Start the Game: Increasing User Experience of Enterprise Systems Following a Gamification Mechanism

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Abstract

"Hi dear, how was your day?" In the rarest of cases the responded would answer: "I had so much fun when entering the customer data into our Enterprise Systems." However, the usage of Enterprise Systems is nowadays for many employees a key element of their working activities. Therefore, their motivation to use these systems consistently is essential for organizations to ensure transparency and process accuracy. While today most software products have a high usability, they lack in positive user experiences such as fun. One trend having the potential to solve this issue is Gamification. Using mechanisms of traditional games such as achievements or rankings is successfully implemented in private applications such as social networks (e.g. Facebook) or online traveling portals (e.g. tripadvisor). These mechanisms motivate individuals to perform certain activities they would otherwise not do. Gabe Zichermann – a visionary of Gamification – explained this phenomenon as following: *Games are the only force in the known universe that can get people to take actions against their self-interest, in a predictable way, without using force*. The principle of Gamification and its potential in organizations is presented in this book chapter.

1 Motivation

Why are accounts payable clerks entering data sets into a SAP system enthusiastically despite it is a highly seasoned and monotonous job? Why do managers fight against dragons when preparing a presentation using Microsoft's PowerPoint? The

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answer to these questions is as simple as unexpected. They have fun in using their job-related software products. However, this was not always the case. In the past years, software products underwent an evolution form purely "solving problems" to "make software usable" to "improve overall user experience."

With the emergence of software as a product its sheer objective focused on machine programming. Software was solely some lines of codes which could only be understood and used by developers themselves. But soon developers had to realize that instructing users in dealing with software applications became more and more difficult. In particular, the growing complexity of enterprise software has led to increased reluctance of employees. These difficulties resulted in the second stage of software evolution integrating users and designers into the software development process to create more usable products. The user-centered design paradigm was born. The paradigm focused on increasing usability of software products by moving the user into the center of any design activities instead of the software system. It became the designer's primarily role to simplify the tasks of users and to ensure that the actual use of the software system corresponds to its intended use. Today, many software products fulfill users' demands on utility and usability. Nevertheless, most of these products – especially when used in enterprises – do not motivate individuals to use them despite they are usable. Improving user experience has become to the central objective of the third stage in software product evolution.

One trend in the efforts of improving user experience is Gamification, which is defined as "the use of game design elements in non-game contexts" (Deterding 2011, p.13). According Gartner's 2011 Hype Cycle report[1] Gamification is identified as an upcoming trend on its way to the "peak of inflated expectations", which is anticipated to be adopted by the mainstream in the next 5–10 years. Various developments in our society as well as used technology reinforce this trend. One of the most decisive developments is the change of generations. The Baby Boomer generation (1946–1964) is retiring and will be replaced more and more by members of Gen X (1965–1978) and Gen Y (1979–2000). Especially employees of the Gen Y grow up with modern technologies such as internet, mobile devices or game consoles. Because of their experiences with modern technologies, both generations (X and Y) changed significantly the way how employees interact with each other (Burke and Hiltbrand 2011). Now one might wonder why these changes in generations have an impact on enterprise software and why companies should implement games. The answer is: consumerization. While the Baby Boomer generation grew up without an early technological socialization, Gen X and Gen Y cultivate their interaction with modern technologies intensively. The difference in technological socialization between these generations led to changing behavior and working patterns. Key characteristics of this difference are the need for a constant access to new and actual information (e.g. via Google, News and Feeds), the desire for intensive networking (e.g. via Facebook and Twitter), and the multi-tasking ability (e.g. with the aid of iPad or SmartPhones). All in all, in new generations one

[1] http://www.gartner.com/it/page.jsp?id=1763814

can observe an increased desire for individualization. Once accustomed themselves to all these applications, the young employees prefer to use them not only in their private life but also in their everyday work. However, the IT landscape of companies is yet not prepared for this desire of individualization respectively consumerization of enterprise systems (Vogel et al. 2010). With their affinity to modern technologies, applications or games, Gamification can be a first step along the way towards the needs of young generations.

The remainder of this book chapter is structured as following: After some motivating examples of successful Gamification implementation in products of Microsoft and SAP, we provide a definition of the term Gamification and subsequently delimit this concept from other levels of gaming. We then give an insight in the world of Gamification by describing its key elements, presenting a user categorization and mapping the users to most fitting elements. Of course, it is not enough to implement Gamification applications in enterprises. Therefore, we assembled a collection of pre-conditions and pitfalls companies have to pay attention for. In the third and fourth chapter we provide some managerial implications and conclude this book chapter with a brief summary.

2 Concept of Gamification

2.1 The Cases of Microsoft and SAP

Despite Gamification is a pretty much new trend, few companies have already implemented games to improve employees' user experience. Some selected examples are Microsoft and SAP.

