

# Gamification in a Business Context: Theoretical Background\*

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**Abstract.** *Gamification is a recent research and practical concept for use of game design elements in non-game contexts. In this work, we study the gamification in business context. The mentioned context is very important, due to its usage by companies who are looking for new ways to engage, teach, reward and retain employees and customers. First, we list a state of the art of game studies and a transition from game design to gamification design. We also list main guidelines for application of gamification in business organizations. The effects of gamification and some ethical considerations are also tackled.*

**Keywords.** Gamification, gamification frameworks, gamification in business context, gamification design

## 1 Introduction

Having fun during work presents a great motivator for most of the people while they perform their daily job routines. The possibility of “playing” or “gaming” in the environments that have different purposes of those imposed by usual playground environment has led to emergence of a new research and practical concept called “gamification”. Although the roots of gamification could be traced back to early 20<sup>th</sup> century in a form of a toy surprise in a sweets box, and applications of game elements could be found in the non-gaming project by Bartle or in a Malone’s study on motivational impact of games (Werbach, n.d.), the term gamification in a current sense is associated with a computer game developer Nick Pelling (Pelling, 2011; Werbach, n.d.; Werbach & Hunter, 2012). Around 2002 / 2003 Pelling has coined the term to denote usage of game-like user interface design for electronic devices in order to make them fun and easy to use (Pelling, 2011). Later, the concept of *gamification* has found its application in many other areas, e.g., in education, health, lifestyle, marketing, business, etc.

Gamification has been identified as a promising concept that helps solve real business problems, so it was introduced to Gartner’s Hype Cycle as a technology trigger in 2012 (Gopaladesikan, 2012). In 2017, gamification reached the slope of enlightenment for a digital workplace (“Gartner Releases ‘Hype Cycle for the Digital Workplace’”, 2017), which denotes widespread use of technologies with mature products and acknowledgement of its benefits to the enterprise (Gartner Inc., n.d.).

Due to its broad scope, the term gamification has not been defined in academic literature until 2011, and the most common definition of gamification is “the use of game design elements in non-game context” (Deterding, Dixon, Khaled, & Nacke, 2011). This definition includes various contexts and enhances its relatedness to game studies. The business context of gamification is explained as “the application of gaming metaphors to real life tasks to influence behaviour, improve motivation and enhance engagement” (Marczewski, 2012b), which underpins motivational and behavioural change of a person (employee or customer), or by Gartner’s redefined definition as “the use of game mechanics and experience design to digitally engage and motivate people to achieve their goals” (Burke, 2014), which limits the usage to digital environments.

Constant change of terminology is a common occurrence in every new emerging area. Besides, most of those who are in touch with new area are using the available terminology without additional categorical separation. Hence, the same issue is found when talking about gamification (Mora, Riera, Gonzalez, & Arnedo-Moreno, 2015).

Using gamification as innovative and entertaining way to engage employees and build their skills, is further highlighted by several Gartner predictions, of which the one saying that “80% of current gamified applications will fail to meet business objectives” by 2014 (“Gartner Says by 2014, 80 Percent of Current Gamified Applications Will Fail to Meet Business Objectives Primarily Due to Poor Design,” 2012),

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highlights the importance of good gamification design to achieve gamification goals.

Therefore, this paper unveils the gamification concept related to the business context. Firstly, importance of game theory for gamification is highlighted, as well as transition from game design to gamification design. Secondly, the guidelines that should be considered before application of gamification in business environment are also emphasized in this paper. Thirdly, the paper points out the effects of gamification, which can be observed from different aspects. Finally, some ethical considerations regarding gamification are described.

## 2 Theoretical Background of Gamification

Gamification has its roots in games and game theory, video game industry, as well as in human-computer interaction (HCI) researches. Having said that, we should have in mind that early adoption of gamification was not related to digital but to military environment where the game elements such as badges and ranks were used as means of achievement (Dicheva, Dichev, Agre, & Angelova, 2015).

Various researchers (e.g. (Deterding et al., 2011; Groh, 2012; Huotari & Hamari, 2012; Salen & Zimmerman, 2004)) have elaborated the relation between gamification and games, explaining the difference between the *game*, as a set of structured activities defined by explicit rules to achieve defined goals, and the *play*, which usually comes in free, unstructured, expressive form.

Gamification has its foundations in games since it incorporates some of game design elements, but with different purpose, which is engagement and behavioural change of the user in non-gaming environment, in contrast to entertainment and enjoyment, which is the main purpose of video games (Groh, 2012). Further, gamification does not include the use of actual video game for serious purposes (which is recognized as “serious game”), but rather borrow principles of game design and apply it in non-game situations (Deterding et al., 2011; Robson, Plangger, Kietzmann, McCarthy, & Pitt, 2015).

