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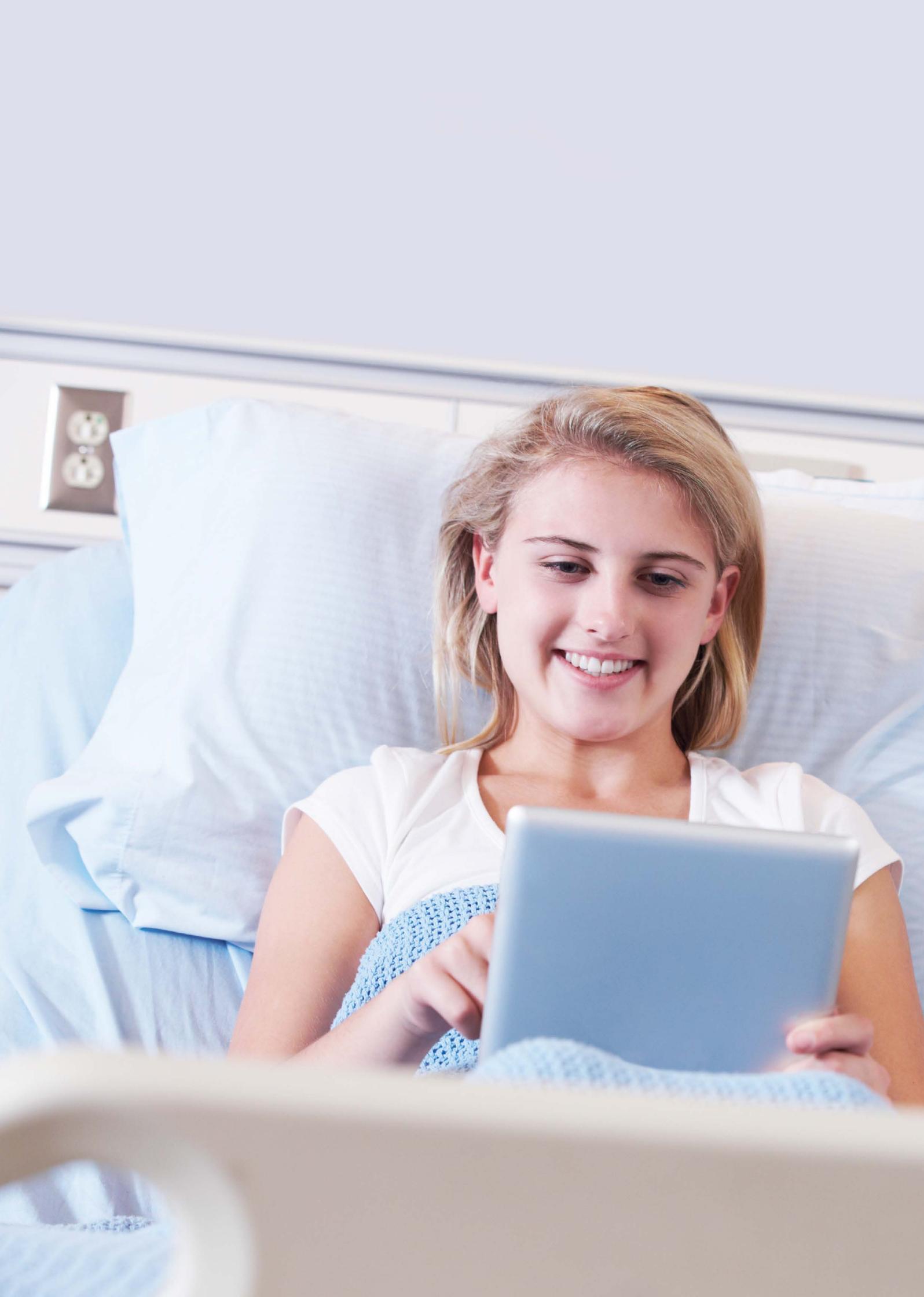
Boosting patient empowerment
and motivational pull

Achieving the next level in a
gamified health environment



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Preface

Companies have used game-like elements to achieve their business goals for decades. However, digital transformation in the last decade has created new opportunities for transferring gamification to industries previously not associated with any kind of game. Healthcare is one such industry that is just beginning to see the introduction of the concept of gamification. Numerous social, technological, and generational trends support the use of gamified products in the health industry. Several studies^{1, 2} have shown that gamification can have significant, positive effects on patients' health by promoting adherence to treatment, fostering resilience, and increasing motivation to fight diseases. In fact, different types of gamification can be applied throughout the whole illness pathway of patients. Success depends, however, on engaging patients in the long term through fun with friends, and through continuous feedback. Beyond the patient benefits, healthcare providers can also gain from gamification technology through obtaining insights into patients, drawn from usage data, a better understanding of preventive care needs, improved adherence, and an enhanced reputation as a technology leader. Across the globe, numerous providers have already discovered the power of gamification^{3, 4, 5, 6}. It is only a matter of time before fierce competition based on this new methodology will improve the patient's experience, provide new areas of profit, and become standard operating practice. Future successful providers will draw on partnerships to coordinate gamified solutions – new, existing, and cross-industry – across the entire continuum of care.

