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GAMIFICATION APPLIED TO DATA PROTECTION LAWS: AN AWARENESS STRATEGY TO PROMOTE PRIVACY IN COMPANIES

A GAMIFICAÇÃO APLICADA ÀS LEIS PROTEÇÃO DE DADOS: UMA ESTRATÉGIA DE CONSCIENTIZAÇÃO PARA PROMOVER A PRIVACIDADE NAS EMPRESAS

GAMIFICACIÓN APLICADA A LAS LEYES DE PROTECCIÓN DE DATOS: UNA ESTRATEGIA DE CONCIENCIACIÓN PARA PROMOVER LA PRIVACIDAD EN LAS EMPRESAS

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ABSTRACT

This article aims to address the use of gamification as an innovative strategy to promote awareness and learning of good practices of the General Data Protection Law (LGPD) in Brazil, the Personal Data Protection Law (LPDP) in Angola, the General Data Protection Regulation *(GDPR)* in Europe, and other personal data protection laws around the world. Gamification is presented as an approach that uses game elements to engage participants in a playful and interactive way. Thus, the problem question of this research is "How can gamification be used to raise awareness to promote data privacy practices?" For this investigation, use was made of *field research,* carried out with employees of four Brazilian companies in the health sector. The results obtained demonstrate that most employees had difficulty understanding LGPD good practices, but the evaluation of the board game was effective in stimulating learning and the adoption of data protection practices. As a contribution to

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the research, a Business Gamification Model is presented, which was allowed to be proposed through the results obtained in the field research and can be used in other companies.

KEYWORDS: Data Privacy. DPO. Gamification. Data Protection.

RESUMO
O presente artigo tem como objetivo abordar o uso da gamificação como uma estratégia inovadora para promover a conscientização e o aprendizado das boas práticas da Lei Geral de Proteção de Dados Pessoais (LGPD) no Brasil, a Lei da Pretecção de Dados Pessoais (LPDP) de Angola, o Regulamento Geral de Proteção de Dados (RGPD) - *General Data Protection Regulation (GDPR)* na Europa, e demais leis de proteção de dados pessoais ao redor do mundo. A gamificação é apresentada como uma abordagem que utiliza elementos de jogos para engajar os participantes de forma lúdica e interativa. Desse modo, a pergunta problema dessa pesquisa é “Como a gamificação pode ser utilizada para conscientização para promover as práticas de privacidade de dados? Para essa investigação faz-se uso da pesquisa de campo, realizada com colaboradores de quatro empresas brasileiras do setor de saúde. Os resultados obtidos demonstram que a maioria dos colaboradores apresentava dificuldades em entender as boas práticas de LGPD, porém a avaliação do jogo de tabuleiro foi eficaz em estimular o aprendizado e a adoção das práticas de proteção de dados. Como contribuição da pesquisa, é apresentado um Modelo de Gamificação Empresarial que foi permitido a proposição por meio dos resultados obtidos na pesquisa de campo, sendo passíveis de uso em outras empresas.

PALAVRAS-CHAVE: Gamificação. Lei Geral de Proteção de Dados. Privacidade de dados. LGPD.

RESUMEN
Este artículo tiene como objetivo abordar el uso de la gamificación como una estrategia innovadora para promover el conocimiento y el aprendizaje de las buenas prácticas de la Ley General de Protección de Datos (LGPD) en Brasil, la Ley de Protección de Datos Personales (LPDP) de Angola, el Reglamento General de Protección de Datos (GDPR) en Europa, y otras leyes de protección de datos personales en todo el mundo. La gamificación se presenta como un enfoque que utiliza elementos del juego para involucrar a los participantes de una manera lúdica e interactiva. Por lo tanto, la pregunta problemática de esta investigación es "¿Cómo se puede utilizar la gamificación para crear conciencia y promover prácticas de privacidad de datos? Para esta investigación se utiliza la investigación de campo, realizada con empleados de cuatro empresas brasileñas del sector de la salud. Los resultados obtenidos muestran que la mayoría de los empleados tuvieron dificultades para comprender las buenas prácticas de la LGPD, pero la evaluación del juego de mesa fue efectiva para estimular el aprendizaje y la adopción de prácticas de protección de datos. Como aporte a la investigación, se presenta un Modelo de Gamificación Empresarial que se permitió plantear a través de los resultados obtenidos en la investigación de campo, pudiendo ser utilizado en otras empresas.

PALABRAS CLAVE: Gamificación. Ley General de Protección de Datos. Protección de datos. GDPR.

