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BUSINESS INTELLIGENCE AT NOS CINEMAS: REDEFINING THE STAFF GAMIFICATION MODEL

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Internship Report

presented as partial requirement for obtaining the Master Degree Program in Information Management

NOVA Information Management School
Instituto Superior de Estatística e Gestão de Informação

Universidade Nova de Lisboa

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By

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Internship report presented as partial requirement for obtaining the Master's degree in Information Management, with a specialization in Knowledge Management and Business Intelligence

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February 2024

STATEMENT OF INTEGRITY

I hereby declare having conducted this academic work with integrity. I confirm that I have not used plagiarism or any form of undue use of information or falsification of results along the process leading to its elaboration. I further declare that I have fully acknowledge the Rules of Conduct and Code of Honor from the NOVA Information Management School.

Rafaela Gomes

Lisbon, 6th February 2024

ABSTRACT

Cinemas were the segment most affected by the pandemic in the company “NOS, SGPS, S.A”, suffering a revenue drop of 76,6% in 2020. A great effort has been made to revert the situation, defining a set of recovery measures, namely aspects relating to staff motivation and monitoring the performance of cinemas at a business level. In this context, this report describes my project developed in the Marketing & Business Development team during my internship at the company “NOS Cinemas”. The project aimed to redefine the cinema staff gamification model to make it more efficient, more competitive, and simpler to monitor given its current limitations. By applying Business Intelligence practices and following the BADIR data analysis framework, it was possible to redefine the gamification model that proved to be important for the company in achieving its strategic objectives. The new model was successfully implemented, eliminating previous limitations and meeting the new proposed objectives. It improved the process of monitoring cinemas’ performance and made it possible to identify recommendations for future projects.

KEYWORDS

NOS Cinemas; Gamification; Business Intelligence; BADIR; Performance monitoring

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LIST OF ABBREVIATIONS AND ACRONYMS

ATT	Attendance
BADIR	Business Question, Analysis Plan, Data Collection, Insights and Recommendation
BI	Business Intelligence
ICA	Institute of Cinema and Audiovisual
KPI	Key Performance Indicator
SPP	Sales per person

1. INTRODUCTION

The film market suffered dramatic falls globally due to the pandemic in 2020 and the growing acquisition of streaming services that put pressure on traditional cinema (Alforova et al., 2021). Some studies have been carried out on the impact of the pandemic on the film industry, which showed that the future of cinema was under threat after a period of empty cinemas, postponed premieres, interrupted productions, and streaming as the only way to watch movies (Lourenço, 2021).

In Portugal, after the emergence of coronavirus in 2020, Portuguese cinemas suffered a 75,55% drop in audiences and revenues compared to 2019 (Lusa, n.d.-a). According to ICA (Institute of Cinema and Audiovisual), 2020 was the worst year for film exhibitions since the statistical data reported by exhibitors was systemized.

In particular, the company NOS Cinemas (NOS Lusomundo Cinemas, S.A.) suffered a significant decrease in 2020 with revenues falling 76,6% (NOS, 2020). Several factors are behind such a dramatic fall brought by the pandemic, as a scenario of closed doors for three months and strong restrictions on the cinema experience (Lusa, n.d.-b). According to the company's report for the 3rd quarter of 2022, the cinemas were the segment most affected by COVID-19 in NOS, SGPS, S.A. (NOS, 2022). Consequently, implementing recovery measures in this sector became one of the company's main challenges and strategic objectives (NOS, 2020, 2021).

A great effort has been made to recover the performance levels of NOS Cinemas in Portugal in the pre-pandemic period. In fact, there is a continuous increase in the number of spectators, compared to 2021, although still below pre-pandemic levels. Despite positive results such as the increase in market share from 63% to 68% between 2019 and 2022, the market in 2022 is still 33% below 2019, which proves the existence of room for improvement (NOS, 2022).

According to the NOS Cinemas' Action Plan for 2023, the strategic direction of NOS Cinemas is based on the definition of four pillars that guide the path of recovery and growth of the company. One of these pillars is based on the people who make up the cinema staff, the employees, managers, and sub-managers, where the main objective is to maximize their motivation and satisfaction, continuously improving the service experience.

Within the set of solutions proposed to achieve this goal, a gamification model was developed in 2022 aimed at cinema staff. Its purpose is to provide competition between cinemas to achieve certain business objectives. In addition to contributing to increase staff engagement and motivation, the model allows constant monitoring of the performance of each cinema at a business level, which is one of the company's main strategic objectives.

After implementing the staff gamification model for 9 months, the need to redesign it arose due to underlying limitations. The application of the model is extremely important for the company as it aligns two major strategic objectives. On the one hand, it allows for constant monitoring of cinema

performance at a business level, and on the other hand, it contributes to maximizing staff motivation through competition and awards. Thus, the process of redesigning the model will be essential to ensure continuous improvement within the company's recovery pillar.

1.1. GENERAL AND SPECIFIC OBJECTIVES

Through my participation in an internship in the Marketing & Business Development department at NOS Cinemas company, from NOS, SGPS, S.A., this report aims to describe the process of redefining the staff gamification model, from analyzing the results of the previous model to defining the guidelines for the new model, its implementation, and the subsequent analysis of its results.

The goal of this project, in addition to what was mentioned above, is also to identify new ways and tools to monitor performance, within the scope of Business Intelligence, that allow identifying patterns and data-driven decision-making on the way forward, that can be applied in future complementary projects.

Redefining the gamification model is intended to increase staff motivation, encourage the achievement of business objectives, that add value to the company through a continuous improvement strategy.