One of the visionaries adapted Gamification is Microsoft. Meanwhile, the software company has launched so many "gamified" applications that they categorized them in internal productivity games and productivity games for end users. The first example, we want to present, is one of Microsoft's internal productivity games called *Communicate Hope*.[2] This gaming application supported developers in the development process of Microsoft's new a communication platform Lync. *Communicate Hope* motivated thousands of employees to participate the testing process by playing the game. When testing out particular features of Lync users could collect points by providing feedback on usability as well as product design and by submitting bugs. Product testers were also able to collect points if they responded to the submitted feedback of users. Finally, the accumulated points lead to a monetary reward. All in all, thousands of dollars were spent to the participating employees. *Communicate Hope* was not only a success because thousands of users played the game, but also because the product testing team received 16× more feedback from "gamers" than non-gamers.

[2] http://blogs.technet.com/b/next/archive/2011/05/16/microsoft-s-ross-smith-asks-shall-we-play-a-game.aspx

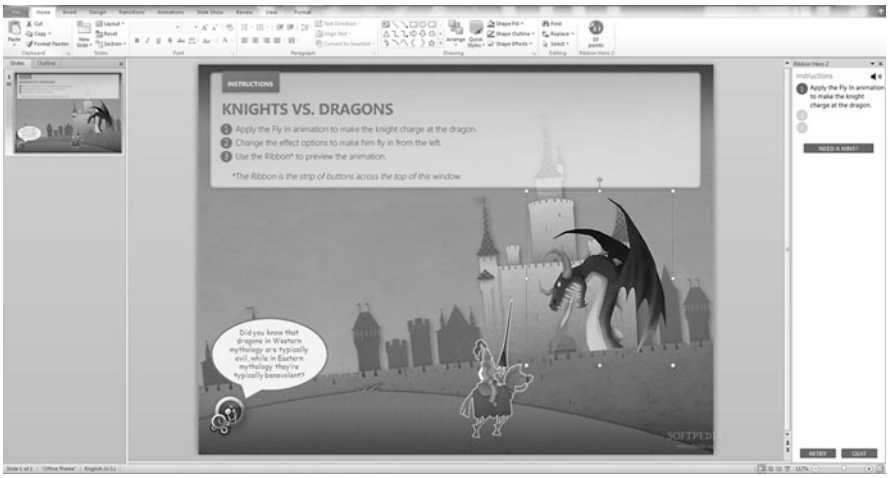


Fig. 1 Screenshot of Microsoft's *Ribbon Hero*

Our second example also comes from Microsoft. *Ribbon Hero*[3] aims to train users on Microsoft's Office Suite by incentivizing them through fun and games if they learn new skills when dealing with one of the Office products. The user gets shifted into a 2D world (see Fig. 1) and has to complete several challenges to get to the next level. The challenges introduce the users into the features of PowerPoint, Word, Excel, or OneNote. By actually using the new features, the user collects experience points and can race for a high score with colleagues. In the meantime Microsoft launched a sequel because of the success of *Ribbon Hero*.

Even though Microsoft is one of the leading companies in terms of Gamification, so it's not the only one. SAP also seeks to improve the user experience through the use of playful elements. In *SAP's Gamification Project* the company tries to breathe fresh life into a monotonous work such as maintaining vendor data. Accounts payable clerks, for example, enter thousands of invoices manually. To increase the motivation on this monotonous work, SAP integrated a reward system (see Fig. 2). When entering invoices or line items the users and their team can earn points. By collecting these points they can raise their status and participate in regular challenges.

All three examples show, employees become motivated to do work they are usually reluctant to do and thus support their colleagues. Even the most moronic task can be done enthusiastically when a playful goal is behind it. By integrating gaming elements in non-game context, users are introduced to a software product without the need of reading a bulky handbook. Summarizing, modern work can make fun. Now, one might say, that it is enough to design software products as easy to use as possible. However, there is a difference between ease of use and fun.

[3] http://www.ribbonhero.com/

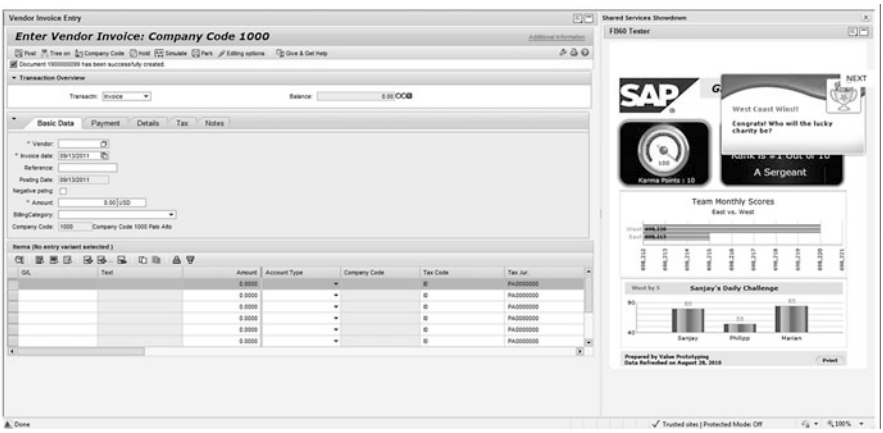


Fig. 2 Screenshot SAP's Gamification project (http://enterprise-gamification.com/index.php/de/finanzwesen/51-having-fun-with-accounts-payable)