Increasing popularity of video games has raised interest of HCI researchers to explore rationale behind designing enjoyable user interfaces by proposing heuristics for its design and methods to evaluate user experience. The same can be applied to gamified applications, which Deterding and his associates see as a re-purposed and new extension of games beyond entertainment (Deterding et al., 2011).

Since gamification borrows its constructs from the game studies, the following chapters unveil concepts related to both game and gamification.

### 2.1 MDA and MDE Frameworks

MDA (Mechanics, Dynamics and Aesthetics) framework was developed by Hunicke, LeBlanc and Zubek (2004), and it is an approach for understanding games. The need for a formal and recognized proposal in the context of game design led to its development. It is trying to connect or shorten the difference between game design and development, game criticism and technical game exploration. According to MDA framework, games can be divided into three elements: rules, system and fun. These elements are translated to the following design components: Mechanics, Dynamics and Aesthetics. The Mechanics component is describing some specified game components at the level of data representation and algorithms. The Dynamics component describes the influence of behaviour of mechanics on the player inputs and each other's outputs during the execution time. Aesthetics is a third component describing desirable emotional response, which is induced in a player during interaction with a game (system). During the design process, the game components should be defined in the same order as they are listed (Hunicke, LeBlanc, & Zubek, 2004).

Robson et al. (2015) have adduced that the term emotions is more convenient for results of the synergy, which a company can obtain from relation employee – customer compared to the term aesthetics. Therefore, the MDE framework is more commonly used than MDA within gamification, where the letters MDE stand for Mechanics, Dynamics and Emotions (Robson, Plangger, Kietzmann, McCarthy, & Pitt, 2015). Emotions are player's state of consciousness. It can be said that emotions are results of player's tracking mechanics and generating dynamics.

### 2.2 DMC Pyramid

Werbach and Hunter have showed the structure of the game elements more precisely, commonly referred as the DMC Pyramid, and indicated that the basic elements of the game, as well as the gamification, are dynamics (D), mechanics (M) and components (C) (Werbach & Hunter, 2012):

- Dynamics - represent conceptual structures on which the game is based, the ones that shape the game itself. Additionally, they are the most abstract element of the gamification. Players feel their action, but they do not encounter them directly (e.g., narratives, relationships or constraints).
- Mechanics - can be described as processes that initiate action in the game. They are also defined as actions through which higher ranked dynamics are carried out and are reflected in lower ranked components. Typical mechanics are competitions, challenges, rewards, resource acquisition, etc.
- Components - represent specified game structures or instances of mechanics and dynamics. The most

common components are badges, levels, quests, points, achievements, leaderboards, avatars, etc.

McCarthy and Gordon (2011) have mentioned that mechanics equalize the organizational systems and technologies, which managers can use to encourage some specific behaviour and achieve better results (McCarthy & Gordon, 2011).

As Robson et al. (2015) have described, mechanics are decisions that designers make to specify aims, rules, settings, context, type of interaction and the situation boundaries which would be gamified. They are known before the experience begins, they remain constant meaning that they should not be changed regardless of the player, and they should stay the same every time when the user is participating (Robson et al., 2015).

### 2.3 Importance of Participants in a Gamified Environment

One of the building blocks of the game and gamification are players whose participation should be voluntary (Huotari & Hamari, 2012). Players are the users who interact with the game or gamified application, so in order to create a satisfying user/player experience, characteristics of the players should be considered when designing gamified environment.

The most recognised taxonomy of the player types is the one proposed by Bartle (Bartle, 1996; Kumar & Herger, 2013), who classified the players into four categories. Players can be: 1) *Achievers*, who play to gain points and status, and their actions are directed towards that goal; they represent around 10% of the players, 2) *Explorers*, who love to discover new aspects of the game and figure out how things work; also represent around 10% of the players, 3) *Socializers*, who play to have fun while interacting with others, and to build inter-player relationships rather than to achieve points or finish the game; around 80% players falls into this category, and 4) *Killers*, who have similar goals as achievers, but find satisfying to see other players lose as a consequence of the killer's action; less than 1% players falls into this category.