For this project, specific objectives are assumed to be:

1. Extract, process, and organize data from the 2022 gamification model in order to build a results analysis based on key metrics.
2. Create a survey with the aim of collecting feedback from cinema staff, including managers and sub-managers regarding the model in force.
3. Compile information from previous analyzes and present the model results together with the Marketing team in order to extract key insights.
4. Design and implement the new gamification model, defining its guidelines according to the company's strategic axes.
5. Gather feedback on the new gamification model from cinema managers and the Marketing team.
6. Analyze the results of the new model and its impact, identify limitations and areas for improvement, and recommend actions for the future.

These objectives will be achieved in a phased manner and using various methods, which will be described later in the Methodologies and Results and Discussion chapters.

Despite the performance of each cinema also depends on the performance of the staff, both of each collaborator and of the team as a whole, this project will not focus on the evaluation of people but on the cinema itself at a business level. The object of research of this study is the cinema as a structural unit of NOS Cinemas.

1.2. COMPANY BACKGROUND

NOS, SGPS, S.A. is a Portuguese communications and entertainment group, resulting from the merger, in 2014, of two of the largest communications companies in Portugal: “ZON Multimédia” and “OPTIMUS Telecomunicações”, with the aim of developing its strategic plan in the field of multimedia (NOS, n.d.-b).

There are several businesses operated by NOS and its subsidiary companies that form part of its business universe, “NOS Group”, including cable and satellite television, voice and internet access services, videogram editing and sale, advertising on pay-TV, movie cinemas, film distribution, pay-TV channels, data center management, licensing, and engineering and consulting services in the area of information systems, primarily in the Portuguese market (NOS, 2022).



Figure 1 - NOS Group (NOS, n.d.-a)

NOS Cinemas (NOS Lusomundo Cinemas, S.A.) owns 30 complexes spread across Portuguese territory. It is the main importer of films in Portugal and is the largest network of national cinemas. Currently, the leading company in the market is responsible for managing 220 cinemas. Cinema exhibition revenues derive mainly from the sale of tickets and bar products (NOS, 2022).

The company is also characterized by its constant innovation. In Portugal and Europe, NOS Cinemas was a pioneer in the digitalization of the film industry and digital 3D content distribution platforms. It obtained the first IMAX cinema in Portugal, as well as the first 4DX and the first NOS XVISION cinema (NOS, n.d.-b).

According to the NOS Cinemas’ Action Plan for 2023, the pandemic has required cinemas to undergo a global operational transformation and unprecedented discipline. The main challenges in the recovery

period are bringing customers back, growing in the digital field, investing in new sources of revenue, and reinforcing the path of sustainability.

As mentioned earlier, the strategic direction of NOS Cinemas is based on the definition of four pillars that guide the path of recovery and growth of the company. The four strategic axes, interdependent and with underlying value creation, are the following:

1. Bring customers back - applying promotional dynamics in various channels and always focusing on the customer.
2. Experimentation and innovation - expanding the current business and improving cinemas.
3. People - maximizing staff motivation and continuously improving the customer service experience.
4. Operational discipline - increasing the efficiency and profitability of operations.

This project falls within the third strategic axis, where the focus is on increasing people's motivation and satisfaction. Although the company has several sales channels, such as the website, the app, and the self-vending machines, the physical ticket office is the main channel with the highest number of sales (NOS, 2022). This means that customers value the face-to-face experience, where they have direct contact with employees. The satisfaction and motivation of the staff are essential to improve the customer service experience and encourage customers to return. Thus, developing staff incentive policies and promoting continuous improvement is essential to obtain sales growth and, consequently, company revenue.

Due to the size of the company, a large volume of data is generated daily. Since the company NOS Cinemas lacks analytics and Business Intelligence tools in its management process, this project will be important to help manage and monitor information of the entire organizational system and structural units.

1.3. REPORT OVERVIEW

The structure of this internship report is described below:

- Chapter 1 describes the introduction and objectives of the project, as well as the company background and the report overview.
- Chapter 2 covers the literature review with important concepts for the development of this project.
- Chapter 3 describes the adopted methodology in each phase of the internship.
- Chapter 4 shows the data used, the results, and the discussion of the work progress.
- Chapter 5 discusses the limitations of the project.
- Chapter 6 presents the conclusions and future works that can be continued based on the results.

2. LITERATURE REVIEW

In this chapter, the literature review examines theoretical concepts that support the process of redefining the gamification model and shows examples of digital and Business Intelligence solutions applied in previous studies.

2.1. BUSINESS INTELLIGENCE

Business Intelligence is heavily documented in the literature as a result of a set of concepts and methods based on fact-based support systems for improving decision making (Bach et al., 2018; Trieu, 2017). According to the authors, there is a detailed definition about the concept of Business Intelligence, as a set of processes and systems (such as data warehouses, data marts, analytical and reporting tools, ad hoc analytics and OLAP, in-memory analytics, planning, alerts, forecasts, scorecards and data mining) that transform raw data into meaningful and useful information (Bach et al., 2018). These processes and systems enable an effective, systematic and purposeful analysis of an organization and its competitive environment.

Since its introduction in the 1990s, the concept of Business Intelligence has evolved from its primary use in IT and business societies, where a set of data matrices was consulted to generate information and develop a plan for the future (Paradza & Daramola, 2021). Specifically, the BI solution defined in this project is a system that combines technical and organizational elements to present historical information to its users for analysis and reporting, enabling decision-making and management support, as well as boosting the performance of business processes (Trieu, 2017).