Work that is fun is more attractive to employees. Unlike ease of use, fun has a more powerful influence on individuals with regard to their motivation to try to do something or their perseverance when doing it (Carroll and Thomas 1988). Nevertheless, playing is not equal to Gamification.

2.2 What Is Gamification?

The first time reading about Gamification, our spontaneously reaction was: "that sounds interesting" as we also like games to relax in our free time. But in the following months as we had learned more about this trend, we discovered that there are little connections to traditional games one plays on the pc, gaming consoles or on a table with family and friends. In fact, when collecting more detailed information, we realized that researchers make a clear distinction between playing a game and using Gamification mechanisms in a software application. So, what is Gamification?

Most definitions on Gamification we found in literature have three main elements. First, *Gamification is a kind of games*. It is characterized by the set of rules, a declarative content and the gameplay as well as a social context (Bree 2011). In the context of Gamification most "games" are extended by some kind of competition, where users strife to defeat others. In Gamification applications, often the game is not limited to the digital world. Real users are competing with each other and are solving tasks of the real life. Second, *Gamification is not an entire game*. Rather, Gamification is the inclusion of single game elements in software products that do not have the purpose to entertain the users. When, for example, integrating single game elements into organizations' software applications the goals and rules of the organization have to be considered and reflected by the

elements (Deterding 2011). Third, *Gamification is used in non-game contexts*, but in a real world environment. These applications are not introduced for the expected purpose of playing. Rather they are implemented to enrich typical applications used at work or in other serious manner with gaming elements to create joy, fun and working satisfaction (Thom et al. 2012). In other words, these applications aim to enhance user experience.

In his conference paper at the ACM CHI Conference 2011, Deterding combines these three key elements and defines Gamification as "... the use of game design elements in non-game contexts" (Deterding 2011). Because, we think, this definition lacks on the purpose of Gamification applications, we would like to extend Deterdings definition with the words expressed by (Thom et al. 2012):

> Gamification is the use of game design elements respectively mechanisms in non-game contexts to "... create a sense of playfulness [...] so that participation becomes enjoyable and desirable."

2.3 What Is Gamification Not?

Now that we've got a fairly clear picture of what is Gamification, we still have to answer the question, what is it not. From the definition described above, we know that Gamification is not a complete game and is used in non-game environments. Generally speaking, the two dimensions of completeness and environment of usage span the domain of games displayed in Fig. 3. On the one hand there are games respectively game elements designed for entertainment characterized by purely playful interactions. Applications of this domain are more a toy than a game. On the other hand the main purpose of *serious games* and Gamification applications is not entertainment. They focus on training, education and working motivation in a playful way. However, the borders between serious games and Gamification seem to be blurred. Therefore, we also give a brief overview on various forms of serious games.

Combining entertainment and education in games became popular in the early 1990s in so-called *edutainment* games. These applications were mostly videogames with an educational objective for preschool children. However, edutainment applications were not accompanied by the desired commercial success. On the contrary, *serious games* became more successful than edutainment games despite they encompass the same objectives. The main differentiation between both game classes is the integration of all aspects of education such as teaching, training, and informing instead of focussing on mere teaching facts and memorization. The design of serious games for users of all ages is the second key difference to edutainment games which make up the largest part of its success. A branch of serious games are (digital) game-based learning applications which have a clearly defined learning outcome (Susi et al. 2007). An overview on the differences between serious games and entertainment games is summarized in Table 1.

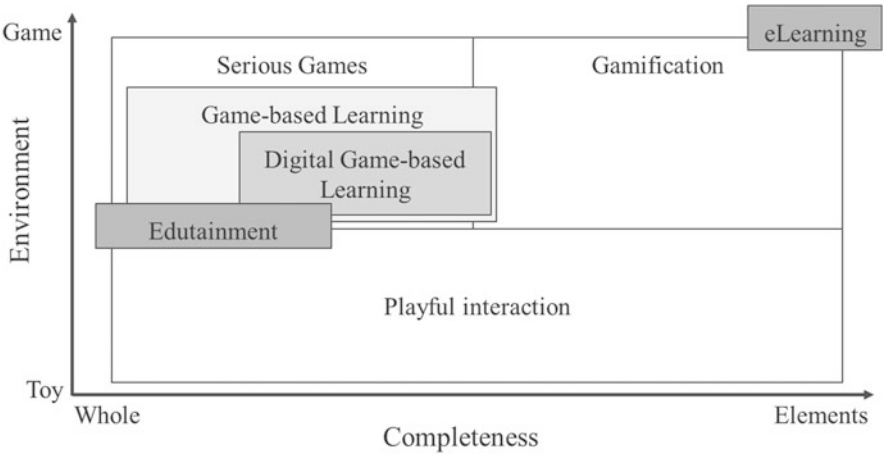


Fig. 3 Differentiation of gaming applications (Source: Based on Deterding 2011)

