



# Gamification in mobile applications for banking services in Spain

## *Gamificación en aplicaciones móviles para servicios bancarios de España*

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### **Abstract**

This study is based on identifying the incorporation of game elements in mobile applications of the Spanish financial sector, specifically a sample of 38 applications belonging to mobile banking, which come from the AppStore stores operating system iOS and Google Play operating system Android, excluding all those that do not belong to a banking entity such as PayPal, FinTonic, Mapfre, Plus500, Trading 212 Forex & Stocks, Carrefour Mobile Pass, and the taxonomy of game elements from Raftopoulos, Walz and Greuter (2015) organized in purpose, audience, technological strategy, play experience and game mechanics. The results demonstrate that the purposes of such applications are to foster customer loyalty by presenting operational solutions and portfolio synchronizations. The audience is oriented to an age profile between 26 and 35 years, while the technology strategy responds primarily to the adoption of security and privacy systems. In addition, the ludic experience is gradually adopted by the mobile communication of banking entities, especially in socialization, personalized configuration of the central panel. Finally, the mechanics most used are the collection of rewards and application of mechanics of progression.

### **Resumen**

Este estudio se basa en identificar la incorporación de elementos de juego en aplicaciones móviles del sector financiero español, específicamente se recoge una muestra de 38 aplicaciones pertenecientes a la banca móvil, que provienen de las tiendas AppStore del sistema operativo iOS y Google Play del sistema operativo Android excluyendo todas aquellas que no pertenecen a una entidad bancaria como es el caso de PayPal, FinTonic, Mapfre, Plus500, Trading 212 Forex & Stocks, Carrefour Pass Móvil, y se le aplica la taxonomía de elementos lúdicos proveniente de Raftopoulos, Walz y Greuter (2015) organizado en propósito, audiencia, estrategia tecnológica, experiencia lúdica y mecánicas de juego. Los resultados demuestran que los propósitos de tales aplicaciones es fomentar la fidelidad del cliente, presentando soluciones operativas y sincronizaciones de carteras. Por su parte, la audiencia se orienta a un perfil de edad ubicado entre 26 y 35 años, mientras que la estrategia tecnológica responde primordialmente a la adopción de sistemas de seguridad y privacidad. En complemento, la experiencia lúdica va paulatinamente adoptándose por la comunicación móvil de las entidades bancarias, especialmente en cuanto a socialización, configuración personalizada del panel central. Por último, las mecánicas más utilizadas son la recolección de recompensas y aplicación de mecánicas de progresión.

### **Keywords | Palabras clave**

Software application, Bank, mobile communication, Spain, financial institutions, game.

Aplicación software, banco, comunicación móvil, España, instituciones financieras, juego.

## Introduction

The National Institute of Statistics (2015) states that 96.7% of Spaniards have a mobile phone, while 22.7% of those who use the internet have carried out activities connected to the management of bank accounts. Additionally, Ditrendia (2015) shows that about 15 million Spaniards have adopted the use of mobile banking to manage their finances. Projections about these services estimate that by 2020, smart mobile phones will be responsible for 80% of the banking market.

In December 2009, Caixabank was the first financial entity in Spain to join digital distribution platforms such as AppStore, Android Market (now known as Google Play), and Blackberry's App World, integrating among its functions the checking of balance sheets, transfers, account management, agency location, and customer service. Almost four years later, in December 2013, the first mobile application from a Spanish bank that allowed payment was made. It should be noted that the payment service was managed through an application other than the main application, that is to say, BBVA, a pioneer in this service, had an application dedicated to consultation and banking management, and introduced the application BBVA Wallet complementarily, thus allowing for contactless payments through mobile phones. In doing so, they opened a new field of action for banks to explore. Subsequently, entities such as Caixabank, Bankia, Banco Sabadell, and Banco Santander joined this trend.

According to Rodrigues, Costa and Oliveira (2014), electronic banking, including mobile banking, has been experimenting with the insertion of game elements, in other words, the creation of a gamified electronic banking intended to increase the fidelity, time and number of transactions performed by clients.

## Mobile banking

Mobile commerce, m-commerce, is presented as an extension of electronic commerce that has provided greater flexibility and mobility in localization, quality control and investment services (Varshney, 2008). Among the reasons for this progress is the widespread penetration of mobile phones in the market, together with the overall stability of mobile communication technologies and the positive experiences that derive from its commercialization (Mallat, Rossi, & Tuunainen, 2004). M-commerce has made mobile solutions applicable to a variety of financial services, most of which have experienced major changes in recent years. The banking sector is in one of the leading industries in terms of adoption and

use of mobile technology in financial services, generating new added value for customers by reducing costs and improving the quality of interaction channels (Pousttchi, & Schurig, 2004; Laukkanen, 2007).