The primary objective of this project is to improve the company's performance by enhancing business value, which has been defined as transactional, informational, and strategic benefits from the use of Business Intelligence (Paradza & Daramola, 2021).

While there are some studies on the alignment between the film industry and the advancement of digital technologies, there is a gap on the application of Business Intelligence in cinema for performance monitoring purposes, specifically in the Portuguese cinema market.

However, it is possible to perceive the critical impact of the aid of digital technologies and artificial intelligence tools in the recovery of cinemas and film production, after the disastrous consequences of the pandemic. For example, a box office revenue prediction system for a film at its early stage of production was built to help management overcome resource allocation challenges considering the significant investment and risk for the whole film production (Liao et al., 2022). In the same logic, a system was proposed to predict box-office movie success using machine learning concepts by sentiment analysis of movie-related comments from social media networks (Sharma et al., 2020). According to these authors, the achievement pace of a film is greatly dependent on the marketing strategies the producers use on social media, since knowing people's tastes is fundamental to

producing the best films. This issue was also confirmed by another study which demonstrated how Business Intelligence and analytics allow producing attractive film content profitably (Behrens et al., 2021).

Another subject that has been increasingly studied over time, especially after the pandemic, is the threat of streaming platforms to cinema. The results of the study conducted in this topic showed that the increase in demand for streaming and online cinemas affects the audience's requirements for the genres and format of cinema (Alforova et al., 2021). To satisfy audiences, filmmakers are constantly modernizing the industry once the main challenge for film companies is targeting the viewers.

For this reason, digital marketing has also been increasingly present in the film industry. A study done at Telugu Cinema, India, showed the importance of digital marketing in this field. By adapting digital marketing strategies to promote their films in a unique way, their product could reach millions of potential targeted people (Juvvigunta et al., 2021).

Despite the lack of studies on the application of Business Intelligence solutions in evaluating the performance of cinemas, particularly in Portugal, it is possible to verify a successful implementation of a similar project in Brazil. Cinemark, which is one of the largest cinema chains in the world, increased by around 20% the sales of tickets and products at its complexes in Brazil, with a Business Intelligence project implemented by the Brazilian company Nordica (Arbesú, 2022).

The Cinemark cinema chain represents about 30% of the Brazilian cinema market. In 2014, the company opted for a data analysis platform, Qlik, as a Business Intelligence solution to make the necessary customizations and provide detailed information on the results for analytical purposes. The main advantages of this implementation, cited by Cinemark's data coordinator, were the speed of the process, the knowledge about customer behavior that allowed creating more assertive campaigns, the definition of KPIs and the generation of reports that improved decision-making processes (Arbesú, 2022).

Thus, the main conclusion drawn from previous studies is that the alignment of the film industry and the advancement of modern technologies, especially in analytics and Business Intelligence, is critical to the survival and the economic and operational success of cinemas in the future (Alforova et al., 2021).

Although there has been research on performance monitoring in the film industry, no studies were conducted specifically on the Portuguese cinema market. Thus, the importance of this project can be seen in terms of adding value to the Portuguese market, in particular to the company NOS Cinemas.

2.2. GAMIFICATION

The origin of the term “gamification” dates to 2008 in the digital media industry and started to become popular later through conferences and industry players (Deterding et al., 2011). According to the authors, gamification is the process of using game thinking, mechanics, and elements, such as points, badges, challenges, and rewards outside the games industry.

In many areas, from finance to education, health, entertainment and more, gamification strategies are applied to improve user engagement, motivation, and behavior. They may vary according to the objective and characteristics of the target domain (Deterding et al., 2011).

According to a study on gamification in human resources management, the author concluded that the use of gamification can improve human resources practices and tools. As a result of the implementation of gamification, employees are motivated, engaged, and perform better, training outcomes are improved, talent management measures are supported, and knowledge management activities are fostered (Murawski, 2021).

Also pointed out by the author, there are risks associated with the implementation of gamification models, such as additional pressure, intimidation, unhealthy competition between teammates, so monitoring and collecting continuous feedback is essential to identify and resolve these risks.

To conclude, cinemas can use gamification to improve employee engagement and motivation and optimize various operational aspects to improve operational efficiency. Using the gamification model, employees can earn points or rewards for achieving specific performance targets that motivate the staff and enhance productivity.

3. METHODOLOGY

The main objective of this chapter is to present the structural approach adopted in the development of the project described in this internship report.

According to Castellan (2010) there are two general approaches for conducting educational research: quantitative and qualitative. Also, some researchers adopt a hybrid model, including both approaches in one study. In quantitative methodology, researchers are concerned with an objective reality, where the goal of the research is to collect facts from human behavior by using methods such as questionnaires, surveys, and tests. On the other hand, in qualitative methodology, researchers are concerned with how individuals perceive their world, where the goal of the research is to better understand human behavior and experience, by using methods such as interviews, written documents, pictures, observations, among others.

Since this project will be developed with quantitative and qualitative methods, the mixed methodology approach will be used and described throughout the report.

3.1. BADIR CONCEPTUAL MODEL

BADIR is a data analysis framework developed by Piyanka Jain and Puneet Sharma, the authors of the book “Behind Every Good Decision” (Jain & Sharma, 2014). The acronym BADIR stands for **B**usiness Question, **A**nalysis Plan, **D**ata Collection, **I**nsights and **R**ecommendation, which are the five sequential steps that make up the model, as demonstrated in the figure below.