However, Bartle himself pointed out that his taxonomy doesn't fit well into non-massively multiplayer online games or non-game related systems, including gamified ones. Marczewski has been exploring Bartle's taxonomy taking into account players' intrinsic and extrinsic motivation for better understand why and how people would use a gamified system, He proposed the Marczewski's Gamification User Types, a taxonomy for users in gamified systems (Marczewski, 2014). His taxonomy includes six types of users at a basic level. Four user types are intrinsic types motivated by their inner drive: *Achiever* (wants to learn new things), *Socialiser* (wants to interact with others), *Philanthropist* (wants to enrich the lives of others) and *Free Spirit* (wants to create and explore), whereas two user types are extrinsic types motivated

by external incentives: *Player* (motivated by rewards) and *Disruptor* (motivated by change).

Those user types can be further categorized according to their willingness to play/participate, which is an important criterion when introducing gamification to a working environment. Only the *Player* is thoroughly motivated and happy to participate in gamification, in contrast to *Disruptor* who doesn't want to do anything with it. Other types are less willing to play, so gamification designers need to choose dynamics and mechanics that will encourage positive behaviour and best outcome of gamified system (Marczewski, 2015).

### 2.4 Gamification Frameworks

Marczewski has proposed a development process framework of gamification considering two parts. The first part consists of a set of questions, which should be asked when deciding if gamification should be used or not. The second one includes list of things which should be known about gamification and which should never be forgotten (Marczewski, 2012a).

**Table 1.** Marczewski's Gamification Framework

FIRST PART OF MARCZEWSKI'S GAMIFICATION FRAMEWORK	
QUESTION/STEP	EXPLANATION OF QUESTION/STEP
1. WHAT is gamified?	It should be clarified which activity or activities will be gamified.
2. WHY is gamified?	Important question to ask is what can be achieved with such/this project.
3. WHO are the users?	It should be known who are or who the users will be to make it easier to connect with them.
4. HOW is gamified?	Once the first three questions are answered, one can start thinking about the steps to be done in order to start gamification of the system.
5. Are the ANALYTICS set up?	The specific metrics and analytics should be defined because of the performance measurement, work control, reporting etc.
6. Is it TESTED on users?	Gamification should always be tested on the target group. It is the users who are going to be part of such system, not managers or designers.
7. Is it REACTED on feedback?	Feedback can be collected during testing. If some actions or changes are made regarding to feedback, then feedback collecting would make sense.
8. Is the solution RELEASED?	The new system should be announced before it is released in order to gain users even before they see the system.
SECOND PART OF MARCZEWSKI'S GAMIFICATION FRAMEWORK	
ABOUT GAMIFICATION	EXPLANATION

It should think like game designers	Since gamification is based on the game theory it is understandable that gamification designers rely on game design principle.
It should be created to be voluntary	Voluntary players are much better players than those who are not.
The plan for cheaters should be created	Cheating is a part of human nature, so it shouldn't be surprising if someone will try to cheat the system, particularly if extrinsic reward is included.
Intrinsic vs. Extrinsic	Intrinsic motivation is more powerful than extrinsic. Extrinsic motivation encompasses what has been done because of the extrinsic rewards - something tangible or material. For extrinsically motivated people, outcomes are important and not action or behavior. On the other hand, intrinsic motivation encourages behavior which results with intrinsic rewards like enjoyment, positive feelings, happiness, etc.
It should not be evil	Gamified system should not be created to exploit people, otherwise they will probably stop to use it.
The fun has not been forgotten	Even small amount of fun can make almost everything more enduring.
It should have social elements	Social mechanics are key for creating long-term engagement.

The questions asked in the first part in some way represent steps in the development process. Therefore, steps 6 and 7 can be repeated in the circle (as a loop) as many times as needed, and then steps 5 to 8 should be repeated. In order to keep the initial interest, it is necessary to collect feedbacks, to improve iterations, and to add new elements (Marczewski, 2012a).

During the implementation of a gamified system, the extrinsic rewards and intrinsic motivation should be taken into consideration. However, intrinsic motivation is the one from which longevity and genuine engagement would emerge.

Hence, this is why Marczewski has developed the RAMP (Relatedness, Autonomy, Mastery, Purpose), an intrinsic motivation framework that can be used as foundation for gamified systems. *Relatedness* is component, which describes the urge for connecting to other people, and is associated with the *Socialiser* user type; the *Autonomy* means as low level of control as possible, and is associated with the *Free Spirit* user type; the *Mastery* represents the never ending process of working on personal development, and is associated with the *Achiever* user type; and last but not least *Purpose* is there to bring the value to finished actions and is associated with the *Philanthropist* user type.

### 3 Principles and Strategies for Gamification

Before starting the implementation of gamification in a particular environment, variety of principles should be considered. Gamification designers could consult general principles for gamification, e.g., those that are based on self-determination theory which describes needs in intrinsic motivation and are further explained in (Groh, 2012), or principles for gamification of the working environment proposed in (Oprescu, Jones, & Katsikitis, 2014).

