firm's fact file. The fact file was a booklet that principal members received annually to explain how their health plan works.
- **Healthcare Magazine:** The Nutrition Centre was also promoted in a healthcare magazine. When compared to the different awareness mediums the magazine appeared to be the most effective in promoting the online channel. The magazine consistently featured articles explaining the benefits of the Nutrition Centre to members.
- **Email Newsletter Campaigns:** These emails were to become a vital component of the email promotion campaign for promoting the Nutrition Centre.

Other avenues for promoting the Nutrition Centre were employers, brokers and the call centre agents.

- **Incentive Points:** Members were reminded that they could earn points by interacting with the online channel and specifically the Wellness applications. It was specifically the ability to reap rewards from certain behaviour, and going online to gather rewards, such as cheaper gymnasium fees, cheaper flights and holiday accommodations, that led to a significant increase in the number of registered users.

Figure 4 shows that as a result of these promotions, as many as 60% of the registered user base registered to use the Nutrition Centre. Despite efforts at promoting the Nutrition Centre, However, Figure 5 shows that over a short period of time as many as 90% of registrants never returned to use the Nutrition Centre. This is in stark contrast to the health insured member base churn or lapse rate of 3 to 4%. Despite Terry's efforts to attain a critical mass of users, the Nutrition Centre was eventually disbanded because of the high user discontinuance.

Figure 4. Share of active nutrition center users. Source: Internal Report - Statistical analysis of retention.

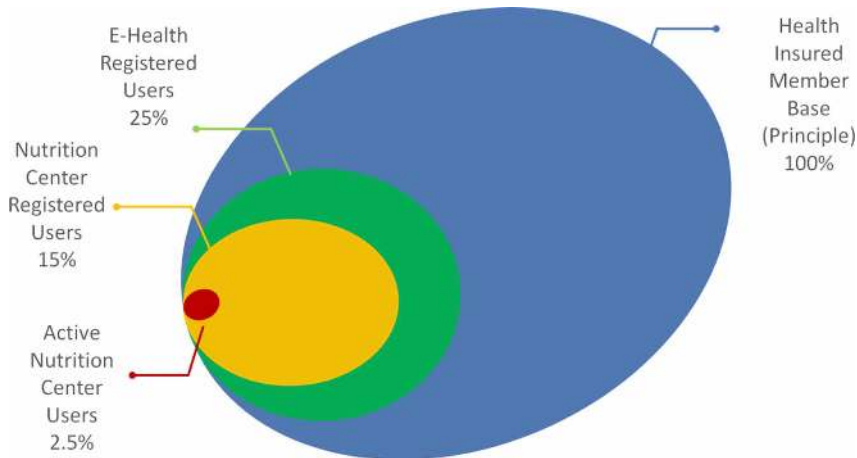
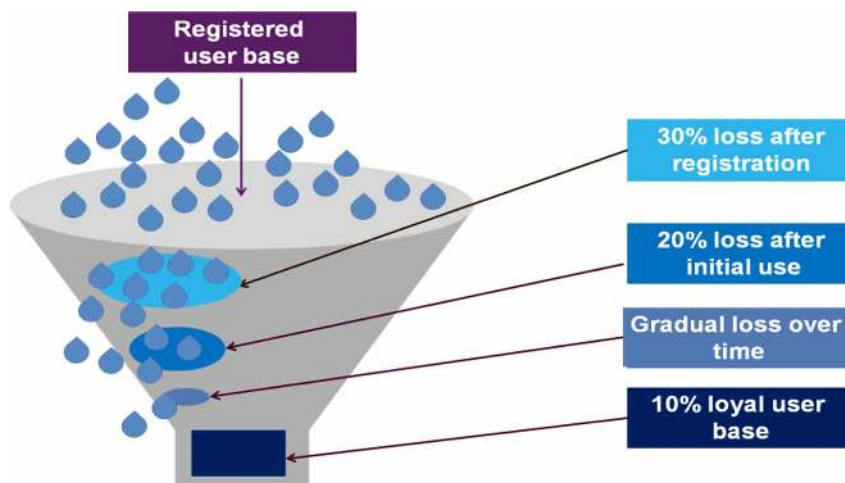


Figure 5. Leaky bucket problem – losing users over time. Source: Internal Report - Statistical analysis of retention.



## POST IMPLEMENTATION REVIEW: LESSONS FROM THE PAST

The following problems contributed to the slow uptake and negatively impacted diffusion of the Nutrition Zone.