Table 1 Differences between serious and entertainment games (Source: Susi et al. 2007)

	Serious games	Entertainment games
Task versus rich experience	Problem solving focus	Rich experiences preferred
Focus	Important elements of learning	To have fun
Simulations	Assumption necessary for workable simulations	Simplified simulation process
Communications	Should reflect natural communication	Communication is often perfect

Another concept related to Gamification is e-learning. E-learning is a more general concept using single elements of games such as progression bars or achievements. It refers to adult learning supported by computer technology. Its spectrum ranges from computer-enhanced learning to computer-based learning to commonly, distance learning (Susi et al. 2007). Unlike Gamification applications, e-learning primarily focusses on train and teach adults, rather than increase user experience by providing more fun.

3 Framework of Gamification to Increase User Experience

3.1 Mechanics of Gamification

Gamification desires to raise users' experience when using software products. To do so Gamification has a tremendous pool of game mechanics adaptable in software applications. While some of them are components directly implementable in the software others more address users' emotions. So, we distinguished between

in-game and *in-person mechanics*. Within these categories we clustered the mechanics by their overarching target. There are three main targets the mechanics pursue: (1) display progression, (2) provide feedback, and (3) engage a specific behavior (Source: gamification.org).

3.1.1 In-game Mechanics

Examples of in-game mechanics aiming to display the users' progression are *achievements, points, bonuses, leveling up* and *progression*. When playing, users can collect some rewards in the form of points, bonuses or achievements for carrying out their duties. For each single activity points will be allotted and cumulated to a total player score. Additionally, users can get bonuses when completing several tasks or combinations of tasks also called *combos*. If the activity is perceived as substantial and challenging, achievements are helpful motivators fostering users to tackle the task. While these types of rewarding are short-term motivators, leveling up and the display of users' progression can be seen as mid-term incentives. By collecting points, users progress consistently. This is usually displayed in numeric metrics like a progression bar. If levels are integrated in the Gamification software, the progression bar reveals the amount of points necessary to reach the next level. Leveling up unlocks new tasks and sets of challenges motivating users for playing.

Providing feedback is the second target of Gamification applications embodied by *appointments, extinction, countdown, and leader boards*. Appointments reward players when participate the game at a predetermined time or place. With such a game mechanic companies can foster team work and collaboration. It is necessary to provide a feature which enables users to tally their tasks. Therefore, the extinction mechanic refers to the concluding action and is directly associated to rewards. A forced kind of extinction is the countdown providing players a reward only if they accomplish the task in a certain amount of time. Feedback is also provided by leader boards where users are ranked in comparison to each other by their progression, achievements, levels or status.

Finally, typical examples of Gamification mechanics aiming to engage a specific behavior are *community collaboration* and *virality*. Both mechanisms engage team work among players. Community collaboration is the connection of multiple players aiming to jointly solve a specific task. Such a mechanic is only feasible if a critical mass of users exists. To reach such a critical mass, game designers developed a mechanic called virality. Virality rewards players when they invite friends or colleagues to participate in the game.

3.1.2 In-person Mechanics

While previously described mechanics are directly implementable in software products, in-person mechanics only works in combination with users' characteristics, emotions and feelings. Since it will be difficult, if not impossible, to measure these metrics, we were not able to determine any in-person mechanics displaying users' progression. Even to find an example of feedback-related game mechanics was a challenge. The one and only mechanic we have found is the

Table 2 Overview on selected Gamification mechanics

	Progression	Feedback	Behavior
In-game	Achievements	Appointments	Community collaboration
	Points and bonuses	Extinction	Virality
	Leveling up	Countdown	
	Progression	Leader boards	
In-person		Cascading information	Envy
			Epic meaning
			Loss aversion
			Free lunch

cascading information theory which refers to provide minimal snippets of information to users. These information snippets should avoid an information overflow and facilitate an appropriate level of understanding.

