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The Evolution of Enterprise Gamification in the Digital Era and the Role of Value-Based Models

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Abstract: Gamification's adoption in the enterprise today is on the rise and provides benefits such as customer loyalty and increased employee engagement. In this article, the use of gamification in the enterprise is assessed in seeking to understand how fully gamified systems differ from related concepts such as toys, playful designs, and serious games. Given the increasing interest in enterprise gamification, it is useful to evaluate how it has evolved and its acceptance via a multidisciplinary lens. It is also critical to assess frameworks and approaches applied in understanding the trend. The current article concludes that a value-oriented approach is needed for a more comprehensive understanding of enterprise gamification acceptance and users' experience, particularly in today's workforce that is largely dominated by millennials.

Keywords: gamification; enterprise gamification; technology acceptance models; value framework; conceptual model; digital transformation

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1. Introduction

Gamification is the use of gaming techniques and elements in non-game spaces and subject areas; it is the tactical use of ideas and strategies from entertainment games, which focus on play and leisure to other social spaces [1]. The term first emerged online in computing in 2008, although video game developer Pelling [2] claims to have coined the term as part of his start-up for the field of consumer electronics in 2002. Prior to the term gaining wider recognition over the past decade [3], a number of videogame ideas, concepts and elements were in evidence in different fields. In the business domain, many big businesses have adopted gamification, but the pace of adoption has been slower in smaller and micro enterprises, where impacts have not been as fully explored.

Today, digital transformation is generally increasing the profitability, productivity and recognized of many enterprises [4]. The last few years have also seen the adoption of gamification as an approach in various fields and domains such as health [5], cyber security [6] and education [7]. Enterprise gamification, which is defined as "the incorporation of gaming concepts and game mechanics into business processes to make them more interesting and engaging for employees" [8], has become a phenomenon of interest to both practitioners and academia.

Businesses are now keen to deploy systems which make use of scorecards, badges and leader boards in various business processes in the enterprise [9]. In a cybersecurity context, gamification systems have been deployed to encourage participation in security awareness training [10]. To encourage health and well-being in the office, gamification has also been widely adopted to encourage employees to compete, get scores and collect badges as they stay fit [11]. To further improve performance, gamification in the corporate environment is also generally on the increase, with businesses focusing on its use to increase employee engagement, improve business processes and motivate employees [12]. Gamification has proven to be of value for improving the engagement level of employees and customers,

in addition to being fun [13]. Whitaker et al.'s [14] exploration of gamification's potential in sustainability marketing provided both theoretical and practical insights into how gamification could transfer to positive perceptions of sustainable behaviour.

The rising interest in gamification is also reflected in its market value [15]. In 2011, gamification contributed about USD 100 million to the global economy, and it was projected to grow to USD 2.8 billion by 2016—it actually achieved USD 4.91 billion [16]. Mordor Intelligence's [17] report suggested that the global gamification market was valued at USD 5.5 billion in 2018, and the industry is expected to grow at a compound rate of 30.31% over the forecast period (2019–2024). However, based on Statista's calculations [16], the gamification market is expected to hit nearly USD 12 billion by the end of 2021.

In the previous decade, there has been an interest in gamification and particularly enterprise gamification acceptance in various research disciplines [18]; nonetheless, there have been only limited studies from a value-oriented perspective. The aim of this paper is to outline how enterprise gamification has evolved in the past decade and to explore the role of value-based models in the continuing evolution process. The rationale for such aims, centres on the increasing role of gamification in sustaining engagement, changing behaviours, and on creating a culture, which builds and sustains excitement and teamwork within organisations.

Here, existing value frameworks and approaches, previously applied in broader technology acceptance research, are examined to determine how they have contributed to knowledge on gamification acceptance. As such, the article provides some valuable insights into IT management in the digital era. Research by Kasurinen and Knutas [19] suggests that the primary research domains in gamification are the development of prototype tools and systems and online education (particularly the development of MOOC- massive online open courses). Researchers have also pointed out that a good way to understand the concept of gamification is to differentiate it from playful designs and serious games [20]. Therefore, this literature review advances on how such concepts differ from fully gamified systems and the latter's impacts, challenges, and limitations in corporate environments.

