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GAMIFICATION AS A PROMISING STRATEGY FOR SUSTAINABLE BUSINESSES

Abstract

Gamification has been increasingly adopted and implemented in a wide range of disciplines due to its promising features. It has the potential to be used as a strategy for sustainable businesses. This study firstly presents the underlying dynamics and components of gamification, together with its conceptual framework. Secondly, the study explores the areas of use for gamification in sustainable businesses and organizations. The analysis includes both research by academia and real applications in the field. Bibliometric analysis and mapping are done using the data from Web of Science database for the time period between 2012 and 2021. Pioneering sectoral examples are also examined. Exploration of studies and cases highlight the benefits of gamification for sustainable organizations and

management besides the potential areas of use. Our study has three significant contributions to the state-of-the-art. First, this study consists of the findings obtained from the examination of academic research and actual applications. Second, it offers up-to-date statistics about the gamification literature. Third, unlike other studies, this study focuses on the effective use of gamification techniques in sustainable businesses and organizations.

Keywords: Gamification; Sustainable Businesses; Game Mechanism; Dynamics; Components, Bibliometric Mapping.

SÜRDÜRÜLEBİLİR İŞLETMELER İÇİN UMUT VERİCİ BİR STRATEJİ OLARAK OYUNLAŞTIRMA

Öz

Oyunlaştırma umut verici özellikleri nedeniyle çeşitli disiplinler tarafından giderek daha fazla kabul edilmekte ve uygulanmaktadır. Sürüdürülebilir işletmeler için strateji olarak uygulanabilme potansiyeline sahiptir. Bu çalışma öncelikle oyunlaştırmanın kavramsal çerçevesi ile birlikte oyunlaştırmanın dinamik ve bileşenlerini sunmaktadır. İkinci olarak, çalışma oyunlaştırmanın sürdürülebilir işletmeler ve organizasyonlardaki kullanım alanlarını belirtmektedir. Analizler hem akademik çalışmaları hem de gerçek yaşamdaki uygulamaları kapsamaktadır. Web of Science veritabanında 2012-2022 yılları arasında yayınlanan çalışmaların verileri kullanılarak bibliometrik analiz ve haritalama yapılmıştır. Öncü sektörel örnekler de incelenmiştir. İncelenen çalışmalar ve vakalar oyunlaştırmanın sürdürülebilir işletme ve organizasyonlar için faydalarıyla birlikte potansiyel kullanım alanlarını da vurgulamaktadır. Çalışmamızın güncel literatüre 3 önemli katkısı bulunmaktadır. İlk olarak, bu çalışma akademik çalışmalar ve güncel uygulamalardan elde edilen bulguları kapsamaktadır. İkinci olarak oyunlaştırma literatürüne dair güncel istatistikleri sunmaktadır. Üçüncü olarak da diğer çalışmalardan farklı olarak oyunlaştırma tekniklerinin sürdürülebilir işletmeler ve organizasyonlarda etkili kullanımına odaklanmıştır.

Anahtar kelimeler: Oyunlaştırma, Sürdürülebilir İşletmeler, Oyun Mekanikleri, Oyun Dinamikleri, Oyun Bileşenleri, Bibliometrik Haritalama.

INTRODUCTION

Gamification is the sum of applications that increase individuals' motivation and desire to be engaged in the process. The aim of gamification is not to play a game; it is to reach the desired goals. Gamification is directly related to sociology, psychology, strategy, design, and technology. Therefore, the first gamification studies are mostly in the field of software for game construction. Nowadays, gamification has reached beyond these boundaries and is implemented in many different disciplines.

With fast digitalization, consumer structure, preferences, and expectations change. Rapidly changing market and consumer structure, increasing competition intensity and environmental uncertainties make it difficult for companies to continue their lives. This transformation also takes place within the company's internal environment and organizational structure including the profile of the employees and has taken on a pattern that leads the employees to look for more meaningfulness in the job. Employees display an appearance that

wants to enjoy their job, give importance to their personal development and education, and want to work in an institution that develops them. They cannot be motivated enough with classical motivation techniques. Organizational structure has shifted to a more flattened, less hierarchical, and learning model. Companies are trying to survive in an environment where rapid and significant transformations are experienced in both internal and external settings. Even firms with a stable current condition have to consider their sustainability in the long term. This leads firms to new strategies and practices to adapt to changing conditions and maintain sustainability. In this respect, gamification has emerged as an increasingly prominent application used by many companies such as Starbucks, Heineken, Nike, Samsung, eBay, Siemens, Microsoft.

Financial, social and environmental sustainability are the three prominent aspects of sustainability in businesses (Ford & Despeisse, 2016; Khuntia et al., 2018). Financial aspect is about the sustainability of firms' activities and efficiency in the long term (Choi & Ng, 2011). Social sustainability is based on providing benefits to society, presenting equal opportunities and accepting cultural differences. The aim for social sustainability is to establish a society, where everybody has universal human rights and has access to fundamental needs such as security and health (Dempsey et al., 2011). Environmental sustainability is related to efforts towards preserving the environment (Glavič & Lukman, 2007). It particularly covers the consumption of fossil resources and protecting ecological balance. Sustainable businesses not only act based on financial concerns, but also aim to provide benefits to society and environment. (Ford, & Despeisse, 2016; Choi & Ng, 2011). From the scope of sustainability, businesses aim to preserve the natural resources and the environment, while trying to use the available assets and resources efficiently. They organize their activities respecting the culture of the society surrounding their markets. Concerning societal benefits, they provide employment, reduce poverty and improve public social welfare through corporate social responsibility activities.

Gamification fosters the motivation and engagement to promote behavioral changes towards sustainability. Gamification requires active participation of the target groups and it usually partially extrinsically, but more intrinsically motivates them to take part in it. The elements used in gamification such as badges, leaderboards and feedbacks foster intrinsic motivation and social engagement, supporting meaning and purpose of the adopted topic. Consequently, the target behavioral changes can be more effectively achieved. Especially in the energy sector, companies prefer gamification in their applications and services to promote behavioral changes towards more efficient use of energy and higher utilization of renewable resources (Wemyss et al., 2019; Beck et al., 2019).

Gamification can also improve customer and employee commitment, maintaining loyalty. In this way, different variety of new products and services can be accepted by an existing customer portfolio. Improved customer loyalty can also reduce marketing costs. These can positively impact the financial performance and economic sustainability of companies.

Innovation activities can be held faster and more effectively with gamification (Roth et al., 2015). The products and services to be innovated can be opened to participation of interested audiences at the development stage over digital platforms, collecting useful and inspiring ideas and suggestions. This can allow active participation of customers as developers and more

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customer-oriented innovation of the products and services, resulting in wider adoption and acceptability of the end products/services by the customers in the market.

