

Disrupting the market for workplace health: The case of OfficePhysio

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Abstract— Today’s societies face increasing health care costs due to a growing world population, an aging society, and rising prices for health care. A new breed of health care entrepreneurs tries to conceive new ways to deliver health care. One area in which entrepreneurial ventures seek to revolutionize today’s health care is workplace health, providing electronic solutions over the internet. This study sets out to explore whether and how an eWorkplaceHealth program can disrupt the market. The findings—based on an explorative single case study—suggest that eWorkplaceHealth is a disruptive business model that may have already ‘overshot’ the product performance of traditional workplace health.

Keywords: *eHealth, business models, disruptive innovation, workplace health*

I. INTRODUCTION

Today’s societies face increasing health care costs due to a growing world population, an aging society, and rising prices for health care. A new breed of health care entrepreneurs tries to conceive new ways to deliver health care. One area in which entrepreneurial ventures seek to revolutionize today’s health care is workplace health, providing electronic solutions over the internet. This study sets out to explore whether and how an eWorkplaceHealth program can disrupt the market. The findings—although based on a single case study—suggest that eWorkplaceHealth is a disruptive business model that may have already ‘overshot’ the product performance of traditional workplace health.

II. DISRUPTIVE BUSINESS MODELS

Health care has been a prominent example of disruptive innovation [1]. However, eHealth services are a recent phenomenon that emerged with the rise of the internet. These services differentiate themselves from traditional health services in that they create and capture value in significantly different ways [2]. Hitherto scholars have examined how eHealth business models can be modeled and tested a priori [3], studied the opportunities for developing countries [4] or investigated how privacy concerns are accounted for [5]. However, to the knowledge of the author, few have examined the disruptiveness of eHealth services compared to

traditional ways of workplace health. Thus, in the following I briefly review the literature on business models and business model innovation and juxtapose traditional modes of workplace health with an eWorkplaceHealth service to determine its disruptiveness.

Literature on business models and business model innovation is relatively young and emerged in liaison with the dot.com era in the 1990s [2], [6]. In that period, new means of communication allowed making available and transacting information in an unprecedented speed, which gave rise to new forms of businesses, blurring the boundaries of industries [7], [8].

Due to its interdisciplinary nature [2], it is difficult to pinpoint a definition for business models or even what business models are. In fact, business models neither fit economic theory, nor organizational theory [2]. Foundations of the construct can be found in business strategy [9], building upon frameworks such as the value chain, resource-based theory, strategic networks, and transaction cost economics [9]. Due to its nascent state no uniform definition has emerged [6], [9], [10].

One area of business model research targets ‘e-commerce’ which is concerned with describing emerging businesses due the internet. In other words, scholars seek to understand how emerging telecommunication practices enable novel ways of creating value. Recent findings suggests that the internet enabled new sources of value creation, that is it creates efficiencies, complementarities, novel approaches and lock-in situations [11]. Using the business model as an analysis framework allows to clearly illustrating the transactions, its governance, content and structure. Thus, business models are a way of describing emerging phenomenon of e-businesses and their sources of value.

Recently, scholars found that business model innovation holds the promise to create a competitive advantage and even disrupt industries [12]. Johnson et al. [13] point to business model innovation being a source of competitive advantage and emphasize its game-changing character. Similarly for Nidumolu et al. [14] business model innovation refers to “find[ing] novel ways of delivering and capturing value, which will change the basis of competition.” Mitchell and Coles [12] distinguish two types of altering existing business models: business model improvement (incremental change) and business model innovation (disruptive change). Four out of the seven dimensions of a business model—that is the

who, what, when, why, where, how and how much of delivering value to customers of the existing business model—need to change to constitute disruptive change [12]. Incremental change refers to changing less than four dimensions. I apply this framework to determine whether workplace health delivered electronically is a disruptive business model.