The next section sets out the research questions and methodology. The following literature review discusses conceptual and empirical studies of gamification in the enterprise and how gamification is different from associated terms such as toys, playful design, and serious games. Value models are then presented, as an alternative means to contributing knowledge in the area, besides the predominant adoption paradigm that currently dominates research in this field of study. The discussion identifies and examines some key emergent issues prior to concluding by reflecting upon the research questions and proposing suggestions for further research.

2. Research Method

The current article explores the following research questions:

(1) What does the literature tell us about how the concept of gamification has evolved in enterprises over the last decade?
(2) How have established value models enriched knowledge on enterprise gamification acceptance?

Enterprise gamification is of increasing interest to practitioners and researchers, and the overall aim here is to explore the subject matter, its evolution and the role of existing value frameworks and identify research gaps. To this end, the researchers conducted a scoping review on the subject to answer the research questions above. As suggested by Arksey and O'Malley [21], scoping reviews are best suited for research that is exploratory in nature and where the area has not been comprehensively reviewed. In the information systems (IS) domain, researchers have conducted literature reviews using approaches such as narrative reviews [22], descriptive reviews [23], meta-analyses [24], systematic reviews [25], scoping reviews [26] and theoretical reviews [27]. For this research, the researchers believed that conducting a scoping review was best suited as it offers benefits to multidisciplinary teams conducting research and can be used to explore the nature and range of literature

in an emerging field [28]. This approach to reviewing the literature is also appropriate when there is a paucity of research in the domain [29]. A scoping review allowed the relevant literature on the difference between related concepts, such as toys, playful designs, serious games and fully gamified systems, to be explored. Additionally, the application and impact of gamification in enterprises could be assessed, and implementation challenges and limitations identified.

This study made use of the methodological framework put together by Arksey and O'Malley [21], which includes the five stages of identifying the research questions, identifying relevant studies, selecting the studies, charting the data, and collating, recognized and reporting the results. Various academic databases, including IEEE Xplore, Web of Science, Google Scholar, and Science Direct, were identified as relevant databases to search for existing literature in this emerging field as an initial preliminary search. On each database, a combination of search keywords, including "gamification", "gamification acceptance", "enterprise gamification", "gamification and enterprise and acceptance", were used to search through the titles and abstracts. Each string returned hundreds of entries, including journal articles, books (and chapters), conference papers, and magazines. From the initial searches, the titles and (if available) abstracts of sources were studied and assessed against the overall aim of the research—to outline how enterprise gamification has evolved in the past decade and to explore the role of value-based models in the continuing evolution process. Only those sources that appeared relevant were shortlisted for further investigation.

The final shortlisted materials were thematically analysed in adherence to Braun and Clarke's [30] recommendations. Familiarisation with the body of work started with active reading and re-reading, jotting down reflection notes and initial ideas. Then began the search for meanings, patterns, trends, and obvious face value connections, which were further coded [31] with a focus on the phenomenon of enterprise gamification acceptance evolution in the last decade. The main emergent themes were the application of grounded theory and mapping techniques; the use of surveys, interview materials and commentaries; framework and model development and evaluation; context-specific role analysis; case studies of gamification in different business contexts; and simulations and experiments. Due to the 'data-driven' approach, the final themes reflect the existing multidisciplinary literature, albeit ecognize of the research questions' orientation.

From a research design perspective and to map this study with Saunders, Lewis and Thornhill's [32] research onion, an inductive approach underpinned by a qualitative methodology was used to explore enterprise gamification. Gill and Johnson [33] suggest that the inductive approach to research is the ideal approach to use when the researcher's aim is to explore a topic and develop an explanation of the phenomenon being studied. In the IS domain specifically, the approach allows for in-depth exploration of a phenomenon of interest when several variables exist in a social context. Mason [34] also points out that though qualitative research is intense, engaging and challenging, it provides a powerful source of information for analysis. For such research, reviewing existing literature around the topic of interest is both essential and relevant.