1. INTRODUCTION

Personal data protection has become a global priority, driven by the advancement of digital transformation and the increasing exchange of sensitive information in the online environment. Laws such as the General Data Protection Law (LGPD) in Brazil, the Personal Data Protection Law (LPDP) in Angola and the General Data Protection Regulation (GDPR) in Europe represent fundamental regulatory frameworks to guarantee privacy and individual rights in the processing of data. However, the effective implementation of these laws depends not only on technical and legal mechanisms, but,

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above all, on the awareness and engagement of organizations and their employees in adopting good privacy practices.

In this scenario, gamification emerges as an innovative approach to promote learning and awareness of data protection standards. It involves applying game elements, such as rewards, challenges and immediate feedback, in non-playful contexts, with the aim of stimulating participant engagement. Studies indicate that gamification is capable of transforming traditionally technical and complex learning processes into interactive and dynamic experiences, facilitating the absorption of concepts and changes in organizational behavior.

Gamification has neuroscientific support, especially with regard to knowledge retention and emotional engagement. According to Putz, Hofbauer and Treiblmaier (2020), the application of game elements in educational environments has demonstrated a positive impact on learning retention over time, as observed in a longitudinal study with more than 600 participants. The research showed that gamification significantly improves knowledge retention by engaging participants through playful challenges and rewards (Putz *et al*., 2020).

Another study by Sailer and Homner (2019) demonstrated that gamification positively impacts cognitive, motivational and behavioral outcomes in educational environments. The authors highlight that elements such as social interaction and narrative in games increase the ability to retain complex concepts, aligning with learning processes based on engagement and motivation (Sailer; Homner, 2019).

Gamification has also proven to be a valuable strategy to support Data Protection Officers (DPOs) in promoting data privacy awareness. As pointed out by Woolwine *et al.,* (2019), the introduction of gamified elements in training programs in the healthcare sector led to a significant increase in participant motivation and retention of the information transmitted. Researchers observed that the integration of games in learning facilitates the neural and emotional connection with the content, making the educational process more engaging and effective (Woolwine *et al.,* 2019).

Thus, the general objective of this article is to investigate how gamification can be used as a strategic tool to promote awareness of good practices related to data protection laws, with an emphasis on LGPD, LPDP and GDPR. In addition, it seeks to understand the challenges faced by employees in assimilating and adopting such practices, proposing gamification as an efficient alternative to overcome them.

The relevance of this research is justified by the growing need to ensure compliance with privacy legislation in companies across a range of sectors. In the specific case of Brazil, for example, the LGPD not only imposes sanctions in the event of non-compliance but also requires ongoing training and awareness-raising for those involved in data processing. The use of innovative tools, such as gamification, can significantly contribute to filling educational and cultural gaps, promoting a change in organizational mindset and greater adherence to privacy standards.

Therefore, this study seeks to answer the following problem question: “How can gamification be used to raise awareness to promote data privacy practices?

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Based on this introduction, the next section will address the literature review, presenting the theoretical basis on data protection laws, the foundations of gamification and the intersections between these themes in the organizational context.

2. LITERATURE REVIEW

2.1. Personal Data Protection Laws and Gamification

Several countries around the world have already established specific laws for the protection of personal data, with the aim of guaranteeing the privacy and fundamental rights of their citizens in an increasingly digitalized scenario. In **Brazil** , the **General Law for the Protection of Personal Data (LGPD)** came into force in 2020 to regulate the processing of personal data, imposing obligations on public and private organizations and promoting greater transparency and security for data subjects. Thus, the person responsible for providing guidance on personal data protection practices is the *Data Protection Officer (DPO),* who is responsible for collaborating with the strategy to raise awareness on the subject (Lima; Alves, 2021).

In **Europe**, the **General Data Protection Regulation (GDPR)** stands out as one of the most comprehensive pieces of legislation on the subject. Launched in 2018, it establishes strict guidelines on the use of personal information, applicable to both companies in the European Union and organizations outside the bloc that process data from European citizens. Like the LGPD, the GDPR seeks to harmonize privacy regulations, creating a data protection standard and promoting the accountability of companies that do not comply with its guidelines.

In **Angola,** the **Personal Data Protection Law (LPDP)** reflects a significant effort to ensure the privacy and integrity of its citizens' data. Published in 2011, the LPDP establishes criteria similar to the GDPR and LGPD, such as the need for consent from the data subject, encouraging security measures and the application of sanctions in cases of non-compliance. It is worth noting that, as in Brazil and European countries, the LPDP also has a supervisory authority responsible for monitoring companies' compliance with the law. In Angola, this function falls to the **Data Protection Agency (APD),** with several actions and innovations that stand out among the African continent on this topic. These initiatives demonstrate the global movement towards the protection of individual rights in a digital environment.

A common element among these laws is the need for continuous awareness of data protection practices. Effective adherence to the rules does not depend solely on legal or technological measures, but also on the engagement and knowledge of the parties involved. Studies show that initiatives such as training and gamification can increase awareness and adherence to legal guidelines, including the data protection culture in organizations and society in general (Silic *et al.,* 2020; Subagja et al., 2021).