### Lesson 1: The Constraining Role of Broader Socio-Economic Structures

The Internet highway as a stop for online wellness tools is now competing with the more resilient structure of our road networks. Ever since the growth of car sales and the subsequent growth of suburbs, growth which road networks had encouraged, fast food organisations have grown into sprawling multinationals by exploiting prime locations within these highway networks. Even in developing countries like South Africa and in fact many other countries around the globe, corporations like

McDonalds have exported the values and tastes of their local culture. With this homogenisation of international fast food culture, countries have not only lost their identity in terms of how, where and what they eat, but they have also exposed themselves to major health risks.

As a result of the pervasiveness of these broader social structures in modern society behavioural changes are difficult to make even with the guidance of a practitioner let alone via a digital healthcare promotion tool. The following excerpt by one of HIC's wellness practitioners describes the challenge:

Behaviour change is an extremely complicated thing. It is. I mean, everybody who has been on a weight loss program knows that you can be as disciplined and, you know, with exercise as well for two or three weeks and if you skip the week, you have to start from scratch. I mean, people go into the behaviour change for six months, and they leave and then they have got to start, and then they have lost all that motivation. So, if people lose interest, the thing is, if they, if they had learned what they wanted to here, they would actually come back to keep on motivating. Because we need to sustain that devotion. If they have lost interest, they are a loss to the cause; they are back to old behaviour. That, that is what I have learned, you know, through experience.

## **Lesson 2: Intense Competition for the Customer's Attention**

There are other market mechanisms outside of the health insurance firm that are vying for the consumer's attention. The content delivered by the media plays a central role in how consumers construct their values and rules of behaviour. In an economic system that focuses on the narrow dictates of profitability, obesity has become big business for the very system that influenced it. Indeed, consumers are overwhelmed by the variety of diet schemes and weight-loss advice and products that are available in the market place. Furthermore, food is an important factor in our day-to-day social practices.

## **Lesson 3: The Relativistic View of Dietary Science**

Even the dietetic practice itself is subjective with different schools of thought making dissimilar claims about the best approach for weight loss. For instance, some focus on calorie reduction; others focus on the types of food groups (protein, carbohydrate, fat) such as low GI (glycaemic index), and the use of supplements and so on, all serving to confuse the consumer. The Nutrition Expert described the different perspectives implicated in the design of the online Nutrition Centre as follows.

There were a lot of challenges I mean within any panel you are going to have differing opinions. Although they are all excellent academics in their own right there was of course a certain degree of not necessarily conflict but differences of opinions in certain aspects. You could certainly pick up the different slants in their particular field of interests and or passion. So for example one would constantly be harping about fibre or lentils and the other one would be harping on about you know various different angles. So taking the science and translating it into an interactive tool was quite a challenge.

## **Lesson 4: Delegating Tacit and Uncodified Knowledge to Technology**

Having been a practicing dietician, the Nutrition Expert suggested that because food and eating is a very emotive issue, the "real-world" dietician often has to play the role of a psychologist, part coach, part friend, and part dietician. A dietician also spends an enormous amount of effort in motivating a patient. And even during the follow-up sessions, the dietician becomes the motivator and the counsellor. The limitations of delegating the role of the dietician to the self-service tool are succinctly described by way of example by the Nutritionist.

Those are the kind of things, the small nuances that are important, to bear in mind because of the fact that this eating is something we all do everyday and it is highly emotive and so highly effected by the type of life that you lead. So there are so many factors and not even necessary really to be written down. You know you just pick these things up. It's really about gathering information and



then tailoring it. Because we know with compliance, with any kind of lifestyle change, the more you personalise it, the more suitable it is to the person's lifestyle the more success you going to have.

The advantages of going to a dietician, you go into a professional environment, you are having that contact with the dietician who can read you and build a relationship with you and become a partner in this process ... I think at the end of the day it (the online tool) is no substitute for that human contact... What I mean is that the body language and the personality and you get to know the person, and you get to understand them and understand their lifestyles.

## Lesson 5: Context-Transferability Challenges

There was increasing frustration among the development team representing the UK partner, on the logic of basing the UK functionality on the South African perspective. One of the unhappy Business Analysts made the following comment:

First of all, you can't just plug and play it from one country to the next . . . And also, what one marketing team wanted differed from the other. So, it started off saying, oh, yes, we are going to use this concept, and the more and more you delve into it, the more and more it moved away.