In contrary, we have found so many in-person mechanics targeting to engage a specific user behavior that we can only provide a small selection of them. One mechanic appealing users' behavior is *envy*. Envy is a very often used game mechanic taking advantage of users' desire to get what others already have. Thus, games provide some kind of visibility where players can compare themselves with others. This game mechanic is closely related to *loss aversion*. Since people want to retain their game rewards in possession, the introduction of punishments such as the lost of points or even status if they do not participate for a certain period of time, motivates them to persist in playing. Another game mechanic is the principle of *free lunch* where users get a reward for free because another player has done a specific task. Implementing the principle of free lunch in Gamification applications demands prudence, because it discourages those players who are doing the necessary work. The last game mechanics we are presenting is called *epic*. Epic refers to individuals' motivation to do a work because they believe that they can achieve something great, something awe-inspiring, and something bigger than themselves (Burke and Hiltbrand 2011). An overview on both categories of game mechanics is provided in Table 2.

3.2 Gamification User Categorization

Despite Gamification does not primarily focus on entertainment, the player classification of traditional entertainment games helps to understand the users' motivations to play. A well-known taxonomy of player types is drawn by Bartle in 1996. He categorized players by identifying the four most important factors in games that users enjoy when playing. These elements are (1) receiving an achievement within the game-context, (2) explore the game and its landscape, (3) socialize with others, and (4) impose upon others. Although Bartle has noted that mostly players combine all of these styles in themselves – depending on their mood or current playing style – he assumes that they prefer one single style. Thus, he labeled

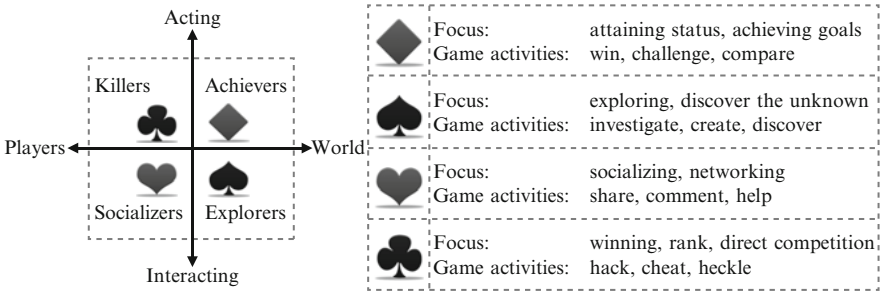


Fig. 4 Types of players, their focus and game activities

the player types according to their preferences. As an analogy to traditional game pack of cards he also assigns the four player types to the four symbols diamonds, spades, hearts and clubs (Fig. 4).

Those players who are primarily focusing on achieving specific goals or a certain status within the game he called *achievers* or diamonds, since they are always seeking for secrets and treasures. They prefer to act with the virtual world, to discover new areas, to collect points and to level up as central element of playing. Therefore, their primary game activities are geared to winning, challenging and comparing. Players striving to explore the world of the game, Bartle labeled *explorers*. In analogy to the traditional deck of cards these players are also called spades, because they always dig for more information. Explorers want the game surprising them. They favor to discover and investigate the unknown. The third type of players is the *socializer* (in analogy: hearts) using communication technologies of the game to chat and empathize with fellow players. They realize the game world as a setting, whereas the characters of other players arouse the socializer's interest. By chatting, commenting and helping others they maintain their relationships to fellow players and increase their own network. The fourth player type prefers the battle against others in direct peer-to-peer competitions. They act on other players through fighting in some way against them using game-internal tools. With their desire to win and to being listed on top of all rankings, they tend to resort to means like cheating, hacking or heckling. Therefore, Bartle called them *killers* or clubs, because they hit people with them (Bartle 1996).

Summarizing, Bartle's research starts from the premise that individuals are motivated playing games because of (1) their interest to explore its environment, (2) their desire to socialize with others, (3) their perceived satisfaction when collecting points and achieve game-related goals, or (4) their preference to compete with others. Because the motivations of users differ, various game mechanics fit more to a player type than others. Therefore, a comparison of player types and appropriate game mechanics may be helpful for design decisions of Gamification applications. Such a comparison is displayed in Table 3.

Any game mechanic listed by us is appropriate for achievers. These players do not only hoard rewards such as bonuses, points or achievements. They also strive to obtain every goal achievable including goals such as come out as winner in

Table 3 Comparison of player types and appropriate game mechanics (Source: Based on gamification.org)

	Achievements	Points	Bonuses	Leveling up	Progression	Appointments	Countdown	Leader board	Extinction	Comunity Collab.	Virality	Casc. Information	Envy	Loss Aversion	Epic	Free Lunch
Achiever	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Explorer	●	●	●	●		●	●		●	●		●	●	●	●	●
Socializer			●			●			●	●	●	●	●		●	●
Killer	●	●	●	●	●		●	●	●		●	●	●		●	●

comparison with others or win a challenge. To do so, they would take advantage of each opportunity provided by the game. If they are rewarded by inviting colleagues and friends to participate (virality), they would do so. If they see any possibility to become the top of a ranking e.g. in a leader board, they would fight for it. If they are afraid to lose some of their already earned achievements, they would do anything to avoid this. Countdowns and appointments also motivate them to catch the next reward.