Therefore, while each country adapts its legislation to meet its specific needs, the challenges for awareness and implementation are universal. Whether in Brazil with the LGPD, in Europe with the

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GDPR or in Angola with the LPDP, efforts must focus on educating individuals and organizations so that they understand the importance and responsibilities in the ethical treatment of personal data. This alignment between legislation, education and engagement is essential to ensure effective protection in a world increasingly dependent on digital technologies.

2.2. Awareness of Data Protection Laws

Awareness plays an essential role in the application of data protection laws, as it promotes a clear understanding of the rights and duties related to privacy in the digital world. In Brazil, the General Law on the Protection of Personal Data (LGPD) presents provisions that reinforce the need to disseminate knowledge to ensure its effective implementation. Art. 5, item VII, defines the need for informed consent from data subjects as a legal hypothesis for data processing, highlighting the importance of transparency in the process, including for employees (Brasil, 2018). Art. 41, in turn, establishes that the Data Controller must "guide the entity's employees and contractors regarding the practices to be adopted in relation to the protection of personal data" (Brasil, 2018). Art. 50 requires companies to develop codes of conduct to facilitate compliance with legal obligations and a Privacy Governance Program that aims to establish a relationship of trust with the data subject, through transparent action and that ensures mechanisms for data subject participation; At this point, awareness-raising practices may be included (Brasil, 2018). In addition, Art. 52 provides for administrative sanctions, reinforcing the responsibility to raise awareness among organizations and individuals about the consequences of non-compliance with the law (Brasil, 2018).

In Europe, the General Data Protection Regulation (GDPR) also highlights the importance of raising awareness directly and indirectly in several provisions. Art. 5 presents the fundamental principles of data processing, such as transparency, purpose and minimization, and clear disclosure of these practices is essential for data subjects to adhere to them (European Union, 2016). Art. 12 determines that the information provided to data subjects must be "concise, transparent, intelligible and easily accessible" (EUROPEAN UNION, 2016). Art. 39 assigns the Data Protection Officer (DPO) the responsibility of "promoting awareness and training of employees and collaborators involved in data processing" (EUROPEAN UNION, 2016). Finally, Art. 47 encourages the creation of codes of conduct to support the implementation of data protection policies (European Union, 2016).

Similarly, Angola's Personal Data Protection Law (LPDP) also recognizes awareness as a fundamental part of its enforcement. Art. 7 establishes that personal data must be processed "in a transparent manner and in compliance with fundamental rights and freedoms" (Angola, 2011). Art. 9 requires that data subjects be informed about the purpose of the use of their data and about their rights (Angola, 2011). Furthermore, Art. 28 assigns the Data Protection Agency the responsibility of "promoting awareness campaigns among public and private institutions" (Angola, 2011). Art. 35 reinforces that data operators must implement appropriate technical and organizational measures to protect personal information (Angola, 2011).

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As highlighted by Bogossian (2021), awareness is essential to ensure the effectiveness of these laws. The author emphasizes that "the dissemination of knowledge is essential for the alignment between business practice and legal principles", highlighting that training programs and education campaigns are key elements in ensuring the protection of personal data. Thus, laws such as LGPD, GDPR and LPDP not only regulate the use of data, but also actively encourage the construction of an organizational culture guided by privacy.

2.3. Corporate Education

Corporate education plays a central role in developing skills and fostering an organizational culture that drives innovation and business performance. In today's context, where technological and regulatory changes are rapid and constant, the ability of organizations to train their employees has become a competitive advantage. According to Chiavenato (2014), corporate education goes beyond technical training; it is a strategic approach to aligning employee skills with organizational needs, promoting continuous learning and the integration of corporate values.

One of the pillars of corporate education is the use of active learning methodologies, which aim to engage employees more effectively. Among these methodologies, training based on problem-solving, case studies and interactive experiences stand out. Such approaches have proven to be more efficient in retaining learning compared to traditional methods, such as lectures and static materials. According to Kolb (1984), experiential learning, which involves doing and reflecting, is essential for transforming knowledge into practical skills in the workplace.

With the advancement of technology, digital platforms and gamified resources have become important tools in corporate education. Gamification, in particular, has gained prominence due to its ability to engage employees in a playful and interactive way. Werbach and Hunter (2012) argue that the application of game elements in corporate contexts stimulates intrinsic motivation, making learning more engaging and effective. In addition, gamification allows for the personalization of content, which facilitates the adaptation of training programs to the specific needs of each organization.