However, every gamification approach may not guarantee success. Designing the game according to the participants, largely determines the success of the gamification. The personality traits, game experiences, player types, and motivation elements influence behavioral decisions to assess the effectiveness of gamification. All this requires good design and management.

In literature, gamification studies in businesses are predominantly based on engagement and learning improvement in education (Keisler et al., 2011), behavioral change and wellbeing improvement in the health sector (Johnson et al., 2016), behavioral change in energy efficiency and savings improvement in the energy sector (Konstantakopoulos et al., 2019), eco-driving and behavioral change in transportation (Marcucci et al. 2018). The studies dealing with the subject in terms of businesses are minimal (Hamari et al., 2018; Morschheuser et al., 2019). Current studies are also focused on a single subject and they do not provide a general scheme for the potential of gamification in sustainable businesses. There are a few studies on gamification for sustainable businesses (Negrusa et al., 2015; Suh et al., 2017). In this study, gamification is considered as a strategy for sustainable businesses and a comprehensive framework is tried to be drawn by examining both literature and real firm practices.

The first section provides an introduction to the study. In the second section, the concept of gamification and the theories grounded in the literature are thoroughly explained. Mechanics, dynamics, components of gamification are investigated together with design elements. In section three, research questions, information about data collection and analysis methods are explained. In the fourth section, findings and statistics about the gamification literature and real examples from the sector are presented. The areas of use, benefits and key points to be considered about integration of gamification to the sustainable businesses are discussed. The last section provides suggestions for future studies.

LITERATURE REVIEW

Gamification is based on adopting the effective elements and design techniques used in game industry for non-game purposes and environments (Deterding et al., 2011; Huotari & Hamari, 2017). It is preferred to foster engagement, promote behavioral change, maintain loyalty and solve a specific problem. The term was first used in 2008 and has gained popularity since 2010 (Deterding et al., 2011). Gamification mainly aims to motivate and engage a target audience. The commonly used elements are positive feedback like points, badges, status, progress, surprises, etc. Rather than building a game, gamification should be understood as a design technique that introduces game elements and game thinking. Although digital services and products have mostly adopted gamification, its areas of use are more extensive. Several distinct domains use gamification, such as:

- Enterprise applications: Intranet engagement, productivity enhancement, knowledge management, HR, Innovation.

- Workplace motivation: Skill development, information, corporate citizenship, fun.

- Good social practices: Inherent relatedness, behavior change (health and wellness, energy and environment, education, government).

Gamification is a different concept than serious games. While, gamification adapts partial game elements into real environments, serious games are totally games that have main aims other than sole entertainment, such as education, health care, engineering, scientific research and many other. Gamification and serious game concepts are both based on 'gaming' processes, rather than 'playing' activities.

The game content can be a product that is created by designers and consumed by players (Hunicke et al., 2004). There is a hierarchical order where defined rules comprise a system that should invoke the engagement. Gamification combines the essence of games with the working world environment and processes, incorporating systematic methodologies with elements and design techniques used in games. However, real-world applications usually have many constraints (gaming time, rewards, actions, borders of rules, and many more), reducing the number of adoptable methods from games and serious games.

There is a framework for game design named Mechanics-Dynamics-Aesthetics (MDA). Mechanics consist of the rules and actions typically integrated into the game engine. Dynamics are about coordinated operations of game mechanics involving player choices. Aesthetics are the emotional impacts of the game over players. Moving beyond fun, aesthetics represents the pleasure that gamers feel during the gameplay. Hunicke et al. (2004), described eight main aesthetics. Sensation is invoked when players experience something different, fantasy provides an alternative universe, drama (or narrative) raises player interest with story, challenge demands better performance/coping with obstacles, fellowship provides socialization, discovery motivates to explore the game space, expression allows representation of player character in game, and submission is the connection options or ease of entering the competition.

To achieve gamification objectives, we should understand the role of motivation in this process. In the field of psychology, there exists two motivation types, which are intrinsic motivation and extrinsic motivation. Extrinsic motivation (such as financial rewards, etc.) is fostered by external rewards. Moreover, extrinsic motivators has a short term impact and they are not sustainable, as they get monotonous by time. Conversely, intrinsic motivation is more sustainable, because it is driven by individual feelings and aims.

There is a widely known behavioral model (Fogg, 2009), which determines a direction from a current behavior to a targeted different behavior through three aspects: core motivators, abilities, and triggers. The core motivators can be either or both pleasure/pain (individual instant feelings), hope/fear (expectations for an outcome), and acceptance/rejection (by a society). Abilities are conditions which should be sufficiently simplified and become easier to achieve a targeted behavioral change. These can be the time that should be spent, effort for thinking, physical activity, difference from society rules and non-routine tasks. Lastly, triggers are sparks (for individuals having low motivation, aiming a core motivator), facilitators (for highly motivated people with low ability, reducing the efforts to accomplish a task), and signals (for individuals having both motivation and ability, only reminding behavior change).

Player progression is another noteworthy gamification technique to accomplish targets (Deterding et al., 2011). The gamified application or process is aimed to help users progressively increase their skills and abilities by time so as to improve their performance. An element related with it is the difficulty level. Player abilities and game challenge difficulties need to be in balance. A very skilled, experienced user may not be very motivated to deal with

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very easy tasks, while a new user facing highly challenging tasks may feel exhausted and quit playing (Deterding et al., 2011).

There are two well-known studies on classification of game players and gamified process, system or application users. In (Bartle, 1996), Bartle defines four distinctive gamer classes, which are explorers, socializers, achievers and killers. "Explorers" tend to search for and discover new, rare or hidden features. "Socializers" are highly motivated when interacting with other gamers rather than simply playing the game alone. "Achievers" pursue accomplishment and rewards. Lastly, "Killers" like competing and winning against other gamers. Gamification users are distinguished in a different study ending up with six user classes (Tondello et al., 2016). Two of the identified classes are "socializer" and "achiever," which are identical with Bartle's study in (Bartle, 1996). The third class, "players," enjoy extrinsic benefits and they work hard to achieve them. "Philanthropists" give importance to meaning no matter of rewards. "Free spirits" prioritize reflecting their style to the gamified environment, behave freely without being directed, build and navigate the gamified environment independently. Another class is "disruptors", who aim to change the gamified environment in a positive or a negative way, enjoy further forcing and extending the system limits.