¹ Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does Gamification Work? – A Literature Review of Empirical Studies on Gamification. In proceedings of the 47th Hawaii International Conference on System Sciences, Hawaii, USA, January 6-9, 2014

² "Patient-Empowerment Interactive Technologies" Bruggers et al. 4: (152), Science Translational Medicine, 19. September, 2012

³ "Discovery: How it Works?", <https://www.discovery.co.za/portal/individual/vitality-how-it-works-overview#/join>, accessed on 03.07.2015

⁴ "Why This Insurer Wants You to Wear a Health Tracker?", <http://www.entrepreneur.com/article/244594>, accessed on 25.06.2015

⁵ "Generali die Krankenversicherung mit Gamification App kommt", July, 2015, <http://de.engadget.com/2015/07/12/generali-die-krankenversicherung-mit-gameification-app-kommt/>, accessed on 20.07.2015

⁶ "Runtastic macht Sport funtastic", <https://www.axa.de/das-plus-von-axa/vorteilsangebote/gesund-und-reisen-vorteile/vorteil-runtastic-app>, accessed on 03.07.2015



Introduction

Behavioral change is tricky. Every year, thousands of people fail to keep their New Year's resolutions past January. More detrimentally, people struggle to maintain healthy exercise and diet regimens, to save for retirement, or to use their free time productively. As behavioral psychology has evolved, new approaches have been suggested. Gamification, the use of game mechanics and experience design to digitally engage and motivate people to achieve their goals,⁷ has emerged in recent years as one of the more popular cross-industry solutions.

The main purpose of gamification is to help people commit and stick to activities they want to do. In particular, gamification taps into users' appetite for healthy competition and social connectedness to create motivators for making lifestyle changes. Successful products combine these motivational gaming techniques with an engaging experience for users.

Gamification has proliferated to the point that elements have entered consumers' daily lives, transforming inconvenient tasks into fun activities, e.g. Nikes' running app. For the health sector, gamification holds a lot of unrealized promise as an enabler of value-based care. The concept has grown in popularity in recent years as a tool for lifestyle change and disease management. Applying gaming principles to health provides new ways of educating patients, getting them to make healthy choices (e.g., exercise, diet), and commit to their therapy (e.g., adhering to medicines or practicing therapeutic exercise). Gamified applications have significant, positive effects on health by developing resilience and patient empowerment while activating optimistic emotions. The emergence of health consumerism, the rise of social media, the proliferation of smartphones, and the coming of age of the millennial generation are important tailwinds driving development and adoption of gamified paradigms throughout the health care value chain. Gamification has the ability to activate patients, make them accountable for their health choices, and turn them into consumers. For this reason, some have said that patient engagement has become the new "blockbuster drug of the century."⁸

Across the globe, healthcare providers, payers, pharmaceutical manufacturers, and wellness companies have discovered the power of gamification. Likewise, start-ups that use gamification and reward systems to engage patients and trigger healthy behaviors or treat illnesses have been sprouting up for some time. The most used types of games

are those that target the prevention and diagnostic stages of the disease lifecycle and, at present, the most developed market for gamification is the US. However, the field is still relatively young (approx. since 2010) with many yet-to-be discovered opportunities along the patient journey. One of these opportunities is in the field of diabetes care. The American Diabetes Association projects the total number of people with diabetes worldwide to rise from 171 million

Gamification has the ability to activate patients, make them accountable for their health choices, and turn them into consumers.

in 2000 to 366 million in 2030, an increase of 114%⁹. Enabling patients to better manage their diabetes through the introduction of gamified elements in diabetes treatment and thus decreasing healthcare costs in this area provides a huge business opportunity for the healthcare system. Incorporating gamification into all facets of care delivery represents a major opportunity for the foreseeable future for not only the healthcare industry, but also supporting industries like manufacturing or IT. The devices, products, or systems through which gamification elements are incorporated in the health industry require thorough research and development conducted by non-healthcare companies. Wearable fitness trackers or video games provide examples of such products and systems that serve as a medium for gamification in healthcare.

Looking forward, the gamification market is forecasted to experience significant growth but many challenges still exist. In particular, better understanding of behavioral psychology and gamification features will be important for driving meaningful innovation. Many stakeholders are already looking to corporate-academic partnerships to foster these innovations. Additionally, gamified products and services will need to be incorporated into the broader health care paradigm (e.g., in prescription and reimbursement plans), in order to see wide adoption and monetization.

⁷ Gartner Research

⁸ "Gamification 2020: What Is the Future of Gamification?", Gartner, 5. November, 2012

⁹ "Global Prevalence of Diabetes", Wild, S., Roglic, G., Green, A., Sicree, R., King, H., American Diabetes Association, 2004



Gamification trends

Current trends and demands for gamification approaches to health create significant potential to add value for patients and enhance the reputation of the main players in the health industry.