Similar to achievers, explorers are satisfied by nearly every possible game mechanic. Only progression, virality and leader boards are exceptions. Explorers typically strive to discover the unknown, explore the game and its characteristics. Therefore, progression and leader boards are less important game mechanics for them. In contrast, explorers perceive leveling up as a necessary mechanic. Accomplishing the next level unlocks new challenges, tasks and skill sets facilitating them to discover new areas of the game. Whereas, they realize fellow players as additional feature to discover, interacting with others is not their primary goal. If needed explorers use other players to achieve their goals. Therefore, it is absolutely sufficient to access the aid of already active players, so that virality will not arouse their interest.

To catch socializers in Gamification application becomes more difficult. Socializers seek contacts to other individuals. Especially mechanisms focusing on displaying the progression and providing feedback are less important for most of them. Socializers' demands can be integrated by behavioral mechanics such as common collaboration or virality. In their pursuit to help others and share information, socializers prefer common collaborations and team work within the game. They persist in playing when they get the feeling their help is needed and desirable. Thus, they tend to suggest the game to colleagues and friends. To enrich the gaming community with more users of this player type, non-game related mechanics are useful. Such mechanics can be chat functionalities, news feeds or lists of friends.

If the mechanic does not addresses a generic need of individuals (e.g. extinction of tasks, cascading information, envy, epic meaning) and thus fits to all types of

players, the killer is the opposite of socializers. Game mechanics motivating socializers to participate are less motivating for killers and vice versa. Killers focus on winning, rankings and the direct competition with fellow players. To satisfy their desire, mechanisms such as achievements, points, countdowns or leader boards are convenient.

3.3 Factors Organizations Should Consider

Knowing the users and the game mechanics is not enough to implement Gamification applications successfully. Thus, success is not only related to increased user experience in companies' workforce but also related to improved productivity of employees. Many factors like corporate culture, social norms within the team or leadership style influence the impact of Gamification. These factors have to be considered when designing appropriate use cases for participating in a Gamification application (Cheng et al. 2011).

One important factor companies should consider when designing Gamification applications is the concept of flow. In his work Csíkszentmihályi defines flow as "the holistic experience that people feel when they act with total involvement." The concept of flow can be adapted to many situations of individuals' life. People might enter into the flow when playing a game in their free-time. Because the game is a passion for them, players follow the rules and pursue the goals without questioning what for tasks or guidance. For this time the player immerses within his own universe of the game. Entering the state of flow can occur because of two reasons or to a certain extent their combination. Either the task to solve is challenging but the individual is aware that it can solve the task with his set of skills. Or the individual realizes that the task is not too challenging but he has to extend his existing skill set. If tasks are too challenging or too many new skills are required for solving the task, individuals either get into anxiety respectively into boredom. Thus, flow is only a small bandwidth between anxiety and boredom as displayed in Fig. 5.

Especially in the use and acceptance of information technology, many researchers examined the concept of flow. Most of this research has identified different characteristics of flow such as control, concentration or enjoyment. Because they perceive the definition of Csíkszentmihályi as too broad, Hsu and Lu (2004) define flow as ... *an extremely enjoyable experience, where an individual engages in a [...] game activity with total involvement, enjoyment, control, concentration and intrinsic interest.* (p. 857)

Following this definition it is not surprisingly that the concept of flow is not only used in games for entertainment. According to Csíkszentmihályi games and thus the concept of flow are applicable in enterprises as well, since:

> Work is much more like a game than most other things we do during the day. It usually has clear goals and rules of performance. It provides feedback either in the form of knowing that one has finished a job well done, in terms of measurable sales or through an evaluation by one's supervisor. A job tends to encourage concentration and prevent distractions, and ideally, its difficulties match the worker's skills. (Csíkszentmihályi 1997b)

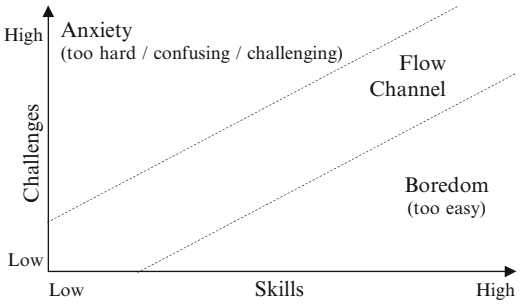


Fig. 5 State of flow between boredom and anxiety (Source: Csíkszentmihályi 1997a)

The concept of flow in combination with social norms – a further popular concept of the psychology area – result in 11 main design principles for Gamification applications introduced by Groh (2012). The clustering of the principles bases on Deci's and Ryan's "self-determination theory" which describes three innate needs of individuals for intrinsic motivation. The first need refers to relatedness – a universal need of individuals to interact with others and keep in contact with them. A second basic need is competence. Generally, individuals aspire to work effectively and to manage problems in a given environment. To have and keep control over their own lives is the third need of individuals also called autonomy. Groh's 11 design principles categorized to the basic needs are summarized in Table 4.