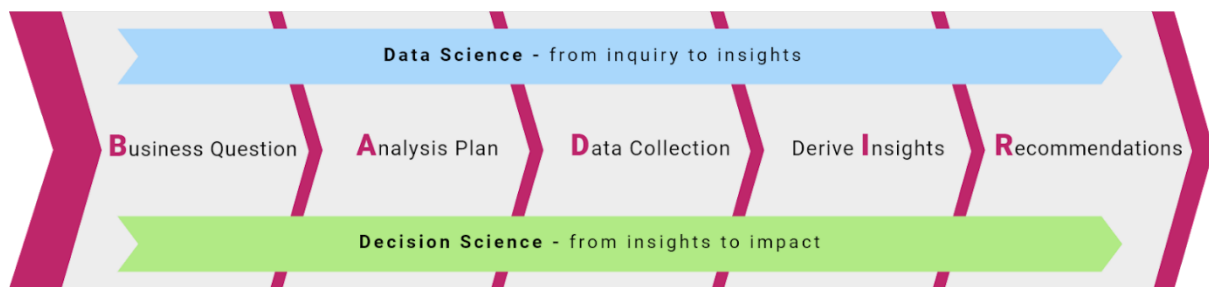


Figure 2 - BADIR framework (Aryng, n.d.)

Briefly, the purpose of each step is as follows:

- Business Question - identify the real and actionable business need.
- Analysis Plan - formulate a hypothesis-driven analysis plan by selecting and preparing data for analysis.
- Data Collection - collect relevant data based on the Analysis Plan.
- Insights - derive insights using machine learning and statistics from previous steps.
- Recommendations - drive KPI's with actionable Recommendation to help managers in the decision-making process.

According to the authors, the BADIR framework is a revolutionary tool that helps solving complex business problems quickly and effectively. It has been implemented in hundreds of enterprises, including several fortune 500 companies, and had an impact of more than \$200 million (Aryng, n.d.).

This data-to-decision framework is widely used across organizations since it allows them to use structured analysis to convert raw data into decisions and insights (Jain & Sharma, 2014).

BADIR is simple to apply, and it works in any type of business. It combines data science with decision science, providing one easy-to-follow framework with technical skills and soft skills, allowing a dialog between all stakeholders involved (Aryng, n.d.; Jain & Sharma, 2014).

This approach provides multifunctional application of both decision science and data science related problems. Although the five steps are the same, there is a slight difference on how the BADIR approach is implemented between the two categories of problem. While the Data Science framework is more focused on data preparation, and on the most appropriate quantitative methods to find the most insights, the Decision Science framework is more focused on interacting with stakeholders in order to understand the context of the business problem and define the best strategy to solve it (Jain & Sharma, 2014). However, both approaches follow the same path of defining the problem, gathering relevant data, identifying critical factors, choosing the appropriate analysis methods and implementing (Aryng, n.d.).

Once the main purpose of this project is to redefine the staff gamification model, applying data analysis methods, as a Business Intelligence solution, to monitor the performance of NOS Cinemas, the Decision Science framework will be followed. This is the most suitable approach due to the need of defining priorities and objectives of the new model for strategic decision making instead of focusing on specific data science techniques.

In order to clarify the steps to achieve the main objective of the project, the practices applied according to the Decision Science framework will be described.

1 - Business Question

The authors suggest defining a problem by taking root cause analysis. Understanding the context of the problem allows the team to accelerate the resolution process. To help identify the real and actionable business need, the six general questions need to be reflected and answered: *What, Who, Where, When, Why and How* (Jain & Sharma, 2014).

The six general questions were presented to the team and the answers are described in the following table.

Table 1 – BADIR - Business Questions

Question	Answer
What is the role of the gamification model in managing cinemas performance?	The gamification model is a tool that complements the analysis of cinema performance by monitoring various sales metrics.
When is it necessary to redefine the gamification model?	It is necessary to redefine the model by the end of the year 2022 so that the new model can be launched in February 2023.
Who will monitor the gamification model?	The Marketing team, which manages the performance of NOS Cinemas. The results will be shared with the cinema managers.
Why is it necessary to redefine the staff gamification model?	To address model limitations and to measure more effectively the cinemas' performance to find real-time insights and act accordingly.
Where should the model be redefined?	Through the help of the Excel tool to carry out the necessary analyzes.
How should the model be redefined?	The redefinition process must be done in a phased manner, following the BADIR methodology, meeting the defined objectives, and considering the commercial context of cinemas.

After reflecting on the Business Questions, it became evident that redefining the gamification model is a priority to improve the monitoring of cinemas' performance and consequently the management of the company NOS Cinemas.

2 – Analysis Plan

The second step of the BADIR framework is to formulate an Analysis Plan. According to the authors, the interaction with stakeholders is essential in this step to develop the best strategic plan (Jain & Sharma, 2014). Beyond the kick-off meeting, it is important to continue communicating and reviewing methodology-related issues, such as data specification, deadlines, hypothesis, and goals through frequent meetings.

Throughout the project, several meetings were held with the team to ensure the necessary monitoring. In terms of planning, it was decided that the process of redefining the staff gamification model would essentially have 5 steps to follow, which are listed below.

- 1) Analysis of the results of the current model and identification of its main limitations;
- 2) Collection of feedback from staff through a survey;
- 3) Team discussion to draw conclusions and identify the guidelines for the new model;
- 4) Implementation of the new gamification model;
- 5) Analysis of results of the new model and make recommendations for future projects.

3 – Data Collection

This is the step where the data is collected and prepared for analytical purposes. This process involves data cleansing and validation, in order to be sure that the data that will be used are correct and treated properly, otherwise the analysis will be compromised, and the results will not be accurate.