III. TRADITIONAL WORKPLACE HEALTH VS. eWORKPLACEHEALTH

One area in which entrepreneurial ventures seek to revolutionize today’s health care is workplace health. Many jobs today require largely monotonous work behind the computer which is in fact counter the human nature. Typical workplace related health problems are for instance the burnout syndrome or back related problems. Particularly the latter causes significant harm to employees and costs for employers. Until today, employees would mostly only go to the doctor or physiotherapist when problems arise, i.e. when it is too late. In Germany, for instance, more than 23% of all sick days are due to back related problems. However, simple interventions at the workplace—such as brief exercises and minor behavioural changes—can prevent problems, alleviate existing computer work related problems, and improve the health and motivation of employees in general. Consequently also the costs of companies can be reduced. Traditionally these interventions were provided by physiotherapists that would come into office places, educate employees about ergonomics at the workplace and conduct exercises together. The problem is that this way of intervention is time intensive, difficult to offer to the entire workforce and also requires facilities that not all companies might be able to provide.

Recently, a new way of providing workplace health has been adopted by companies which has the potential to disrupt the prevalent practice of companies, i.e. inviting physiotherapists to their premises [15]. So called eWorkplaceHealth has been pioneered by a few companies [16]. New information and communication technologies such as video over the internet, communities and interaction enabled companies to design new customized ways of delivering workplace health. Because these services are online based, users benefit from personalized programmes and the flexibility to do exercises whenever it suits them. Also employers profit because every additional user only causes marginal additional costs.

Table 1 juxtaposes traditional workplace health services with eWorkplaceHealth services on the aforementioned seven dimensions of business models [12]. It shows that all dimensions are altered by eWorkplaceHealth services. Instead of selected employees, all employees can be reached. Whereas physiotherapist would largely focus on exercises or alleviate pain, eWorkplaceHealth besides providing exercises and (limited) possibilities to heal minor health issues (e.g. stiff neck) adds an educational component that gradually creates knowledge and awareness. The why is the only dimension that is somewhat similar. Both approaches intend

TABLE I. DISRUPTIVENESS OF eWORKPLACEHEALTH

Business model dimensions	Traditional workplace health	eWorkplaceHealth
<i>Who</i>	Selected employees	All employees
<i>What</i>	Dispersed: various separated interventions, e.g. back school, instructions, gym	All-inclusive: information, exercises, guidance to healing
<i>When</i>	Fixed: set times or after work	Flexible: whenever an employee has time
<i>Why</i>	To conduct exercises, alleviate problems, partially build workplace health competences	To build comprehensive workplace health competences, mobilize, motivate, support healing and inform
<i>Where</i>	Fixed: dedicated places, e.g. community room or gym	Anywhere: at the workplace, but also at home or in the hotel
<i>How</i>	Personal: delivered by an instructor	Virtual: delivered by online videos, descriptions and eLearning tools
<i>How much</i>	Expensive: per hour rate	Inexpensive: small fee per employee per month

to build workplace health competences (e.g. how to sit properly). However, eWorkplaceHealth extends this for instance to related topics such as concentration, breathing or behavioural patterns, i.e. is more comprehensive. One of the significant advantages is that eWorkplaceHealth can be conducted anywhere and is not fixed to a certain place. This is due to the fact that it is provided over the internet on any device (mostly PC, but also tablet PCs or smart phones). Last, the price point is significantly lower than traditional approaches as each additional user only causes marginal costs.

Consequently, eWorkplaceHealth appears to have the character of a disruptive business model. In order to understand whether eWorkplaceHealth can disrupt the industry, first it needs to be explored whether users perceive benefits of these services. Therefore I conducted an explorative case study. In the following sections I describe the methodology, report the findings and discuss the implications.

IV. METHOD AND CASE SELECTION

In order to inform the overarching research question: *Whether and how can eWorkplaceHealth services disrupt the industry of traditional workplace health?* I conducted a single explorative case study to evaluate how users perceive the benefits of these services. Single case studies suffer from low external validity [17]. However, they may enable

multiple levels of analysis [18]. This study intends to explore the phenomenon and is intended to be extended subsequently. In order to gain insights in the application at one organization, I selected a government agency that implemented an eWorkplaceHealth service.