3.4 Threats

While we have described intensively the opportunities of Gamification in the previous chapters, we also want to provide a brief discussion on possible threats. The first and most obvious issue is the privacy of users. Leader boards, rankings and levels provide a lot of player-related information. When the corporate culture and social norms convey the feeling that participating in Gamification-based applications is viewed as wasting of time, users may refrain from participating when their playing activity is visible by achievements or leader boards. While on the one hand game mechanics publishing user interactivity can be motivating since they also display possible contacts and friends, they can on the other hand also be demotivating when users tend to hide their working actions (Burke and Hiltbrand 2011).

Another threat is the so-called "Gamepocalypse" introduced by Jesse Shell.[4] In his vision Jesse Shell sketches a "gamified" future where individuals only get

[4] http://fora.tv/2010/07/27/Jesse_Schell_Visions_of_the_Gamepocalypse

Table 4 Design principles for Gamification applications (Source: Groh 2012)

Relatedness	Connect to personal goals
	Connect to a meaningful community of interest
	Create a meaningful story
	Beware of social context meanings
Competence	Provide interesting challenges
	Provide clear visual varying, and well structured goals
	Provide juicy feedback
	Beware of unintended behaviors
Autonomy	Play is voluntary
	Beware of losing autonomy
	Beware of devaluating activities

motivated by earning points, achievements or bonuses. Every personal interaction will be gamified. Even when brushing their teeth, eating healthier food or visiting friends they would expect some kind of reward (Groh 2012). This also goes along with one of the pitfalls mentioned by Burke and Hiltbrand (2011). They advise against a moral hazard of game play referring to the risk that actual moral of an activity will be removed and replaced by game-based rewards. Especially in cases where the game-related rewards will be removed the original motivation of a person to take a specific action is lost, even if it was once fun for the person (Burke and Hiltbrand 2011).

When not carefully designed Gamification applications can also being perceived as unfair. Especially in situations where one leader board or ranking is applied in more than one Gamification-related application, users can get the feeling they get a raw deal. Thus, it is important to avoid a usage of same leader boards in multiple applications, when those are differing in the complexity of tasks. Otherwise, Gamification applications create a perceived inequality (Burke and Hiltbrand 2011).

4 Management Implications

In the following section we want to inspire managers implementing Gamification applications by providing a selection potential use cases supporting organizations to improve the user experience of their employees and consequently increase the overall performance. To get a first comprehensive but brief overview on possible usage scenarios we offer beside a short description some exemplarily Gamification mechanisms as well as an assessment of the use case via a star rating system. We assess the use case with regard to two aspects. First, we appreciate the usage scenario with respect to its capability to become successful in organizations. The higher we assume its capability, the more stars we assigned. Second, we assess its ease of implementation. The more stars we assigned to a use case, the lower will be its implementation effort in terms of time, costs and man power.

4.1 HR: Training of Employees

Today, many firms are using e-learning platforms to educate employees or train new, unskilled workers with little man power in periods of peak activities. However, employees have less or even no motivation to click through e-learning programs. Often they perceive the usage of such education applications as boring and waste of time. Traditional e-learning platforms only offer progression bars or multiple choice questionnaires, which can be answered by the users incorrectly without any consequences. This results in only nominal learning effects. Reasons for the low user acceptance may be its slight user experience. We suggest enriching e-learning platforms by implementing additional Gamification mechanisms.

Business Case	★★★★☆
Implementation	★★☆☆☆
Suggested Gamification Mechanisms	– Achievements – Bonuses – Leveling up – Progression – Leader boards – Cascading information – Virality

Because knowledge of employees is today one of the most valuable assets of companies, we rate the business case of Gamification usage to train employees with four out of five stars. Only, if companies have experts in particular knowledge areas, they can remain competitive and generate revenue. Regarding the implementation effort, we assess this use case with two out of five stars. Often companies are using commercial e-learning platforms only adjustable by its vendors. Thus, we expect a high customization and synchronization effort.

4.2 HR: Recruiting of New Specialists

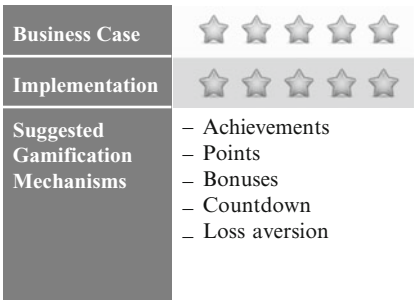
Employers are often faced to a tight job market. Companies have to battle for experts and the situation will be aggravated because of the demographic change. Actually, companies struggle to hire specialists and outstanding junior employees using traditional strategies of motivation and recruiting. We therefore suggest using so-called alternate reality games (ARG) that are implemented and offered by special providers. At the moment these games are mostly used to promote new products. However, ARGs are also feasible to put the player into a gaming situation, provide some challenges and thus test his or her skills. Corresponding to players' success in solving different kinds of problems the HR department is able to choose adequate potential employees.