As referred by the authors, the Data Collection step is divided into two parts:

- Data pull - where it is necessary to define the source of the data to be collected and the period of time that it should cover.
- Data cleansing and validation - the process of preparing data by cleaning and validating it, in order to make it usable and accurate for analysis.

The data used for the development of the project described in this internship report was collected from the ARPUX platform, which stores data from the company NOS Cinemas. The process of data cleansing and validation, as well as the statistical analysis were performed using Excel, as will be described later.

4 – Derive Insights

The fourth step of the BADIR framework is to derive insights from the previous analysis to present and discuss with the managers or stakeholders. This means that after analyzing the data that is already clean and valid, it is necessary to find highly useful information that will help the managers to make the best decisions. This can be done reviewing patterns in data and trying to prove or disprove formulated hypotheses. According to the authors, the findings need to be validated with stakeholders in order to answer new business questions that may arise when discussing the insights (Jain & Sharma, 2014).

By analyzing the current gamification model and collecting feedback from staff, the team was able to draw conclusions, identify the main limitations and derive insights that allowed the definition of strategic goals for the new model. These goals overcome limitations and make the new model more efficient, as will be detailed in the next chapters.

5 – Recommendations

Finally, it is necessary to make a walk-through of the whole BADIR framework and draw the main conclusions. After reflecting and discussing them, it is possible to make recommendations that translate into actions. As explained by the authors, the main objective of the process is to turn data into insights, and then insights into actions. Thus, the last step of the BADIR framework is to present to the managers a concise, insightful, and credible set of recommendations, directing them towards actions that solve the business problem.

The chapter of Recommendations and Future works summarizes all the recommendations and action plan suggestions that were made to the team with the aim of achieving continuous improvement and acting in a targeted manner.

3.2. DATA COLLECTION INSTRUMENT

As previously mentioned, most of the data used for the development of this project was collected from the ARPUX platform, which stores data from the company NOS Cinemas. In addition, other instruments were used to collect data, both quantitative and qualitative, as will be described below.

In order to find out the opinion of cinema staff regarding the gamification model, a survey was created in Google Forms where each employee and manager could share their opinion with the Marketing team. Questions and results will be shared later.

Also, as described in the BADIR framework, several meetings and conversations between the marketing team, directors and managers were held throughout the project to understand and gather information about the goals and the actions that should be taken accordingly.

To complement the analysis of the gamification model, information was collected from internal reports, where the company's results for the year 2022 were presented.

In summary, the necessary data for the development of the project was collected from the following sources:

- ARPUX platform;
- Survey applied to cinema staff created in Google Forms;
- Meetings between the marketing team, directors and managers;
- Internal reports.

4. RESULTS AND DISCUSSION

Following the chronological line of the actions that took place during the internship, this chapter will detail the different phases of the process, presenting and discussing the results. First, the previous model will be presented, as well as the analysis of its results. Then, the redesigned model will be detailed and, finally, the comparison between both.

Since the internship period in the cinema area (NOS Cinemas) was between October 2022 and April 2023, only the results in the last quarter of 2022 vs the first quarter of 2023 will be analyzed.

4.1. PRESENTATION OF THE 2022 GAMIFICATION MODEL FOR NOS CINEMAS

As previously mentioned, one of the strategic axes for the recovery of the company NOS Cinemas involves improving the motivation and encouragement of employees. The physical ticket office is the main ticket sales channel (NOS, 2022). Its differentiating characteristic is the fact that it allows direct contact between the staff and customers, in order to create a unique customer service experience that is all the better the more satisfied and motivated the staff is. Thus, developing staff incentive policies and promoting continuous improvement is essential to obtain sales growth and, consequently, company revenue.

In line with this objective, one of the methods implemented in 2022 was a gamification model for the staff, which was in effect between April and December of that same year. The model is called “NOS Casting 2022”, and its main objective is to provide friendly competition between the 30 cinemas of the company, promoting sales objectives and greater employee engagement in their teams.

Each cinema represents an actor who, monthly, performs several castings and competes with other actors to obtain the main role in the film of the month. Obtaining the main role is achieved through the results obtained in previously defined sales metrics. The 30 cinemas are divided into 6 groups, depending on attendance (ATT), i.e., the average number of frequent customers. The results are obtained through a voting system that will be explained below.

In order to simplify the dynamics analogy, the components will be described in the table below.

Table 2 - Components of the 2022 Gamification Model

Components	What they represent	Description
Actors	Cinemas	Actors go to several castings per month to win votes and get the lead role in the film.
Agents	Managers of each cinema	To ensure success at auditions, agent support is essential to land the lead role.
Casting directors	Metrics	The actors' castings will be evaluated by the directors, who represent the metrics. Each film has resident and guest casting directors.
Casting films	Thematic	Each month has a different theme, so the actors will have the opportunity to be in 9 films during the year (April – December).

As mentioned, the model includes two types of casting directors: residents and guests. Resident directors are the fixed metrics that track cinemas every month. They are the following:

- **SPP** - *Sales per person* - represents the amount spent, on average, per person at the bar.
- **%Digital** - represents the percentage of sales made on digital channels.
- **%Large_Menu** - represents the percentage of large menus in the total number of menus sold.

On the other hand, guest directors are variable metrics that, as the name implies, vary monthly. Every month, cinemas are evaluated by five metrics, three fixed and two variables.

