

Master Degree in Accounting and Taxation

Title: Analysis of the accounting and tax treatment of in-game virtual currencies in Spain.

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Academic Year: 2023-2024

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SUMMARY

This paper addresses the existing need for information on the accounting and tax treatment under Spanish regulation and IFRS of unidirectional flow currencies, which have become key revenue drivers of an expanding video game industry. Through meticulous analysis of the accounting regulations, it determines that under both standards, the purchase of virtual currency does not constitute an independent obligation and should be treated as a non-refundable customer deposit. Revenue should be recognised based on the characteristics and usage patterns of the acquired items. Corporate income tax requires no adjustments if the outlined framework is followed. Virtual currencies are categorised as vouchers for VAT, with taxation based on the ability to determine the tax accrued at issuance. The outlined treatment was validated with the accounts of real video game companies adhering to IFRS.

Keywords: In-game virtual currency, Unidirectional flow virtual currency, Single-purpose vouchers, Multi-purpose vouchers, Spanish General Accounting Plan (*PGC*), International Financial Reporting Standards (IFRS), Value-Added Tax (VAT/IVA).

RESUMEN

Este documento aborda la necesidad existente de información sobre el tratamiento contable y fiscal bajo la regulación española y las Normas Internacionales de Información Financiera (IFRS) de las monedas virtuales de flujo unidireccional, que se han convertido en impulsoras clave de los ingresos de una industria de los videojuegos en expansión. A través de un análisis meticuloso de las regulaciones contables, se determina que bajo ambos estándares, la compra de moneda virtual no constituye una obligación independiente y debe tratarse como un depósito no reembolsable de clientes. Los ingresos deben reconocerse en función de las características y los patrones de uso de los elementos adquiridos. El Impuesto de Sociedades no requiere ajustes si se sigue el marco delineado. Las monedas virtuales se clasifican como bonos para el Impuesto sobre el Valor Añadido (IVA), con una tributación basada en la capacidad para determinar el impuesto devengado en la emisión. El tratamiento delineado fue validado con las cuentas de empresas de videojuegos reales que siguen las IFRS.

Palabras clave: Moneda virtual de juegos, Moneda virtual de flujo unidireccional, Bonos univalentes, Bonos polivalentes, Plan General de Contabilidad (*PGC*), Normas Internacionales de Información Financiera (IFRS), Impuesto sobre el Valor Añadido (IVA).

RESUM

Aquest document aborda la necessitat existent d'informació sobre el tractament comptable i fiscal sota la regulació espanyola i les IFRS de les monedes de flux unidireccional, que s'han convertit en impulsores clau dels ingressos d'una indústria de videojocs en expansió. Mitjançant un anàlisi meticulós de les regulacions comptables, es determina que sota ambdós estàndards, la compra de moneda virtual no constitueix una obligació independent i s'ha de tractar com un dipòsit no reemborsable de clients. Els ingressos s'han de reconèixer en funció de les característiques i els patrons d'ús dels elements adquirits. L'Impost de Societats no requereix ajustos si es segueix el marc delineat. Les monedes virtuals es classifiquen com a vals per a l'IVA, amb una tributació basada en la capacitat per determinar l'impost meritat en l'emissió. El tractament delineat va ser validat amb els comptes de companyies de videojocs reals que segueixen les IFRS.

Paraules clau: Moneda virtual de jocs, Moneda virtual de flux unidireccional, Vals univalents, Vals polivalents, Pla General de Comptabilitat (PGC), Normes Internacionals d'Informació Financera (IFRS), Impost sobre el Valor Afegit (IVA).

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I – INTRODUCTION

Archaeological findings, such as dice from 3,000 BC and game boards from 7,000 BC, offer compelling evidence that games have been an integral part of the human experience for thousands of years across very different cultures and civilisations (Masukawa, 2016).

Nowadays, we are not so different from our ancestors, and playing is still a fundamental part of our culture, especially in the early stages of development during childhood. Perhaps the biggest transformation in this ancient form of entertainment since its inception has been the development of video games. While the core idea often resembles the traditional form, they have revolutionised how we play by making gaming more affordable, accessible, and varied.

Cambridge Dictionary (n.d.) defines a video game as “a game in which the player controls moving pictures on a screen by pressing buttons”. While simplistic, and not academic in nature, it helps in pinpointing the two key defining elements of video games. The first one is that they are played on screens, which differentiates them from traditional card or board games that require specific physical support, often plastic or paper. The second one is interactivity, they require input from players, which differentiates them from VCR games that consisted of pre-recorded videos where a narrator guided players or provided clues without any feedback and were usually accompanied by a physical board. And although video games have changed massively from the first pixelated and not very complex experiences of the 1960s, to the almost photorealistic games of today, this definition has remained constant. (Wolf, 2008)

Apart from entertainment or passing time, people turn to video games for a wide variety of reasons. Some use it to relieve stress or escape reality, while others use it to challenge themselves or feel accomplished. There are those who want to experience being someone else, explore exciting new worlds, or live incredible adventures. Many more play video games for their social element, to meet new people, to maintain existing relationships or to be part of a community. (Yee, 2006; Clement, 2022)

1.1 The Video Game Industry

These factors have enabled the video game industry to flourish. In fact, according to Richter (2022) from Statista, in 2021, at \$192.7 billion in global revenue, they eclipsed that of books (\$120.1bn), filmed entertainment (\$99.7B) and recorded music (\$25.9bn).

Recently, the industry has undergone significant revenue growth, especially in the past five years, where according to most estimates, as illustrated in Figure 1, it has nearly doubled,

approaching \$200 billion per year. To contextualise, as reported by Nakamura (2019) and published by Bloomberg, since the first arcades in the early 1970s, it took the industry almost 35 years for its revenue to reach \$50 billion.

Annual reports from Trenker (2022) in Statista and Newzoo International B.V. (2019-2022), a major player in the video game industry’s market analysis, shine a light on this remarkable revenue growth. As depicted in Figure 1, despite differing estimates, a clear upward trend is easily notable in both companies’ data, with both predicting further future growth.

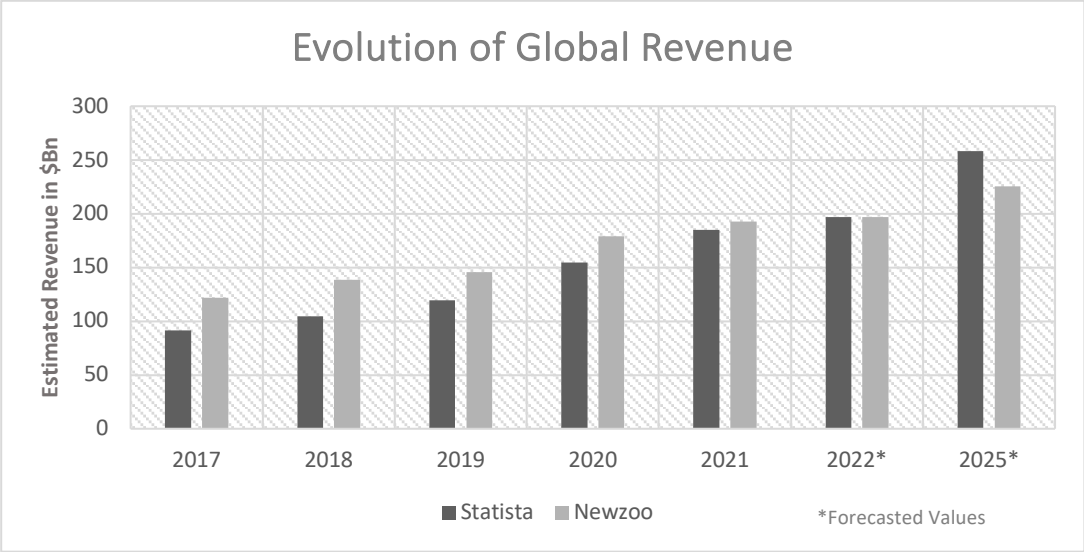


Figure 1: Evolution of the global video game industry revenue according to Trenker in Statista and Newzoo International B.V.. Sources: Trenker (2022) and Newzoo International B.V. (2019-2022).

Furthermore, this growth has been global, with over 53% of players coming from the Asia-Pacific Region and 80% of total users being from outside Europe and North America (Newzoo International B.V., 2023).

Revenue in the video game industry is usually generated under two main models (Kerr, 2017):

- “Pay to download or play”: players pay once for the game and can play it for as long as they wish without any additional payment. For companies, it means that revenue is obtained only as a one-time payment from each customer, and for most game titles, these are concentrated in the first weeks after release.
- “Free to play”: players can start playing the game for free, without making any payments, but are instead incentivised to purchase in-game items or services, also known as microtransactions. For companies, while the monetary value of most individual transactions is lower compared to the “pay to download” model, the potential user base is wider, and the game can generate revenue for a longer period.

While these two models serve as a basic framework, the industry is constantly evolving. “Pay to download” games have grown to occasionally include microtransactions or sell additional downloadable content (DLC). Conversely, other forms of monetisation, such as subscriptions or advertisements, have appeared in both models. Despite these limitations, the categorisation is essential to understand the magnitude of the issue that is discussed in this paper.

In fact, according to the Newzoo International B.V. (2023) report for 2023, one of the main key drivers of the video game industry’s revenue expansion has been the popularisation of the smartphone. In 2023, mobile games accounted for 49% of the industry’s total revenue, reaching \$92.6 billion that year. Furthermore, 97% of the revenue from mobile platforms was generated by games employing the free-to-play model, contrasting sharply with the 3% under the “pay to play” model.

This data underlines the significance of microtransactions or in-app purchases within the most widespread platform, and how much they contribute to the entire industry, even while they only account for 27% of the revenue for consoles.

A common practice that often accompanies microtransactions, especially in mobile games, is the use of virtual currencies. It entails the conversion of a real currency such as euros or US dollars to a fictional one such as gold or gems before making an in-game purchase. Remarkably, all the top-grossing mobile games of 2022, according to Zandt (2023) in Statista, employed such practice. The underlying reasons are diverse and will be addressed later in this paper.

1.2 What are Virtual Currencies?

The European Central Bank (2012), in a report about virtual currencies and their impact on the economy, described them as “a type of unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community”.