For example, the conceptions of an online nutrition tool inscribed with a South African perspective required modifications to suit the UK context. Bringing a technology to a new local context involves some explicit and implicit elements of cultural transfer and mutual learning. The following comment by our Nutrition Expert highlights how the UK requirements were at odds with the local South African requirements:

The UK system uses the imperial system while we use the metric system. This affected recipes, portion sizes and body measurements. The dietician in the UK helped us with translating the recipe measurements and portion sizes from metric to the imperial, which involved calculating the equivalent ounces where the recipes stated grams, millimetres or litres and converting kilograms to pounds. Some of the measurements looked ridiculous and didn't seem to make sense, so we had to try and convert to household measurements where possible. For example – 1 teaspoon, 1 cup etc. Regarding the body measurements, one of the tools in the nutrition programme involves calculating your body mass index (BMI). This requires you to enter your height in metres and your weight in kilograms. Naturally we had to modify this tool to allow for the UK market to enter metric friendly data such as feet and pounds. This wasn't difficult as it was simply a case of applying conversion factors.

The UK nutritionist also revealed the differences and idiosyncrasies that were concealed beneath the apparent homogeneity of the UK requirements. While on the surface the UK and South African culture may appear to be similar, this evidence is counter to the global homogenisation notion with respect to ICT implementations. The UK users appropriated the the online nutrition centre, differently as a result of their specific geographies, histories, standards and languages.

At first we thought it would simply involve removing the South African foods, for example biltong<sup>3</sup> from the recipes and menus on the meal plans and replace them with foods familiar to people in the UK. So we needed to find out what equivalent foods would be available in the UK to use as substitutes. Then we realised we also had to change the names of certain foods that were common in both countries, but that were called something different in the UK, like eggplant instead of brinjal, which affected recipes and menus that contained these foods. We also had to change the names of recipes, such as 'potjie' to something more UK friendly like casserole. To ensure that all foods would be recognisable to UK consumers, we enlisted the help of a registered dietician in the UK.

A major nutritional issue in the UK is intolerance or allergy to wheat and there are many more vegans than in South Africa. We had not catered for wheat-free and vegan meal plans on the SA Nutrition Centre and the UK office requested that we design such options to suit their market. This involved the UK dietician supplying us with the names of products available in the UK that could be used as substitutes for wheat and animal protein foods

## Lesson 6: The Abuse of Incentives by Consumers

Many of the users that were enrolled on the Nutrition Center were later identified as “points chasers”. They used the incentive points in an unanticipated way. Rather than follow the assigned way of using the Nutrition Center to “improve their health”, the anti-program of “points chasers” emerged as a result of the incentives. “Deal loyalty” emerged where users were more interested in moving statuses with minimal behavioural changes to their lifestyles to obtain higher incentives and therefore higher discounts. The online feedback below demonstrates a user’s interest in obtaining points as opposed to the content of the assessment.

I have been trying to complete the four exams for the nutrition section of the web site to get the 500 Wellness points. I passed the last three but can’t get the 1st (basic) exam to display. My girlfriend logs on and sees (and completed) all four so it can’t be my PC it must be something to do with what happens when I log on to the web site. Please advise how I can get the 500 points.

Upon reflecting on the Nutrition Center’s ability to play the role of a dietician, our Nutrition Expert admitted this as a mistake.

Trying to figure out everything a dietician would want to know from a person and trying to put that in some kind of tool was actually a mistake because we really didn’t intend to become or replace the services of a registered dietician, there is absolutely no way that we could possibly do that and yet we were trying so hard to get to that point of being an online dietician.

## CURRENT APPROACHES TO PROMOTING NUTRITION

Over more than a decade or so ago, there would be a declining emphasis on the online promotion of nutrition. The online Nutrition Center would also be removed from e-Health. There was a radical shift in nutrition from the online to the ‘physical’ world – in other words, towards the organization’s ‘real world’ network of partners. Today, e-Health’s role is limited to providing generic content on healthy eating, food, nutrition, as well as healthy recipes and tips from the organization’s leading nutrition experts. The nutrition program continues to encourage and reward members for healthy behaviour. However, cash rewards have replaced the redeemable points based system and is awarded for purchasing healthy food and making healthier meal choices when dining. Customers are rewarded with cash back for purchasing healthy food items at selected retail partners. Customers are also rewarded with cash back for making healthier meal choices when dining out at selected restaurant partners. This includes a partnership with Uber Eats. Meanwhile, the firm has also begun opening healthy food studios in major urban centres to teach basic cooking skills and encourage both adults and children to cook using unprocessed and seasonal ingredients to support healthy eating habits. Nutrition assessments are no longer done online. Dieticians in HIC’s wellness network now do the nutrition and weight assessments. While redeemable points for nutrition assessments are no longer offered online, points can be earned for doing these assessments at accredited wellness networks. HIC’s nutrition expert uses the Youtube video-sharing community to provide diet lessons, even though the views are very low. The firm also offers incentives for physical activity. A smartwatch is offered to qualifying customers. The smartwatch measures the wearer’s activity levels and sets personalised weekly fitness goals by connecting to the firm’s fitness app. The company claims that they have observed increased activity levels among many of the participants using the smartwatch reward programme. Today, HIC operates in more than 15 countries and has over 10 million customers. The company focuses on using smartphones, wearable devices and gaming elements to promote healthcare. Success in the diffusion of these digital healthcare promotion programs continues to be mixed.