As previously mentioned, cinemas are divided into 6 clusters and only cinemas from the same group compete against each other. The groups were defined according to the attendance (ATT), as will be detailed in the table below. In order to guarantee the privacy of each cinema, the names of the complexes will not be disclosed.

Table 3 - Division of cinemas by cluster

Cluster	ATT	Number of cinemas
A	> 10K	4
B]8K - 10K]	4
C]5K - 8K]	6
D1	[3K - 5K]	6
D2	[3K - 5K]	5
E	< 3K	5

The competition is held monthly, and at the end of the month each cinema is scored according to its performance in the defined metrics. Reaching a higher score means receiving more votes, and consequently, being more likely to get the lead role in the film of the month.

There are three levels for each metric: **minimum**, **target**, and **maximum**. The number of votes that each cinema receives will depend on its position in these three levels. Each metric has its defined levels, and all cinemas compete with each other, according to their group, to reach these values.

For example, for the SPP metric, the values corresponding to the levels to be achieved by cinemas are presented in the table below.

Table 4 - Values of the levels corresponding to the SPP metric.

Levels	SPP		
	Minimum	Target	Maximum
Values	1,85€	2,22€	2,35€

To simplify the voting system, an example for the fixed SPP metric will be illustrated below considering random values for cinema X. The calculation formula for assigning points will be as follows:

$$\frac{SPP}{SPP\ target} \times 2000$$

In this formula, the SPP positioned in the numerator represents the value that cinema X obtained in a given period of time. The denominator “SPP target” represents the value of the target level, which is 2,22€.

The table below illustrates the awarding of points to cinema X, in four different scenarios, depending on its SPP value.

Table 5 – Awarding points to cinema X, in four different scenarios

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
SPP	1,75€	2,15€	2,30€	2,35€
Calculation	$\frac{1,75}{2,22} \times 0$	$\frac{2,15}{2,22} \times 2000$	$\frac{2,30}{2,22} \times 2000$	$\frac{2,35}{2,22} \times 2000 + 1000$
Final score	0 points	1937 points	2072 points	3117 points

Analyzing the table above, it is possible to draw some conclusions regarding the allocation of points, which has the same logic for the other metrics, varying only the values of the levels. Scenario 1 illustrates the case where cinema X failed to reach the minimum level, so it will not receive any score. In the second scenario, although cinema X has exceeded the minimum level, it has not managed to

reach the target, so it will not receive 2000 points, but will be scored according to its performance. Scenario 4 illustrates the case in which cinema X reached the maximum level, so that, in addition to the defined score, it will receive an additional bonus of 1000 points.

As usual in a gamification model, competition intensifies when there is a reward. For this purpose, the winning cinemas, that is, the actors who manage to obtain the main role in the film of the month, receive a monetary reward. The prize is awarded monthly to all staff members from 6 cinemas, as there is always one winner per cluster. At the end of the dynamic, the cinema with the highest number of votes accumulated over the months will receive a higher award, both for the staff and for the managers.

Communication about the dynamics is done by the Marketing team via email and shared with the managers of all cinemas. At the beginning of the month, the film for which the cinemas, representing the actors, will be competing for the main role is released. In this email, guest directors are announced, that is, the variable metrics that will evaluate the performance of each cinema. In the second week of each month, an email is sent with the fortnightly ranking, disclosing the score of each cinema in relation to each metric. The winners are announced in the first week of the following month, as well as the sending of the respective prizes.

4.1.1. Analysis of results of the 2022 gamification model

In order to analyze the global results of the 2022 gamification model, it will be necessary to divide the analysis into several points. Therefore, it will be analyzed in greater detail the main metrics of the model, with the greatest impact on the business, and also demonstrate the impact of the variable metrics present in the model on the company's sales.

The points to analyze are the following:

- Variable metrics analysis;
- SPP analysis;
- %Digital analysis.

Variable metrics analysis

In the analysis of the variable metrics, it was only considered the metrics in which it was possible to establish a comparison with previous periods, namely:

- *%Topping* - represents the amount of popcorn sales with topping over the total popcorn sold.
- *%Gift_Cards* - represents the amount of gift card sales over ATT.

The table below presents the values of the %Topping metric for each cluster, and the difference in percentage points (pp) between the period in which this metric was a casting director (October 2022) compared to the previous month.

Table 6 - Difference in %Topping sales by cluster (October vs September 2022)

CLUSTER	OCTOBER 2022	SEPTEMBER 2022	DIFFERENCE (PP)
A	13,92%	5,73%	+8,19pp
B	22,72%	7,41%	+15,31pp
C	15,24%	9,39%	+5,85pp
D1	28,59%	6,55%	+22,04pp
D2	16,59%	7,19%	+9,40pp
E	8,50%	7,48%	+1,02pp

The difference was positive in all clusters, which means that there was a significant increase in the percentage of sales of this product. The presence of %Topping as a metric in the gamification model contributed to the increase in sales of this product in the company. The same was true for the other variable metric, %Gift_Cards, whose data is present in the Appendix A. Thus, it is concluded that the gamification model translates into a potential sales growth factor for the article in question, since the focus and objective of cinemas are directed towards this. The difference in results is quite significant, so the existence of the gamification model in the staff has a positive impact.

SPP analysis

One of the main metrics in evaluating the performance of cinemas is the SPP (sales per person) - it represents the average amount that each person spends in a bar when going to the cinema.