It is generally agreed upon that money serves three primary functions: a medium of exchange, a unit of account, and a means of storage. Most virtual currencies do fulfil the requirements, as they enable users to trade them for goods or services, albeit virtual in most cases, they are used to set prices and value transactions, and finally, they retain their purchasing power over time, although they are constrained to their respective virtual worlds. (Yamaguchi, 2004).

1.2.1 Differences with Real Currencies

Virtual currencies usually exhibit some key differences when compared to what academic papers on the topic refer to as real or conventional currencies, such as the euro, the US dollar, or the yen. It is crucial to emphasise that, as addressed later in this text, not all virtual currencies share the same characteristics.

For example, in his paper, Yamaguchi (2004) points to two main differences: the absence of a central bank and the lack of interest rates. Virtual currencies in video games are typically issued by the game companies, who maintain limited control over the monetary supply. This is because the players are the ones who may determine the balance by activities such as completing quests, killing monsters, or purchasing virtual currency with real money, effectively increasing the monetary supply. But also, by how they save or spend their money. This last point presents another key difference, as purchases of items with virtual currency in video games are usually done directly to the company rather than to other players, which instead of circulating the currency, may take it out of circulation, reducing the overall monetary supply.

However, developers can in fact implement a form of monetary policy by reducing or increasing the rate at which in-game currency is generated, by modifying mission rewards, altering prices, or introducing new items. To control inflation, it is a common practice in video game design that while the pace at which a player can earn and save currency increases with their play time, the prices of the items that are in line with their level, also rise accordingly.

Additionally, the report from the European Central Bank (2012) on virtual currencies, also highlights the lack of traditional institutions such as a central bank or a physical counterpart, also remarking on the absence of a distinct legal framework. Virtual currencies are typically not extensively regulated by law, which often implies that financial sector regulation and supervision do not apply to them.

1.2.2 Types of Virtual Currencies

In the report, the European Central Bank classifies virtual currencies into three categories depending on their relationship with traditional currencies. This classification has been widely used in posterior research on the topic.

- Closed virtual currencies: They do not interact with the real economy; they cannot be purchased with legal tender and can usually only be earned by activities such as playing or completing tasks/quests. They can only be spent on virtual goods and services.

This type of currency is the most basic and it appears in the majority of games that feature an in-game economy, especially on older or single-player titles. A clear example is any game that includes a feature where players can acquire resources from killing monsters or completing objectives and sell them for gold to get upgrades.

- Unidirectional flow virtual currencies: They can be purchased with legal tender from the issuer at a rate set by them, but they cannot be converted back. The developer may also enable users to earn some of it through in-game activities or tasks. They usually only enable players to acquire virtual items or services, but in some rare cases, they may be used to purchase real goods and services.

This type appears on massively popular games such as Electronic Arts Inc's (2023) "FIFA" franchise with "FIFA points" or Epic Games Inc's (n.d.) "Fortnite" with "V-Bucks", all of which can be purchased with real currency.

- Bidirectional flow virtual currencies: They can be purchased with legal tender and later converted back. Normally, they can be used for both real and virtual items and services.

This approach is relatively uncommon within the traditional gaming industry, with the exception of games like "Second Life" or "Entropia Universe". However, it has garnered increasing attention in recent times, particularly thanks to the emergence of crypto games like "CryptoKitties" and "Gods Unchained". These titles allow players to purchase and trade in-game items using cryptocurrency, which can be converted into real-world currency (Scholten et al., 2019).

Certain games, such as the popular Multiplayer Online Battle Arena (MOBA) game "League of Legends", may use more than one type of currency. In this case, the game operates under a dual-currency system consisting of "Blue Essence", a closed virtual currency attainable through in-game activities like completing missions and playing the game, and "Riot Points" (RP), which fall under the unidirectional flow virtual currency model, as they require real-world currency for acquisition. While there is a degree of overlap in the items each currency can obtain, premium content is typically reserved for purchase with RP. (Riot Games Inc., 2024)

1.3 Why are In-game Currencies used?

At their essence, virtual currencies often make sense because they align with the theme of the game. For example, in a pirate game, where players are on an epic adventure at sea, using real-world currencies like euros would disrupt the game's atmosphere.

Nonetheless, video games have the capability to implement a dual-currency system, allowing the use of both in-game and real currency to purchase virtual items. So, why do most games require players to convert real money into virtual currency before buying items instead of offering direct purchases?

First, it is important to understand that microtransactions are widely used by video game developers and publishers as an additional source of income and a complement to advertising and selling revenue. In fact, a study by Guo et al. (2019), analysed how player behaviour changed when the option to purchase in-game currency was presented. Their findings suggest that the introduction may potentially result in a win-win situation for both the game companies and players, as it often leads to higher total revenue and a higher player welfare per unit of time spent in-game. Although the article may be more focused on the use of microtransactions than virtual currency specifically, the real effect may be extremely dependent on game design.

Hamari et al. (2017) identified in their paper that some games introduced artificial barriers to progression or nuisances, such as cooldowns or items that degraded with use, only to incentivise players to spend money to circumvent them. This approach worsened the experience for most players while increasing the willingness to play for some. Therefore, as the authors observed, it is essential for developers to balance these mechanics with the level of nuisance, to not inconvenience players to entirely give up on the game.

Similar to microtransactions, the preference of video game developers to use virtual currencies instead of real ones is heavily focused on increasing revenue. The advantages they present are wide-ranging.

For instance, the report from the European Central Bank (2012) highlighted some of them, such as the creation of a lock-in effect for users, the attribution of real value to the virtual currency or the ability to simplify the purchasing process, as users do not have to introduce their information every time they want to make a purchase. Furthermore, it also gives game developers effective control over the currency.

Other authors, such as Scholten et al. (2019), remark that one of the main features of virtual currencies is that they are used to obscure the real value of items by using conversion rates that do not permit players to intuitively estimate the cost in real currency. Therefore, it makes users establish a mental separation between in-game and real currency in their purchasing decisions.

Additionally, most of the games only enable players to buy currency in certain fixed denominations, such as multiples of 5 or 10, which by design leads to them overspending and having leftover currency, especially as the pricing model usually makes just paying for an item impossible. Moreover, companies normally offer better conversion rates when acquiring larger quantities of virtual currency, encouraging players to spend more. Some even use data to adjust prices according to the users' willingness to pay. (King et al., 2019)

Finally, using virtual in-game currencies rather than real ones may serve, in certain jurisdictions, as a method to potentially evade certain legal implications of actions such as giving players money as a reward or providing refunds. In fact, the paper by King et al. (2019) analysed the terms of service and user agreements related to in-game purchasing of the top gaming companies and found the following:

- Refund policy: All analysed companies stated that sales were final, none offered refunds as a general policy.
- Value of virtual goods: Virtual currencies and goods have no value and users will not be compensated for any losses.
- Ownership of virtual goods: Users have a limited, non-exclusive, and revocable licence to play the game. The purchase of virtual goods is to be considered as an extension or additional feature of these licences; users have no ownership over the goods. Furthermore, they are understood as being received "as is".

II – OBJECTIVE

Given the widespread adoption of virtual currencies and their weight on the industry's revenue, it is crucial for companies, auditors, and regulators to properly understand how to manage them from an accounting and tax perspective. Nonetheless, at the present moment, this can present a challenge, especially given its novelty and the lack of reliable information and guidance available on the topic.

The basic issue is that companies are essentially selling what may appear to be an in-game virtual asset (e.g. coins) in exchange for real currency, that players can then use to acquire other in-game virtual assets and services (e.g. weapons). This presents a significant challenge in terms of accounting and taxation, especially concerning revenue recognition and Value Added Tax. Furthermore, video game developers may choose to give out these currencies as rewards, which may have accounting and tax implications.

Therefore, the objective of this paper is to fill this void by analysing both the accounting and tax treatment of virtual currencies, with the aim of creating a comprehensive framework that can be applied in real cases and contribute to further developing the literature on the subject.

The focus is going to be on the Spanish *Plan General Contable* (PGC) and the International Financial Reporting Standards (IFRS) for accounting, and on Spanish Value-Added Tax and Corporate Income Tax in terms of taxation.

Nonetheless, as the topic can be very extensive and complex, this paper is going to centre on a specific type of virtual currency and the company that issues it. Typically, the end-users are physical persons who are not required to maintain accounting records.

III – METHODOLOGY

Once the issue to be examined has been identified, it is essential to outline how the matter is going to be treated in this paper.

First, given the many existing types, the characteristics and potential transactions associated with the in-game virtual currency to be studied need to be properly defined.

Second, for each accounting standard – beginning with the Spanish General Accounting Plan and subsequently the International Financial Reporting Standards – the framework of applicable accounting regulation will be established. This process essentially entails defining the various sources of accounting regulation and establishing its hierarchical precedence.

Subsequently, for each standard, the relevant accounting regulation will be reviewed and applied to the specific type of in-game virtual currency, with a particular emphasis on revenue recognition, focusing on the issuer of the currency rather than the purchaser.

Then, the tax implications of the studied operations will be examined within the context of the Spanish Value-Added Tax and Income Tax Regulation.

Finally, to validate the conclusions of this document, annual reports of companies within the industry will be analysed for each accounting framework. These businesses will be selected amongst the largest companies by revenue, both public and private (when feasible). The focus will be on the reports that specifically address the handling of in-game currency.

IV – VIRTUAL CURRENCY DELIMITATION

As previously discussed, based on the report from the European Central Bank (2012), there are mainly three types of virtual currencies with many intricacies within each category. Therefore, it is necessary to limit the scope of the project to only one type.

The focus is going to be on the unidirectional flow virtual currency, which is used by most popular games such as “Fortnite”, “League of Legends” or “FIFA” (Epic Games Inc., n.d.; Riot Games Inc., 2022; Electronic Arts Inc., 2023).

In particular, the analysed virtual currency is going to have the following characteristics:

- It can be acquired using legal tender (e.g. euros or United States dollars), which excludes in-game currencies that do not directly generate revenue, and therefore, should not create an issue of revenue recognition.
- It is non-withdrawable, once purchased, the currency and the goods and services acquired with it are not convertible back to legal tender. This characteristic confines the value of the currency to within the game’s ecosystem.
- It can only be used to purchase non-tangible virtual in-game items and services with very low or negligible variable costs for the issuing company. It cannot be used to trade with other users. This is a standard feature in the industry.
- It can be given to players as a reward for events or missions.
- The currency may or may not expire.