Social connectedness: the rise and prevalence of social media can generate high adoption rates for health gamification, due to increasing needs for social connectedness in today's globalized world. By encouraging users to post their exercising results on social networks such as Facebook or Twitter and sharing their activities with friends, users become more motivated to reach their targets and engage in online competitions.

Proliferation of smartphones: increasing smartphone penetration allows high consumer mobility and enables the use of gamified products since their main access channels are mobile and smartphone devices. The International Telecommunication Union estimates almost 7 billion mobile phone subscriptions globally and 2.3 billion mobile-broadband subscriptions.¹⁰ Given the resource challenges and high cost pressure of the health industry, mobile technologies present significant potential for exponential effects such as prevention, remote diagnosis, and treatment.

Numerous social, technological, and generational trends support the use of gamified products in the health industry.

Coming of age of the millennial generation: another important development that supports the spread of gamified products is a demographic shift toward millennials. This group has reached its prime working and spending years and currently represents the largest population cohort in the developed world. By adopting healthy lifestyles and becoming increasingly involved in their healthcare decisions, millennials are the ideal target for health industry players such as nutrition and insurance companies. Given that millennials are the first generation of digital natives with a strong affinity for technology, gamification is an ideal approach to gaining their interest.

These trends are driving a distinct increase in health consumerism. Patients have become empowered by the spread and easy access to health information and changing attitudes toward active involvement in decision-making on health issues. They now seek increased transparency, convenience, and high-quality, customized care. This shift in market dynamics toward consumers creates an environment for gamification products to thrive, which empower patients to manage their health in a convenient and enjoyable way.

¹⁰ "ITU releases 2014 ICT figures," ITU, https://www.itu.int/net/pressoffice/press_releases/2014/23.aspx, accessed on 29.06.2015



Benefit cases

Various academic studies show that gamified applications in healthcare lead to higher participation, engagement, and motivation, consequently increasing patient wellbeing. A positive correlation between the “fun factor” and participation rates was also demonstrated in these studies.¹¹ Moreover, interactive games have been proved to develop resilience and patient empowerment by activating optimistic emotions and the reward system.¹² (A reward is an appetitive stimulus given to a human to alter

its behavior.) This makes the treatment process more enjoyable and easier to follow. A significant challenge in patient care is to keep users engaged over a longer time period, also referred to as creating “stickiness.”¹³ To solve this problem, future trends in healthcare forecast the incorporation of gamified products in medical prescriptions and insurance reimbursement schemes. Good examples to create a long-term commitment of such cases are

Gamification in Action

mySugr is an application for monitoring blood sugar levels to manage diabetes. Through a point collection system, players are enabled to set and reach personal targets. Although blood sugar monitoring is a key process in successfully managing diabetes, 73% of patients do not track their progress levels and 57% insert incorrect data. In an empirical study, mySugr was shown to improve testing frequency by 10-20%, decreasing blood sugar levels in the blood by 0.4-1.1%. At the end of the three-month study, about 85% of users adhered to the application, the costs of which are covered by the Austrian Social Insurance Authority for Commerce and Industry.

Re-Mission is a set of online games developed by HopeLabs that helps children cope with cancer. In the game, players control a robot which flies through the body to destroy cancer cells and tumors using chemotherapy and radiation. Several studies conducted on cancer patients using Re-Mission indicate that the game impacts the emotional and motivational process. This activation is correlated to a shift in behavior and emotions that boost users' adherence to treatment. The study results indicate that patients maintained higher levels of chemotherapy in their blood and took their medication more frequently when they played Re-Mission.

Gamification has been proven to have significant, positive effects on patients' health by promoting adherence to treatment, fostering resilience, and increasing motivation to fight diseases.

¹¹ Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does Gamification Work? – A Literature Review of Empirical Studies on Gamification. In proceedings of the 47th Hawaii International Conference on System Sciences, Hawaii, USA, January 6-9, 2014

¹² “Patient-Empowerment Interactive Technologies” Bruggers et al. 4: (152), Science Translational Medicine, 19. September, 2012

¹³ “From Fitbit to Fitocracy: The Rise of Health Care Gamification”, January 2013, <http://knowledge.wharton.upenn.edu/article/from-fitbit-to-fitocracy-the-rise-of-health-care-gamification/>, accessed on 02.07.2015

Players in the health industry benefit from data generation, cost reduction, preventive care, adherence, and an enhanced reputation.

The main stakeholders in the health industry can reap significant benefits from the gamification trend, ranging from strategic advantages to cost savings, increasing their economic value added (EVA®).

Data generation through gamified applications enables personalized care and product innovation.