Luo, Li, Zhang and Shim (2010) define mobile banking as an innovative method for accessing banking services, one where the customer interacts with the bank through a mobile device. Among its advantages are timelessness, ubiquity, and low rates, which allow users to access multiple banks, accounts, and financial services from anywhere at any time (Karjaluoto, 2002). In short, the progressive shift towards the use of mobile devices has opened an opportunity that European banks have sought to monetize (Gjino, & Ilollari, 2014).

Among the differentiating factors that have been integrated to enhance the profitability of mobile banking, one should note things such as gamification, big data, cloud computing, mobile robots, predictive analytics, voice recognition software, among others (Maldonado, 2013). Gamification, in particular, has demonstrated a positive influence on client satisfaction and the perceived utility of the service (Rodrigues, Costa and Oliveira, 2014).

## Gamification

In the field of new technologies, the European scenario has made itself notable through Horizon 2020, a research and innovation program that revolves around the topic: Advanced digital gaming / gamification technologies. This program is intended to develop new methodologies, tools, and scientific evidence in digital non-play scenarios for the benefit of governments, businesses, and individuals.

Every social phenomenon that has an effect on people, as is the case of gamification, is built upon principles that support its actions. In this particular case, five classifications that focus on different perspectives can be identified. Pre-gamification principles, gamification principles, principles for gamification processes, and principles for optimizing gamification. Consequently, we can distinguish the concepts coined by Coonradt and Nelson (2007), which were developed before the term gamification was formalized; those expressed by Ivanovna (2013) to adapt gamification to contemporary society; the six principles of efficient user-oriented gamification, by Marache-Francisco and Brangier (2013); and the implementation of gamified frameworks at work, as studied by Opreescu, Jones and Katsikitis (2014).

Coonradt and Nelson (2007), before the term gamification existed, determined five principles that motivate recreation within work environments:

1. Clearly defined goals: This principle states that goals must be written. Each person must commit to achieving their own goals so that a collective benefit can be obtained. Goals must be positive, measurable, realistic, achievable and specific. Goals should be visible, as are the points. Goals must have a due date and should produce changes in the personality of the people involved. Finally, goals should have complementary benefits.
2. Improve the measurement of points and scorecards: The measurement of points must be objective and simple, self-administered but audited by its peers, seek to be dynamic, and allow for personal comparison with one's past performance.
3. Frequent feedback: It reinforces behaviors that must be repeated. The appropriate amount of feedback is determined by the receiver. The ability to provide feedback is one of the most important skills to be developed, as the person giving the feedback is always in control. It is better to offer negative feedback than to offer no feedback at all.
4. A greater degree of personal choice: The sense of autonomy is important for every human being, since it reinforces positive attitudes and the power of choice. Goals can be determined by another person, company, etc., but the manner in which they are achieved must be determined in a purely personal manner.
5. Constant training: Training should include continuous feedback, avoid changing the rules in the middle of the game, assure the persistence of ideas, and foster a positive feeling towards an institution, brand, or organization.

Coonradt and Nelson (2007) based their studies on sports games in order to understand and implement game dynamics that would motivate and entertain people in professional settings.

Almost twenty years later, Ivanovna (2013) argued that the immanent characteristics of a game that relies on the development of new technologies should be the primary foundations for determining the basic principles of gamification. These characteristics are: voluntary participation, freedom, experiences that produce strong emotions, and escape from reality through an illusory world with its own particular rules and different

scenarios. Games are built upon processes of self-sufficiency in which they tend to favor intrinsic motivation over extrinsic motivation.

According to Ivanovna (2013), these would be the current components of new technologies that support games:

- **Interactivity:** Online interaction has produced a system of cooperation that includes both objects and subjects within the network of a communicative space. Game elements have served as an interaction mechanism because they direct the user's activity towards a purpose where simultaneity is vital.
- **Screen phenomenon:** The process of digitization in the context of information transmission has allowed signals to be emitted in real time; combining sounds, images, texts, etc. This creates a sense of belonging.
- **Virtuality:** The development of new technologies has allowed for voluntary behavior to be harnessed in order to achieve mandatory goals within a virtual existence where game mechanics are used to solve real problems.