A virtual currency with these characteristics can be considered to be more of a proof of debt, than a real currency, as it is questionable whether it satisfies all of the three previously discussed functions of money:

- Medium of exchange: It is generally understood that for a currency to function as such, it must be widely accepted (Mishkin, 2007), however, in this case, as users only have one trade partner possible, it is highly debatable whether it accomplishes this task.
- Unit of account: It could be considered as fulfilled, as prices of the virtual in-game items can be set in this currency and transactions valued with it.
- Mean of storage: It is harder to justify, as its value is entirely reliant on the game and the company behind it, especially since it can only be used to purchase in-game virtual items and cannot be converted back to real currency. Furthermore, as seen in the paper by King et al. (2019), companies have the right to remove the currency at any moment without compensation.

Therefore, although commonly referred to in the industry as virtual currencies, even within the annual reports of major video game companies, they are only proof that the company owes the specific owner virtual goods and services for the amount initially paid, and do not constitute real currency or money. Nonetheless, for the sake of consistency, this paper will continue to refer to them as virtual currencies.

A typical transaction with the above-defined currency would generate at least four transactions to analyse:

- 1) The exchange from legal tender to in-game virtual currency.
- 2) The rewards given to players in in-game virtual currency.
- 3) The acquisition of virtual assets and services using in-game virtual currency
- 4) The abandonment of in-game virtual currency.

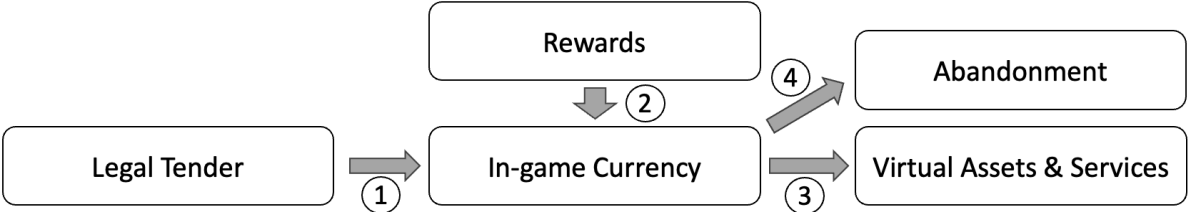


Figure 2: Typical transaction structure involving in-game virtual currencies. Source: Own elaboration

Examples of this type of currency would include “V-Bucks” from the online battle-royale game “Fortnite” (Epic Games Inc., n.d.) and “Riot Points” for the online MOBA game “League of

Legends” (Riot Games Inc., 2022). Both currencies enable players to purchase in-game cosmetic items to customise their characters. Nevertheless, the use of this type of currency is not limited to the video game industry; some notable examples include “Gems” in the widely popular language learning app Duolingo (Duolingo, n.d.) and “Credits” in OpenAI’s “DALL-E” image generation AI (OpenAI L.L.C., n.d.).

V – SPANISH GENERAL ACCOUNTING PLAN (PGC)

In line with the global trend, the video game market in Spain is growing considerably. Over the past decade, the industry’s revenue in the country has increased by 244.8%, from 822 million EUR in 2012 to 2,012M EUR in 2022, and it is expected to continue growing. In fact, Spain is the 13th largest market worldwide (Asociación española de empresas productoras y desarrolladoras de videojuegos y software de entretenimiento, 2023).

However, a big portion of the revenue is captured by large multinational companies that are often registered in Ireland or the Netherlands. The domestic video game development industry remains relatively small. In 2022, 66% of Spanish video game companies had 10 or fewer employees, with 49% having fewer than 5. Moreover, in the same year, 54.5% of them had less than 200 thousand EUR in revenue, with 81.3% under 2 million EUR. Nevertheless, the situation is improving, for example, while in 2022 the industry had 8,833 employees in the country, it is expected to expand to 13,287 by 2025. Similarly, revenue is anticipated to rise from 1,435M in 2022, of which only around 25% came from Spain, to 2,239M EUR in 2025. (Asociación española de empresas productoras y desarrolladoras de videojuegos y software de entretenimiento, 2023).

Given these circumstances, as will be discussed in section 5.2.5, it was not possible to contrast the analysis of this paper with real annual accounts, as there are no public companies in Spain, and the biggest private companies only published the bare minimum in their annual accounts, usually following a standardised structure without mentioning in-game currencies. However, considering the projected growth for the industry, it is still relevant to establish a framework for the accounting treatment of in-game virtual currencies in Spain.

5.1 Regulatory Framework

The main bodies of accounting regulation that are applicable in Spain are the following:

5.1.1 Code of Commerce and Corporate Enterprises Act

Both the Spanish Code of Commerce or *Código de Comercio* in Spanish (Royal Decree, of August 22, 1885), governing commercial relations in Spain, and the Corporate Enterprises Act or *Ley de Sociedades de Capital* (Royal Decree-Law 1/2010), regulating limited liability and joint stock companies, as well as limited partnerships, in Articles 25 to 49 and 253 to 284 respectively, establish some basic accounting principles for Spanish companies. Nevertheless, they abstain from developing them with extensive detail and mainly limit themselves to addressing how annual accounts, notes and management reports should be presented and their contents. Both state that these should conform to statutorily approved models.

Nonetheless, the Code of Commerce does establish in Article 25 the obligation for businesses to keep orderly and appropriate accounting, while Article 35 stipulates that companies must prepare annual accounts that are clear and faithful to the company's assets, financial position, and results.

On the other hand, Article 253 of the Corporate Enterprise Act shifts the responsibility of preparing these annual accounts to the company's director and imposes a deadline of a maximum of 3 months from the end of the financial year.

Furthermore, it also introduces the abridged form of the balance sheet, notes, statement of changes in equity and profit and loss statement and who can present them, however, it does not develop them extensively either.

Ultimately, since these two pieces of regulation do not enter comprehensively into detail, deferring the development of accounting regulations to the General Accounting Plan, they do not offer any additional nuances that are relevant to the accounting treatment of in-game virtual currencies and will not be analysed further.

5.1.2 Spanish General Accounting Plan (PGC)

The Spanish General Accounting Plan or *Plan General Contable* (PGC) in Spanish, approved by Royal Decree 1514/2007, of November 16, is the main body of accounting regulation in Spain. Consequently, it is going to be one of the key documents studied in this paper and it will be treated extensively in the next section when applied to in-game virtual currencies.

As described in the same Royal Decree, the General Accounting Plan has undergone multiple changes through the years, with the latest revisions focusing on complying with European directives and converging with International Accounting Standards (IAS) and International Financial Reporting Standards (IFRS).

The General Accounting Plan, as portrayed in Article 2, makes it compulsory for all companies, independent of legal form, to apply it, unless they are eligible for the one for Small and Medium-sized Enterprises (PYME), which is going to be discussed later.

As opposed to the Code of Commerce and Corporate Enterprises Act, the General Accounting Plan delves comprehensively into accounting principles, disclosure requirements, recognition and valuation criteria, as well as annual accounts elaboration regulation and models. Furthermore, it describes in detail how each accounting item or category needs to be treated.

In addition, the General Accounting Plan also designates the following as valid sources of accounting principles and generally accepted rules:

- Code of Commerce and remaining mercantile legislation (e.g. Corporate Enterprises Act), which have been discussed previously.
- The General Accounting Plan and sector-specific adaptations, which will not be discussed in this paper, as they are not generally applicable to companies in the video game industry.
- Standards established by the Accounting and Auditing Institute, known in Spanish as the *Instituto de Contabilidad y Auditoría de Cuentas* (ICAC), that further develop the current accounting regulation.
- Other applicable Spanish legislation

5.1.3 Spanish General Accounting Plan for Small and Medium-sized Enterprises (PGC PYMES)

The Spanish General Accounting Plan for Small and Medium-sized Enterprises, approved by Royal Decree 1514/2007, of November 16, is a simplified version of the general accounting regulation that is optional to companies that meet certain size conditions, also including some accounting criteria specific to microenterprises.

Given the importance of small and medium-sized enterprises to the Spanish economy, which was even recognised in the standard plan, it was imperative to create specific regulations that would not overburden them.

Some of the key differences with the standard plan include the omission of the accounting treatment of some operations that are rarely performed by companies of this size, such as complex financial instruments, or the elimination of the accounts from groups 8 and 9 that typically represent expenses and income recorded directly to equity. Furthermore, it also provides simplified statutorily approved models for small and medium-sized enterprises to use, which are simpler versions of the abridged models.

Nevertheless, given that the foundations of both General Accounting Plans are similar, this paper will concentrate on the standard plan due to its broader scope and more detailed provisions, even when the simplified version could apply to some video game companies.

5.1.4 ICAC Resolutions

The final source of regulation, which together with the standard General Accounting Plan will provide the basis for the analysis of the accounting treatment of in-game virtual currencies, are the standards established by the Accounting and Auditing Institute or *Instituto de Contabilidad y Auditoría de Cuentas* (ICAC) in Spanish, an autonomous public body attached to the Spanish Ministry of Economic Affairs and Digital Transformation (*Instituto de Contabilidad y Auditoría de Cuentas*, n.d.).

As previously highlighted, the General Accounting Plan grants the Institute the authority to issue binding resolutions that aim to further develop the accounting legislation within the Plan and complementary regulations. Nonetheless, in case of conflicting principles, the legislation of the highest level, in this case, the Plan, takes precedence.

Hence, considering that these resolutions provide more detail and nuance, these will be analysed in this paper, should they be applicable.

5.2 Analysis of the Accounting Treatment

5.2.1 Revenue Recognition

Determining the appropriate timing for revenue recognition is one of the key issues posed by virtual currencies from an accounting perspective.

Section 14th of the General Accounting Plan (Royal Decree 1514/2007), titled “Revenue from sales and the rendering of services”, states that “revenue from ordinary activities must be recognised when the transfer of control of goods and services committed to the customer occurs”. Defining control as “the capacity to decide completely over its use and to obtain substantially its benefits.”