## **YOUR CHALLENGE AND TASKS**

The HIC executive is reassessing their digital strategy for nutrition. They have reached out to you and your team of consultants to advise the firm. The overarching objective is twofold:

1. To assess how well digital technologies have progressed to date and to what extent they can address some of the social challenges experienced in the past iterations of the nutrition center (assessment);
2. To propose whether to move forward and how to move forward with their digital strategy regarding nutrition (recommendations).

## **NOTES**

Since the organization preferred anonymity, all names have been fictionalised.

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## APPENDIX

Table 1. Exhibit 1: Summary of key global health statistics

Subject	Measures
Underweight children (developing countries)	170 million
Overweight (worldwide)	1 billion
Deaths from obesity-related diseases	0.5 million per annum
Lung cancer from smoking	90%
Men	70%
Women	8.8% (4.9 million per annum)
Global deaths from tobacco-related causes	4% (1.8 million per annum)
Global deaths related to alcohol	1.9 million deaths per annum
Physical inactivity	40 million people
(causes about 15% of some cancers, diabetes and heart disease)	30%
HIV/Aids infections	20%
Global burden of infectious diseases	46 years
Chronic non-communicable disease burden	66 years
(Five risk factors: unsafe sexual practices, alcohol use, indoor air pollution, occupational exposures, and tobacco use)	73 years
Life expectancy (global average)	68 years
1950	
1998	
Europe	
Low- and middle-income countries	

*Source:* WHO (2002)

A number of deaths or diseases are related to causes that are viewed to be within the control of individuals. For example, chronic non-communicable diseases which are linked to factors such as smoking, obesity and a sedentary lifestyle cause 20% of the society's disease burden.