Groh (2012) has elaborated the principles that are based on: 1) *Relatedness*, the universal need to interact and be connected with others, 2) *Competence*, the universal need to be effective and master a problem in a given environment, and 3) *Autonomy*, the universal need to control one's own life. Those are similar to the already presented RAMP motivation framework (Marczewski, 2012a).

Oprescu et al. (2014) have elaborated ten principles that could facilitate gamification in everyday workplace processes. Among others, they put the accent on persuasive elements, learning orientation, amusement factors, personal and organizational wellbeing, knowledge-based, as well as adaptation to Y generation.

Whichever principles are adopted, they present the foundations for applying strategic decisions related to implementation of gamification in working environment.

#### 3.1 Strategic Application of Gamification Principles in Business Context

In (Robson, Plangger, Kietzmann, McCarthy, & Pitt, 2016), the authors have described five guidelines, which can be used by managers and gamification designers when thinking about strategic application of gamification principles to engage employees and/or clients:

1. Before making a decision about gamification mechanics, it is necessary to understand the players, i.e., evaluate the type of players, and select the appropriate gamification mechanics,
2. Timing of rewards is key – the progression mechanics should reward player's good behavior (after his successful performance) as soon as possible to increase the player's motivation and the probability of him repeating the desired behavior,
3. New layers, tasks or players should be added only if necessary to keep the gamified experiences interesting and challenging for the players,
4. Managers must act as referees and monitor the experiences to prevent players from breaking the rules, and negatively affect other participants, and
5. Gamification mechanics should be used to keep track of the score by using appropriate metrics and

key performance indicators (KPIs) to measure the efficacy of gamification strategy applications.

On the other hand, Kumar and Herger (2013) have emphasized the importance of gamification mission. Each set of actions related to gamification, that is carried out in the business environment, and has the purpose of achieving goals, can be defined as the gamification mission. Defining the gamification mission is an extremely important step, because the properly defined mission of the game can greatly affect the performance of the game. The authors have defined the following three steps of specifying the gamification mission (Kumar & Herger, 2013):

1. Understanding the current situation (scenario) in the business environment leads to a better definition and understanding of the need for introducing gamification,
2. Understanding a target business situation in the business environment and the benefits that are to be achieved and expected from the introduction of gamification, and
3. Identification of the SMART mission (Specific, Measurable, Actionable, Realistic, Timebound) to define the mission based on the current and expected future situation (identified in steps 1 and 2).

For example, the authors have described defining a gamification mission to identify the employees. In this case, the current situation is a large company where employees don't know each other, while the expected situation is the one, in which they will increase the interconnectedness and co-operation of employees in the workplace. The gamification mission to achieve this is to help employees get to know more each other's in the next 3 months. Mechanisms that can be used for this are, e.g., that every user needs to identify a random employee based on his/her face when logging in with the company's system.

### 3.2 Design and Development of Gamification in Business Context

Marczewski has proposed a development framework for business gamification, which includes three phases: definition, design and improvement, where each phase contains a series of repeating steps (Marczewski, 2017a). In the definition phase, it is necessary to define the problem that is being solved by the gamification, the users involved in the process of gamification, and which final results will be considered successful (metrics for measuring these results need to be defined). The design phase includes activities related to the "user travel" design, which aim is to familiarize and understand the concepts of user experience, which users encounter during their "user travel". To do this, in the next steps you need to design and build mechanisms to achieve the desired user experience through designing the desired behaviour (What do we want users to do?), motivation (What motivates

users?), emotion (How do we want our system users feel during its use?), and mechanics that implement previous designs and ensure that they are properly implemented. At the end of the improvement phase, actions are carried out to continually check the success of the steps taken and change, in case of need, undertaken activities.

Werbach and Hunter have proposed six steps for execution of the design phase of the business system gamification (Werbach & Hunter, 2012):

1. Define business objectives - it is necessary to have a clear definition of business objectives and objectives of the target system performance rather than organizational mission, etc. The definition includes listing goals in the form of a list, ranking goals, deleting mechanics, and justifying identified goals.
2. Describe target behavior - define what we want users to do and the associated metrics. Target behavior should be clearly and precisely described (for example, exercise for at least 30 minutes, sign up at the company's website, visit a restaurant, etc.), with a view to promote the achievement of the business goals defined in Step 1.
3. Describe players - it is necessary to define who will be the users of the system, who are the employees, who are the users (clients), what can motivate them within the system for its use, and categorize them as different types of players.
4. Create activity cycles that are used in the system to identify and represent user actions in a gamification system (for example, a user performs an action that results in a subsequent action, etc.).
5. Do not forget fun - Before implementing the system, it is necessary to make a last check of how much fun this system is, or whether it will be fun enough to motivate users to use it.
6. Use appropriate tools - In the implementation phase, it is necessary to use the correct mechanics and components and properly integrate them into the system. There are two options for system implementation at the technical level: a) it is possible to create a custom system implementation, b) it is possible to use platforms that offer software-as-a-service solutions or embeddable components (e.g., Freshdesk, GamEffective, Playvox, Badgeville, etc.).