3. Literature Review

The concept of enterprise gamification encompasses a multidisciplinary lens, including information systems (IS), information and technology management, social and behavioural sciences, human-computer studies, computer science and business research. Herein, various academic sources on the topic are explored, particularly findings and implications considered in tandem with identified opportunities for future research. The body of work can broadly be divided into conceptual and empirical papers. The former sort includes systematic literature reviews, grounded theory approaches, mapping, commentaries, frameworks' developments, analyses of research models and explicating the role of gamification in specific contexts. In juxtaposition, the empirical papers encompass interviews with marketing executives, survey data from users of gamification services, case studies of gamification endeavours across different fields of business, the proposal and evaluation of

a model, a controlled study using an online simulation environment, a systematic online experiment, and a field experiment across different treatment groups.

The current article adds to the conceptual research stream on the topic, and most studies presented in Section 3.2 further justify the potential of literature review in contributing knowledge in the subject area. Earlier related research [35] employed a literature review to investigate the possibility of creating environments that foster innovation in businesses through gamification techniques, wherein it is asserted that a suitable means is via using gamification concepts within Enterprise Systems since they engage all parts of a business. The findings indicate that few studies do recognized the prospect of innovation via gamification and that gamification techniques can create a bridge between the sociological and technical aspects of work culture in organisations.

3.1. Gamification, Playful Design, and Serious Games and Toys

Gamification is a wide-reaching global phenomenon that simply refers to the process of integrating game mechanics into something that already exists to motivate participation, engagement, and loyalty. This development of game-like elements into non-game spaces involves layering elements of games such as points, rules, achievements, feedback systems, badges, rewards, competition, status, self-expression, scoreboards, progress tracking and videogame-like user interfaces over reality (non-game spaces) with the objective of making activities motivating, fair, potentially fun, and encouraging of further actions through positive feedback [36–38]. In the growing multidisciplinary literature on this subject, new areas of application are regularly identified. Two of the most prominent are online education [the development of MOOCs] and the development of prototype tools and systems [19,39]. Aparicio et al. [39] contend that to realise the full potential of MOOCs, there is a need to understand success factors, including user satisfaction and changes in individual and recognized performance stemming from user involvement. Their theoretical framework identifies the factors for successful MOOCs and observes these factors in a real MOOC context. Their work examines the role of gamification and suggests that it can play a crucial role in the success of MOOCs.

Various definitions have been proposed for gamification, but the term remains somewhat vague, in part because there are some comparable concepts, such as playful design, serious games, and games for health, that bear some sort of similarity. Some notable scholars have recognized the importance of understanding how gamification differs from the above concepts [19,40]. To this end, Deterding et al. [40] suggest a model essentially dividing the field into a quadrant of the entertainment purpose of the product and the impact it has on the product design.

3.2. Conceptual Research on Gamification with an Enterprise Focus

The reviewed studies identified as conceptual research span marketing, IS and Knowledge Management Systems (KMS) domains. Korn and Schmidt [41] provide a gamification overview and discuss core issues such as gamification mechanics, maturity of gamification and its application, increased interest and gamification in service and production. In addition, the authors address ethical implications and the future outlooks for gamifying business processes in industry from both business impact and effects on users. Huotari and Hamari [42] instead present a definition for gamification from a service marketing perspective as a form of packaged service where the users' value creation is supported by recognized system enhancement that delivers interaction and feedback to the user. This seminal paper on gamification and marketing was also one of the first to address enterprise gamification. In the last decade, research interest in the subject matter has increased and informed more empirical studies that champion creating and validating new and extant gamification frameworks. These empirical studies involve different business contexts, experimentations, and a proclivity towards adoption issues, as presented in the next subsection.