Ivanovna (2013) considers that the principle on which gamification must be built upon is obtained through the combination of game mechanics and media recognition. According to Ivanovna's position, this can create specific emotional experiences in the players. Consequently, if the media recognizes the value of game mechanics and adopts them, interactivity can be achieved on different platforms without resorting to changes in gameplay. In other words, what she proposes is that transmediality is the fundamental principle of gamification.

According to the analysis carried out by Marache-Francisco and Brangier (2013), every gamification process needs to specify a series of principles that efficiently guide the experience of users. These principles have something uniquely particular to them: a macro view of the process. They do not seek to articulate the elements of gamification in the same manner as the other four taxonomies, but contain a general basis, very similar to that used in business Know How:

- **Freedom of choice:** Give the user the freedom to act voluntarily, allowing him or her to deactivate certain functions and participate in the gamified experience.
- **Benefits and significance:** The influence of gamification should be relevant for creators and users through components that motivate both

groups. Otherwise, the use of the system will not generate any influence; therefore, no benefits will be obtained.

- Personalized experience: The system must act on different user profiles to trigger behaviors that demonstrate general acceptance.
- Long-term interaction: Interactions change, so it is important to account for motivational theories.
- Unwanted side effects: Inducing stress, the feeling of lack of credibility and privacy, and subjective rewards are factors that can act against gamified systems.
- Legal and ethical issue: There is a legal framework regarding data, privacy, and user interests that must be respected.

These principles contribute to the possibility of implementing a gamification process that safeguards the interests of all those involved. Regardless of commitment and initial willingness of the users, the process must be the same for all.

From another perspective, Oprescu, Jones and Katsikitis (2014) adapt gamification to work environments. We know a priori that the context within which these principles are implemented supposes a general departure from the conventional approach. However, after reviewing them, what they call work does not necessarily imply a company or an office, but organizations and public administration. Then, according to Oprescu, Jones and Katsikitis (2014), the increase in productivity and profits is proportional to the favorable behavioral disposition of people regarding the achievement of a common goal. Such goal is not static, so it can involve social needs.

In this case, there are principles for educational environments, schools, universities, and other educational spaces which can be useful to motivate both students and teachers, improving the performance of both groups.

Building upon the ideas proposed by Coonradt and Nelson (2007) at the inception of gamification; Ivanovna (2013) regarding the context of gamification; Marache-Francisco and Brangier (2013) regarding the principles of effective gamification; Oprescu, Jones and Katsikitis (2014) regarding gamification in work environments; Gartner's Hype Cycle (Rivera and Van der Meulen, 2014) presented gamification as an emerging technology projected to have significant advancement in a timeframe of 2 to 5 years. A year later, gamification had disappeared from this cycle. This omission occurs because gamification moved from being an emerging

technology to a fixed technology within the productive sector. Currently, the most commonplace definition within academic environment refers to the use of game design elements in non-play contexts (Deterding, Dixon, Khaled and Nacke, 2011).

In other words, gamification is conceived as the process of using gaming elements in unconventional areas, including the financial market. In fact, disciplines such as business administration and marketing seek to appropriate the term, getting it closer to their respective fields of study. Zichermann and Linder (2013) add a mercantilist perspective, conceptualizing gamification as the implementation of game design concepts, loyalty programs, and behavioral economy. Furthermore, Huotari and Hamari (2012) transfer the idea of gamification to marketing and advertising, defining it as the process of improving a service through the development of gamified experiences aimed at supporting the creation of total user value.

Generally speaking, gamification focuses on the behavior of people, using persuasion to prolong their participation within a specific area ([Werbach & Hunter, 2012](#)). However, in the case of companies, it is a strategy to retain customers, to maintain their interest in certain products and services, and to reward their commitment to the brand or, as Moïño (2013) establishes, to improve employee productivity or influence the behavior of customers in order to generate real benefits for the company. On the other hand, when it comes to seeking social welfare and meeting the needs of society, the goal of gamification changes radically, as it focuses on increasing the commitment and motivation of people towards performing and understanding certain activity (Landers & Callan, 2011; Simões, Redondo & Fernández-Vilas, 2012). However, even with new technologies, social dichotomy remains. Companies still strive for the accumulation of wealth, while others seek to optimize social wellbeing.