In his work, Swacha (2016) has said that the success of implementing a gamification system of a business organization significantly increases if attention is paid to this process and if it is planned, i.e., according to the defined plan/procedure. Apart from the design process, Swacha has emphasized the importance of technology for the implementation of the gameplay system. Possible implementation approaches are that the system is implemented as a module within the Enterprise Information System, or as a separate software solution that integrates into the initial system (Swacha, 2016).

## 4 Effects of Gamification

Kappen and Nacke have presented a framework or kaleidoscope of effective gamification, where they propose a definition that “effective gamification is influencing human behaviour through engaging experiences, using game design principles in decision-making applications and services” (Kappen & Nacke, 2013). This kaleidoscope has several layers from inside out, in its core being the effective gamification (Kappen & Nacke, 2013):

- Motivated Behaviour Layer - intrinsic (e.g., competence) and extrinsic motivation (e.g., badges),
- Game Experience Layer (e.g., challenges),
- Game Design Process Layer (e.g., interface design elements), and
- Perceived Layer of Fun.

Hamari and associates have studied effects of gamification through three elements: motivational affordances (dependent variables), psychological outcomes (dependent and independent variables) and behavioral outcomes (dependent variables) (Hamari, Koivisto, & Sarsa, 2014). Their review of 24 empirical studies showed that (Hamari, Koivisto, & Sarsa, 2014):

- there is a large variety of used motivational affordances (badges, leaderboards, challenges...),
- half of studies researched psychological effects, such as enjoyment, and almost all studies (22) researched effects on behaviour (participation, learning, content contribution...),
- most of research showed positive effects for specific motivational affordances, but those effects depend on number of factors (motivational affordances, system used) and their longevity is questionable, and
- gamification in the context of education, work and organizational system is most researched, and there were no cases of gamification in marketing research.

Another research that comprised 30 scientific papers concentrated on various elements in relation to gamification: the concept of gamification itself and its use, critics, connected concepts, frameworks, theoretical background and terminology, as well as various application domains (education, health, marketing...) (Seaborn & Fels, 2015). The effect of gamification on participants is also investigated, and results showed that it is mostly positive, but that it depends on context, such as application domain. Also, from several expected different effects, in some cases one part of them was positive and another part negative or one part positive and another neutral. Some research results even varied from one participant to another depending on, for example, age or gender. Authors also emphasize that efficacy could be increased if extrinsic motivators would follow intrinsic.

Of course, individual elements or mechanics were also investigated. For example, Hamari has conducted

a research to find out how badges (extrinsic motivation) influence user activity (Hamari, 2017). His research was carried out on a platform for personal sales and purchases among individuals and lasted two years – in first year there was no gamification and in second gamification was implemented with badges as rewards. Results showed that gamification increased user activities in system usage, sales and commenting. Lieberoth has researched intrinsic motivation in a setting where students thought that they are using a tool for grading their satisfiability which university considers buying, and they did not receive any reward (Lieberoth, 2015). Each group was filling in different questionnaire: (1) regular, (2) with game artefacts (board, cards, figures) that didn't have special purpose and (3) with artefacts and mechanics of game (moving figures under certain conditions). It was found out that only framing a certain activity in gamification increases feelings of fun and interest, and that mechanics and real gamification additionally increase interest very little.

Effect of various gamification elements can also be observed only from design aspect. Recent research studied points, badges, leaderboards, performance graphs, meaningful stories, avatars and teammates exclusively as design elements and their influence (specific element for specific purpose) on satisfaction of psychological needs connected to intrinsic motivation elements: competence, autonomy (linked to decision making and task meaningfulness) and social relatedness (Sailer, Hense, Mayr, & Mandl, 2017). Authors have concluded that gamification alone does not have a significant effect, but that specific elements that are used influence the individual motivational aspects.