To determine when and how this occurs, the General Accounting Plan provides a series of steps that companies should follow:

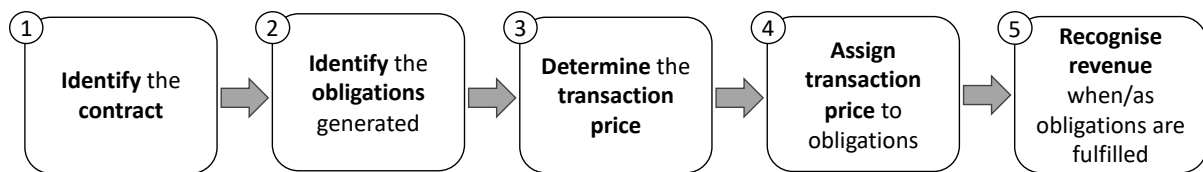


Figure 3: Steps to recognise revenue. Source: General Accounting Plan (Royal Decree 1514/2007).

Step 1: Identify the contract

The first step described by the Plan is to identify the contract that originates a set of rights and obligations for the company. This stage will set the basis for the analysis of the subsequent steps, as the contract will often include the description of the goods and services to be delivered, the timing and what the company can expect to receive in exchange, all essential points to properly recognise revenue.

As described in the paper by King et al. (2019), who analysed the terms of service and user agreements related to in-game purchasing of the top gaming companies, users are not purchasing in-game goods or services but extending the original licence that enables them to play the game to include the access to these virtual items and services. Therefore, there are at least two contracts that would intervene in the operation, the one that users accept when they purchase the game or create an account, and the one that they enter by purchasing in-game virtual currency. Nonetheless, the focus of the analysis is going to be the former. Furthermore, as with virtual currencies, this paper will continue to refer to these extensions as virtual goods and services for consistency reasons.

Step 2: Identify the obligations generated

The next step is to identify what goods or services the company has promised to deliver.

The first possible obligation that stands out from the operation is the delivery of virtual currency to the customer for the amount paid. However, the ICAC in Article 7 of the resolution of February 10, 2021, provides two criteria, that if met, identify the goods and services promised as being distinct and constituting a different obligation:

- The first one is if “the customer can benefit from the good or service by itself with the resources already available to them”. The delivery of virtual currency could generally be considered as not being an independent obligation, as it has no utility on its own without the ability to purchase goods and services. Thus, it is questionable whether the customer can benefit from the currency by itself.
- The second requisite is that “the commitment to transfer goods or services is separately identifiable from other commitments of the contract”, which for virtual

currency could be considered as satisfied, as the company can independently credit the customer's accounts for the amount paid.

Nevertheless, given that both conditions need to be fulfilled, the delivery of virtual currency cannot be considered an independent obligation as it is tied to the supply of these virtual goods and services.

Furthermore, both the General Accounting Plan and the ICAC acknowledge the principle of substance over form. In particular, the ICAC, in Article 6 of the resolution of February 10, 2021, mentions that companies should not limit the revenue recognition criteria to explicit obligations and that they must also consider the expectation of further transfers of goods and services that were created with the customer through traditional business practices and company communications. Therefore, it would not matter if the contract only made the company liable to deliver the virtual currency, as it is questionable if any player would ever want to acquire them if they could not be used to purchase in-game virtual goods or services, as they lack intrinsic value to users. Moreover, through advertising and in-game communications, companies have set an implicit expectation that users will be able to use the currency to acquire virtual goods and services without time constraints or at least until the game servers are shut down. Therefore, it is fair to assume that the main obligation of the contract for the company would be the supply of the virtual goods and services to the player for the value paid, rather than the delivery of the virtual currency, which could be considered a part of it.

If the two previously defined criteria to identify independent obligations are applied to the supply of virtual goods or services, it is possible to conclude that each good and service that can be acquired with the currency could generally be considered an individual obligation:

- The first requisite can be considered as fulfilled, as the user can benefit from each good or service individually, as its use is not usually tied to others, and they can be purchased independently and at different times. Furthermore, while the purchase or use of these items may depend on the ability of users to continue playing the game, this was established in a previous contract and could be considered as a resource already available to players.
- The second requisite could also be considered as satisfied, as the user will be able to purchase as many items as possible within their budget or advance payment. However, the company does not know the mix or number of obligations in advance, as items have different prices and can be combined differently.

Therefore, the obligation of the company will be to provide virtual goods and services for the paid amount through the use of virtual currency. Moreover, this purchase of virtual goods or services does not usually derive into any further obligations such as guarantees or updates. Since, as mentioned in the previously cited paper by King et al. (2019), players agree that the purchase of virtual currency is final (non-refundable), that virtual currencies and goods have no value and are delivered “as is”, and that they will not be compensated for any losses.

Then, the issue of the accounting treatment for the company of this initial purchase of virtual currency arises, given that it does not constitute an independent obligation and is tied to the purchase of virtual goods and services. Thus, the best option, given its characteristics, would be to understand it as proof of payment of a non-refundable advance from a customer, which the same ICAC resolution of February 10, 2021, covers briefly in Article 3, and in-depth in Article 28. The reasoning is that the underlying operation is the customer advancing money, without the option of getting it back, to acquire virtual goods and services from the company in the future. It should not matter if the company, for business reasons, decides to convert the real currency balance to a made-up one, the company is still liable to provide the goods or services for the amount paid by the customers. Consequently, according to Article 28 of the ICAC resolution, the company should record a liability for the amount received, even if it is not refundable. However, if VAT or other taxes are deemed to accrue in this first transfer, the liability will be recorded for the received amount minus the corresponding taxes.

For example, if a customer purchased 10 euros worth of the virtual currency, and assuming that there were no taxes, the company would record the following entry:

Amount	Account		Account	Amount
10.00	57. Cash / Banks and financial institutions (Current Asset)	x	438. Advances from customers (Current Liability)	10.00

Figure 4: Entry for the initial purchase of virtual currency if the expected redemption date is less than 1 year away, in EUR. Source: Own elaboration.

However, this entry will only be valid if the company expects the virtual currency to be used within a year, which is probably the most usual case. Otherwise, instead of account 438., the part that is received as a long-term advancement from the customer would go to the non-current liability account 181. “Advances of long-term sales”, which would need to be updated at the corresponding interest rate against the expense account 662. “Interest on payables”.

For instance, if the same purchase from the previous example occurred on the 1st of July of year 20XX, with an interest rate of 5%, and the company expected the customer to not use the purchased virtual currency until the end of year 20XX+1, they would have to record the following entries:

On 1/7/20XX, the initial purchase:

Amount	Account		Account	Amount
10.00	57. Cash / Banks and financial institutions (Current Asset)	x	181. Advances of long-term sales (Non-Current Liability)	10.00

Figure 5: Entry for the initial purchase of virtual currency if the expected redemption date is more than 1 year away, in EUR. Source: Own elaboration.

On 31/12/20XX, the accrual of interest for half a year:

Amount	Account		Account	Amount
0.25	662. Interest on payables (Expense)	x	181. Advances of long-term sales (Non-Current Liability)	0.25

Figure 6: Interest for 6 months at 5%, 10 EUR \times (5% per year \times 6/12 years), in EUR. Source: Own elaboration.

On 31/12/20XX, reclassification to short term:

Amount	Account		Account	Amount
10.25	181. Advances of long-term sales (Non-Current Liability)	x	438. Advances from customers (Current Liability)	10.25

Figure 7: Reclassification from long to short term when the expected redemption date is less than 1 year away, in EUR. Source: Own elaboration.

Step 3: Determine the transaction price

Defining what the company expects to receive in exchange for the fulfilment of the previously determined obligations, meaning the amount of revenue that the company should recognise, is not an issue, as the company receives a single straightforward fixed monetary payment for its virtual goods and services. Furthermore, it has no further complications such as interests, warranties, or future payments.

Therefore, the company's revenue from the operation should be the amount received from the customer, minus applicable taxes, which should match the recorded liability for the advance non-refundable payment.

Step 4: Assign transaction price to each obligation

Given that the company has been determined to have an independent obligation for each virtual good or service that the customer can purchase access to for the given amount paid, a price must be assigned to each one, as they could be fulfilled separately at different times, which would affect revenue recognition.

Article 16 of the ICAC resolution of February 10, 2021, declares that "the transaction price should be distributed for the amount that the entity expects to receive in exchange for each

good or service". In this case, as every item has an independent observable price, Article 17 of the same resolution applies, which mentions that the transaction price should be distributed to each obligation according to the relative fair value or independent price of sale of each good. Furthermore, in Article 18 of the same resolution, the ICAC mentions that in situations where the sum of the individual prices is higher than what is paid for the bundle, which is often the case in virtual currencies due to price reductions on higher denomination bundles, the discount will generally be assigned proportionally to the individual price.

Therefore, to calculate the revenue for each item, the total amount received for the transaction must be divided proportionally to the individual selling price of the goods purchased.

For example, if a player acquires 100 gold coins for 10 euros (without taxes) and uses it to purchase a sword for 75 gold coins and a shield for 25, the transaction price for the sword would be 7.5 euros ($10\text{€}/200\text{g} \times 75\text{g}$ for the sword) and 2.5 euros for the shield. Nevertheless, if the player acquired 200 gold coins for 15 euros, the same sword would now represent a revenue of 5.635 euros ($15\text{€}/200\text{g} \times 75\text{g}$ for the sword).

It could also be understood as having a fixed exchange rate at the lowest amount of virtual currency that can be bought, while offering a discount based on the purchasing volume in the initial transaction or from playing (if in-game generated currency is used).

Step 5: Recognise revenue when/as obligations are fulfilled

Once the obligations of the company, the transaction value and the price for each obligation have been determined, the next step is to understand when revenue should be recognised. As described by the General Accounting Plan in section 14th, it should be done when or as control over the promised goods or services is transferred, control being understood as "the capacity to decide completely over its use and to obtain substantially its benefits".

For each obligation, in the same section, the General Accounting Plan remarks that companies should analyse whether they are fulfilled at a specific moment in time or over a period, as the revenue recognition criteria will differ.

The Plan adds that if the obligations are understood to be fulfilled over time, revenue will usually be recognised as a function of advancement towards completion. Otherwise, if determined to be fulfilled at a specific time, revenue will be recognised at that moment, and costs associated with the production of that good or service will be accounted for in inventory until then.