One of the main advantages of gamification is the unique opportunity for data collection, integration, and analysis. In particular, the invaluable feedback from users can help companies create products that fully meet the requirements of target users, saving time and resources. Leveraged properly, the large amount of healthcare data can help players in the health industry spot trends more quickly, innovate product offerings based on true customer needs, make more precise forecasts for planning, assess risk pools accurately, prevent fraud, and customize their products. Furthermore, companies can create new business models around making data collected available to other companies or for research purposes. However, this has to stay within legal boundaries concerning personal privacy, which may limit potential business opportunities in some countries (e.g. Germany, France).

A significant challenge in patient care is to keep users engaged over a longer time period.

Gamified, preventative medicine increases health awareness and conscious, healthy lifestyles - impacting all industry stakeholders.

At the preventive and monitoring stage, gamification makes users aware of the implications of their lifestyle and guides them towards healthy behavior change. For insurance companies, this leads to a healthier customer base, which reduces claims costs. For governments, preventive care enables better management of healthcare expenditures. Hospitals can better cope with the lack of specialized personnel and reduce hospital readmission rates for already-diagnosed and treated patients.¹⁴ Particularly in the prevention stage, gamification can generate a high EVA given the relatively low initial investment to launch a gamified element. Gamification typically does not require a huge upfront investment to develop games such as a preventive app or a point collection system for fitness activities. Companies can use their existing infrastructure and incorporate gamification into their existing product offerings. The long-term benefits are mainly seen in cost reduction due to better health awareness and healthier life styles.

Gamification boosts medication adherence, which empowers patients and presents opportunities for healthcare cost reduction and increased medication sales.

Perhaps one of the biggest challenges in the health industry is low medication adherence, which leads to poor clinical outcomes and high treatment costs. According to the European Federation of Pharmaceutical Industries and Associations, about 50% of patients do not take their medication properly by either failing to take medication regularly or to file prescriptions. Gamification offers a great potential for tackling non-adherence and therefore represents a large opportunity for health players, especially for pharma companies. Gamified products can engage users to more easily track dosages, organize their medication programs, refill prescriptions, and schedule physician appointments through interactive, rewards-based models. The EVA here appears in long-term cost reduction due to improved patient adherence to treatment, which shows on the bottom line as less medicine wastage, more efficient and personalized treatment and less likely follow-on treatments.

¹⁴ "Health 2050: The Realization of Personalized Medicine through Crowdsourcing, the Quantified Self, and the Participatory Biocitizen", Swan, M. JPM, 12.09.2012

By using gamification methods, health players increase awareness and improve their reputation.

The goal of gamification is to “convert customers into fans, turn work into fun and make learning a joy.”¹⁵ As an emerging concept, it can boost the reputation, brand awareness, and customer loyalty for health players helping to differentiate and establish the provider as an innovation leader. Given the main features of gamified applications as well as their ease of mass distribution and portable nature, they are particularly appealing to the tech-savvy millennial generation forecasted to become the largest part of working population in the upcoming decade. This type of consumer promises huge economic benefits, especially for nutrition and insurance companies, whose business model revolves around health-conscious consumers eager to manage their own wellbeing. Moreover, characteristics such as competition, social connectedness and increased motivation not only have the potential to attract a large number of new customers, but also to increase existing customers’ loyalty and retention rates by engrossing patients long-term. For health players, gamification can thus boost awareness of their brand and their reputation, as companies constantly strive to improve customer experience by being at the forefront of digital innovation.

Though the hardest to measure in terms of EVA, these factors can be a key competitive advantage and can determine whether a company is successful or not. Studies show patients wish their healthcare providers to be more than just responsive in case of an illness. Rather, patients imagine their healthcare providers as trustworthy partners throughout different life stages. Gamification can help leverage this image by actively engaging patients with products they associate with the company’s brand and the positive experience of change to a healthier lifestyle or the improved treatment of an illness. The willingness of health stakeholders to understand customers better and to quickly embrace new trends sends the message of agile companies at the forefront of technological innovation.



¹⁵ “Innovation Insight: Gamification Adds Fun and Innovation to Inspire Engagement” Gartner December, 2011



Key challenges and success factors

The main challenges of gamification in the healthcare industry are data security and patient privacy.

Healthcare providers who want to offer gamified applications must do so without violating patient privacy regulations. Medical data is regarded as particularly sensitive since it needs to be protected from unapproved access (privacy), it must be correct (safety) and at all times obtainable (availability). Countries around the world have their own regulations for medical data security and patient privacy protection (e.g., the US Health Insurance Portability and Accountability Act – HIPAA, EU Directive 93 / 42 / EEC).

The strong regulatory restrictions are often at odds with the use and distribution of gamified technologies which rely on the availability and all time access to healthcare information. In order to overcome this challenge, strong medical IT systems, allowing for the collection of medical data, must be in place. There are also numerous barriers to the development of effective IT healthcare systems that hinder the use of gamification. The systems are difficult to develop since they must undergo strict legal regulations and are subject to complicated and expensive certification processes.