In later research, the number of studies reviewed within conceptual papers were notably on the increase. Baptista and Oliveira's [43] meta-analysis recognized and integrates prior studies on gamification and serious games. However, prior studies that used diverse statistical approaches and test(s) and those that did not provide adequate quantitative data were excluded. The study identified some cultural variables and relationships, but it is argued such considerations are accounted for in future gamification work due to the recognized of business. Additionally, it is recommended that much of the extant research should be reproduced in non-Western cultures before conclusions and generalisations on gamification can be drawn. In any case, the analysis of 54 studies and 59 datasets suggested that attitude, usefulness and enjoyment are the most relevant factors that predict the intention to use gamification, thereby permitting a valuable theoretical model for future gamification studies and determining critical factors in gamification and serious games literature, specifically six antecedent variables (i.e., socialness, ease of use, attitude, learning opportunity, hedonic value and enjoyment) and three dependent variables (i.e., intention, usefulness and brand attitude).

Rapp et al.'s [44] summary of 14 articles determined three central themes of particular relevance in the research area: advances in design practice, the resolve to enhance the quality of theory in the field of gamification and its usefulness, and the adoption of a critical lens to reveal side-effects of gamification designs. It also suggests some of the questions to be addressed by future work—which they argue would benefit from a broader consideration of theories to account for the complexity of human behaviour, detailed investigation of opportunities emanating from the world of games and ethical considerations for using game designs in serious domains. Similarly, through an intensive literature review, Kasurinen and Knutas [19] analysed and classified 1164 gamification studies based on thematic focus and to identify research trends. Assisting computer science studies, E-learning, proof-of-concept studies in ecology and sustainability and improving motivation were identified as the prominent research fields. Koivisto and Hamari's [38] comprehensive review of 819 gamification research studies found that most research findings discuss gamification effectiveness on a positive with few mixed results. Leaderboards, badges and points were seen as common approaches to implementing gamification, while health, education and crowdsourcing are common domains of application. However, there is still a research gap in theoretical foundations deployed, consistency factors and how they influence these systems and lack of coherence in research models.

Thiebes et al. [45], through a systematic literature review, investigated how the deployment of gamification or gamification techniques could increase end-user motivation. While their work focused more on the IS aspects of gamification, they classified mechanics and dynamics in five clusters—challenges, system design, social influences, rewards, and user specifics. Additionally, the likely risks of gamification were identified, leading to suggestions that future research analyses concrete implementations in IS contexts, in addition to investigating related long-term effects. Gamification is presented as an innovative strategy to motivate end-users to use IS while illustrating the various options for its application design. Schlagenhaufer and Amberg [46] instead combine a literature review with elements of grounded theory to propose a novel classification framework for gamification in IS, providing a structured and summarised overview. Liu et al. [47] suggested that IS scholars adopt a multidisciplinary (including behavioural economics, psychology and social psychology) approach to investigate the design and use of gamified systems.

Their efforts explicate the idea of gamified IS, provide real-world examples of successful and unsuccessful systems, and present a taxonomy of gamification design elements. It results in a framework for research and designing meaningful engagement for users that address the dual goals of instrumental and experiential outcomes. El-Telbany and Elragal [48] attempted to ease and improve the ERP implementation process by developing a gamified process for the ERP lifecycle using the design science paradigm. Their research explored the benefits ERP systems can yield through the gamification of the ERP lifecycle.

They identified and gamified the ERP lifecycle phases, which would likely benefit from gamification and test for the impact of gamification on them.

Other scholars, of technology and information management specifically, instead focus on gamification's role in specific contexts, including gamification from the individual user perspective, outside the enterprise context. Koivisto and Hamari [38] employed data from the users of a gamified solution to examine the relationship between useful, pleasant and social motivations, continued use and user attitudes towards gamification. Pleasant factors are seen to have a direct positive relationship with use, while the relationship between useful benefits and actual use is seen to be influenced by the attitude towards the use of gamification. Additionally, social factors are extremely related to attitude but offer solely a limited association with the intention to continue the use of a gamification system. Related research on enterprise gamification addressed how businesses can benefit from deploying gamified KMS and what game design elements could be used. Durinik [49] explored the psychological mechanisms that influence user behaviour and attitudes in gamified KMS. Sochor, Schenk, Fink and Berger [50] asserted that production and logistics could benefit from increased engagement and therefore developed a gamification configuration tool that allows production managers to select appropriate game elements for their environment. The resulting gamification framework—Octalysis—serves as a starting point to identify, select and implement specific game techniques and elements in production and logistics.