Companies dealing with the development of the contact centre systems always emphasize the importance of gamification, stating that it can increase productivity and with fun at work stimulate the employee's positive behaviour (Calabrio, n.d.-a), and they obligatory include it in their systems (Calabrio, n.d.-b). One of 20 ways to increase employee engagement that the company Puzzel (Puzzel, n.d.) describes is also a gamification, where they give an example of a company whose employees have even completed non-mandatory courses through it, resulting in increased customer satisfaction and reduced call time, but the Puzzel has also warned of possible negative effects in the case of wrong design and application. Various examples show that gamification can increase employee engagement and efficiency in targeted activities (CallMiner, 2016).

Therefore, gamification can have various positive effects on organization, but from the aforementioned research and information it can be concluded that it needs to be accessed individually. Attention should be paid to both intrinsic and extrinsic motivation as well as to individual elements, mechanics and the profile of the participants.

## 5 Ethical Considerations

For now, there is no accepted/agreed ethical framework of gamification, code of ethics for gamification or ethical guidelines which should be considered and which are generally accepted. Nevertheless, there are authors who are trying to highlight the importance of ethics.

Kim and Werbach (2016) have tried to make framework for gamification ethics. They were encouraged because of next two reasons. First, the gamification ethics is partly underrated and poorly theorized because gamification is a technological novelty. Adoption of gamification in practice is often much faster than detailed consideration and theoretical research. Other reason is that proponents and critics of gamification tend to generalize according to specific examples. Kim and Werbach (2016) have proposed conceptual mapping of gamification ethics which consists of four categories of moral concerns – exploitation, manipulation, harm, character. The map is an outline of approach that can help gamification provider to take ethical issues in consideration but does not seem to be a complete framework for normative evolution of gamified systems (Kim & Werbach, 2016).

Raftopoulos has proposed Sustainable Gamification Design (SGD) model as a conceptual framework for gamification design and in midst of it she put values and ethics frame (Raftopoulos, 2014). Proposed design phases of SGD model are *Discover* (context and actors of the system), *Reframe* (discovered information as opportunities and potential solutions), *Envision* (a preferred solution), and *Create* (the gamified application) and they in total consist of seven steps of design process. Values and ethics frame are established in the first phase and its purpose is to deal with so called “value-destroying” gamification elements that author also identified, such as “coercive participation” or “loss of human agency”. Values and ethical principles are inspected at each of seven steps.

Within the design of gamification and gamified systems, Marczewski defines ethics as set of principles which should facilitate the solution design process which should be in balance with the promotion of desirable outcome for users. The emphasis should be placed on designer’s intention to create systems that help, and not those that cause harm to others. However, it should be kept in mind that defining the harm can be potentially subjective. Thus, it is useful to have frameworks or ethical guidelines that would prevent potential danger when designers become focused on implementation and forget the potential issues and dangers. Therefore, it is very important to know that all cases of ethical concern related to gamification are not fault of gamification as a concept, but designers whom should use available techniques to make gamification ethical (Marczewski, 2017b).

Also, there is Open Gamification Code of Ethics and it can be found on the website

<http://ethics.gamified.uk/>. It includes next five aspects: honesty, integrity, transparency, quality and respect. This code of ethics is voluntary and has no legal obligation. Since the last update (July 2017.), it has been signed by 72 people and list of all those who agree with it is located on the same website (“Open Gamification Code of Ethics,” n.d.)

## 6 Conclusion and Future Work

In this work, we have studied the literature on gamification in a business context. First, we have described game studies related to gamification and a transition from game design to gamification design. Gamification has its foundations in games, game theory and research of human-computer interaction. MDA framework is usually recommended for design process of gamification by many authors in reviewed literature. This framework is taken from the game design theory and it was developed because of need for a formal and recognized proposal in the context of the game design. In the analysed literature, it is mentioned that term Emotions is more suitable than term Aesthetics for the non-gaming environment. So, the used framework in the gamification context is MDE framework (Mechanics, Dynamics, and Emotions). Marczewski’s framework consists of set of questions and theoretical concepts which should be considered during the gamification design, but that doesn’t mean that intrinsic motivation framework RAMP should not be neglected. DMC Pyramid show the structure of the game elements even more precisely. Also, in order to create satisfying user/player experience, characteristics of the users should be considered during gamification design step.

Before starting implementation of gamification in a particular environment, gamification designers should consult general principles for gamification. The adopted principles present the foundations for applying strategic decisions related to implementation of gamification in working environment. Effects of gamifications are considered mostly positive but are also very dependent on various factors. They therefore have to be approached individually for each case with both intrinsic and extrinsic motivation in mind.

Since the gamification is considered as technological novelty, the gamification ethics is still not sufficiently explored and theorized. There are some conceptual maps, guidelines etc., but complete framework for gamification ethics has yet to be developed. In our future work, we plan to study application of gamification in contact centres. One of the key elements of creating a successful gaming experience is certainly the understanding of all kinds of players and the understanding of what they are different to each other. This theme is also promising topic for future research. We also hope our overview presented in this paper will help researchers and practitioners to explore the state of the art of a

gamification in a business context, and to identify other interesting future research areas.