Figure 6. Exhibit 2: HIC's rapid health membership growth

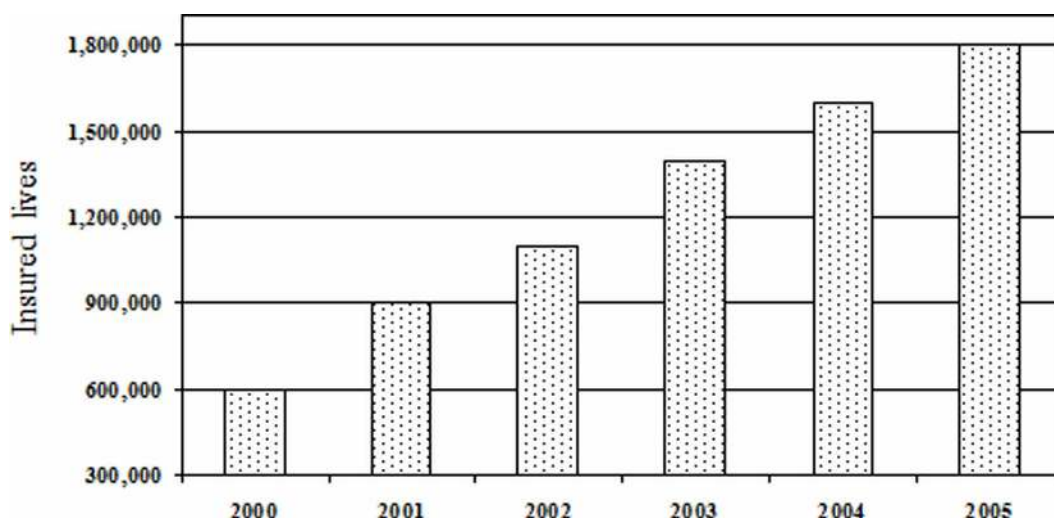


Figure 7. Exhibit 3: WSC's rapid wellness program membership growth

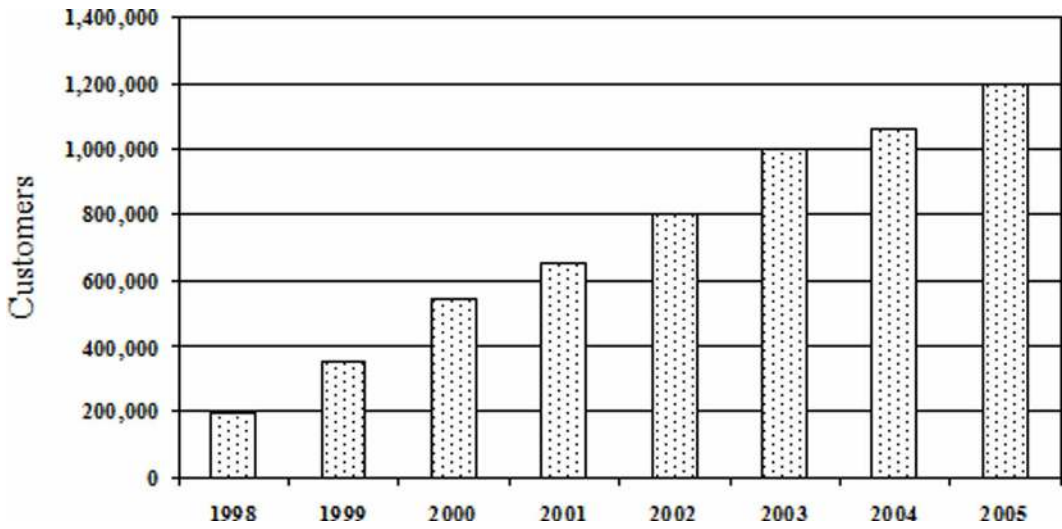
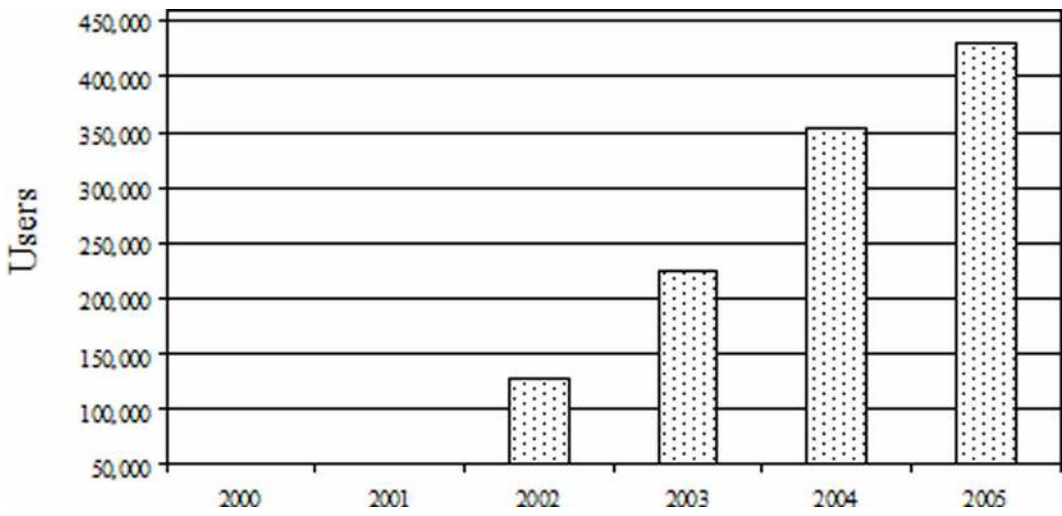


Figure 8. Exhibit 4: e-Health's user registration growth. Source: eHIC's Management Reports (totals are as at financial year-end (June) and not calendar year). 2005 shows almost 430,000 registered users.



**Table 2. Exhibit 5: Summary of key user characteristics**

Subject	Measures
<i>Registration based on gender</i>	53.37%
Male	46.63%
Female	48%
<i>Active use based on gender</i>	52%
Male	21.91%
Female	32.02%
<i>Registered User Age Group</i>	23.60%
20-25	6.74%
26-30	8.43%
31-35	7.30%
36-40	56%
40-45	44%
Greater than 45	70%
<i>Preferred Language of Registered Users</i>	92%
English	
Afrikaans	
<i>Wellness</i>	
Scheme members on wellness program	
Wellness members as part of online registered user base	
<p><i>Source:</i> Internal Management Report (2004)                      The majority of the users appear to be younger and affiliated to the Wellness program.                      The measure of active use is based on logins per month</p>	

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