The General Accounting Plan, in the same section, also provides some criteria to help companies determine the type of fulfilment of each obligation:

Over a period if:	At a specific time if:
<p>a) the customer receives and consumes the benefits as goods or services are produced.</p> <p>b) the company produces or improves a good that the customer controls.</p> <p>c) the company produces a good specifically for the customer, with no alternative use and it has the right to receive payment for the work completed until the date.</p>	<p>a) from that point forward the customer assumes all the risks and benefits from ownership.</p> <p>b) the asset has been physically transferred to the customer.</p> <p>c) the customer has received the asset with specifications according to the contract and the company can objectively determine so.</p> <p>d) a collection right as payment for the transfer was generated for the company.</p> <p>e) the customer is the owner of the asset.</p>

Figure 8: Criteria to identify the type of fulfilment that enables the recognition of revenue. Source: General Accounting Plan (RD 1514/2007, of November 16)

In the past sections, the obligation for the company has been determined to be the supply of virtual goods and services to customers for the amount received as an advance, each good or service constituting a different obligation. Therefore, to determine if revenue should be recognised one way or the other, the virtual goods or services that can be acquired with in-game virtual currencies should be analysed according to the above criteria.

Usually, as described previously in this document and in the paper by King et al. (2019), users are not purchasing virtual goods or services but access to additional features of the original licence that enables them to play the game. If that is the case, the ICAC specifically analyses the issue of revenue recognition in agreements of transfer of licences in Article 29 of the previously discussed resolution and provides some additional criteria. There, it is recognised that they can be treated as an obligation that is fulfilled over time if the underlying intellectual property (virtual good) is expected to evolve over time and the user’s capacity to obtain benefits from the agreement depends on it, or otherwise as an obligation that is fulfilled at a determinate moment if the intellectual property is received “as is” and not expected to change.

The most common purchases with in-game virtual currencies are cosmetic items like skins, tools like swords or consumables like lives, which as described by King et al. (2019), are

received at the moment of purchase “as is” and are not expected to change. Which the companies, according to Article 29 of the ICAC resolution, should recognise as revenue at the moment of purchase. Furthermore, it could be assumed that from that point on, the customer assumes all risks and benefits of ownership as the company has no further obligations related to that specific contract.

On other purchases such as a 1-year subscription to gain access to exclusive in-game features, the company should recognise revenue over the period, as the user will be benefiting from the service as the company produces it over time, and the underlying IP is expected to also evolve over the period.

On the other hand, the ability to use the items over time is strictly tied to their ability to keep playing the game, which is normally not an obligation resulting from the purchase of the virtual goods or services, but from the original licence to access the game. This obligation is normally set in the contract that players enter when they purchase a copy of a game or in the terms and conditions that they accept when creating an account. Purchasing an item does not usually give players more rights or time to play the game and enjoy the purchase.

Finally, when the company determines that revenue should be recognised, it will do so by debiting the liability created by the non-refundable customer advance and crediting a revenue account.

Continuing with the last example, if the player were to purchase the sword that had been determined to have a transaction price of 7.5 euros, and considering that no taxes applied to this operation, the company would record the following entry:

Amount	Account		Account	Amount
7.50	438. Advances from customers (Current Liability)	x	705. Services rendered (Revenue)	7.50

Figure 9: Entry for the purchase of an in-game item with virtual currency, in EUR. Source: Own elaboration

5.2.2 Leftover and Expired Currency

After a while, whether consciously or not, users normally stop playing a game, leaving behind leftover currency that has been bought with real money. This issue is aggravated by the fact that games make it almost impossible to leave an account without a balance, as developers design the pricing systems to compel players to spend more than they need and always have some surplus currency. Therefore, this presents the question of when, if ever, companies should recognise the revenue for this leftover currency.

As discussed previously, if the purchase of virtual currency is understood as a non-refundable advance from a customer, according to Article 3 of the ICAC resolution of February 10, 2021, revenue should be recognised when the company has no remaining obligations with the customer to transfer goods or services, or if the contract is deemed resolved.

The issue is that in the case of leftover in-game virtual currencies, it is not clear when these conditions are fulfilled. Most companies do not make currencies expire, and while it may not appear in the legal contract, through advertising and in-game communications, companies set an implicit expectation that users will be able to use the currency forever or until the game servers are shut down. Even if they expire, indicating a clear date when obligations cease, it's not feasible for companies to delay revenue recognition for an extended period. To address this problem, the ICAC provides some additional revenue recognition criteria for non-refundable customer advances in Article 28 of the same resolution. There, the ICAC allows companies that anticipate that some customers will not use all their purchased in-game currency (non-refundable deposit), to recognise revenue according to the consumption pattern generally followed by customers. Or otherwise, recognise the revenue when the probability of a customer using the virtual currency becomes remote.

5.2.3 In-game Obtained Currency

To properly comprehend the treatment of in-game obtained virtual currency, these should be categorised into two primary groups according to their integration within the gameplay loop and their ability to be earned through gameplay.

If the acquisition and redemption of virtual currencies constitute a core element of the gameplay loop, meaning that they are indispensable to progress in the game and represent a fundamental aspect of the gaming experience, they should not be regarded as an independent obligation to the initial licence for engaging in the game, but rather as an intrinsic component thereof. Such a currency system would not meet the previously outlined criteria of an independent obligation set by the ICAC in Article 7 of the resolution of February 10, 2021, since they will not be “separately identifiable from other commitments of the contract” as the game would not work without them. Consequently, the accounting treatment of in-game earned currency of this type will inexorably be tied with the one for the original licence, which will vary depending on the game’s monetisation model (one-time payment, subscription-based or free-to-play).

An example of this type of currency would be a fantasy game where players progress by completing missions, receiving rewards in currency, and using them to upgrade their equipment to be able to engage in more difficult quests. There, the absence of such currency

would severely disrupt the gameplay loop, impeding players from progressing. On the other hand, if players have the option to purchase the same currency with real money, it could be argued that what has been discussed in the previous sections continues to apply, thus constituting an independent obligation. This is because players are not acquiring the currency as an inherent aspect of the original game, but rather as an additional transaction to obtain complementary components such as faster progression.

In contrast, if a virtual currency only exists to provide features that do not influence the fundamental gameplay loop, such as bypassing timers or acquiring purely cosmetic items, and it is predominantly obtainable through purchases with real currency, with an almost negligible amount available for free, the expenses associated with the amount earned could be treated as a token for samples and recorded as advertising costs. The reasoning is that the only motivation for these currencies to ever be given for free, is mostly to entice players to make further purchases, as companies often provide just enough to have a glimpse of what the player would experience if they were to pay. Companies may have to create a provision for these future expenses.

5.2.4 Treatment of Related Expenses

Regarding the expenses incurred in fulfilling contractual obligations, the ICAC in the Resolution of February 10, 2021, introduces two types of costs: incremental costs of obtaining the contract (Art. 21) and costs related to fulfilling the contract (Art. 22).

Incremental costs refer to the expenses that the company incurs to obtain a contract and would not have occurred otherwise. Unless they should be treated under another norm (such as intangibles), these costs should not go directly to a profit and loss account. Instead, these should be recorded in the balance sheet and be recognised as expenses at the same time as the revenue from the contract, specifically upon the transfer of goods and services. However, costs that would have been incurred regardless of the contract, should be recognised as an expense when accrued.

On the other hand, the costs of fulfilling the contract are those that are identifiable to be directly related to the contract and create or improve an asset that will be used to perform the said contract. These costs should be recognised as expenses together with the revenue from the contract, and consequently, according to the ICAC, these should be treated as inventory “if they constitute a production factor linked to the operating cycle of the company” and otherwise as an intangible asset.

Therefore, in terms of in-game virtual currencies, video game companies must evaluate the characteristics of each cost and record them accordingly. Nevertheless, some that may appear typically in this type of transaction are the following:

- Payment processing fees are incurred for each online payment accepted, usually constituting a percentage of the transaction amount. For purchases of in-game currencies, payments are received in advance and no contract is formalised without them, therefore, these could be considered as incremental costs of obtaining the contract. Consequently, they should initially be recorded as deferred expenses and subsequently recognised as expenses alongside the corresponding revenue from the contract.
- Design and programming costs associated with virtual goods and services not made for an individual contract. These should usually be capitalised as intangible assets according to paragraphs 5th and 6th of the Spanish General Accounting Plan. Consequently, these costs will generally be accrued through the amortisation over the useful life of the intangible.
- Computing costs from attributing the virtual coins and assets to players. These could generally be considered as costs of fulfilling the contract, nevertheless, they are probably negligible at an individual level, and in the aggregate, it may be difficult to differentiate these from those of other online functions of games, and therefore, should probably be recognised as expenses as they accrue.
- Other general expenses, such as marketing or administrative costs, given that they are not directly related to any contract, should also be recognised as they accrue.

5.2.5 Real Cases

Unfortunately, as discussed in the introduction of this section on the Spanish General Accounting Plan, Spain lacks major video game companies, despite the national market being significant and growing.

Upon consulting the *Sistema de Análisis de Balances Ibéricos* or SABI database (Bureau van Dijk, n.d.) for the top fifteen largest private companies by revenue with the activity code *CNAE* 5821 “Video game development”, which list can be found in annexe 1, it was found that most of them only published very basic standard annual accounts to comply with the legal requisite, with no mention of their accounting treatment of in-game virtual currency, even when some companies did utilise them.

Based on the analysis of this paper, it would be reasonable to anticipate a substantial amount in liabilities for “advances from customers” in the balance sheet of these companies.

Nevertheless, among the analysed companies, only Zitro Laboratory S.L. (2023) included advances from customers on their balance sheet, but as a company specialising in online gambling, different regulations may apply. Furthermore, most of them either exclusively developed traditional single-player games without premium virtual currencies (such as Mercury Steam Entertainment S.L. (2023) or Tequila Works S.L.) or were development studios for larger foreign multinational firms (such as Gameloft Iberica S.A. or Ubi Studios S.L.) where the final publishing company is often a separate entity from the group as expressed in their annual accounts. Therefore, it was not possible to validate the above analysis based on the accounts of real Spanish companies.

However, as will be observed in the following sections, European public multinational companies typically publish their annual reports adhering to International Financial Reporting Standards (IFRS), or *Normas Internacionales de Información Financiera (NIIF)* in Spanish. Under these, the treatment of in-game virtual currencies is not significantly different from that of the Spanish General Accounting Plan. Moreover, as public companies publish more extensive and detailed reports than private ones, some explicitly indicate how these transactions involving in-game virtual currency are recorded, and their approach is largely consistent with the analysis conducted in the preceding sections. Hence, it is feasible to validate the conclusions presented in this paper and determine that a Spanish company employing these mechanisms would need to adhere to them.