3.3. Empirical Research on Enterprise Gamification Acceptance

Amongst the empirical studies on enterprise gamification acceptance reviewed, there is a significant focus on the theme of adoption. Nonetheless, the overall literature hardly addresses recent and forecast adoption rates. In the educational domain particularly, Vanduhe, Nat and Hasan [51] argue that although there is public interest in using gamification to train employees, it has not been well incorporated into instructor training in universities. On a related note, Lucassen and Jansen [52] point out that the literature on gamification marketing campaigns specifically is non-existent. Hence, there is a need to address the knowledge gap through interviews with marketing executives to understand if they envision the adoption of gamification in their marketing campaigns. The framework provides a baseline for marketing agencies to make more informed decisions about whether gamification is worth investing in. Prior to this study, no academic literature had investigated the expected adoption rate of gamification in marketing campaigns, even though gamification's core goals perfectly align with three key marketing concepts: engagement, brand loyalty, and brand recognition. Other researchers engaged adoption issues relative to gamified business applications and gamification processes in a company. For instance, Rodrigues et al. [15], in a gamified business application, explored socialness, the role of gamification, and four other variables—enjoyment, usefulness, intention to use and ease-of-use, based on the Technology Adoption Model (TAM) put forward by Davis [53]. Utilising 183 bank customers as a sample, the research revealed that gamification substantially enhanced customers' sense of social interaction, which in turn had a significant impact on their intent to utilise the application. The desire to utilise the application, according to the author, would provide a significant benefit to the company in terms of enhanced consumer engagement.

Enterprise gamification has been met with resistance [8], with some early adopters highlighting problems with initiatives. It was discovered that enterprise gamification initiatives would be more successful if institutionalised in organizations, if employees were motivated to adopt them and if they led to better employee performance and company outcomes. Nevertheless, while gamification programmes have been promoted as a consequence of key elements such as business objectives, employee motivation, and user experience, there has been limited academic and industry work discussing these aspects, given gamification's novelty and the dearth of corporate cases [40,54,55]. Nevertheless, Rodrigues et al. [15] argue that gamification can help improve the fun, participation and interactivity of banking operations, leading customers to adopt behaviours that help them become financially literate. Businesses can gain from gamification by employing gamified

software, as gamification has a positive impact on socialness. Their work suggests a conceptual model made up of seven variables that helps predicts gamified e-banking adoption. Banks can use this information to develop software with gamified business applications, as well as to understand gamified business applications in a more comprehensive way.

While gamification research has generally benefitted from a myriad of qualitative research models/traditions, enterprise gamification research has particularly leveraged case studies. Pereira et al.'s [56] research into the adoption of gamification processes focused on a case study company, in which the key emergent issues included team integration and involvement, automated document control systems, interactive training and self-assessment processes. Using three case studies of gamification initiatives in various business contexts, Ruhi [8] provided an empirically substantiated descriptive framework of enterprise gamification success factors. They examine the interrelationships between employee motivation, interactive gamification elements, technology functions and technology features that make for successful enterprise gamification interventions. By revealing the importance of enterprise gamification initiatives' institutionalization and adoption in organizations, the study offers suggestions on how to boost employee performance and generate positive business results. Game mechanics can also be developed using the study's findings to produce positive user experiences and increase employee engagement.