The case organization that implemented the eWorkplaceHealth program named OfficePhysio¹ is a state agency in Hannover, Germany. This agency provides already different traditional workplace health services such as that they have a group that regularly does exercises together and they conduct breaks during the work time in which interested employees actively relax. In order to verify whether the organization would introduce OfficePhysio for all employees as an alternative to traditional means, it conducted a test for a period of four weeks with a small group. A questionnaire to inquire the effectiveness was circulated afterward. The data of this test period was available for this research. The organization has about 300 employees. The test was conducted by 20 employees. Twelve users filled out the questionnaire.

OfficePhysio (see screenshots in Fig. 1 in the appendix) is developed—based on medical studies and in collaboration with certified experts—as an eWorkplaceHealth service which provides different modules, that is an eLearning module which gradually educates users about all workplace related health issues and its solutions, an eMoving module which provides video tutorials for exercises that targeted different problem areas, such as shoulder-neck, lower back, but also eyes, and RSI (so called mouse arm). In addition, an eHealing module provides practices via online tutorials to treat minor health problems such as a stiff neck. Different customized emails remind users about doing their exercises, inform users with workplace related health knowledge and give small tasks that users can do as ‘homework’. It takes five to ten minutes a day to conduct an exercise and read the information.

V. FINDINGS

In the following I present the results as they have emerged from the data (see Table 2). First, 75% of the sample had workplace health related problems. The most reported problems were shoulder-neck problems, followed by eye fatigue. Some also just mentioned general back problems. The users tested the program for four weeks and 92% were very positive about the usability. Just 8% regarded the program as ok, none as mediocre. Interestingly all of the participants found the program motivating. Yet, despite the program being motivating, only 25% managed to do their exercises when they were reminded by email. However, the strength of the programme is that the reminder email remains in the inbox and can be deleted once the user has done the respective task or exercises—which also underlines the flexibility the programme provides, because in daily working life often unexpected tasks need to be done which are of higher priority.

¹ The author of this paper is affiliated to OfficePhysio as a co-initiator.

TABLE II. RESULTS OF THE QUESTIONNAIRE

Question	Result
<i>Did you have workplace health related problems?</i>	Yes: 75% No: 25%
<i>Usability of the programme</i>	Good: 92% Ok: 8% Mediocre: 0%
<i>Is the programme motivating?</i>	Yes: 100% No: 0%
<i>Do you conduct your exercises when you receive your reminder email?</i>	Yes: 25% Partially: 17% No: 58%
<i>Were you disturbed by your colleagues?</i>	Yes: 33% No: 58% N/A: 8%
<i>Would you permanently use the programme?</i>	Yes: 67% No: 33%
<i>Were your workplace related health problems alleviated?</i>	Yes: 50% No: 25% N/A: 25%
<i>Would you recommend the programme?</i>	Yes: 92% No: 8%

Another challenge of these programs is that for some modules, such as exercises at the workplace, users might be embarrassed. However, only 33% felt disturbed by their colleagues. Moreover, 67% answered that they would permanently use the eWorkplaceHealth program. With regard to the (subjective) health results, 50% said that their problems were alleviated and only 25% felt no difference. Finally, 92% would recommend the program to others.

Furthermore, an analysis of the individual respondent results reveals that two of the respondents that had not problems would not continue to use the program permanently. Despite the small number it might be an indication that prevention is not as popular and that only if problems are present, users are willing to engage which is in line with previous research [16]. What is more, those that had no back problems were also less motivated to conduct the exercises in a timely manner. Last, all of those that had problems would recommend the eWorkplaceHealth program to others.

Open questions with regard to how such a program could be improved showed that some users would like to have more variety of exercises (the program provides 65 video tutorials). Moreover, some respondents would like get the same video tutorials as their colleagues in the same room so that they can conduct the exercises together in a team which might be a solution to the fact that users might feel disturbed or embarrassed by other colleagues. 50% of the respondents that felt disturbed/embarrassed requested to have the same exercises at the same time. One respondent suggested improving the written instructions (the video tutorials are without sound to avoid disturbing other colleagues).

In summary, the findings indicate that users are very positive about the eWorkplaceHealth program. Most that had problems felt better after the test period. What is more all

respondents felt motivated which is in line with results of studies on web-based dietary that showed that the retention was significantly higher than for instance paper based interventions [19]. Also, almost all would recommend the program. Challenges prevail with regard to being embarrassed in front of colleagues.