Gamification can also be based on the core drives identified in "Octalysis" framework (Chou, 2015). Three of the core drives, "Meaning" (feeling lucky, chosen, believing in doing something greater), "Accomplishment" (achieving progress, developing skills, accomplishing challenges) and "Empowerment" (engaging in making or building of new processes by providing feedback and requesting sharing of comments) are "White Hat Gamification Core Drives" which aim to influence users to be persuasive, delighted and to have control over their activities. On the other hand, there are three other core drives called as "Black Hat Gamification Core Drives", which trigger concerns, curiosity and rush. These are "Scarcity" (limited quantity, features only available for special users or user groups), "Unpredictability" (random or unknown content of upcoming tasks and activities) and "Avoidance" (opportunities available for a limited time, the risk of losing some part of the progress etc.). Apart from White Hat and Black Hat Gamification Core Drives, there are two more core drives which do not belong to any of these two core drive categories. These are "Ownership" (having single or multiple virtual goods, collections, expressive user avatars) and "Social Influence" (providing mentorship to other users, being accepted by the society of users, social interactions with other users, group and teams). A gamified process or application need not to make use of all the core drives of Octalysis framework. It can rather adopt only a number of those in an effective way.

Gamification has three main elements in the design process. These are components, mechanics, and dynamics (Werbach & Hunter, 2012).

Dynamics are the elements of gamification that induce the player's experience (Werbach & Hunter, 2015). The dynamics are generated by the usage of mechanics, which challenge the player and govern her/his progression. Finally, the components are simple, real parts of the game that provide interaction with the player. Dynamics are at the top of the pyramid (Kim, 2015). It is not possible to import those directly into the game, but they can rather be achieved as a result of the other elements used in game design. Constraint is one of the well-known dynamics, based on restrictions or forced actions that induce indirect control. Emotion is another dynamic that can be related to happiness, frustration, curiosity,etc. Narrative is a storyline that provides advancement to the gameplay. Progression provides adaptability of the

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challenges to the improvement of player performance. Relationships are social interactions based on competition and cooperation that generate feelings like status, altruism, etc.

Mechanics are how the elements are used to trigger motivation and engagement (Kim, 2015). There are a number of main mechanics widely preferred in gamification (Gil et al., 2015). Challenges/Quests are a set of tasks that users are directed to fulfill in a game. They provide a relation between several objectives to keep the players in play until they finish a certain number of them. Quests usually combine stories with objectives in goal games to support role-playing and drama-based pleasure. Chance is the randomness of triggering some events which provide the joy of surprise and reduce monotonicity. In Competition, a gamer or a team performs better and beats the others. Cooperation allows several gamers to collaborate and reach some common goals. Feedback is used for informing players about their game performance and providing suggestions for improvement. Resource Acquisition makes players get useful or collectible resources. Rewards are benefits as a result of some actions, achievements, or accomplishments. Transactions are direct or indirect trading between players. Turn is used for participation of many players with time to evaluate other activities and develop strategies. Win States are the cases that determine the winners and losers or if there is a draw.

It is possible to adopt numerous game components in gamification (Mora et al., 2015). Some prominent components are points, achievement/badges, leaderboards, and levels. Point is one of the ways to reward customers due to their success, to form the game economy and to evaluate competition among many users. It is very effective for evaluating and rewarding user performance. It allows gamers to see how much they succeed, to keep a list of their former accomplishments, to spend efforts to increase their performance and success, to keep a track of their historical game success (especially when pursuing a task that takes a long time to fully complete), and to compare their success with the other gamers. Moreover, financial rewards for user success are usually calculated and provided in the form of points which can be converted into cash. Points may have more value if used for buying products of partners (e.g. airplane tickets, gas station discounts, movie tickets, selected places to eat and other). It is also possible to use distinguished points to reward different accomplishments and performances. Points have to be given fairly and their monetary value has to be well-adjusted. Achievements are preferred for giving extra non-compulsory objectives to users. They foster handling of several tasks simultaneously, increase user performance and provide further challenges. They are mostly welcomed by skilled professional users and "Explorer" class users, which do not feel fully satisfied after accomplishing the mandatory missions and expect additional challenges. Badges are perpetually provided to users upon completing achievements. They usually have symbolic representations and they are usually kept in an inventory to allow users have a collection of their past performance in optional tasks and represent their prestige in social in-game activities. Some badges can be grouped differently to ease evaluation and comparison of overall user performances throughout the whole playing process. Leaderboards are effective to promote competition among people. They provide a simplified summary and clear comparison of user performances over a specific duration of time. Different leaderboards can be used to distinguish different performance of users or a group of users (such as cities, states, regions or countries) fostering cooperative behavior indirectly without any determined teams.

Beyond sole and basic use of points, badges and leaderboards individually or together, there exists numerous additional elements. Levels are very useful for allocating difficulty and complexity in a staggered way and determining certain points of progress. It can represent two

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main things, sections of gamified experience progress and user mastery. In gamification design, representation of the loyalty of a participator can be very useful. Levels can be used to differentiate the amateur and new users from professional and skilled users. For the gamified application or process administrators, experienced players are more dependable in terms of abilities, devotion and know-how. Tips are effective to increase user expertise and promote motivation. Tasks are widely preferred to navigate users in the gamified process. Avatars are to represent user's style and personality visually in the gamified environment. Unlockable Content is the provision of distinguished content to users that accomplish some certain tasks. Gifts give users the opportunity to share or exchange their resources with other users. Teams promote both social interaction and collective behavior among several users, making pursuit of higher tasks possible. Collections are used for exhibiting several related earned rewards or titles together. Virtual Goods are digital exchangeable items or products that can be used in trade or can be converted into cash.

There are a number of gamification design frameworks. Werbach's (Werbach & Hunter, 2012) "6 D's" is a widely accepted design framework for gamification. It consists of the six following steps: (a) Definition of business objectives for gamification, (b) Delineation of target behaviors or players, (c) Description of players to find ways to engage them (d) Division of activity cycles (frequency and order of engagement loops such as motivation action-feedback), (e) Addition of fun and pleasure, (f) Deployment of the appropriate tools (by people who know business goals, understand targeted players, game design, or by analytic experts and technologists). A similar but more detailed (seven steps) and player-centric approach was proposed by Burke (2014): (a) Work results and measures, (b) Target audience, (c) Gamer tasks, (d) Model for engagement, (e) Game environment and experience, (f) Game economy, (g) Play-test and iteratation. It is even possible to prefer a mixture of the design frameworks.

There is an increasing number of organization and business management studies in the gamification literature recently. The literature on the use of gamification in organizations and business management hosts a number of prominent topics: motivation (Hamari et al., 2018; McAuley et al., 1989; Yee, 2006), e-learning (Morrison & DiSalvo, 2014; Pilkington, 2018), gamification types and personality (Bartle, 1996; Tondello et al., 2016; Hamari & Tuunanen, 2014), behavioral changes (Edwards et al., 2016), game experience (Huotari & Hamari, 2017; Norman, 2013; Eppmann et al., 2018), game applications (Tootell et al., 2013), game mechanism and dynamics (Cheung et al., 2014; Khaleel et al., 2015; Seaborn & Fels, 2015; Knaving & Björk, 2013), big data and crowdsourcing (Morschheuser et al., 2019; Panchariya et al., 2015).