In addition to the restrictions imposed by existing regulatory frameworks, public perception and skepticism regarding medical data represent another challenge. In various surveys conducted by the Center for Democracy and Technology, many US citizens expressed concern about identity theft and fraud by exposing personal health data online.¹⁶ Despite the challenges that have to be taken into consideration, gamification can be successful if key success factors are considered.

Gartner predicts that 80% of gamified applications will fail to meet business objectives, primarily due to poor design.

¹⁶ "Comprehensive Privacy and Security: Critical Health Information Technology," The Center for Democracy and Technology, 14.05.2008



The key criteria for success in gamified health products are the three F factors: Fun, Friends and Feedback.

Gartner predicts that 80% of current gamified applications will fail to meet business objectives, primarily due to poor design.¹⁷ Most deployments are reported as short-lived successes, as users are attracted by the novelty but lose interest quickly. Consequently, achieving sustained engagement is just as critical for success as motivational features. According to researchers and industry experts, there are three main drivers of successful gamified products: Fun, Friends and Feedback.¹⁸

¹⁷ "Gamification: Engagement Strategies for Business and IT", Gartner, November 2012, <http://thisiswhatgoodlookslike.com/tag/gartner-gamification-engagement-strategies-for-business-and-it/> accessed on 29.06.2015
¹⁸ "The Gamification Revolution", Zichermann, Gabe. McGraw Hill 2013

The Fun factor: successful health games should engage patients to reach their goals in a fun and enjoyable way. It is therefore of utmost importance that games incorporate targets that users can identify with and be encouraged to pursue. Moreover, effective products should promote learning through playful motivation.

The Friends factor: to trigger motivational competition, games can also include features that allow users to challenge other participants and enter competitions. Likewise, features for sharing results on social media can be incorporated in products so that participants feel socially accountable for sticking with a program.

The Feedback factor: by regularly documenting their health status, users can proactively customize their profiles and track their personal health history. The instant feedback and two-way messaging features educate patients on healthy practices and on the consequences of unhealthy habits. To increase adoption rates and create long-term engagements, gamification products should also offer user-friendly menus and clear illustrations of complex medical terms and diseases. Last but not least, real-time reward features must be a main part of the games in order to raise user interest and motivation.

There are various areas in which the “F factors” can be applied to ensure solutions are not simply monetary incentives. A good example is oncology pathways incentives in the US. These increasingly popular programs¹⁹ offer oncologists monetary incentives to follow recommended treatment guidelines (i.e., cost and quality). While at first not obvious, by gamifying elements of the program through the three F factors these solutions can be more successful. The Kansas City Cancer Center incorporates the Friends factor through peer feedback by getting oncologists to co-create pathways and also communicate amongst each other when following these pathways. As a result, they have achieved an 80% participation rate. Additionally, Via Oncology, a company selling pathway solutions introduces competition by publishing quarterly reports on performance adherence rates for physicians and practices.²⁰

¹⁹ “WellPoint Offers Oncologists Incentives to Follow Pathways”, 12.06.2014, <http://www.medscape.com/viewarticle/826681>, accessed on 02.07.2015

²⁰ “Strategic Use of Clinical Pathway” D. Gesme, M. Wiseman, American Society of Clinical Oncology, vol. 7, 2011, <http://jop.ascopubs.org/content/7/1/54.full>



Gamification focus areas

Elements of gamification can be found across the patient journey (preventative care, diagnosis, therapy, and palliative care). Games differ in their prerequisites, intentions, and tools depending on where they aim to impact the patient journey.

Within the health industry, different types of gamification can be applied throughout the illness pathway of patients.

Type of Game	Description
Educational	Games with the primary role of providing information on health related topics. These types of games are mostly used for raising awareness and education on certain diseases, epidemics, symptoms, etc.
Engagement	Games aiming to prevent unhealthy behavior in users and to actively trigger healthy choices by making users accountable for their decisions.
Therapy	Games that are specifically designed to provide support in the treatment of severe illnesses alongside conventional medicine e.g., trigger “fighting spirit” for cancer patients. These types of games enhance patients’ resilience towards various chronic diseases via neuronal pathways that trigger positive feelings and the reward system.
Patient Monitoring	Applications intended to track users’ health status and life style improvements or deteriorations. Common features of these games are competitions with other users on key performance indicators and postings of achievements on social media platforms.
Medication Adherence	Games with the main purpose of motivating users to stick to their medication schedule. Users gain points by adhering to their medication schedules, answering quizzes of disease specifics, and refilling their prescriptions.
Professional Training	These games are mainly intended to train medical staff. Users perform tasks in a video game environment in which they can experiment with various outcomes and learn best through trial and error. Simulation games help medical students and practitioners develop and sharpen their skills (e.g., robotics surgery).