Another relevant aspect of corporate education is its role in meeting regulatory requirements. In highly regulated sectors such as finance, healthcare and technology, ongoing training is essential to ensure compliance with regulations. According to studies by Schilling and Kluge (2009), educational programs aimed at regulatory awareness not only reduce the risk of sanctions but also strengthen stakeholder confidence. Thus, corporate education plays a crucial role in aligning organizational objectives with legal requirements, contributing to more responsible management.

Both the LGPD and the GDPR assign the Data Protection Officer (DPO) a fundamental role in raising awareness and corporate education about the protection of personal data. According to Art. 41 of the LGPD (Brazil, 2018) and Art. 39 of the GDPR (European Union, 2016), the DPO is responsible for guiding and training employees, promoting the adoption of good practices that ensure compliance with the standards. In Brazil, the **National Association of Data Privacy Professionals** (**APDADOS.org)**, since 2019, has played a crucial role in bringing together experts to share

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experiences, disseminate knowledge about information security and data protection, in addition to promoting innovative initiatives that contribute to the evolution of the topic in Brazil and on the global scene (APDADOS, 2019).

One of APDADOS.org's most notable contributions is the development of a gamification tool called "**Data Privacy Defenders,**" which uses a playful, hypothetical, and interactive scenario to engage participants in an educational journey. In this game, participants accumulate evidence within a fictitious budget while exploring the nuances of the LGPD and understanding fundamental data protection best practices. This gamified approach not only makes learning more engaging, but also reinforces the practical application of legal guidelines, demonstrating the effectiveness of corporate education associated with innovative methodologies.

In the context of this study, corporate education is a powerful way to raise awareness about data privacy practices in companies. By linking gamification to corporate education programs, it is possible to transform a complex and technical topic, such as personal data protection, into an interactive and accessible experience. The use of playful elements, such as challenges and rewards, can not only increase employee engagement but also facilitate the internalization of good practices provided for in legislation such as LGPD, GDPR and LPDP. In this way, gamification applied to corporate education directly contributes to the creation of an organizational culture focused on privacy and legal compliance.

Therefore, the procedures of the scientific methodology that supported this study are presented below.

3. METHODOLOGY

For this study, the Field Research methodology was adopted, which included the application of the **Board Game "Defenders of Data Privacy",** developed with the support of experts from the National Association of Data Privacy Professionals (APDADOS.org) as the main measurement tool for this article.

The research subjects were four Brazilian companies in the healthcare sector, with approximately 700 employees distributed in person in Florianópolis, Santa Catarina, and with collaborators located in several states of Brazil. The selection of subjects was based on a typical sampling, considering that these companies deal with a large volume of data, including sensitive data related to healthcare, which plays a central role in their business activities.

Theoretically, field research is the type of research that aims to seek information directly from the population being researched. It requires the researcher to have a more direct encounter. In this case, the researcher needs to go to the space where the phenomenon occurs, or occurred, and gather a set of information to be documented [...] (Gonsalves, 2001 *apud* Piana, 2009).

The main scenario to be explored was to investigate the use of gamification as an innovative and effective strategy to encourage the adoption of LGPD good practices and contribute to the protection of personal data. The research questions addressed to employees were:

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1. What is gamification and how can it be used to encourage the adoption of LGPD good practices?
2. What are the benefits of gamification for personal data protection?

The rationale for conducting this study lies in the need to find effective and engaging approaches to promote awareness and compliance with the LGPD, as well as to protect personal data in organizations. The complementary methodology adopted to answer these questions consisted of the following steps:

a) Literature Review: A comprehensive review of academic literature and specialized sources on gamification and personal data protection was conducted. The content identified in the research served both as a base text for the Literature Review and the Presentation of Results, as well as for contextualizing the theme of this article. This review allowed us to obtain a solid theoretical understanding of the concepts, principles and benefits of gamification, as well as the importance of personal data protection and the challenges faced by organizations in this context.

b) Game Application and Evaluation: The board game was applied to a group of employees of the company participating in the field research. During the game session, the participants' comments and evaluations regarding the effectiveness of the game as a tool to encourage the adoption of LGPD good practices were observed and recorded.

c) Presentation and Analysis of Results: The analysis of the data as a result was carried out through a qualitative approach. The collected data were coded and categorized to identify the main themes and emerging patterns related to the effectiveness of gamification in the adoption of LGPD good practices. The participants' responses to the interviews and the observations during the game session were analyzed in search of relevant *insights,* highlighting positive aspects and challenges perceived in the use of the board game.

d) Interpretation of Results: Based on the analyzed data, the results were interpreted. As the main scientific contribution, a structured script was created, with suggested steps for applying the game in other companies, thus maximizing its use.

e) Final Considerations: At this stage, the main considerations of the study were presented, highlighting the insights and contributions to the understanding of gamification as a strategy to promote the adoption of LGPD good practices. The practical and theoretical implications of the results and possible directions for future research were also discussed.