There are a few works in this area of study related to psychological factors that affect gamification and behavioral results (Nacke & Deterding, 2017). Increasing studies in organizations and business management has begun to eliminate this deficiency.

Personalization in gamification is an increasingly important and useful method for organizations and management studies. In gamification, customization is the adaptation of game mechanics to the player. To understand individual preferences, such as personality characteristics of the players, user types and game experiences are examined. In this context, Tondello et al. (2016), proposed a scale for identifying player types, consisting of 24 points aiming to explore user motivation while examining the relationship between big-five characteristic features and gamification user classes. In another study (Eppmann et al., 2018),

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the "Gameful Experience Scale" was developed to measure the players' experience in the game. The researchers aimed to evaluate and improve the results of marketing activities by measuring players' knowledge.

METHODS

Research Questions

The aim of this work is to investigate academic research as well as actual firm applications about gamification. After a detailed review, this study tries to determine how to use gamification effectively and efficiently in sustainable businesses.

This study focuses on four aspects:

1. A bibliometric statistical analysis and mapping of business and management related gamification studies in the literature between 2012-2022.

2. The prominent topics in business and management related gamification studies.

3. The promising implementations of gamification by companies.

4. Integration of gamification into sustainable businesses.

Data Collection and Analysis

In this study, both academic studies and successful gamification applications in the real sector were analyzed. The analysis consisted of two stages. In the first stage, the data about the related studies in the academic field were gained from the Web of Science (WoS) database. The analysis covered articles published until 2022. The WoS database was explored, searching for the keyword "gamification" in topics. Only the resulting 3625 articles were taken into consideration, excluding conference proceedings, book chapters, reviews and other. Among these 3625 articles, business and management research areas were in the top five popular research categories. The results were further refined to cover the studies only in business and management categories ending up with 396 articles. The search included all years. Statistics such as the number of publications, countries, journals with the highest number of published articles and the most cited top 10 articles were extracted. The data obtained was further analyzed using VOSviewer software for bibliometric mapping of citations, co-citations and co-occurrence in terms of authors, keywords, countries and sources. In the second stage, pioneering sectoral gamification applications in this area of study were examined. In consequence of all these investigations, the study tries to determine the possible areas of deployment for sustainable businesses.

FINDINGS AND DISCUSSION

Bibliometric Statistics

The data used in the bibliometric analysis is taken from Web of Science database for the time period between 2012 (the year of the first related publication) and 2022. Initially any article with gamification word in their title, abstract or keywords is taken into account. In the next step only the gamification studies in the area of business management are focused on. Top countries, journals and the most cited 10 articles are listed.

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Gamification has gained interest in recent years. According to the WoS index, the first scientific study was published in 2012. The number of studies has significantly increased in the recent years (Figure 1).
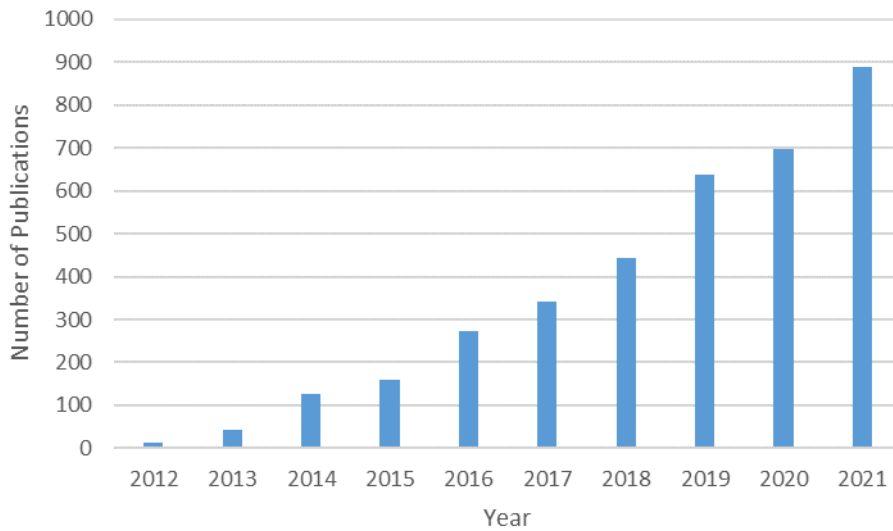

Figure 1. The number of publications on gamification by year

In terms of Web of Science categories, business and management related gamification studies are in the top five (Figure 2).
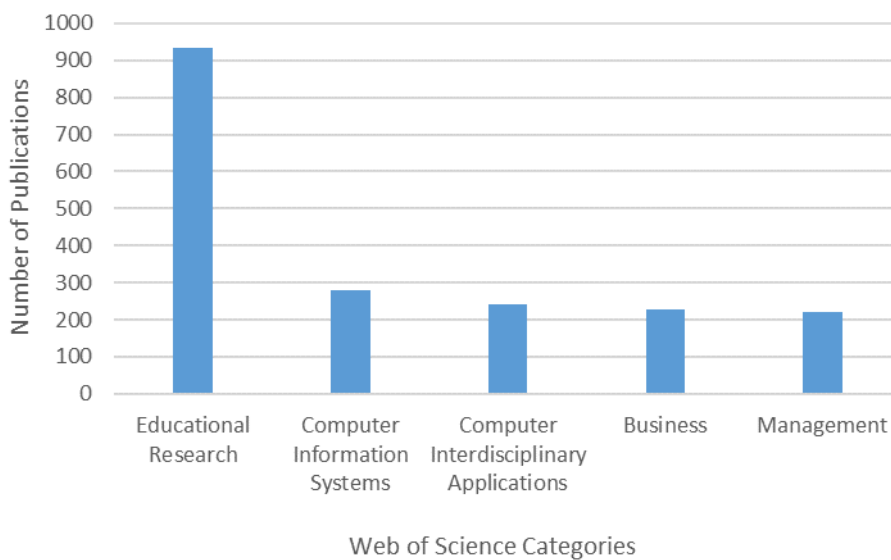