Overview of existing gamified solutions and start-ups along the patient journey by type of games

Types of Games	Educational Games	Engagement Games
Healthcare fields		
Preventive/ Predictive care	Syandus	PACT Audax Health MeYou Health
Diagnosis	Educational games that inform patients about symptoms that lead to an illness	Triggering active engagement in the diagnosis of illnesses
Therapy	JOIN for ME	Ayogo SuperBetter Labs Cohero health Re-Mission 2
Palliative Care	Playful explanation of how symptoms and pain can be relieved	Nintendo

■ Exemplified description of potential game concepts in uncovered playing fields

Source: Deloitte Analysis; note 1) Contradictory field as preventive care and diagnosis occur before therapy and treatment and cannot be connected

The health gamification market is generally still at an unexplored stage, so that even the playing fields which already have more activity are highly attractive

Currently, most players are focused on prevention and therapy solutions using a wide range of gamification options. One of the most common gamified elements in prevention is fitness wearables. These wearable devices track walked steps, burned calories, heart rate, sleep-

ing pattern, etc. In addition to wearables, mobile fitness apps are a major part of preventive gamification solutions. Linked with a reward system, fitness wearables and fitness apps provide one of most simplified forms of healthcare gamification. Apart from preventive and therapy solutions, there are still unserved gaps that represent opportunity at multiple points along the continuum of care. In particular, the palliative care and diagnosis stages present a lot of potential for gamified solutions.

Therapy Games	Patient Monitoring	Data Generation Games
1)	Optimized	Fitocracy
	GymPact	
1)	Through tracking certain habits and behavior in a game, mainly behavioral illnesses can be diagnosed	Akili CogCubed
RespondWell SuperBetter Labs Physiofun Re-Mission 2	Mango Health DIDGET™ Meter	Delivery of therapy through a game that collects data about improvement of therapy
Creating games that serve as a therapy addition or supplement	Creating games that monitor symptom development of patients	

Rewards are an integral part of the gaming experience.

To engage users and make them eager to succeed, a system of incentives and rewards is integrated into many products. Both direct and indirect reward systems motivate users to achieve their goals. Indirect rewards are point collection systems in which users are rewarded with points that can be exchanged for rewards such as

coupons or rebates. Another type of indirect rewards is incremental benefits. Through an incremental point collection system, users earn points that are valuable only within the game or application used (e.g., collected points enable users to get to the next level faster). A third form of indirect rewards is a company-specific incentive. For example, rewards gained from insurer can be used to reduce insurance premiums. Finally, direct rewards are monetary or product rewards.



Global status for health gamification

Across the globe, numerous health players such as healthcare providers, pharmaceutical companies, insurance companies, and wellness companies have discovered the power of gamification.

While gamified products and services are common in the health sector of countries like the US or South Africa, health players in Europe are just beginning to understand the potential of gamification and start engaging in the field. The most prevalent applications target diabetes and are being developed by insurance companies, which have the largest interest in engaging patients throughout their lifetime.

In order to develop new gamification techniques in diagnosing and treating illnesses, European companies partner with academic research institutions in order to achieve better results in a faster way and to split the costs of development. Another form of co-operation increasingly witnessed in Europe can be seen between mobile fitness application start-ups and insurance companies. The French insurance company AXA for example has entered into a partnership with the fitness app Runtastic to offer additional features to its clients for free.

On the other hand, in the USA, gamification is already more consistently used in the healthcare sector. Co-oper-

In Europe, health players are just beginning to understand the potential of gamification.

ations in the USA have reached a sophisticated level by including players across the whole value chain. For example, providers co-operate with hospitals in new patient treatment methods. Furthermore, the incorporation of technology in healthcare gamification has advanced. Microsoft's X-Box, tablets, iPhones, and video games are common technological elements and mediums used in healthcare gamification. Insurance companies have already been incorporated in the process too; innovative insurers reward their members with Amazon vouchers or other vouchers.

Even in South Africa, a country with a sophisticated healthcare system although it is relatively younger and less inexperienced than most European countries or the USA, gamification in healthcare has reached a popular level. For example, insurance company Discovery, offers a thorough health and well-being reward system called Vitality in an effort to encourage healthier member behaviors and lifestyles. Compliant and successful members receive coupons and vouchers from sports or health food stores.

Gamification in Action

Oscar Health, founded in 2013, was established with the express intent of gamifying and digitizing the entire lifecycle of chronic diseases. It has set a pioneering example of how health players of the future will operate. The company has partnered with other players from within and outside of the health industry to offer a variety of games and applications to improve overall population health and patient engagement. Solutions have included a partnership with Misfit to offer fitness tracking wearables to all customers to incent active lifestyles and healthy sleep habits with monetary prizes. Likewise, Oscar incents use of telemedicine and an engaging digital app for health status monitoring, and partners with hospitals to ensure patient medication and treatment adherence



Approach to gamification

The global market for gamification is estimated to reach \$5.5 billion by 2018.²¹ Many players are already chasing the huge market potential especially given the low up-front investment which minimizes barriers for developing health gamification products. Success, however, will depend on several key factors that determine the approach companies take towards gamified healthcare. In particular, a better understanding of behavioral psychology and gamification features will be important for driving meaningful innovation. It is critical to incorporate the three F factors Fun, Friends and Feedback in a company's gamification approach. Additionally, gamified products and services will need to be incorporated into the broader health care paradigm (e.g., prescription and reimbursement plans) to see wide adoption and monetization. In the future, successful players in the health industry will be those who manage to address the entire illness pathway and capitalize on existing opportunities for creating holistic approaches.