Other empirical studies adopt a quantitative and positivistic approach, mainly favouring simulation or experimentation methods. Mekler et al.'s [57] online experiment systematically examined how points, leaderboards, levels and participants' goal orientation influenced inherent motivation, performance and competence in an image annotation task. The results suggest that levels, points and leaderboards were effective extrinsic incentives for performance quantity only. In an attempt to discover the effect of gamification elements on the production of online idea competitions, Zimmerling et al. [58] examined the performance of 446 individuals in five treatment groups. They found that gamification can improve performance, but not motivation or idea quality. They suggest gamification should not be relied on to improve idea quantity or quality because it is only suitable for improving the performance of effortless tasks such as commenting. Sailer et al.'s [59] self-determination theory framework featured the use of an online simulation environment and randomised ecognied trial. The findings reveal that performance graphs, badges, and leaderboards have a beneficial impact on competence need satisfaction and perceived task meaningfulness, whereas meaningful stories, avatars and team members impact experiences of social relatedness. The study supports their primary conclusion that gamification is not effective in and of itself but that distinct game elements have specific psychological effects.

In juxtaposition, other studies report positive findings regarding enterprise gamification. An optimistic picture of gamification in the eyes of marketing executives is revealed in Lucassen and Jansen's [52] study, where 9 out of 10 questions received positive answers. Their positive answers indicate a desire to employ gamification more frequently in their future jobs, hence positioning gamification as a thriving industry. However, the majority of respondents do not believe that employing gamification concepts, implementing them technically, and mastering the concept in the future will be simple, despite the goals being considered achievable. Fathian, Sharifi and Nasirzadeh's [60] efforts towards theorising about gamification's function in enterprises from the employee viewpoint identifies the significant role that gamification plays as new facilitating technology and organizational capability by exploring the network of influences. The study emphasises how three critical organizational capabilities—positive emotions, dynamics and mechanic options—impact on enterprise's performance and the competence of gamification. Using a mixed method approach combining expert interviews and questionnaires, they developed a model and applied it to 1000 banking organizations. From a gamification perspective, they identified key factors and the impact they might have on employee engagement and firm performance.

4. Enterprise Gamification Acceptance: Towards a Value-Based Framework

In the reviewed empirical research on enterprise gamification, different frameworks are in evidence, including acceptance theories and models such as Unified Theory of Acceptance and Use of Technology (UTUAT) [61], Technology Acceptance Model (TAM) [53] and Continued Use [62]. Additionally, Ruhi [8] found the Mechanics Dynamics and Aesthetics (MDA) framework to be suitable for describing various aspects of enterprise gamification formally; specifically, its use incorporates the game narratives that take end-user and game developer into perspective.

UTAUT is based upon eight existing frameworks, such that each concept predicts and validates user acceptance and usage behaviour of new technology, typically through a standardised survey. Lucassen and Jansen's [52] interview questions are based on the five concepts: Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions and Behavioural Intention. Semi-structured interviews allowed respondents to freely discuss while maintaining the ability to compare responses and evaluating marketing executives' interest in deploying gamification systems.

TAM, on the other hand, is arguably the most popular IS model that elucidates the intention of the user to adopt information systems. The model supports Rodrigues et al.'s [15] model, which explains the impact gamification has on online business and examines the causal relationship between seven variables: socialness, ease-of-use, usefulness, enjoyment, intention to use, and gamification and business impact. These variables seriously affect customers' attitudes and behaviours in that they deliver a more convincing approach to predicting bank customers' intention to use gamified business applications.

Continued Use in IS research is the plan to continue using a system in the future after it has been adopted. Hamari and Koivisto [55] examined the relationship between user intentions to continue the use of gamification system and various antecedents. They identified the benefits of gamification to include utilitarian, hedonic, and social benefits, which were operationalised as usefulness, enjoyment, and recognition, respectively.

In this regard, the benefits of gamification are divided into (1) utilitarian (recognized as usefulness and ease of use); (2) hedonic (operationalised as enjoyment and playfulness); and (3) social (recognized as recognition and social influence).