Figure 2. The top five Web of Science categories in gamification publications

The number of business and management related publications in each year is shown in Figure 3. The first publication in the area of gamification in business management was published in 2012. The research efforts have significantly increased since 2019.
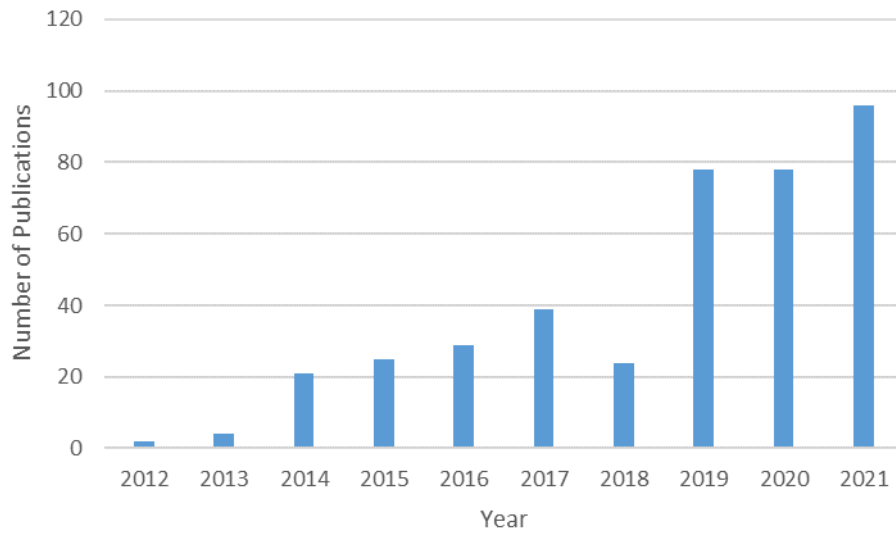
Figure 3. The number of business and management related gamification publications per year

The top 10 countries with the highest number of published articles are shown in Table 1. USA, England, Germany are the top 3 countries.

Table 1. The top 10 countries with the highest number of published articles

Number	Countries	Number of Articles Published
1	USA	77
2	England	47
3	Germany	45
4	Spain	40
5	Australia	25
6	China	24
7	Finland	22
8	Brazil	21
9	France	18
10	India	18

The top 10 publication title with the highest number of published articles are listed in Table 2.

Table 2. The top 10 publication titles with the highest number of published articles

Number	Publication Title	Number of Articles Published
1	Journal of Business Research	25
2	Advances in Human and Social Aspects of Technology	18
3	Gamification for Human Factors Integration Social Education and Psychological Issues	18
4	Business of Gamification a Critical Analysis	12
5	Routledge Advances in Management and Business Studies	12
6	Gamification Using Game Elements in Serious	10
7	Progress in IS	10
8	International Journal of Management Education	9
9	Young Consumers	9
10	Creativity and Innovation Management	8

The top 10 most cited articles are listed in Table 3 according to the WoS statistics.

Table 3. The top 10 most cited articles

Number	Times Cited	Authors and Year	Journal Name	Focus of Interest
1	314	Hamari (2013)	Electronic Commerce Research And Applications	Peer-to-peer trading service
2	263	Robson et. al. (2015)	Business Horizons	Game design in the context of principles

of gamification

3	255	Luthans et al. (2017)	Annual Review of Organizational Psychology and Organizational Behavior	Psychological capital
4	231	Hamari and Sjöblom, (2017)	Internet Research	Electronic sports
5	230	Huotari and Hamari, (2017)	Electronic Markets	Service marketing
6	166	Terlutter and Capella, (2013)	Journal of Advertising	Advertising in digital games
7	154	Bolton et. al. (2018)	Journal of Service Management	Digital, physical and social realms for innovations in customer experience
8	154	Hofacker et. al. (2016)	Journal of Interactive Marketing	Gamification in mobile marketing
9	142	Liang et. al. (2017)	Tourism Management	Badge systems for peer-to-peer rental accommodations
10	130	Buhalis et. al. (2015)	Journal of Services Marketing	Customer engagement experience

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Bibliometric Mapping

The strongest relationships between the authors, topics and publications are highlighted using VOSviewer bibliometric software analyzing the data gained from WoS database in all years (2012-2022). Considering the number of elements with relations to be mapped visibly and clearly, the largest network of elements with links is focused on. Minimum number of repetition is a useful criterion to reduce the number of elements to be mapped and plot items with strong links. It is selected as 1 for countries and sources in citations and co-occurrence of author keyword due to clear plotting availability. On the other hand, for co-citation sources with large number of links, a minimum repetition of 20 is preferred to improve the visibility of the strongest links. Moreover, the most popular authors' citation relations are mapped using a minimum repetition number of 4.

The bibliometric map of the largest network of 53 countries with citations is given in Figure 4.
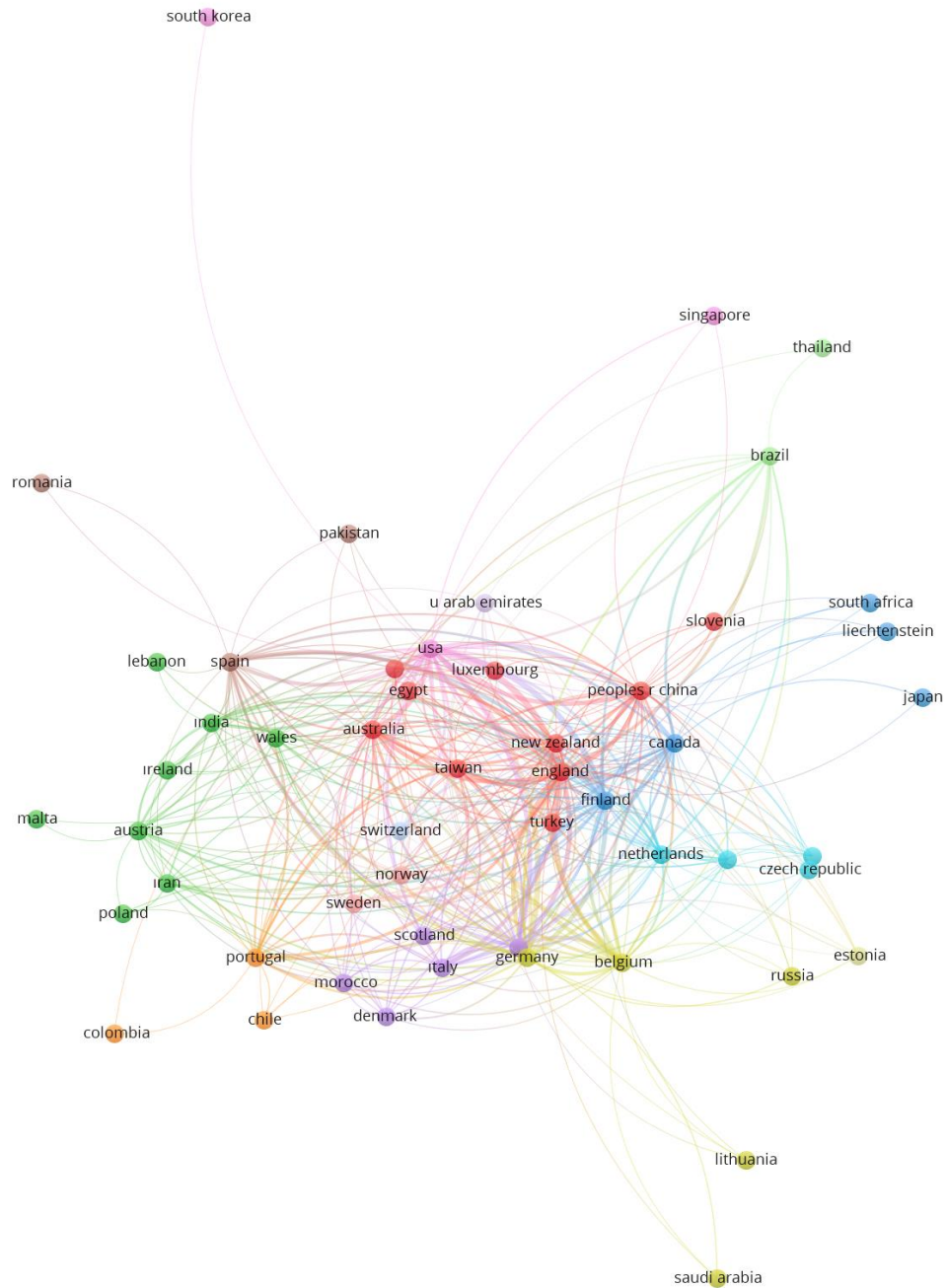
Figure 4. Bibliometric map of countries