VI. DISCUSSION AND CONCLUSION

This paper set out to understand whether and how eWorkplaceHealth services can disrupt traditional businesses of providing workplace health. This study conceptually developed that eWorkplaceHealth programmes create new efficiencies and enable new approaches to providing health services [20]. Because eWorkplaceHealth programmes reach all employees and seem to be effective and motivating, they can have a game changing character for the industry [13]. Due to its novel approaches on all dimensions compared to the traditional business model it can possibly disrupt the industry [12].

Interestingly, our study suggests that eWorkplaceHealth—due to its flexibility, low price point but most importantly comprehensiveness and effectiveness—appears to be superior to traditional practices on most dimensions. In that sense eWorkplaceHealth appears to ‘overshoot’ the product performance of traditional practices soon or even immediately (see Figure 1 below). This suggests that some disruptive innovation could overshoot the market right away, a phenomenon that needs further research but could tentatively be called ‘born overshooter’—similar to born globals in the international business literature. These findings are in contrast to findings in health education that suggest that video or eLearning services are inferior [21]. However, although eWorkplaceHealth has an educational element, it has different requirements and different targets.

Despite the limitation of the small sample size and single case study, this exploratory study indicates that eWorkplaceHealth is accepted by users, improved (perceived) health conditions and was motivating. Thus, the conceptual and empirical results on eWorkplaceHealth illustrate that these programmes could disrupt the industry. What would accelerate the process would be more variety in the video tutorials and simultaneous exercises in offices—yet this needs to be validated in further research. Thus, eWorkplaceHealth may have the potential to disrupt the industry of traditional workplace health. Furthermore, eWorkplaceHealth programs can be a means of large organizations to provide workplace health support to all their employees. In order to avoid the innovator’s dilemma [15], traditional workplace health provider could adopt a strategy in which they offer eWorkplaceHealth as a complementary service.

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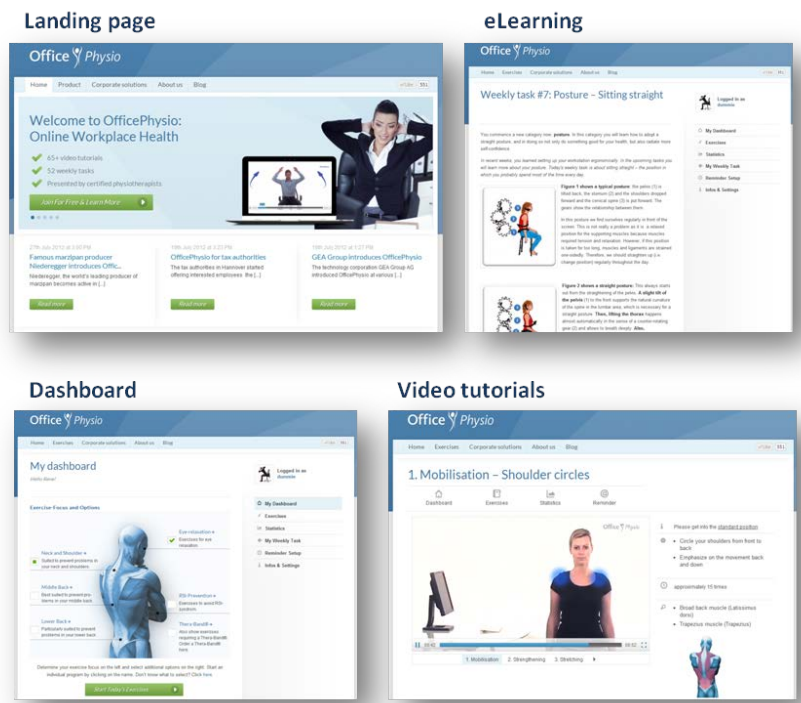


Figure 1. Screenshots of the eWorkplaceHealth program OfficePhysio (Top left: startpage; top right: health information email; bottom left: dashboard including customization; bottom right: video exercise)