VI – FISCAL TREATMENT IN SPAIN

Examining the tax implications of the sale of virtual currency is essential to comprehend how to properly record the corresponding accounting entries, especially given that these operations are often subject to taxation.

The emphasis is going to be on Value-Added Tax or *IVA* in Spanish, as it has the greatest impact on the accounting of these transactions. Moreover, since this paper centres on the Spanish General Accounting Plan, this section will focus on Spanish tax regulation (excluding Canarias, Ceuta, and Melilla), which is largely based on EU directives, and will therefore, be similar across EU members (Law 37/1992).

On the other hand, the Spanish corporate income tax, or *Impuesto de Sociedades* in Spanish, which is generally applicable to corporations with tax residence in Spain, and is governed mainly by Law 27/2014, of November 27, on Corporate Income Tax, and supplemented by the Royal Decree 634/2015, of July 10, will not be covered further in this paper. The reason is that according to Article 10 of Law 27/2014, in the direct estimation method, applicable to

companies of the industry, the tax base is calculated by making some adjustments to the accounting result when there are misalignments between the accounting and tax regulations. However, as stipulated in Article 11.1 of the same law, income and expenses are to be allocated to the tax period when they occur following accounting regulations, regardless of payment. This is consistent with the treatment of virtual currencies discussed in the previous sections.

Furthermore, neither the Law nor the Royal Decree contain specific provisions warranting special treatment for these instruments. Consequently, companies need not make any adjustments in relation to their operations with virtual currencies for corporate income tax purposes. Therefore, there is no need to delve into it further and the focus will be on the treatment of these operations under Value-Added Tax.

6.1 Subjection and Accrual of VAT

According to Article 4 of Law 37/1992, of December 28, of Value-Added Tax or VAT law, which is the main piece of legislation regulating VAT in Spain, the operations that are subject to the tax are "the delivery of goods and provision of services carried out within the spatial scope of the tax by entrepreneurs or professionals, for consideration, whether habitual or occasional, in the course of their business or professional activities [...]".

Therefore, the next step is to apply this definition to determine if the supply of virtual currency and virtual goods and services constitute an event subject to taxation:

6.1.1 Supply of Virtual Currency

In principle, the supply of virtual currency would align with the definition outlined in Article 4. However, for VAT purposes, similar to what was discussed in accounting, virtual currencies should be considered as ancillary to the provision of virtual goods and services. Consequently, according to the Spanish General Directorate of Taxes or *Dirección General de Tributos (DGT)* in Spanish, given that they "do not constitute an end in themselves for the customer, but rather the means to enjoy the main service of the provider under the best conditions", accessory activities should be taxed together with the main operation, which is the purchase of virtual goods and services or the acquisition of new capabilities within the original licence (Binding resolution V1624-19).

Nevertheless, virtual currency could be defined as a voucher under the Resolution of December 28, 2018, from the General Directorate of Taxes, regarding the treatment of vouchers in the Value-Added Tax, which is based on the Council Directive (EU) 2016/1065 of 27 June 2016 amending Directive 2006/112/EC as regards the treatment of vouchers.

The resolution, defines a voucher as the “instrument, regardless of the form in which it has been created, which must be accepted upon presentation by its holder as total or partial consideration for a delivery of goods or a provision of services when the goods to be delivered or the services to be provided or the identity of the possible suppliers of the goods or services are known by appearing in the instrument itself or in the documentation associated with it, including the conditions of use of the instrument.”

Virtual currencies would fit this definition as:

- They must be accepted as a form of consideration for virtual goods and services.
- The virtual goods and services are known, as they must be within the range offered by the game company, and it is specified in the associated documentation.
- They can only be used to buy from the game company, whose identity is known.

The resolution then provides guidance on the VAT treatment of these vouchers by dividing them into two categories, depending on whether they are restricted to a given territory of application of the tax or usable across multiple jurisdictions, and on whether they are redeemable for goods or services subject to the same tax rate or multiple. In essence, their classification depends on whether it is possible to determine the tax accrued from the operation at the moment of issuance:

- “Single-purpose voucher”: if at the time of issuance, the place and rate of taxation of the underlying operation are known with certainty.
- “Multi-purpose vouchers”: if otherwise, at the time of issuance, the place and/or the rate of taxation of the underlying operation are not known with certainty.

Therefore, for each video game or platform, companies will have to analyse the nature of the currency and the products that can be purchased with it in order to understand the tax and accounting implications of the operations, given that these will be different for each type:

Single-purpose vouchers

In the case of single-purpose vouchers, given that the underlying operation is known with certainty to be located in the territory of application of the tax (Spain, excluding Canarias, Ceuta and Melilla), with a known tax fee, and if the issuer of the voucher and the supplier of goods and services is the same entrepreneur or professional (as with virtual currencies), the VAT of the underlying operation will accrue at the moment of transmission of the voucher at the corresponding rate.

However, the resolution also stipulates that if Article 75 Two of Law 37/1992, of December 28, of Value-Added Tax, regulating payments in advance is applicable, then tax will accrue at the time of payment for the amount received, whether total or partial. Therefore, if the payment is made before the transmission of the voucher, the tax would accrue at the moment that money is paid.

In any case, the resolution states that the tax base in the transmission of single-purpose vouchers can be calculated from the price paid for said transmission, given that VAT is understood to be included in it. For example, if the tax rate is 21%, when a customer pays 10 euros for 100 gold coins, it is understood that the 10 euros include VAT, therefore, to determine the tax base, the amount paid will be divided by 1 plus the tax rate, resulting in this case in 8.26 euros.

Additionally, if, as previously stated, the issuer of the voucher and the supplier of goods and services are the same, the taxpayer or *sujeto pasivo* is generally going to be the entrepreneur or professional that transmits it, unless in scenarios of reverse charge covered in Article 84 One 2nd of Law 37/1992, of December 28, of Value-Added Tax.

Finally, when the voucher is exchanged for goods and services, it will not be considered as an independent operation, and no tax must be collected.

Virtual currencies for video games will generally tend to fall under single-purpose vouchers, as they can normally only be used to purchase items that are taxed under the general rate of 21% (at least according to the Spanish VAT law), and the place of taxation will be determinable in advance, through regional storefronts or servers.

Multi-purpose vouchers

There may be instances where companies may have to consider virtual currencies as multi-purpose vouchers, if for example, they do not know with certainty the place of taxation until the currency is spent, or if they are offering products subject to different rates.

For multi-purpose vouchers, the issue and transmission of the voucher will generally not be subject to value-added tax. Tax will accrue when the voucher is used in exchange for goods and services, observing the general accrual rules. In Spain, according to Article 75 of Law 37/1992, of December 28, tax for the delivery of goods accrues when they are made available to the purchaser, and for services, when they are rendered.

As with single-purpose vouchers, the taxpayer or *sujeto pasivo* is generally going to be the entrepreneur or professional that provides the good or service, unless in scenarios of reverse charge covered in Article 84 One 2nd of Law 37/1992, of December 28, of Value-Added Tax.

Finally, the tax base will be equal to the amount paid for the voucher minus the applicable tax rate for the goods and services acquired with it. And given that the currency may have been purchased at different prices, the Spanish General Directorate of Taxes, in the binding resolution V1385-23 of May 23, 2023, accepts, when it is not possible to identify the used currency individually, the application of FIFO and other similar methods to determine the base for VAT purposes.

6.1.2 Supply of Virtual Goods and Services

The supply of virtual goods and services in exchange for paid currency, understood as an extension of the original licence, would fit the definition of an electronically supplied service, which will be addressed in the following section. Consequently, if carried out for consideration by a company in the course of their business and in the spatial scope of the tax, the operation will be subject to VAT, given that it does not appear in the list of non-subject activities of Article 7 of the VAT law (Law 37/1992).

Nonetheless, depending on the nature of the virtual goods or services, they could be considered as ancillary to the game service. According to the definition provided by the Spanish General Directorate of Taxes in its binding resolution V1624-19, these services could be viewed as means to enhance the underlying service and not an end in themselves for the customers, further emphasised by the fact that it is not possible to use them without the game. Consequently, they would be subject to taxation jointly at the same rate as the main operation.

However, in the binding resolution V3271-17, the *DGT* states that if customers perceive them as independent operations, each negotiated individually with its own conditions and pricing, they could constitute standalone operations. Therefore, each case should be analysed individually.

For the most commonly offered virtual goods and services, such as skins, weapons, DLC, or consumables, both operations would normally be taxed at the same general rate. Therefore, whether they constitute an ancillary operation or not, would not pose an issue unless they would be taxed at different rates or in different jurisdictions.

6.2 Place of Taxation

The place of taxation will have an impact on determining the accounting and tax treatment of virtual currency and virtual items.

The Spanish Tax Authority or *Agencia Tributaria* (n.d.) provides some rules to determine the place of taxation for what it classifies as electronic services, which are described as those “provided through the Internet or an electronic network that, by their nature, are essentially automated and require minimal human intervention, and which have no viability outside of information technology”. This definition fits virtual currencies, the corresponding virtual goods and services and video games perfectly (if not in physical support), as they are provided online, automatically, and have no use outside the virtual space.