The relation of citations by sources for the largest network of 109 sources is shown in Figure 5.
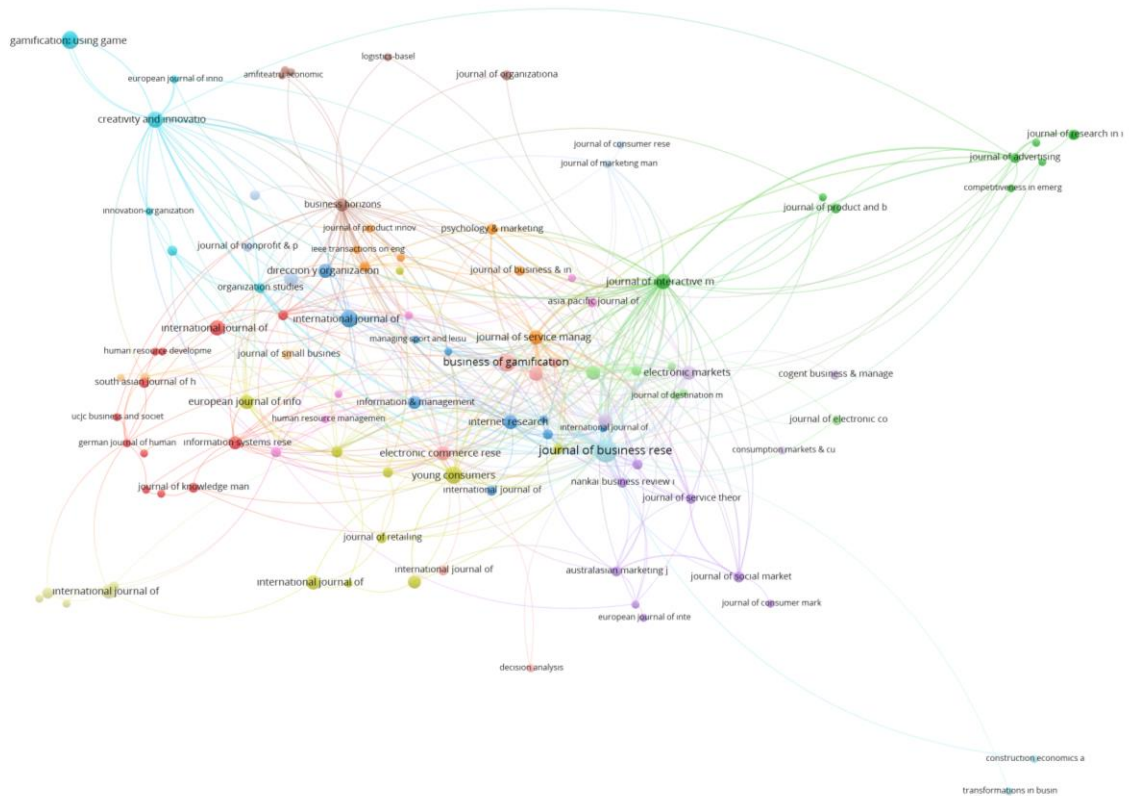
Figure 5. Web of Science citations by sources

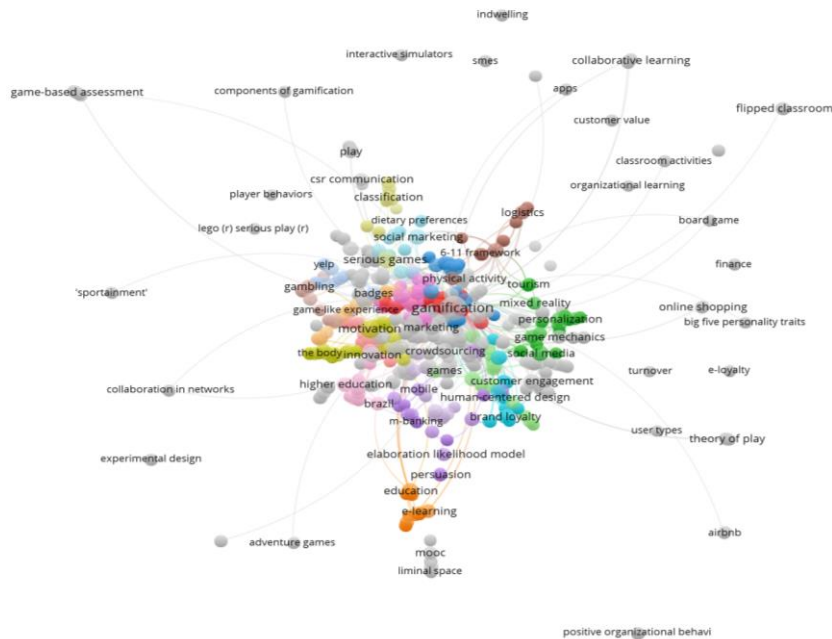Co-occurrence of author keywords covering 965 keywords with links is mapped in Figure 6.