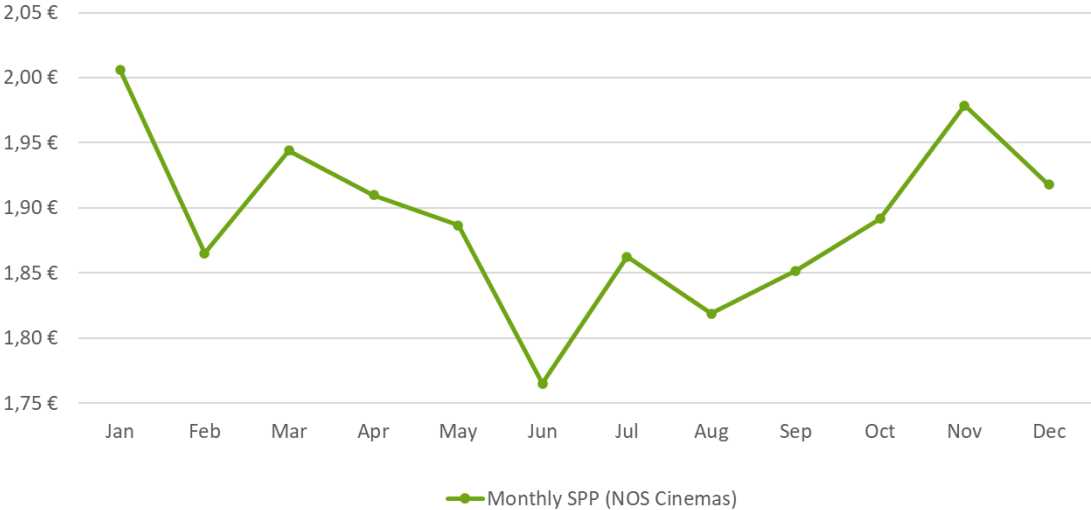


Figure 3 - Monthly value of NOS Cinemas SPP in 2022

The graph above shows the behavior of the average SPP value of the company NOS Cinemas, that is, the total of 30 cinemas, throughout the year 2022.

When analyzing the graph presented, it is observed that the behavior of the SPP fluctuated throughout the year. It reached its peak in January, with an average value of 2,01€ and reached its minimum in June, with an average value of 1,77€. Seasonality is a factor that influences the average SPP value, since the summer months (between June and September) are the period with the lowest average SPP value.

From a different perspective, the chart below compares the average annual SPP per cinema, in 2022, from cinema 1 to cinema 30.

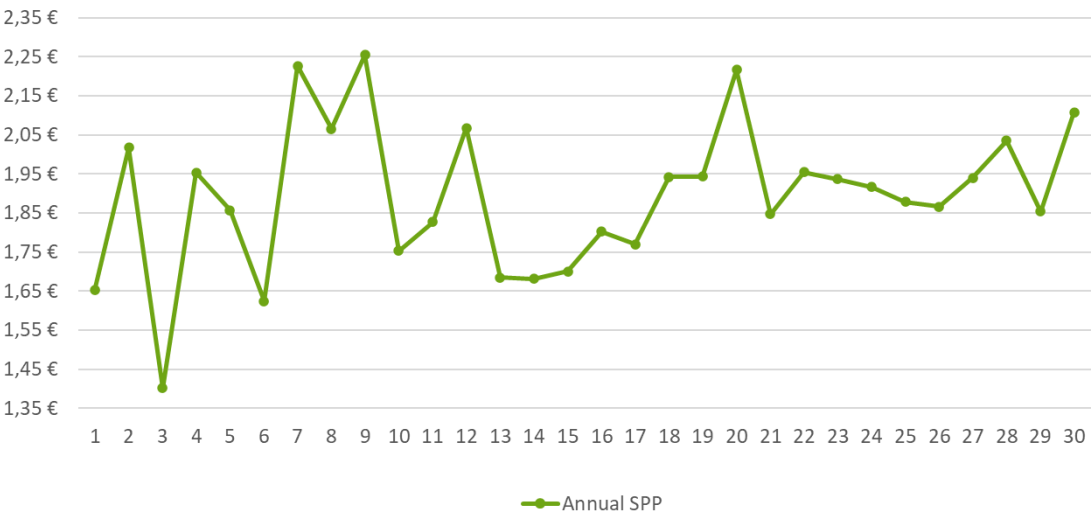


Figure 4 - Annual SPP value per cinema

Analyzing the graph above, it is observed that the value of the annual SPP varies between the 30 cinemas, between 1,40€ (corresponding to cinema 3) and 2,26€ (corresponding to cinema 9). Although there are cinemas with an average annual SPP value similar to each other, there are, in most cases, significant differences. The average SPP value of the company NOS Cinemas in 2022 was 1,89€.

SPP analysis by cluster

As previously mentioned, the gamification model groups cinemas into 6 clusters based on attendance value (ATT). Cluster analysis is essential to understand its behavior throughout the dynamics of 2022. The aim is to find out if the cinemas that make up the cluster have a similar performance among themselves, if they achieve the objectives proposed by the model and how often. It is important to identify, within the cluster, the cinemas that manage to reach the minimum level and those that do not, as well as the target and maximum level.

It is based on these results that the gamification model is evaluated, since it is expected that there is fair competition between cinemas. Despite the need for growth incentives, the values defined for the levels need to be adjusted to the actual performance of cinemas to avoid employee demotivation and frustration.

Next, the performance of the SPP in 2022 for clusters B and D1 will be demonstrated. The analysis of the remaining four clusters is present in the Appendix A. In the graphs, it is possible to observe the average monthly value of the SPP of each cinema that makes up the cluster. The horizontal gray lines correspond to the values defined in the model for the minimum (1,85€), target (2,22€) and maximum (2,35€) levels.