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## References

- Bartle, R. (1996). Hearts, clubs, diamonds, spades: Players who suit MUDs. *The Journal of Virtual Environments*, 1.
- Burke, B. (2014, April 4). Gartner Redefines Gamification. Retrieved June 13, 2018, from [https://blogs.gartner.com/brian\\_burke/2014/04/04/gartner-redefines-gamification/](https://blogs.gartner.com/brian_burke/2014/04/04/gartner-redefines-gamification/)
- Calabrio. (n.d.-a). 4 ways to rock contact center gamification. Retrieved from <https://www.calabrio.com/contact-center-gamification-infographic/>
- Calabrio. (n.d.-b). The Definitive Primer on Contact Center Employee Engagement. Retrieved from <https://www.calabrio.com/definitive-primer-employee-engagement/dl-dpee/>
- CallMiner. (2016). Using Gamification to Improve Contact Center Performance. Retrieved from <https://callminer.com/wp-content/uploads/2016/08/Using-Gamification-to-Improve-Contact-Center-Performance.pdf>
- Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness: defining gamification. In *Proceedings of the 15th international academic MindTrek conference: Envisioning future media environments* (pp. 9–15). ACM.
- Dicheva, D., Dichev, C., Agre, G., & Angelova, G. (2015). Gamification in education: a systematic mapping study. *Journal of Educational Technology & Society*, 18(3), 75.
- Gartner Inc. (n.d.). Hype Cycle Research Methodology. Retrieved March 26, 2018, from <https://www.gartner.com/technology/research/methodologies/hype-cycle.jsp>
- Gartner Releases “Hype Cycle for the Digital Workplace, 2017.” (2017, August 17). Retrieved June 13, 2018, from <https://www.gartner.com/newsroom/id/3785664>
- Gartner Says by 2014, 80 Percent of Current Gamified Applications Will Fail to Meet Business Objectives Primarily Due to Poor Design. (2012, November 27). Retrieved March 21, 2018, from <https://www.gartner.com/newsroom/id/2251015>
- Gopaladesikan, S. (2012, December 11). Following Gamification Through Gartner’s Hype Cycle. Retrieved June 13, 2018, from <http://www.gamification.co/2012/12/11/following-gamification-through-gartners-hype-cycle/>
- Groh, F. (2012). Gamification: State of the art definition and utilization. *Institute of Media Informatics Ulm University*, 39, 31.
- Hamari, J. (2017). Do badges increase user activity? A field experiment on the effects of gamification. *Computers in Human Behavior*, 71, 469–478. <https://doi.org/10.1016/j.chb.2015.03.036>
- Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does Gamification Work? -- A Literature Review of Empirical Studies on Gamification (pp. 3025–3034). Presented at the 2014 47th Hawaii International Conference on System Sciences, IEEE. <https://doi.org/10.1109/HICSS.2014.377>
- Hunicke, R., LeBlanc, M., & Zubek, R. (2004). MDA: A formal approach to game design and game research. In *Proceedings of the AAAI Workshop on Challenges in Game AI* (Vol. 4, pp. 1–5). AAAI Press San Jose, CA.
- Huotari, K., & Hamari, J. (2012). Defining Gamification - A Service Marketing Perspective. In *Proceeding of the 16th International Academic MindTrek Conference*. <https://doi.org/10.1145/2393132.2393137>
- Kappen, D. L., & Nacke, L. E. (2013). The kaleidoscope of effective gamification: deconstructing gamification in business applications (pp. 119–122). ACM Press. <https://doi.org/10.1145/2583008.2583029>
- Kim, T. W., & Werbach, K. (2016). More than just a game: ethical issues in gamification. *Ethics and Information Technology*, 18(2), 157–173. <https://doi.org/10.1007/s10676-016-9401-5>
- Kumar, J., & Herger, M. (2013). *Gamification at Work: Designing Engaging Business Software*. Aarhus, Denmark: The Interaction Design Foundation. [https://doi.org/10.1007/978-3-642-39241-2\\_58](https://doi.org/10.1007/978-3-642-39241-2_58)
- Lieberoth, A. (2015). Shallow Gamification: Testing Psychological Effects of Framing an Activity as a Game. *Games and Culture*, 10(3), 229–248. <https://doi.org/10.1177/1555412014559978>
- Marczewski, A. (2012a). A Simple Gamification Framework / Cheat Sheet. *Gamified UK - #Gamification Expert*. Retrieved from <https://www.gamified.uk/gamification-framework/>