In general, if the service provider is in the same member state as the consumer, it will have local VAT and the supplier will be the one to collect taxes. Otherwise, it will follow the structure outlined below:

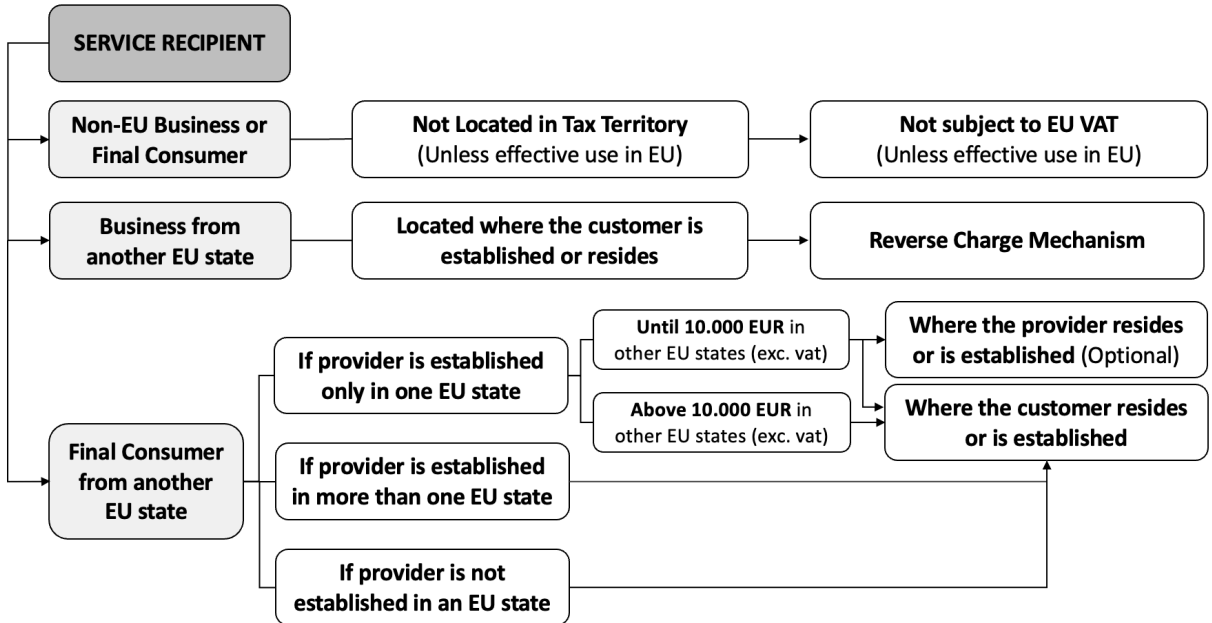


Figure 10: Place of taxation of electronic services by recipient. Source: Agencia Tributaria (n.d.)

According to the Spanish Tax Authority (n.d.), for end consumers, place of establishment refers to the location where they are officially registered in the census or with the fiscal authorities, while residence denotes the habitual dwelling, where they usually live and maintain personal and professional connections. In case of conflict, the place of residence generally prevails.

In the case of companies, the place of establishment is determined by the location where central administration activities are conducted or where there exists enough structure to

receive and utilise the services for its own operations. In case of conflict, the place of central administration takes precedence.

However, in cases where the place of establishment or residence of the end consumer cannot be determined with certainty, the service is presumed to be located from where it is accessed. The Spanish Tax Authority provides several methods to determine it, including the billing address, payment information, phone number, or IP address.

To simplify the process, as companies may have to collect taxes from different EU member states, they can present a single declaration in one country and said tax authority will distribute the tax to the corresponding agencies. In Spain, this process is facilitated through the submission of tax model 368.

It is imperative to highlight that if the transaction with virtual currency is deemed to be ancillary, as outlined in the preceding section, it would be subject to taxation in conjunction with the main operation, as per binding resolution V1624-19 by the Spanish General Directorate of Taxes. This would entail that taxation would occur at the same location as the primary operation.

6.3 Accounting Treatment

The recording of transactions will vary depending on whether the video game company considers its virtual currency, given its characteristics, to be a single or a multi-purpose voucher:

6.3.1 Single-Purpose Voucher

If the company can determine with certainty, at the time of issuance, the location and the applicable tax rate of the underlying operation, VAT will be included in the initial purchase of virtual currency. This may not apply if, according to location rules, the transaction has been deemed not subject to EU VAT or if the reverse charge mechanism is applicable. Furthermore, if payment occurred before the transmission of the voucher, VAT would accrue then and not at the moment of transmission. Therefore, if a player purchases 10 euros of virtual currency in Spain, with 21% VAT, the company will record the following entry:

Amount	Account		Account	Amount
10.00	57. Cash / Banks and financial institutions (Current Asset)	x	438. Advances from customers (Current Liability)	8.26
			477. Output VAT (Current Liability)	1.74

Figure 11: Entry for the initial purchase of virtual currency as a single-purpose voucher if the expected redemption date is less than 1 year away, in EUR. Source: Own elaboration

Subsequently, when the player utilises the currency, VAT will not be applicable, as it will not be treated as an independent transaction:

Amount	Account		Account	Amount
8.26	438. Advances from customers (Current Liability)	x	705. Services rendered (Revenue)	8.26

Figure 12: Entry for the purchase of an in-game item with virtual currency as a single-purpose voucher, in EUR. Source: Own elaboration

6.3.2 Multi-Purpose Voucher

Otherwise, if the company cannot determine with certainty, at the time of issuance, the location and the applicable tax rate of the underlying operation, VAT will not be included in the initial purchase of virtual currency. This may not apply if, according to location rules, the transaction has been deemed not subject to EU VAT or if the purchaser is a business or professional. Therefore, if a player purchases 10 euros of virtual currency in Spain, the company will record the following entry:

Amount	Account		Account	Amount
10.00 EUR	57. Cash / Banks and financial institutions (Current Asset)	x	438. Advances from customers (Current Liability)	10.00 EUR

Figure 13: Entry for the initial purchase of virtual currency as a multi-purpose voucher if the expected redemption date is less than 1 year away, in EUR. Source: Own elaboration

Then, when the player uses the currency:

Amount	Account		Account	Amount
10.00	438. Advances from customers (Current Liability)	x	705. Services rendered (Revenue)	8.26
			477. Output VAT (Current Liability)	1.74

Figure 14: Entry for the purchase of an in-game item with virtual currency as a multi-purpose voucher, assuming a tax rate of 21%, in EUR. Source: Own elaboration

6.4 Other Considerations

6.4.1 Leftover and Expired Currency

For multi-purpose vouchers, the Spanish General Directorate of Taxes, in the binding resolution V1385-23 of May 23, 2023, stipulates that if these vouchers expire or remain used, there will be no operation subject to VAT given that there is no consumption susceptible to taxation.

Conversely, for single-purpose vouchers, where the transmission constitutes an operation subject to VAT, the General Directorate of Taxes does not provide any guidance. However, according to the EU directive 2016/1065, upon which Spanish regulation is based, “each transfer, including on the issue of that voucher, is regarded as being the supply of the goods or services to which the single-purpose voucher relates”. Consequently, it would not matter for VAT purposes if the goods were not delivered at the end, VAT would accrue anyway.

6.4.2 In-game Obtained Currency

Similar to what has been outlined in the accounting treatment analysis of in-game obtained virtual currencies in section 5.2.3, these should be divided into two categories.

If the obtention and utilisation of in-game earned virtual currency constitute a fundamental aspect of the gameplay loop, they should be considered as part of the initial licence for engaging in the game, and thus, they should be taxed together with it. Moreover, users are not required to enter into any additional agreements, as they are inherently included as a feature of the base game.

Conversely, if as previously stated, the currency is exclusively used for non-essential features that are not integral to the gameplay loop, and its primary acquisition method is with real currency, the small amount that is given to players for free should be treated as a promotional service. Accordingly, as outlined in Article 7 3rd of the VAT law, “the provision of demonstration services free of charge carried out to promote business or professional activities” is an activity not subject to Spanish VAT.

VII – INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS)

7.1 Regulatory Framework

Article 4 of the Regulation (EC) No 1606/2002 of the European Parliament and of the Council of 19 July 2002 on the application of international accounting standards, established the obligation, from fiscal year 2005, for consolidated accounts of publicly traded companies on regulated markets of Member States to apply the international accounting standards “issued or adopted by the International Accounting Standards Board (IASB)” as defined in Article 2 of the same regulation.

The currently adopted international standards are detailed in the Commission Regulation (EU) 2023/1803 of 13 August 2023 adopting certain international accounting standards in accordance with Regulation (EC) No 1606/2002 of the European Parliament and of the Council. As described in point 7 of this regulation, these are comprised of certain International Accounting Standards (IAS), International Financial Reporting Standards (IFRS), International Financial Reporting Interpretations Committee (IFRIC) Interpretations and Standard Interpretations Committee (SIC) Interpretations.

In Spain, the Spanish Code of Commerce, as stipulated in Article 42, establishes the obligation for controlling companies of corporate groups (concept defined in the same article) to formulate consolidated annual accounts and management reports, except in the cases specified in Article 43. In broad terms, this exemption applies under several conditions: if companies meet specific size criteria, if the consolidating company is part of another group required to consolidate within an EU member state, if the dependent societies lack significant interest in the faithful representation of the groups’ accounts, or under some other specific circumstances, such as when the necessary information for consolidation cannot be reasonably obtained.

However, if the group has to consolidate, to follow EU regulation, as detailed in Article 43 bis section a of the same text, the consolidated accounts must adhere to the International Financial Reporting Standards (IFRS) adopted by the Regulations of the European Union, if any company in the group, at the date of closing of the financial year, has issued values listed on any regulated market of an EU Member State. Additionally, even if this last condition does not apply, companies can voluntarily opt to adopt them in a continuous manner for their consolidated reports instead of Spanish Regulation, as defined in Article 43 bis section b.

It is crucial to note that even when companies prepare consolidated annual accounts, they are still required to present the respective individual accounts, as explained in Article 42.2 of the

Code of Commerce. As previously indicated, in Spain these must be prepared according to the Spanish General Accounting Plan, and not with IFRS. Furthermore, as indicated in the Plan, in point 24 of the section pertaining to the content of the notes or *memoria* in Spanish, companies exclusively publishing individual accounts and having issued values listed on a regulated market of any EU Member State must disclose in the notes the variances in equity and Profit & Loss (P&L) had they adhered to the International Financial Reporting Standards (IFRS) adopted by the Regulations of the European Union.

Therefore, as the treatment of in-game virtual currencies in International Financial Reporting Standards (IFRS) may be relevant for Spanish companies, it is prudent to analyse and compare their treatment in relation to the Spanish General Accounting Plan.

7.2 Analysis of the Accounting Treatment

The Spanish General Accounting Plan (PGC), along with its associated regulations, is heavily influenced by the International Financial Reporting Standards, as explicitly acknowledged in the Plan's introduction. Thus, it is not unsurprising to observe that the treatment of in-game currency would not be different under IFRS than what has been established in the previous sections for the PGC. This alignment is further underscored by the fact that the text that elaborates on the Spanish General Accounting Plan's treatment of revenue, the ICAC resolution of February 10, 2021, is almost a word-per-word translation of IFRS 15.

The International Financial Reporting Standard (IFRS) number 15, "Revenue from Contracts with Customers", as presented in the Commission Regulation (EU) 2023/1803 of 13 August 2023, has the objective of establishing guidelines for entities to properly report revenue and cash flows resulting from contractual agreements with customers. This objective is clearly stated in its first paragraph, making it the primary focus of this section's analysis.