Once the study obtains good results, the premise of the proposed theme becomes even more relevant both for the corporate business scenario and for the scientific contribution on the subject.

4. ANALYSIS AND PRESENTATION OF RESULTS

The results obtained from the first contact with the field research company, during the preparation, implementation and after several controlled rounds of the game, including the theoretical

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refinement regarding gamification in data privacy, are analyzed and presented below. Firstly, it is worth highlighting that the observation throughout the process made it possible to identify the themes in data protection that could be gamified. The themes in question are presented below.

4.1. Themes in Gamifiable Data Protection

Gamification is an approach that can be successfully applied to various topics related to data protection, transforming technical and regulatory concepts into interactive and educational experiences. During the field research carried out, it was possible to observe that certain topics, due to their characteristics, are especially suitable for being worked on in a gamified context. These topics cover practical and theoretical aspects of data protection legislation, promoting both learning and the adoption of good practices.

During the controlled rounds of the game "Data Privacy Defenders", topics were identified that not only address the legal requirements of legislation such as LGPD, GDPR and LPDP, but also engage employees to understand, apply and internalize the concepts in a dynamic way. Below is a table with the topics that can be gamified, their descriptions and the links to the relevant articles of the legislation analyzed.

Table 1: Themes in Gamifiable Data Protection

Theme	Description	Related articles
Informed Consent	Explanation and practices on obtaining clear and unambiguous consent from data subjects.	LGPD: Art. 7, IX; GDPR: Art. 7; LPDP: Art. 6, 9
Rights of Holders	Exercise and practical simulation of rights such as access, correction and deletion of data.	LGPD: Art. 18; GDPR: Art. 15-22; LPDP: Art. 9
Legal Basis for Processing	Identification and application of appropriate hypotheses and legal bases for each type of data processing.	LGPD: Art. 7; GDPR: Art. 6; LPDP: Art. 8
Good Practices and Governance	Development of internal policies and code of conduct for data protection.	LGPD: Art. 50; GDPR: Art. 24, 32; LPDP: Art. 34
Information Security	Cyber attack simulation and risk mitigation practices.	LGPD: Art. 46; GDPR: Art. 32; LPDP: Art. 35
Incident Notification	Procedures and simulation of communication of security incidents to holders and authorities.	LGPD: Art. 48; GDPR: Art. 33; LPDP: Art. 37
Continuous Training	Planning and executing regular training on data protection and compliance.	LGPD: Art. 41; GDPR: Art. 39; LPDP: Art. 28

Source: Own elaboration

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The topics identified in Table 1, such as Informed Consent, Data Subject Rights, and Incident Notification, stand out due to the need for practical engagement of employees, and are possible for gamification due to their procedural and interactive nature. These topics involve activities that require quick decisions, well-defined strategies, and the application of technical knowledge in simulated scenarios. For example, the simulation of a security incident can be worked on in a game as a challenge in which participants must correctly identify and notify a data leak, observing deadlines and legal requirements. Likewise, the exercise of data subject rights can be transformed into a hypothetical scenario in which players must respond to requests for access or deletion of data, ensuring compliance with the requirements established by law.

Furthermore, the application of gamification to topics such as Legal Basis for Processing and Information Security allows for a more practical and interactive approach, which is essential for promoting active learning. In the case of legal bases, a game can present fictitious situations in which participants need to associate different data processing operations with the appropriate legal bases, promoting the understanding of one of the most critical aspects of legislation. On the other hand, information security can be addressed through simulations of cyberattacks, in which players need to identify vulnerabilities and implement countermeasures, reinforcing the importance of practices such as encryption and two-factor authentication.

With this same idea in mind, it is worth presenting more opportunities in which gamification can be applied, exploring examples that detail how each topic can be approached in a playful way. These proposals demonstrate the flexibility of gamification to transform complex and technical topics into practical and engaging experiences, which not only increase learning retention, but also encourage the effective application of standards in everyday corporate life. Thus, Table 2 below presents specific examples for each topic listed in Table 1, highlighting how gamification can be used to enhance learning and awareness about data protection.

Table 2: Example of Games by Data Privacy Theme

Theme	Examples of Games or Playful Challenges
Informed Consent	1. Card game: Identify valid or invalid consent scenarios.
	2. Interactive quiz: Quick decisions in fictitious situations to assess whether consent is necessary or unnecessary.
	3. Role- playing : Simulating dialogues with data subjects to collect correct consent.
Rights of Holders	1. Service challenge: Resolve requests for access, correction and deletion of data in the shortest possible time.
	2. Case study: Identify which of the holder's rights applies to each situation presented.
	3. Holder race: Each player assumes the role of a holder who must correctly exercise his rights.
Legal Basis for Processing	1. Strategy board: Players need to identify the appropriate legal basis for processing data in specific scenarios.
	2. Matching challenge: Matching different processing purposes to the appropriate legal bases.