- Marczewski, A. (2012b, March 13). Gamification for your company. Retrieved June 13, 2018, from <https://www.capgemini.com/2012/03/gamification-for-your-company/>
- Marczewski, A. (2014, January 28). Marczewski's Gamification User Types. Retrieved March 12, 2018, from <https://elearningindustry.com/marczewski-gamification-user-types>
- Marczewski, A. (2015). User Types. In *Even Ninja Monkeys Like to Play: Gamification, Game Thinking and Motivational Design* (1st ed., pp. 65–80). CreateSpace Independent Publishing Platform. Retrieved from <https://www.gamified.uk/user-types/>
- Marczewski, A. (2017a). A Revised Gamification Design Framework. Retrieved March 20, 2018, from <https://www.gamified.uk/2017/04/06/revised-gamification-design-framework/>
- Marczewski, A. (2017b). The ethics of gamification. *XRDS: Crossroads, The ACM Magazine for Students*, 24(1), 56–59. <https://doi.org/10.1145/3123756>
- McCarthy, I. P., & Gordon, B. R. (2011). Achieving contextual ambidexterity in R&D organizations: a management control system approach. *R&D Management*, 24(2), 258. <https://doi.org/10.1111/j.1467-9310.2011.00642.x>
- Mora, A., Riera, D., Gonzalez, C., & Arnedo-Moreno, J. (2015). A literature review of gamification design frameworks. In *Games and virtual worlds for serious applications (VS-Games), 2015 7th international conference on* (pp. 1–8). IEEE.
- Open Gamification Code of Ethics. (n.d.). Retrieved March 20, 2018, from <http://ethics.gamified.uk/>
- Oprescu, F., Jones, C., & Katsikitis, M. (2014). I PLAY AT WORK—ten principles for transforming work processes through gamification. *Frontiers in Psychology*, 5. <https://doi.org/10.3389/fpsyg.2014.00014>
- Pelling, N. (2011, August 9). The (short) prehistory of “gamification”.... Retrieved May 21, 2018, from <https://nanodome.wordpress.com/2011/08/09/the-short-prehistory-of-gamification/>
- Puzzel. (n.d.). 20 Ways to Improve Employee Engagement in Contact Centres. Retrieved from [https://www.callcentrehelper.com/images/reports/20170912-Puzzel\\_Employee-Engagemen-in-Contact-Centres.pdf](https://www.callcentrehelper.com/images/reports/20170912-Puzzel_Employee-Engagemen-in-Contact-Centres.pdf)
- Raftopoulos, M. (2014). Towards gamification transparency: A conceptual framework for the development of responsible gamified enterprise. *Journal of Gaming & Virtual Worlds*, 6(2), 159–178. [https://doi.org/10.1386/jgvw.6.2.159\\_1](https://doi.org/10.1386/jgvw.6.2.159_1)
- Robson, K., Plangger, K., Kietzmann, J. H., McCarthy, I., & Pitt, L. (2015). Is it all a game? Understanding the principles of gamification. *Business Horizons*, 58(4), 411–420. <https://doi.org/10.1016/j.bushor.2015.03.006>
- Robson, K., Plangger, K., Kietzmann, J. H., McCarthy, I., & Pitt, L. (2016). Game on: Engaging customers and employees through gamification. *Business Horizons*, 59(1), 29–36. <https://doi.org/10.1016/j.bushor.2015.08.002>
- Sailer, M., Hense, J. U., Mayr, S. K., & Mandl, H. (2017). How gamification motivates: An experimental study of the effects of specific game design elements on psychological need satisfaction. *Computers in Human Behavior*, 69, 371–380. <https://doi.org/10.1016/j.chb.2016.12.033>
- Salen, K., & Zimmerman, E. (2004). *Rules of Play: Game Design Fundamentals*. MIT Press.
- Seaborn, K., & Fels, D. I. (2015). Gamification in theory and action: A survey. *International Journal of Human-Computer Studies*, 74, 14–31. <https://doi.org/10.1016/j.ijhcs.2014.09.006>
- Swacha, J. (2016). Gamification in Enterprise Information Systems: What, Why and How (pp. 1229–1233). <https://doi.org/10.15439/2016F460>
- Werbach, K. (n.d.). *History of Gamification*. Retrieved from <https://www.coursera.org/lecture/gamification/1-5-history-of-gamification-7Wp4p>
- Werbach, K., & Hunter, D. (2012). *For the win: how game thinking can revolutionize your business*. Philadelphia: Wharton Digital Press.