In order to successfully enter the gamification health market, companies should first define their strategic playing fields. They need to determine if they aim to engage in all stages of the patient journey (preventive/ predictive care, diagnosis, therapy, or palliative care) focusing on what they are trying to accomplish. These strategic playing fields should be in line with the overall corporate strategy. Is gamification a contribution to core processes or strategy or is it simply a supplement to existing plans? In the next step, companies should focus on the type of game or elements that they would like to introduce. In order to determine these, companies should clearly articulate the problem that gamification is trying to address; it is useful to see if others in similar organizations have tried a certain type of game before, and if so, what worked and what didn't. During the whole process, it is important to take into consideration who the target audience is. Once the concept and business case have been developed, the solution design has to be determined. The question of measuring results, tracking effectiveness, and improving the process has to be considered here.

When analyzing the process of gamification concept development, as well as the economic advantage of investment in gamification, it is important to differentiate whether gamification is offered as an additional service complementing the offering of a corporation or whether it is set up as a completely new business model. While the former provides an option for established healthcare players to easily include gamification into their

Future winners in health gamification will leverage partnerships to coordinate engaging gamified solutions – new, existing, and cross-industry – across the entire illness lifecycle.

existing business model, the latter could increasingly be an option for start-ups in the healthcare sector or non-healthcare players who serve as a supplier or developer of the products and systems used in healthcare gamification. Either way, gamification has emerged as a new profit pool in the healthcare sector.

Developing their strategy for healthcare gamification, companies should question which capabilities they can provide on their own and for which ones they need to engage an external partner. While a major market is developing around the devices and products used in gamification, there is also an increasing demand for the IT systems and software that are required for incorporation into existing offerings. Including gamification in diagnostics and therapy, there is also an increasing demand for digital software and technology development, providing another means of monetization.

Throughout a patient's lifetime, different health players interact with the patient at various stages. While an orthopedic surgeon may only have one interaction with a patient after a knee injury or a pharmaceutical manufacturer may only have a single touchpoint during a bout of cancer, health insurers tend to have the most contact with customers throughout their lifetime. In particular, with increasing cost pressures and regulations, health plans are increasingly being cast as the shepherds of overall population health. Consequently, among the different types of healthcare players, insurance companies are the best positioned to develop an all-encompassing approach to healthcare gamification in order to coordinate holistic offerings.

²¹ "Gamification Market: Worldwide Market Forecasts and Analysis (2013 - 2018)," Markets and Markets, June 2013



Future outlook

While elements of gamification such as reward systems, badges, and levels have appeared in a business context for years, the healthcare sector has only recently been introduced to the concept and is still at a relatively early stage of product adoption. Real-time data analytics, mobility, cloud services, and social media platforms provide the basis for quickly and relatively inexpensively accelerating adoption and proliferation of gamification tools.

Future offerings in healthcare gamification will be configured along the patients' illness pathway. Pharma companies, for example, can position themselves to win in a gamified world by moving past drug adherence initiatives and adopting a broader view of the entire patient journey. Sanofi is a good example of a pharma company addressing the entire pathway of diabetes through gamification. Through their Diabetes Manager Application, Sanofi targets diabetes from the prevention stage, by educating patients and monitoring sugar intake via gamified applications to treatment and medication adherence programs. Aside from expanding the focus of established product offerings, gamification developments will also enable cross-industry partnerships as new types of players enter the health industry.

Health gamification can become a game changer within the healthcare industry, improving the lives of thousands of patients while stabilizing the economy of healthcare systems worldwide.

Given the nature of gamified applications, the newcomers are most likely to be technology and Internet companies that create integrated solutions. A good example of what the future of gamified health will look like is Verizon's newly-launched Converged Health Management system, which consists of a wirelessly connected home health monitoring hub that collects health indicators such as blood pressure and oxygen saturation and sends them to Verizon's analytical software for analysis.²²

²² Verizon launches its home health platform with EHR support, gamification", January 2014, <http://www.telehealth-news.com/verizon-launches-its-home-health-platform-with-ehr-support-gamification/> accessed on 01.07.2015

At a broader level, Phillips Healthcare is working on creating “the hospital of the future”, which will be an innovative “health delivery network”²³ based on cross-industry partnerships, with gamified solutions ranging from monitoring devices, to telehealth and therapy programs.