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	3. Decision cards: Each player receives data processing scenarios and must justify the chosen legal basis.
Good Practices and Governance	1. Collaborative workshop: Players develop internal policies to address data protection challenges.
	2. Audit simulation: Face fictitious “auditors” and correct flaws in governance policies.
	3. Governance building: Strategy game where teams create codes of conduct and face hypothetical compliance situations.
Information Security	1. Cyber attack simulation: Players identify vulnerabilities and apply protective measures.
	2. Race against the hacker: Solve security challenges in a limited time to avoid intrusions.
	3. Security puzzle: Put together the ideal protection strategy, using representative pieces such as encryption, firewalls and two-factor authentication.
Incident Notification	1. Time game: Identify and report a security incident within the legal deadlines.
	2. Interactive scenario: Resolve fictitious incidents, identifying the details that must be reported to the holders and authorities.
	3. Communication challenge: Develop clear and appropriate messages to inform different audiences about data leaks.
Continuous Training	1. Progress Quiz: Cumulative score when answering questions about data protection, reviewing concepts over time.
	2. Board game: Employees advance on the board by completing tasks related to data protection.
	3. Team Competition: Teams compete to answer complex questions about data protection laws and practices.

Source: Own elaboration

The themes explored in Table 2 offer clear opportunities for gamification, providing practical examples that can be used to engage employees and facilitate learning about data protection standards. In the Informed Consent theme, games and challenges, such as interactive quizzes and role-playing simulations, help participants understand when consent is necessary and how it should be obtained correctly, aligning organizational practices with legal requirements. In Data Subject Rights, activities such as the "Data Subject Race" allow players to experience in practice how the rights of access, correction and deletion should be exercised and met, ensuring compliance with current legislation.

Regarding Legal Basis for Processing, strategic games, such as board games and decision cards, teach participants to identify and apply the appropriate legal basis for each type of data processing, promoting the alignment of organizational operations with legal requirements. In Good Practices and Governance, challenges such as "Audit Simulation" and "Governance Building" encourage players to create and review internal policies, in addition to preparing them to deal with audits and compliance scenarios, strengthening organizational governance.

In the Information Security theme, cyberattack simulations and playful puzzles highlight the importance of identifying vulnerabilities and implementing protective measures, increasing

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participants' awareness of cybersecurity. In Incident Reporting, games such as the "Communication Challenge" teach employees how to report incidents effectively and within legal deadlines, minimizing the risk of sanctions and reputational damage. Finally, activities related to Continuous Training, such as progressive quizzes and team competitions, ensure knowledge retention and maintain employee engagement over time, being essential for building an organizational culture focused on privacy and data security.

4.2. Theoretical-Scientific Refinement

Theoretical refinement was possible thanks to the practical application of the game and the observation of the themes identified in the two previous tables, which presented both the topics that could be gamified and the corresponding playful examples. This practice allowed for a deeper analysis of the concepts related to gamification and data protection, offering a clearer view of how game elements can be effectively integrated into the organizational context. Thus, this topic seeks to explore, in more detail, the theoretical foundations that support gamification as an awareness and learning tool in the data privacy scenario.

Gamification is based on the idea of applying systems and mechanics typical of the act of playing in contexts that do not involve games, such as learning and work environments (Viana *et al.,* 2013). According to Fadel *et al.* (2014), it involves using game elements, such as challenges and rewards, in instructional design to stimulate motivation and engagement. This does not imply the creation of a complete game, but the incorporation of strategic components that favor the construction of knowledge through interactive experiences.

For Fadel *et al.* (2014), gamification encourages problem-solving and the improvement of processes, products, and environments, with a focus on motivating and engaging specific audiences. The game, as a form of storytelling, explores the experiences of participants, which are fundamental to the construction of knowledge. This narrative characteristic transforms learning into a dynamic process, where interaction with the environment and challenges promote the absorption of concepts in a practical way.

The gaming market, which has been expanding since the 1980s, has inspired the adoption of gamified strategies in different areas, including education. Recent studies indicate that the application of gamified experiences expands the possibilities of teaching and learning by making complex content more accessible and attractive (Piske and Konts, 2020). In addition, gamification has different objectives, which vary according to the context and the intended goals, such as increasing engagement or promoting behavioral changes (Carvalho, 2022).

Fardo (2013) highlights the advantages of gamification, such as promoting healthy competition, providing real-time feedback, increasing participant engagement and encouraging autonomy to achieve goals. These benefits are particularly relevant in the context of data protection, where understanding the rules and adopting good practices depend on the commitment and motivation of employees.