From an accounting standpoint, the treatment of in-game virtual currency does indeed mirror that of the Spanish accounting regulation. As described in paragraph 2 of IFRS 15, revenue is recognised when or as control over the goods and services promised to the customer are transferred for the amount of consideration the entity expects to receive. Then, to understand when and how to do so, IFRS 15, in paragraphs 9 to 90, outlines the same five-step model that was analysed previously in section 5.2.1 of this paper:

1. Identification of the contract with the customer.
2. Identification of the performance obligations in the contract.
3. Determination of the transaction price.
4. Allocation of the transaction price to performance obligations.
5. Recognition of revenue when or as performance obligations are fulfilled.

Moreover, even within each stage of this five-step model, there are no substantial differences. This also holds true for the treatment of leftover, expired, and earned currency, along with the related expenses.

Therefore, in alignment with Spanish regulation, under IFRS the delivery of virtual currency should be regarded as a non-refundable customer deposit, constituting a liability until used. Subsequently, revenue should be recognised proportionally to the individual price of each item, as delineated in paragraphs 73 to 86. This recognition may occur either over time or at a specific moment, depending on the characteristics of the virtual goods or services acquired, as indicated in paragraphs 31 to 45.

Conversely, as explained in paragraphs 15 and B44 to B47 of Appendix B of IFRS 15, if the customer fails to utilise the acquired currency or it expires, the company should recognise revenue in line with consumption patterns generally followed by customers. However, if the amount is attributable to a third party, such as a government entity, the company should record a liability for the corresponding amount when the probability that the currency is used becomes remote, and no revenue will ever be recorded.

In terms of in-game obtained currency, the company should assess its level of integration within the gameplay loop and its ability to be earned through gameplay. Then, if it cannot be understood as an independent obligation according to the criteria set in paragraphs 27 to 29, it should be treated as a component of the original licence to play the game. Alternatively, if the objective is to entice players to spend more real currency, any related costs should be classified as advertising expenses.

In conclusion, given that no major differences were observed in the treatment of virtual currencies under the Spanish General Accounting Plan and the International Financial Standards, all accounting entries proposed in sections 5.2 and 6.3 of this paper would remain applicable for a company adhering to IFRS.

7.2 Real Cases

The appeal of analysing the treatment of in-game virtual currencies under the International Financial Reporting Standards (IFRS) lies in its compulsory nature for the consolidated accounts of publicly traded companies on regulated markets of Member States, its similarity to the Spanish General Accounting Plan (PGC) and the wider range of companies publishing information under it. As publicly traded entities, these companies often disclose more comprehensive and detailed information compared to the smaller Spanish private companies analysed in section 5.2.5 of this paper. Consequently, some of these companies provide

insights into their accounting treatment of in-game virtual currencies in their annual reports. This serves as a foundation for validating the analysis presented in this paper, not only for IFRS but also for the Spanish General Accounting Plan.

This paper will specifically examine some of Europe's largest public video game companies by revenue, focusing on those that explicitly mention in-game currency in their annual reports, provided that the currencies meet the definition outlined in section IV of this text.

The first example is Ubisoft Entertainment SA., the French multinational group known for developing and publishing widely successful franchises such as Assassin's Creed, Far Cry and Watch Dogs. The group began implementing IFRS 15 on April 1, 2018, the beginning of their fiscal year 2018-2019. In the consolidated annual accounts for that period, they compared the treatment of in-game virtual currency before and after the adoption of the standard. Prior to the implementation, revenue from virtual currencies was recognised when they were delivered to customers, which would deviate from the treatment outlined in this paper. However, post-implementation, revenue is recognised over time, based on the expected utilisation of the currency, which is consistent with the analysis of this paper. (Ubisoft, 2019, 2023)

Along the same line, Rovio Entertainment Corporation, the Finnish group behind the Angry Birds franchise, recognises revenue from in-game purchases according to actual virtual currency consumption, as reported in their annual report for 2022. Moreover, they distinguish between consumable and durable items. Consumables satisfy the performance obligation at a specific point in time, and they recognise the corresponding revenue at purchase. Conversely, durables satisfy the obligation over time, with revenue recognised over the estimated "player lifetime" period. Their methodology is also consistent with the analysis presented in this paper. (Rovio Entertainment Corporation, 2023).

Another example is the Swedish Embracer Group AB, responsible for titles such as Tomb Raider, Borderlands and Saints Row. Their consolidated accounts mirror the approach of Rovio, by categorising the purchasable virtual goods into the same two groups and recognising revenue accordingly, each virtual good constituting an independent obligation. (Embracer Group AB, 2023)

Therefore, while these represent a small selection of the available examples, it is apparent that significant differences between them are unlikely given their degree of similitude. While many only touch briefly on the treatment of in-game currencies and the corresponding purchases, it is enough to validate the findings of this paper's analysis.

VIII – CONCLUSIONS

8.1 Conclusions

In recent years, the video game industry has witnessed substantial revenue growth, driven by the rise of mobile gaming and the increasing importance of microtransactions and virtual in-game currencies. While these features offer various advantages to video game companies, they also pose significant challenges in terms of accounting and taxation. The issue is further exacerbated by the absence of readily available and concrete guidance on the topic. Therefore, this paper aimed to address this gap by providing a comprehensive framework for the accounting and tax treatment of typical unidirectional flow in-game virtual currencies within Spanish regulations and the International Financial Reports Standards adopted by the EU.

This objective has been successfully achieved through rigorous analysis of the regulatory frameworks for both Spain and IFRS. The conclusions drawn are consistent across both standards, given their high degree of similarity and the application of the same five-step model for revenue recognition. The following are the shared conclusions from an accounting perspective:

- The purchase of virtual currency cannot be considered an independent obligation to the delivery of virtual goods and services, and it should be recorded as a non-refundable customer deposit.
- Virtual goods and services represent an extension of the licence to play the game, and each can be considered an independent obligation. Companies should analyse the characteristics of the items purchased to determine whether they fulfil the obligation over time or at a specific moment and recognise the revenue accordingly. The amount paid for the currency used to acquire them should be allocated to each item according to their individual price.
- For leftover and expired currency, revenue can be recognised either upon its expiration (if applicable), when the probability of redemption becomes remote, or following typical usage patterns.
- In-game obtained currency can be divided into two categories based on their integration within the gameplay loop and their availability through gameplay, with each category requiring a distinct treatment.

From a Value-Added Tax (VAT) or IVA perspective, the objective of this paper has also been accomplished through a comprehensive analysis of the Spanish VAT regulations. The conclusions drawn are as follows:

- For tax purposes, virtual currencies fit the definition of vouchers, which are further classified into two categories based on the companies' ability to determine the accrued tax at the time of issuance. If determinable, tax accrues at that time, otherwise, it accrues when the currency is exchanged for goods or services.
- The supply of virtual goods and services can be regarded as an electronic service, subject to special location rules.

In terms of corporate income tax or *Impuesto de Sociedades* in Spanish, virtual currencies did not require any adjustments as long as their accounting treatment remained consistent with the guidelines established in this paper.

Finally, although the above conclusions could not be directly verified against the accounts of Spanish entities, they were validated through the accounts of European companies adhering to IFRS, which should mirror the treatment in Spain. Their handling of virtual currencies aligned with the findings of this paper and resulted in a faithful representation of reality. Furthermore, the case of Ubisoft Entertainment SA., which recognised revenue upon delivering the currency to customers before adopting IFRS 15, highlights the potential unclear treatment of such mechanisms and the potential benefits for companies in having a comprehensive framework. This further justifies the necessity of this paper.

8.2 Limitations

However, aside from the absence of examples from Spanish companies, certain additional limitations should be noted. Firstly, this document focused solely on unidirectional flow in-game virtual currencies with specific characteristics, potentially restricting its applicability to some companies. Consequently, further analysis into the accounting and tax treatment of other existing types, such as bidirectional flow and closed virtual currencies, which are also utilised by some video game companies, would be relevant.

Secondly, even within the analysed unidirectional flow in-game currencies, there is a limitation in scope. The focus was primarily on the treatment from the perspective of the issuer, without addressing other complexities such as prepaid points cards or purchases from other companies for resale or gifting to customers. These are additional considerations that companies utilising points may need to address and were not covered in this paper.

Thirdly, there is also a clear geographical limitation, as this paper primarily focuses on Spanish regulation in both accounting and taxation. Therefore, the analysis may not be directly applicable to companies from other regions with different legislation.

Ultimately, both accounting and tax regulations are not static subjects. Therefore, the analysis conducted within this paper, while consistent with regulations and real cases at the time of writing, may quickly become obsolete if the bases of the analysis are modified. Highlighting the need for continuous revisions.

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X – ANNEXES

10.1 Annexe 1: List of analysed Spanish video game companies with the activity code (CNAE) 5821 “Video game development.”

	Name	Last available year	Revenue in thousands of EUR (last available year)
1.	<i>Blackout Lab S.L.</i>	31/12/2022	35,512
2.	<i>Digital Things Sociedad Limitada.</i>	31/12/2022	32,886
3.	<i>Zitro Laboratory Sl.</i>	31/12/2022	19,099
4.	<i>Mercury Steam Entertainment Sl</i>	31/12/2022	16,033
5.	<i>Gameloft Iberica Sa</i>	31/12/2022	14,782
6.	<i>Ubi Studios Sl</i>	31/03/2022	12,960
7.	<i>Bandai Namco Mobile Sl</i>	31/03/2022	10,651
8.	<i>Ggtech Entertainment Sl.</i>	31/12/2021	6,877
9.	<i>Tequila Works Sl</i>	31/12/2020	5,791
10.	<i>Appde transporte Urbano Sl.</i>	31/12/2022	5,657
11.	<i>Voodoo Gaming Spain S.L.</i>	31/12/2022	5,472
12.	<i>Ratalaika Games Sociedad Limitada.</i>	31/12/2022	4,553
13.	<i>Riot Games Services S.L.</i>	31/12/2022	4,413
14.	<i>Digital Legends Entertainment Sl</i>	31/12/2021	4,220
15.	<i>Spaco Sa</i>	31/12/2022	3,404

Figure 15: List of analysed Spanish video game companies with the activity code (CNAE) 5821 “Video game development.”. Source: Bureau van Dijk (n.d.)