Figure 6. Web of Science co-occurrence of author keywords

The largest network of 185 sources co-citing each other is plotted in Figure 7.
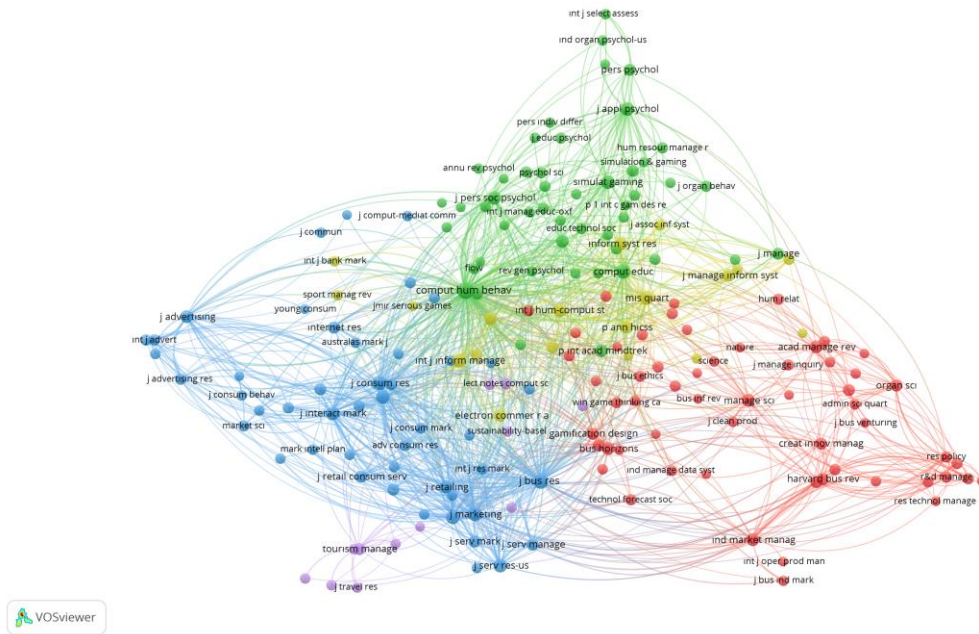
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Figure 7. Web of Science co-citation of sources

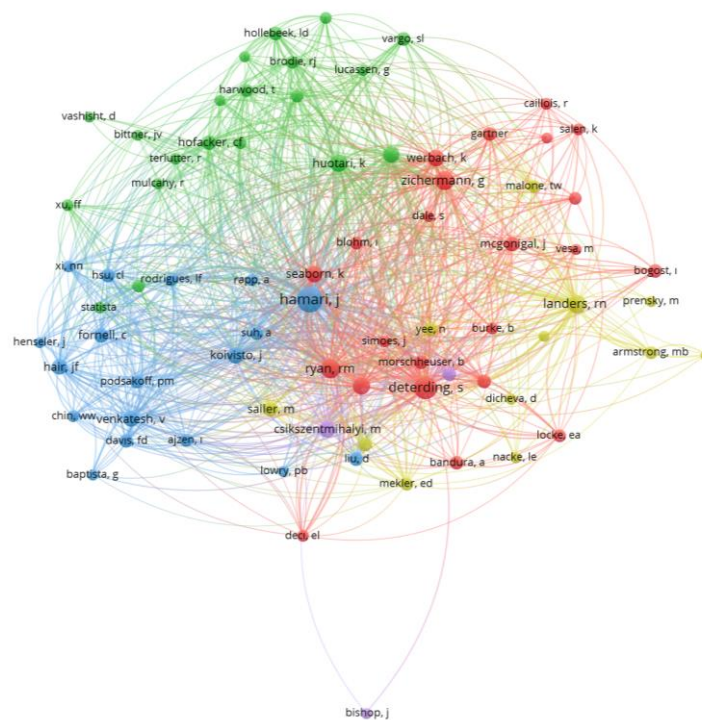The citing relations networks with 76 items for the most cited author is shown in Figure 8.

Figure 8. Web of Science citations by authors

Implications of Companies about Gamification

Several companies have successful implementations of gamification for diverse purposes. This section presents a number of pioneering proven gamification use-cases by companies.

Nike +: In year 2006, Nike developed a mobile application which can track the distance ran, speed, and time. The app aims to motivate people to increase their daily activities and run by providing a competitive environment with friends using leaderboards within different periods (weekly, monthly, etc.). Nike + allows sports data transfer to other applications (e.g., burned calories for food monitoring applications) and sharing achievements over social media accounts (McGonigal, 2011). A smart wristband supports the application (Nike + Fuelband). Users can access detailed information about their activities through this wristband. The application sets targets and shows user progress through daily feedback. When users reach the goals, a celebration animation appears on screen with a digital character (Chou, 2018).

My Starbucks Reward: This is a mobile application developed for Starbucks customers (Starbucks, 2018). After registration, customers collect stars as they buy the company's products. The application categorizes users according to their loyalty. People who have purchased more products reach higher levels with unique advantages, such as an additional cup of coffee for free, a gift on birthday, or even customer-specific individual offers.

Samsung All Eyes on S4 Event: The Company organized a competition in partnership with Swisscom using eye-tracking technology to announce the market release of their new phone model S4. Four particular billboards were placed in crowded public areas in Switzerland. The competition had a simple rule: any person who could stare at the advertisement without any interruption for 60 minutes would win a free phone. However, it was not very easy for players. The organizers used many distractors, from police dogs to arguing couples and even a fake motorcycle accident. Many people played the game; however, only 13 of the players successfully fulfilled the task. This event effectively advertised the new product. The competition attracted a big audience and engaged both the players and spectators. The game reached many people through live online streaming and went viral (Chou, 2018).

Samsung Nation: Samsung has developed a gamified loyalty program where users could earn badges, compete in leaderboards, and reach higher achievement levels (Samsung, 2018). The system initially requires registration to the Samsung Nation community. Users can earn badges and level-up by asking questions, participating in discussions, attending events, and reviewing products.

Heineken's Star Player Game: This mobile application wants you to predict scores and events in live streamed matches 30 seconds before they may happen. Based on the accuracy of estimations, players can compete with their friends and other users globally (Chou, 2018).

FourSquare: Users of this platform rate and comment on the places that they go. Using the global positioning system (GPS), the platform provides a suggestion for nearby places to go. The main used elements used in this gamified platform are points, badges and a leaderboard (McGonigal, 2011).

Siemens Plantville: Plantville is an online facility manager simulation digital platform that presents products and solutions for industry and infrastructure (PR Newswire, 2011). Players try to operate their industrial plants while aiming to improve efficiency, sustainability, and performance. Plantville gained interest from customers, employees, students, and the public

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while educatively and engagingly advertising the technologies and improving brand popularity. Players learn and virtually implement industrial and infrastructure products and solutions of the company to improve their facilities' performance. Plant performance is measured through a range of key performance indicators (KPIs) such as security, timely deliveries, quality, energy management, and staff wellbeing.

eBay: eBay's web platform has been implementing points, badges, gifts, and privilege as gamification elements for a very long time (Zichermann & Linder, 2010).