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Nowadays, gamification goes beyond the function of a simple tool, becoming part of the organizational and social culture, acting in fields such as the corporate environment, the commercial sector, health and education (Ramos; Leão; Schneider, 2020). In the scenario of personal data privacy, it emerges as a strategic solution to overcome the challenges related to the understanding and application of standards, promoting a culture of data protection in companies.

The literature suggests that gamification can include simulations, board games, mobile applications, and other interactive tools to engage employees in learning about personal data protection. Boler and Kapp (2018) state that games should include a clear objective, challenges, well-defined rules, interactivity, and feedback, creating a measurable and emotionally engaging experience. These characteristics can be adapted to the business context, taking into account the particularities of each organization.

For example, the rules of the game can represent the principles and guidelines of data protection legislation, presented in a comprehensible way and adapted to the organizational environment. Game mechanisms, such as points and rewards, encourage desired behaviors and provide immediate feedback on participants' performance. In addition, the game environment can simulate real-life situations, such as the handling of personal data and the reporting of incidents, allowing employees to learn from mistakes and develop practical skills.

According to Ramos, Leão and Schneider (2020), the playful element is intrinsic to human development, contributing to cognitive processes such as attention, memory and reasoning. Playfulness, previously seen as secondary in the corporate environment, is now valued for its potential to stimulate interaction and the formation of concepts and is especially relevant for topics such as data protection.

Thus, playful activities are not just a complement, but an essential part of the educational process, especially in technical and regulatory topics. By providing a safe and interactive environment, gamification facilitates the absorption of knowledge and promotes a cultural change within organizations, which is essential for creating a mindset focused on privacy and the security of personal data.

4.3. Benefits obtained through Gamification in Data Protection

The results of the field research revealed that most employees faced difficulties in understanding LGPD good practices. This highlights the importance of innovative approaches, such as gamification, to help raise awareness and adopt these practices.

Regarding the evaluation of the applied board game, the company's employees demonstrated that the tool was effective in stimulating learning and adopting LGPD good practices. The game provided a fun and interactive experience, which contributed significantly to a deeper and more practical understanding of data protection principles.

Through the game, employees were able to experience real situations related to data privacy, making decisions and facing challenges in the safe context of the game. This allowed them to develop

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practical skills and acquire specific knowledge about LGPD good practices in an engaging and motivating way.

These results suggest that gamification can be an effective approach to stimulate learning and adoption of LGPD best practices within the company. By making the process more attractive and interactive, the board game contributed to greater employee understanding and engagement with data protection policies.

Furthermore, the positive perception of employees regarding the game indicates that gamification can be a promising strategy to overcome difficulties in understanding and applying LGPD best practices. The fun and interactive experience provided by the game promoted a more engaging and effective learning environment, resulting in greater awareness and adherence to personal data privacy guidelines.

These results reinforce the importance of exploring innovative approaches, such as gamification, in the context of personal data protection. The successful application of this strategy can contribute to ensuring a solid organizational data protection culture, where employees are fully engaged and empowered to adopt and apply LGPD good practices.

4.4. Model for Corporate Gamification

The implementation of gamification strategies in companies requires structured planning that takes into account the specificities of the organization and the needs of employees. The model proposed in this study is based on the results obtained using the game "Data Privacy Defenders", applied to the research subjects. This model was developed with the aim of guiding organizations in the use of gamified tools to promote awareness and learning about personal data protection, as required by legislation such as LGPD, GDPR and LPDP.

Gamification, by incorporating game elements into corporate contexts, transforms traditional training into an interactive and engaging experience. The game "Data Privacy Defenders" is a clear example of this, as it uses playful scenarios to simulate real challenges related to data protection. Thus, the model presented seeks to ensure that the application of the game is effective, taking into account factors such as organizational objectives, prior knowledge of employees and necessary technological infrastructure.

This model is divided into fundamental stages that range from the initial alignment of gamification objectives to monitoring and continuity of the program. Each stage was designed to meet the specific needs of the internal audience, providing adapted and effective training. The use of metrics and real-time feedback during the process ensures that the gamification program continually evolves, meeting the demands of the organization and its employees.

In this way, the respective research also made it possible to propose a model for corporate gamification in which a specific tool for gamification, such as Privacy Defenders, used in the research subjects of this article, is possible. As a contribution to the community, the model is presented below in Figure 1:

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Figure 1: Enterprise Gamification Model for Data Privacy



Source: Own elaboration

The proposed model for corporate gamification begins with the Define Objectives stage, which is crucial for aligning organizational goals with the use of the “Data Privacy Defenders” game. At this

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point, it is necessary to establish clear metrics to assess the impact of gamification, such as increased knowledge about data protection, adoption of good practices, and reduction of errors related to the processing of personal information. This initial alignment ensures that gamification is directly connected to the results expected by the organization, maximizing its strategic value.