In more recent studies, researchers have started to also adopt a combination of technology acceptance frameworks in their evaluations. For instance, in Vanduhe et al.'s [59] study, knowledge gain, task technology fit (TTF) and social motivations (SM) from using gamification were examined in the context of training in universities through data collected in two phases. It was found that perceived usefulness and attitudes are important for continued use of gamified systems in training. Additionally, in predicting intention for continued use—social influence, TTF, social recognition and perceived ease of use were seen as critical.

Potential Value Frameworks and Approach for Gamification Acceptance Progression

The current literature review suggests that extant empirical research on enterprise gamification acceptance has majorly focused on predicting adoption and continued use. Nonetheless, value-oriented theories, models, approaches and methods can inform the trend more comprehensively and contribute to understandings how enterprise users attach meaning to such systems. Additionally, the vantage point can be valuable in determining what user experience entails. The following value-based frameworks are therefore considered of relevance for future gamification acceptance research, especially for enterprise:

(1) The Total Consumption Values (TCV) model addresses why consumers make the choices they do; and identifies five consumption value dimensions influencing consumer choice behaviour [63]. TCV includes diverse kinds of values that explain consumer choice and integrates various consumption models and frameworks that were derived from a large literature review survey; hence, it provides a broad understanding of consumers' experiences. The model suggests that a particular choice may be determined by one value dimension or influenced by several [63,64], including:

(i) Functional value: This tracks economic utility theory and assumes economic rationalism. The consumers' conclusions to purchase or use a product or service justify this value dimension, and it is based on how well the features of the consumable item satisfy the consumers' practical needs.
(ii) Social value: This value dimension is derived from the symbolic significance of a product. It involves visible products or services that are shared with others and are chosen as a result of the perceived social image.
(iii) Emotional value: This value dimension influences judgments because of a product's prospect to provoke emotions when it is used. For example, beauty can add emotional value to a product.
(iv) Epistemic value: This value dimension is triggered when a new product or service is being explored. It considers when a user is curious about something, bored with a product or is simply excited about experimenting with something new.
(v) Conditional value: This value dimension applies to products or services whose value is connected to use in a distinct context. Typically, a functional or social value would arise in a condition when there is a need.

The original results of TCV's operationalization suggest it may be used to predict consumption behaviour, as well as to describe and explain it. Therefore, TCV can inform user experience with gamified products and explain acceptance based on the specific value categories above since they address motivations for decisions in consumer situations and form the basis of consumer research [64].

(2) The Means End Chain (MEC) approach originates from the recognized that consumer values are crucial for understanding behaviour in the marketplace. MEC discovers the forms of consumption values and asserts that attributes of the product or service have a role in the means by which consumers (end-user of systems) attain goals [65,66]. Specifically, the approach suggests that consumer knowledge is hierarchically organised into three levels of abstraction—attributes, consequences and values. MEC analysis links perceived product attributes to values, hence reducing a gap in existing theory at the time of its development [65]. The approach can therefore be valuable for future enterprise gamification studies, which attempt to examine the value and goals of users (or adopters) of gamified systems in the enterprise [67].
(3) Day Reconstruction Method (DRM) reproduces data derived from probing experiences in real time and is contended to be more efficient than the rather similar Experience Sampling Method (ESM) for several reasons. Generally, DRM reduces disruption of normal activities, documents time and budget data and inflicts minimal burden on respondents, thus providing an examination of episodes over a full day as opposed to sampling [68]. Research on smartphone user experience has employed a modification of the method [69], where participants were invited to present their experiences three times a day. Based on the original DRM, however, participants are requested to document unique experiences with specific products or services once a day. By increasing the frequency of sampling, participants can forget less, and thus, for future research on enterprise gamification acceptance, it is necessary to note such limitations.

5. Discussion

The above review of value models and framework for enterprise gamification raises a number of issues which merit reflective discussion. Firstly, gamification means different things to different people, has been described as a complex and controversial topic, and is perhaps best seen as a contested concept, with little general consensus on either how it takes place or its consequences within organisations. Tulloch [70], for example, suggested that while gamification had been enthusiastically embraced by marketing and education, it had also been dismissed as exploitative by other functions and disciplines. At the same time, Vera and Harviainen [71], for example, argue that gamification oversells its promise and

effectively sidesteps the major challenges involved in the design of gamified interventions. Further, [71] looked to open up critical debate on the role of gamification in organisations.