Business Case	
Implementation	
Suggested Gamification Mechanisms	– Virality – Cascading information – Progression – Countdown – Free lunch – Loss aversion

Since we perceive the topic of recruiting experts and young, motivated employees as a key topic in the next years, we rate this use case with five stars. The implementation effort is also relatively low, because the conception and service can be purchased by external providers. Consequently, companies only have to pay for the commercial product. Thus, we assess the implementation effort with four out of five stars.

4.3 HR: Measure Employees' Performance

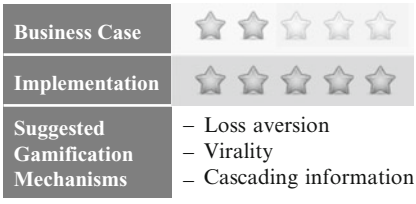
Each year, managers negotiate target agreements with their employees. Often these target agreements are arranged in a cascading fashion, to bring employees' contribution in line with strategic business goals and optimize their payments. Thus, target agreements serve in nearly every company as central element for motivation and controlling. However, besides the fact that the fulfillments of these targets are very seldom measurable in an objective way, there are some other issues with this controlling element. In most cases, the target agreements are defined individually resulting in difficulties of synchronizing among the entire organization. Furthermore, the agreed targets leave only little room for adjustments to changing business needs. From our point of view Gamification can be a potential solution for future performance measurement of employees. Let us think this idea up in more detail. Imagine the following scenario: A company maintains a catalogue containing all possible targets for employees. This catalogue is managed centrally according to the business needs of the company. Each of these targets is accompanied by the corresponding points. Employees are maintaining their targets by their own including reasons for their activities. These reasons facilitate the manager to check the target against its plausibility. Finally, the system computes the actual, total points and determines the bonus payments. Even when the business targets will change the targets in the system and points can be adapted for all employees.



The implementation of such a target catalogue and the corresponding information systems is quite simple to implement and provides a high value, because changing business needs are easily to illustrate. The calculation of the payments will be automated. Therefore, we assigned five stars for both, high business value and low implementation effort.

4.4 IT Service Provider: Freemium Services

Virtual market places providing a number of various applications were the first who demonstrated the success of freemium services. Freemium services are those services that exist in two forms: a light version and a full version. Often the light version can be purchased at low or no costs so that the buyer can get a taste of the product. Once the customer is on the hook, he or she is more willing to buy the full service. Such Freemium services offer a great potential for internal services, because company-internal service providers often have some difficulties to compete against external services since their return on investment is not clearly visible.



There is little experience on the application of Freemium services in businesses, but we assume that the success of these trial versions may be as successful in business contexts as in gaming background. However, we rate the business case with two out of five stars as a result of missing experiences. The implementation effort of Freemium services is assessed by us as very low, because the already offered service has simply been slimed down. Thus, we gave to this use case with respect on its implementation effort five stars.

4.5 IT Service Provider: Increase Utilization of IT Applications

IT applications are embedded in Enterprise Systems to support organizations in their day-to-day business. Often these applications are either purchased for a lot of money or implemented by an IT service provider with high effort. However, employees may be reluctant to use the applications because of a lack of qualified trainings, low user experience and motivation. Gamification mechanisms can be integrated in existing IT applications to improve users' attitude toward the software product. If the employees are more willing to use the systems, the transparency, efficiency and accuracy of processes are also increased. Thus, we rate the business case as highly promising and give it five stars. Depending on the adaptability and flexibility of the particular IT application the implementation effort of Gamification mechanisms varies. In average we assume a medium implementation effort and assess it with three out of five stars.

Business Case	★★★★★
Implementation	★★★☆☆
Suggested Gamification Mechanisms	– Achievements – Bonuses – Community – Virality – Cascading information – Loss aversion

5 Summary

Now you have an initial idea, how Gamification mechanics can be used to increase user experience of software products in organizations. We expect, in the near future Gamification will be widely used to motivate employees performing monotonous or disliked work. By implementing in-game mechanics such as achievements, bonuses, leader boards or community collaboration as well as in-person mechanisms like loss aversion, envy, epic and free lunch, software users may perceive their work as more enjoyable and desirable. Implementing Gamification in organizational software products is no guarantee to change the game of companies' day-to-day business. Organizations have to consider their strategic goals, corporate culture and predominant leadership style on the one hand, and the individuals' needs and preferences on the other hand.

But where can you use Gamification to generate advantages for your company? Our suggestion is to remember the last discussions with your IT users about the needs and problems. Now map the player types and appropriate game mechanics matrix to the issues you still remember to find first valid approaches. Take care of

the pits when implementing the first Gamification mechanism and you can be one of the winners that change the game.

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