Deterding, Dixon, Khaled and Nacke (2011) pointed out that, according to game designers, gamification is to add points, medals, and scoreboards to the mundane activities of users. This perspective has defined gamification in terms of the mechanics related to reward systems, to the point that Zagalo and Oliveira (2014) called it Pointsfication, referring to the use of points as a priority mechanic. While it is true that points, medals, and scoreboards are part of gamification, they are not the only fundamental elements. As a matter of fact, current literature suggests that gamification comprises a series of elements within several taxonomies, as stated by Robinson and Bellotti, (2012); Thiebes, Lins and Basten,

(2014); [Werbach and Hunter, \(2012\)](#); and [Zichermann and Cunningham, \(2011\)](#). This poses a dilemma in terms of academic research, as these taxonomies often contradict each other, mixing gamification elements with game design (Reeves & Read, 2009), and often applying such concepts in a manner arbitrarily fitting to their specific research topics (Rai & Beck, 2012; [Dubbels, 2013](#)). Despite this, the taxonomy presented by Raftopoulos, Walz, and Greuter (2015) explicitly covers mobile technology and companies involved in the financial sector.

### Materials and methods

The purpose of this research was to identify gamification elements in mobile applications developed by banks in Spain. Each application was downloaded and analyzed from December 10, 2016, up to January 10, 2017, following the taxonomy of gamification proposed by Raftopoulos, Walz and Greuter (2015). This allowed for an assessment of the insertion levels of gamification in mobile banking.

The sample was calculated by accounting for a pool of the 500 most downloaded free mobile applications in the finance category. Thereafter, those applications with a confidence level of 95% within a  $\pm 1$  range were taken into account, resulting in 38 applications from the AppStore in the iOS operating system, and Google Play in the Android operating system, excluding all those that did not belong to a banking entity, such as PayPal, FinTonic, Mapfre, Plus500, Trading 212 Forex & Stocks, Carrefour Mobile Pass, Verse, among others.

**Table 1. Mobile application sample and ranking within their respective stores**

N°	Mobile application	Position in AppStore	Position in Google Play	Release date
	CaixaBank	1	1	2009
	BBVA   Spain	2	2	2010
	Santander	3	6	2010
	CaixaBank Pay	4	5	2016
	ING DIRECT Banca	6	13	2014
	Banco Sabadell	7	4	2010
	Bankia	9	7	2010
	BBVA Wallet	10	12	2013
	Twyp Cash	11	8	2016



Nº	Mobile application	Position in AppStore	Position in Google Play	Release date
	Santander Wallet	13	23	2015
	Línea Abierta Caixa	15	19	2013
	Ruralvía	16	17	2012
	WiZink	17	39	2016
	Banco Popular Español	18	14	2016
	ReciBox Caixa	19	22	2013
	Twyp ING Group	21	11	2015
	Sabadell Wallet	22	46	2016
	ABANCA	23	27	2009
	Cajamar	24	33	2011
	imaginBank -Caixa	25	44	2016
	Kutxabank	26	16	2014
	UnicajaMóvil	27	32	2012
	Ibercaja	28	20	2012
	Bankia Wallet	30	24	2014
	EVO Banco Móvil	31	45	2012
	Bankintercard	32	47	2016
	Bankintermovil	33	35	2016
	KutxabankPay	35	50	2016
	BBVA net cash	36	63	2013
	BMN Banca Online	37	38	2012
	Ruralvía wallet	38	42	2016
	IKEA VISA-Caixa	39	66	2015
	CajaSur	41	29	2014
	EspañaDuero Móvil	44	52	2013
	OpenBank. Santander	46	43	2011
	Santander Empresas	47	96	2015
	Santander Money Plan	49	61	2016
	Banca Online Liberbank	50	40	2013

Source: App Annie. December 10, 2016.

The taxonomy suggested by Raftopoulos, Walz and Greuter (2015) establishes five central elements:

- Purpose: Customer loyalty, sales and promotion, education and recruitment, innovation and problem solving, common good and development, and staff productivity and morale.

- Audience: Internal personnel, customers, suppliers, specific communities, and the general public.
- Technological strategy: Digital game, digital simulation, sales platform, customized platform, simple modification of the product's characteristics, significant modification of the product's characteristics, gamified experiences with basic levels of technology, and gamified experiences with high levels of technology.
- Play experience: Territory acquisition, prediction, survival, building, capture and evasion, exchange, problem resolution, socialization, space navigation, destruction, gathering, and competition.
- Game mechanics: Comparative standings, success, recognition, points, experience, missions, real and virtual goods, medals and trophies, prestige, progression, and narrative.

### **Analysis and results**

Even though 100% of the applications promote customer loyalty, since in order to access the application, the user needs to have an account and be registered in the bank; a total of 29 applications (76%) from the selected sample were focused on innovation and problem solving, allowing users to locate banking agencies and ATMs, perform transfers, buy mobile data, request customer service, and immediately check payments and receipts. This means that more than half of the applications were intended to simplify bank operations and optimize the user's time.