Within the home, General Electric is working to create the home of the future, which will include sensors that monitor vital health indicators and makes suggestions for medication needed. These types of developments will introduce more opportunities for gamification by changing the way people live and think about and interact with their health data.

In today’s engagement economy, where time and attention are becoming increasingly scarce and time resources precious, people are likely to gravitate towards activities that are authentically rewarding and filled with opportunities to achieve, grow, and socialize. If this intrinsic motivation can be awakened in the healthcare sector, motivation is even higher because people realize their personal health is at stake.

There won’t be just one winner in health gamification. In fact, the clearest path to success seems to be through partnerships and integration with healthcare payers to ensure reimbursement and affordability. The biggest winners will be innovators that deliver engaging solutions through “fun, friends, and feedback” across the continuum of care.

The global market for gamification is estimated to reach \$5.5 billion by 2018.

²³ “Op/Ed: The Hospital of the Future will be a Health Delivery Network”, U.S. News & World Report, January, 2014, <http://health.usnews.com/health-news/hospital-of-tomorrow/articles/2014/01/14/oped-hospital-of-the-future-will-be-a-health-delivery-network>, accessed on 01.07.2014



About Monitor Deloitte

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In order to be able to grow with confidence, organizations need to make clear choices about where to play and how to win. And in a world in which the pace of change is rapid and the changes are sometimes unexpected, leaders need to act nimbly and decisively. Monitor Deloitte, the strategy practice of Deloitte, employs cutting-edge approaches imbued with deep industry expertise, working with leaders to resolve critical choices and drive enterprise value.

Its services include corporate and business unit strategy, customer and marketing strategy, digital strategy, innovation, pricing and profitability management. Its expertise covers a wide range of industries, including life sciences and health care, automotive, technology, etc.

Kennedy recognizes Monitor Deloitte for the "broad range of competencies that competitors often cannot provide" and for the "depth of marketing & branding strategy services, particularly in the areas of pricing, revenue enhancement and customer experience". Monitor Deloitte currently employs 1,200+ practitioners globally.

Deloitte is a leading consultancy in the life science healthcare sector

Deloitte has served key LSHC (life science healthcare) clients globally with consistency and growth. Over the years, it has provided outstanding services to leading companies across the healthcare value chain with an unparalleled "ecosystem" view.

Deloitte is thus exceptionally well-prepared to provide assistance during the entire process of gamification in the health industry. From strategy development and business model conceptualization to operational process implementation, Deloitte supports its clients along the whole value chain. Over the past years, Deloitte has conducted projects focusing completely or partially on gamification across different industries. Together with its know-how and excellent standing in the LSHC sector, Deloitte can provide its clients with fundamental support in gaining a competitive advantage through gamification.

Life sciences	Health Care		
	Payers	Providers	Government health
<ul style="list-style-type: none"> • 71% of the 2014 Fortune Global 500 LSHC companies • Nearly 95% of the Fortune U.S. 500 LSHC companies • 10 of the 10 largest global pharma manufacturers • 8 of the 10 largest global biotechnology companies • 10 of the 10 largest global medical equipment manufacturers • Leading health care distributors around the world 	<ul style="list-style-type: none"> • Nearly 85% of the Top 25 U.S. Health Plans (as ranked by AIS's Directory of Health Plans) • Nearly 60% of the Nation's Blue Cross Blue Shield Plans 	<ul style="list-style-type: none"> • Over 80% of Honor Roll Hospitals (U.S. News & World Report) • 9 of the 10 Largest Health care Systems (Mdrn Hthcre) • 4 of the 5 Largest For-Profit Healthcare Systems (Modern Healthcare) • 10 of the 10 Largest Catholic Healthcare Systems (Modern Healthcare) • 60% of the Major Teaching Hospitals (Thomson Reuters 100 Top Hospitals) 	<ul style="list-style-type: none"> • Largest departments and ministries of health in all of the leading 25 nations as ranked by World Economic Forum (e.g., UK, FR, DE, CA, AU, IN, IL) • US Federal Health agencies: HHS, CDC, CMS, FDA, IHS, NIH, VA, Defense Health • >30 US state government Health & Human Services agencies

Deloitte as your partner

The scope and scale of the consulting practice at Deloitte places it in a category of ONE. No other professional services firm can match the range or depth of capabilities from advisory, implementation to operating across strategy, technology, human capital, operations excellence, enterprise risk services, financial services, security and privacy, and tax and audit advisory. Deloitte consultants work with senior executives to help them solve their toughest and most complex problems by bringing an approach to executable strategy that combines deep industry knowledge, rigorous analysis, and insight to enable confident action.

Grew faster than overall Deloitte firm for the last 5 years, LS fastest growing sector in FY14 (17.4%)

Ranked #1 in global life sciences consulting revenue in Kennedy Information's 2012 Consulting to the Life Sciences Sector report (Nov 2012)

Deloitte ranked #1 on Modern Healthcare's 2013 Largest Healthcare Management Consulting Firms

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