Secondly, the belief that gamification generates value is also contested. Raftopoulos [72], for example, suggested that there were significant limitations within gamification design practices that can destroy value. In looking to provide a more positive conceptual design framework, he recognized the importance of utilising a values-conscious design process to ensure a more human-based and ethical approach to gamification design that can potentially produce more responsible and sustainable results. Here, the basic argument is that gamification must not only be engaging, immersive and welcomed by employees but that it should be used as a part of a strategy to balance competitive and collaborative endeavour within the workplace. More generally, Shahri et al. [12] argued that although many existing studies had stressed the positive side of gamification, little attention had been paid to the ethical use and concerns that the use of gamification possesses in enterprises. Their work suggested that there was a fine line between gamification as a positive tool to help employee motivation and gamification being a source of tension and anxiety, which could affect employees' social and mental well-being in organisations.

Thirdly, while positive conceptions of gamification are often associated with increasing recognized efficiency, gamification can also be seen to cause problems for the possible transition to a more sustainable future. Within a world where there are growing concerns about the unsustainable depletion of the earth's finite resources and, more pointedly, about climate change, there is a widespread, though not universal, recognition that current patterns of consumption are unsustainable. While Huber and Hilty [73], for example, recognized that gamification has been employed to persuade consumers to adopt greener patterns of consumption behaviour, they recognized such an approach in that it assumes that information on consumption behaviour will cause changes in awareness and behaviour and that designers can recognized sustainable behaviour into gamification. More generally, as gamification increasingly adopts digital approaches, it is important to recognized that digital technologies seriously impact the environment, particularly through their use of electricity, carbon dioxide, and rare earth elements and the disposal of digital equipment.

6. Conclusions

For the first research question, our literature review of enterprise gamification over the last decade shows increased use of gamification in different aspects of a business, such as cybersecurity, health and well-being, marketing, customer loyalty, staff incentives and more. We also see the increased use of gamification in different industries. However, research on enterprise gamification is still limited, though increasing with more focus on case studies and empirical studies than on the arising of the phenomenon. Additionally, while many studies focus on the positive effects of gamification in the enterprise, ethical concerns about the use of gamification in the enterprise are an area of study that does not appear to have been explored in great depth.

To address our second research question, we see that the academic scholarship on gamification acceptance has traditionally engaged both consumer and enterprise contexts. Regarding the latter, predicting and explaining both the adoption and continued use of gamified systems have been relevant empirical research themes. Concurrently, in studying gamification acceptance broadly, various theoretical frameworks and approaches are employed to inform user and enterprise perspectives. Established value models have not enriched knowledge on enterprise gamification acceptance. Many of the existing studies have focused primarily on the use of technology acceptance models and continued used frameworks to evaluate enterprise gamification acceptance, totally neglecting how users attach value to systems. The extant empirical studies in the research stream are mainly based on an adoption paradigm, which has been the main perspective for predicting and explaining acceptance trend. Herein, we argue instead that a value perspective is needed for a more comprehensive understanding of gamification broadly and enterprise gamification more specifically.

Such orientation would significantly facilitate an alternative to the predominant deterministic paradigm, which currently enjoys hegemony. Therefore, the application and testing of value frameworks and approaches that have previously been employed to explain technology acceptance are recommended as a way forward in future gamification research, encompassing both user and enterprise perspectives. Furthermore, a value perspective on gamification acceptance can benefit from explaining gamification's growing proliferation, academic and practitioner interest, and market value. Besides the orientation's potential to facilitate an alternate non-deterministic lens to the subject matter, it additionally accounts for users' experience rather than focusing on how antecedents influence behavioural intentions to accept gamified systems. Hence the call for both user and enterprise gamification value frameworks in future research, as a value perspective can be a useful alternative to further understanding gamification acceptance of consumers and within the enterprise.

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