Next, the Know Your Audience stage plays an important role in personalizing the gamified approach. It is essential to map employees' current level of knowledge about data privacy and identify the different profiles present in the organization. With this information, it is possible to adjust the content and difficulty of the game to meet the needs of each group, promoting more effective learning. For example, new employees can receive introductory training, while those with greater familiarity face more complex challenges.

The Plan Game Integration step aims to ensure that the Data Privacy Defenders game is strategically incorporated into the training program. This includes creating a detailed timeline that covers all phases of the game, from introduction to progression, as well as integration with other company educational initiatives. This step ensures that gamification is not treated as a standalone element, but rather as part of a comprehensive training plan.

Preparing the infrastructure is essential for the success of the implementation. Ensuring adequate access to the gamified platform and training moderators or facilitators to monitor the game are fundamental steps. Facilitators play an important role in guiding employees through the gamified experience, answering questions and providing support, promoting fluid and productive interaction.

The Run the Game stage involves launching the Data Privacy Champion, usually through an initial workshop. This workshop introduces the game mechanics, its objectives, and its relevance to the organizational context, ensuring that participants fully understand the game's purpose. During the run, real-time monitoring allows you to track employee performance and identify areas that may require reinforcement or adjustments in the approach.

Finally, the Monitor and Adjust and Maintain Continuity steps ensure that the gamification program evolves continuously. Collecting feedback from participants allows you to identify areas for improvement and reinforce topics that have a lower level of understanding. In addition, gamification should be a recurring initiative, with regular updates to the game's scenarios and challenges. This continuity is essential to consolidate an organizational culture focused on privacy and data security, keeping employees engaged and aligned with legal requirements and market best practices.

FINAL CONSIDERATIONS

Personal data protection and compliance with the General Data Protection Law (LGPD) in Brazil, the Personal Data Protection Law (LPDP) in Angola, and the General Data Protection Regulation (GDPR) *in* Europe are issues of utmost importance for organizations today. Awareness and adoption of good data privacy practices are essential to ensure the security and confidentiality of individuals' personal information.

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In this context, gamification emerges as an innovative and effective approach to stimulate learning and application of data protection guidelines. Through the use of game elements, gamification engages participants in a playful and interactive way, promoting a deep understanding and greater adherence to LGPD good practices.

The game proposed in this study has as a differential a scenario similar to the business environment in which the LGPD is applicable, with characters that represent the parties involved, such as data subjects, companies and authorities.

In addition, the game addresses different situations that require compliance with the LGPD, such as data storage, policies and possible sanctions. In this way, players experienced in practice how to apply the law in different circumstances.

Another difference is the presence of cards that represent the elements provided for in the LGPD, as well as cases of compliance and non-compliance. This makes the game more challenging and encourages players to act with caution and responsibility in data management. This can contribute to learning and improving law enforcement.

The research findings highlight the importance of innovative approaches, such as gamification, in promoting a culture of personal data protection within organizations. By engaging employees in a motivating and immersive way, gamification overcomes barriers to understanding and engagement, enabling individuals to acquire practical knowledge and apply LGPD best practices more effectively.

However, it is important to highlight that gamification must be implemented ethically, ensuring transparency, informed consent and privacy of participants' data. Furthermore, gamification should not be seen as an isolated solution, but rather as a complementary strategy to other awareness and training measures.

By having the possibility in games and being able to simulate real life situations and being able to pay attention to different generations, we have the real opportunity to raise awareness among different social classes with entertainment and engagement of different generations, uniting experiences and experiences of different individual realities.

Another important fact is to provide families and Brazilian and international society with the opportunity to learn about security, protection, privacy, with national and international laws, OECD, WTO, LGPD, GDPR, RGPD, PIPEDA, Extrajudicial Methods of Conflict and Dispute Resolution - MESC, and other legislation.

Raising awareness early in learning will promote different behavior that will work unconsciously, unlike conventional learning methods that today need to be more dynamic and promote interaction with different sensory perceptions without losing the human relationship.

Finally, gamification emerges as a powerful tool to assist Data Protection Officers (DPOs) in raising awareness about data privacy. According to Woolwine *et al.* (2019), the application of gamified methods in healthcare orientation programs resulted in significant improvements in both employee motivation and knowledge retention. The authors highlighted that the use of games makes learning

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more efficient, as it creates neural and emotional connections with the content presented, facilitating the assimilation and practical application of knowledge (Woolwine *et al.,* 2019).

Therefore, gamification, with full scientific support, is a way of ensuring that different generations from different technological and economic moments can have the opportunity to interact with the different situations that legislation and life make available to better understand the real meaning of protecting the precious asset of life, its security and privacy.

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