Microsoft Ribbon Hero: This application aims to track the functionalities of Microsoft Office software to users in an engaging and motivating way (Kuutti, 2013). A range of tasks is assigned to users by the application. Initially, all the users are entrusted with the same job, while at later stages specialized tasks related to frequently used functions of the program are assigned (Kim, 2013). Each accomplished task is rewarded with points. Users can share their task progress and earn points over social media. Moreover, leaderboards provide a competitive environment. The application has a list of tasks for different levels providing a specialized gamified experience.

HOW CAN GAMIFICATION BE INTEGRATED INTO SUSTAINABLE BUSINESSES?

Gamification may be a useful approach in marketing, sales, human resources, and education departments in organizations. The application area of gamification can be customer- or employee-oriented. The customer-oriented perspective aims to increase customer loyalty and brand awareness. In this way, the management obtains customers' gaming experiences, which can then be used to decide what strategy to follow. Consumer preferences, expectations, and reactions can be a guide to determine future strategy. Gamification is also used to influence and direct customer behavior in line with company expectations. For instance, the company may be looking for new customers, and using gamification for this purpose can motivate its existing customers to invite new customers. For example, a user who refers a friend to buy a product from the company can earn points, get discounts, etc.

In the employee-oriented perspective, the aim is to increase employee loyalty, motivation, and productivity. In this regard, employee experiences, preferences, and expectations can also be obtained and can play an essential role in company decisions. Messages to be given to employees can be transferred more easily through gamification. Training and development activities can be more effective when performed using gamification. Especially in times of risk and uncertainty, such as change, crisis, the overcoming of the crises and the adoption of changes by the employees will be much more accessible through games.

In both perspectives, gamification increases organizational efficiency by promoting cooperation. Gamification can also increase creativity in the company. Especially in applied games, players may have to think and act differently to get ahead and achieve higher scores. Thinking and acting differently than ever will nurture creativity. Information obtained from the experiences of customers and employees creates a database for the company, and by working on this data, new and applicable ideas can emerge.

Gamification is useful for organizations in many ways, but it is also an issue that needs attention and management. It may also cause problems in some cases. If the game and the target group are not compatible, it can demotivate the participants, and the results may be harmful to a

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business. On the other hand, especially in sales departments, the excessive and challenging levels of gamification can decrease employee loyalty and performance.

Developments in the Internet of Things (IoT) and artificial intelligence (AI) are making it easier to highlight the core motivators for customers and users. Smart, dedicated softwares can collect useful information from users to find what specifically motivates them. This observation can aid in the design process of gamified applications. Gamification can also target customers or employees. As an example, YouTube provides video suggestions based on the videos that a user has previously watched, while shopping websites suggest new products based on the data of product viewing and purchase history. The use of detailed data provides these specialized services. These data can also be used to determine specific motivators and design of games.

Data processing will transform management into a field where companies' and individuals' behavior will be accurately predicted, directed, and optimum actions will be calculated and implemented through a transparent strategy game (McAfee et al., 2012; Mortenson et al., 2015).

Interactions among individuals are increased with the expansion ofof the use of internet and smartphones. Increasing interactions allows the deployment of new financial, coordination, and management models (Afuah & Tucci, 2012; Hamari et al., 2016). Currently, companies aim to create value by reaching masses over the internet and integrating them into the process. In particular, new ideas, information collection, content creation, creativeness, and brainstorming requiring problems to be solved through this approach are called "crowdsourcing." Crowdsourcing is an emerging field where gamification is becoming popular to increase employees' motivation and performance (Morschheuser et al., 2019). Businesses can combine crowdsourcing with gamification to motivate the masses to get more effective results.

CONCLUSION AND FUTURE RESEARCH

Gamification has been adopted by many companies and continues to gain popularity in the literature. This work presented a detailed contextual framework about gamification. The areas of use for gamification both in the literature and in the private sector are reviewed in detail. The study aimed to identify how gamification can be adopted by sustainable businesses, its potential areas of use, and its most important aspects.

The reviewed studies and examples showed that gamification was firstly adopted by the private sector and then gained interest in academia. According to the WoS, the first related study was conducted in 2011, while examples in the industry go further back. The majority of the scientific studies are conference papers. The top five countries with the largest quantity of related publications are USA, Spain, UK, Germany, and Italy. The studies are dominantly in education, software, IT, and electronics sectors. Business is at the 10th among study categories for gamification. The increasing number of publications in recent years shows that gamification has gained considerable attention in the area of business only very recently. This may be because interest in gamification has just begun in the business literature. The first studies on gamification were more related to engineering and technology. After the technical background of gamification, related software, systems, dynamics, and components became clear and standardized, many different science areas started to integrate it into their research activities.

The prominent topics in business literature on gamification are motivation, e-learning, gamification types and personality, behavioral changes, game experience, game applications,

mechanism, dynamics, big data, and crowdsourcing. In the field, the sectoral examples are mainly on marketing, sales, and training departments.

Both the literature and the examples of real firms examined point out that gamification is increasingly used in businesses. Especially increasing digitalization and the need to respond quickly to changes in consumer expectations make gamification even more popular. In terms of companies and organizations, gamification is not only done with customer expectations and marketing concerns. In addition to pursuing their economical expectations, firms should serve the society to maintain sustainability. They have to conduct their activities preserving ecological balance and using natural resources efficiently. The companies that fail or ignore these aspects of sustainability endanger maintaining their long-term sustainability and risk their lives. In this respect, gamification can also be used to increase employee and customer awareness in sustainability and may also provoke, encourage and incentivize desired behavior which, in return, may yield positive outcomes both for the company and the environment.

Gamification creates beneficial results in many respects for many actors, internally for employees, , externally for customers, and competitors, market conditions, society and the environment. There are many positive effects for both employees and customers, such as increased motivation and loyalty, increased efficiency and effectiveness, and desired behavioral change. Also, innovation activities can be carried out more efficiently and effectively with gamification. For example; Crowdsourcing can be implemented especially for the idea and prototype development phase for innovation. Improvements can be made by collecting different ideas and opinions by ensuring users' participation through the search for digital platforms. The information gathered through gamification applications creates a valuable database and provides predictions for the future. Also, gamification practices create an emotional bond as the parties participate, and the parties feel like an essential part of the company and the organization. This makes gamification stand out as a sustainable strategy for businesses.

One of the things that should be addressed by future research activities is to increase the diversity of gamification. They can also try to understand and develop what constitutes and creates decisive experiences. Gamification isn't just computer innovation or innovation of information systems, it is also institutional and individual practices based on observations. Future studies can focus on the success of the game instead of its effectiveness. Empowerment strategies can be studied to ensure long-term motivation in gamification. It can focus on team activity, competitive and collaborative dynamics, productivity growth, and crowdsourcing. Applications in different sectors can be compared. The number of scales developed in the field of gamification is limited, and new scales should be designed to measure different dynamics.

Modern studies may focus on alternative feedback options. These options can be evaluated based on the most suitable hardware for implementation and the impact on users.

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