Consequently, sales and promotion rise as some of the most common purposes in these applications (24%) due to the synchronization of electronic portfolios from different banking entities with the user's credit and debit cards. Users often receive exclusive offers when making payments through these channels, in addition to other benefits.

The entirety of users for this type of applications is comprised of bank clients that desire to perform banking operations through their mobile phones. According to Ditrendia (2015), 91% of Spaniards aged between 26 and 35 use cell phones frequently and possess a consumer profile prone to downloading these applications.

100% of the sample is comprised of software designed for contemporary mobile devices that support security and privacy systems such as SSL data encryption, PIE & Stacks protection, OTP, among others. They also support geolocation technology, also known as LBS, to locate ATMs and agencies, and to activate the functionality of the mobile portfolio, which

also has NFC (Near Field Communication) that allows remote payments. On the other hand, there are applications that need constant updating, 21 of the 38 applications were updated in December 2016, while Banco Santander, Kutxabank, Evo Banco Móvil, and Santander Empresas have already been updated during the course of this study, in January 2017. Santander, Kutxabank, Ibercaja, CajaSur, Banco Popular and Cajamar allow clients to calculate bonuses, interests, mortgages, insurance, pension plans, investment funds, among others.

In sum, there are three elements that lead to a gamified experience: socialization (100%), construction (36%), and collection (18%). The socialization is presented through three modalities, customer service (offered by the banking entity), contact lists that allow transactions to be made between contacts, and social networks that share commercial information. The term construction refers, in this context, to the customized configuration of products and services, modifying the manner in which the client visualizes and manages their experience. The following entities currently use this technology: Ibercaja, Santander, ING DIRECT Banca, BBVA, CaixaBank, Banco Popular, Banco Sabadell, Cajasur, Espanadero Móvil, Sabadell Wallet, Cajamar, BMN Banca Online, IKEA Visa-Caixa, and Santander Money Plan. Regarding collection as a gamified experience, the implementation of reward systems within the application is required. The banking applications that explicitly use this element are: Unicaja, WiZink, CajaSur, Movable Mobile Phone, Online Banking Liberbank, Kutxabank, and Bankintercard.

In this section, 26% of the mobile applications, represented by Unicaja, Ibercaja, Evo Banco Móvil, Wizink, Recibox Caixa, IKEA Visa, Ruralvía, Caixabank Pay, ImaginBank-Caixa, and Santander Wallet, use the progression mechanic as an instrument to display the payment of credits, credit balance, rent, and expense forecasts. Additionally, 15% of these applications offer a point system that rewards users with discounts, offers, and gifts. The following entities use this feature: Unicaja. BMN Online Banking, Mobile Internet, Online Banking Liberbank, CajaSur, and Bankintercad. Finally, and in a more innovative manner, the Evo Banco Móvil application integrated an investor scoreboard.

## Conclusions and discussion

According to Romero-Rodríguez, Torres-Toukourmidis and Agüaded (2017), gamification is a catalyst for social change, since it adds an interac-

tive and transversal dimension to certain experiences. Therefore, and taking the data analyzed by this research into account, it is safe to say that the Spanish banking entities (including both traditional banks such as Banco Santander, Banco Popular, BBVA, and CaixaBank, and newly established banks such as Liberbank, Evo Banco, and KutxaBank) use gamification in their mobile applications. Now, in order to increase customer loyalty and expand an entity's influence within audiences between 26 to 35 years of age, three elements of the gamified experience must be considered. The first element is socialization. It pertains to customer service, transfers between people within the user's contact list, and commercial communication through social networks. The second element is construction, which refers to the customized configuration of products and services, modifying the manner in which the client visualizes and manages their experience. Finally, the third element is collection, which accounts for search and access based on reward systems. Although the results show that the implementation of these elements within business practices is still embryonic, the progressive digital transformation of the Spanish banking sector projects gamification as one of the most effective trends for the next decade (Gutiérrez-Rubí, 2015).

This research offers an opportunity to diagnose the patterns under which gamification is used within the banking sector, measuring its effects and effectiveness on the clients. Additionally, future researchers should be advised to account for the aesthetic factor of the aforementioned elements, as it was omitted in the taxonomy presented by Raftopoulos, Walz, and Greuter (2015), and yet plays an important role in navigating the interface of mobile banking (Rodrigues, Costa, & Oliveira, 2014).

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