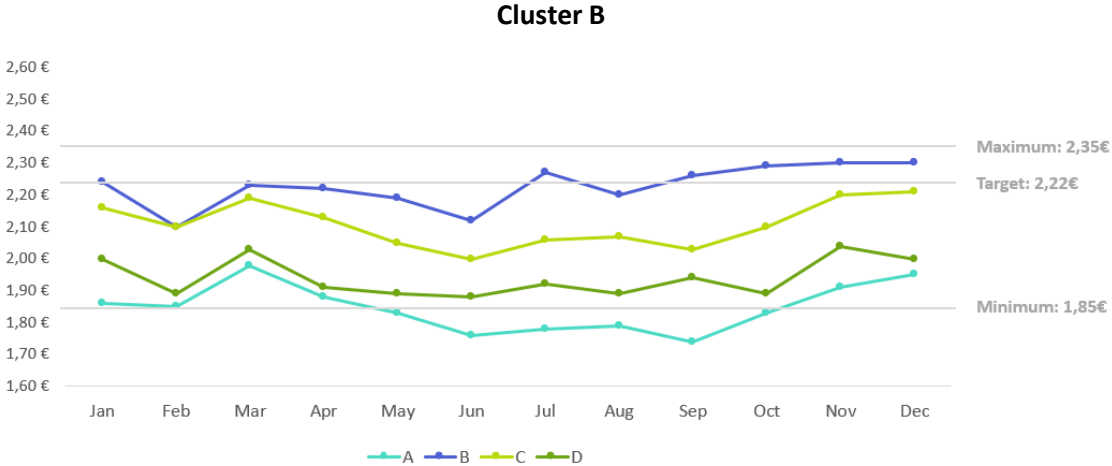


Figure 5 - Cluster B SPP performance in 2022.

Analyzing the graph, it is possible to conclude that the performance of cluster B is unbalanced. The performance of the cinemas is different from each other, and this difference is maintained throughout the year. Apart from the month of February, it is possible to identify not only the winning cinema of the month, but also the order of the winning cinemas since it is the same every month. Cinema A has a constant superiority over the other cinemas during most months, so it can be considered a pre-defined winner.

By analyzing the behavior of each cinema in relation to its SPP value, it is possible to identify that the cinema A spent six consecutive months without being able to reach the minimum level, not receiving any score in this metric. Throughout the year, three of the four cinemas never reached the target level, and the maximum level was never reached.

This means that the values defined for the metric levels in this model are not adjusted to the real performance of cinemas. This situation does not correspond to what was expected, since there is no fair competition between the cinemas, which could lead to demotivation for the employees.

Cluster D1

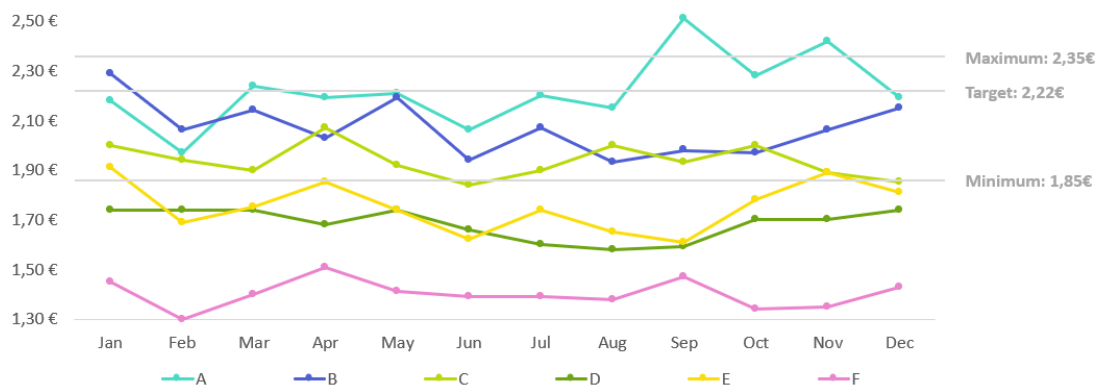


Figure 6 - Cluster D1 SPP performance in 2022.

Like cluster B, cluster D1 also presents an unbalanced competition between the cinemas that comprise it. It is possible to identify two different groups within the cluster. The first group is made up of cinemas A, B and C. The behavior of these 3 cinemas is similar, since their SPP value is, most of the time, above the target, and for cinema A, above the maximum level. The remaining cinemas make up the second group. On the contrary, these cinemas do not reach the minimum level defined by the model, except for cinema E.

The discrepancy between the two groups is quite significant and worrying, since this separation within the same cluster should not exist. The performance of cinemas D and F is unpleasant for their employees since they did not receive any score in this metric during the dynamics.

Thus, after analyzing the performance of each cluster, it is possible to draw some conclusions. First, clusters are made up of cinemas with a very different SPP performance. In this way, it is possible to identify clusters with cinemas that constantly win competing with cinemas that barely reach the minimum level. Secondly, the values of the levels defined by the model are not adjusted to the reality of all cinemas. There are cinemas that easily reach the maximum level competing with cinemas that fail to reach the target. Cinemas are different from each other, they have different technical and operational conditions, and their target audience has different characteristics. Consequently, setting equal level values for completely different cinemas makes the competition unfair and unbalanced. It is concluded that a cinema with higher ATT does not always mean having a higher SPP value. In the same way, a cinema with a lower ATT is not obliged to have a lower SPP.

%Digital analysis

Applying the same logic to the %Digital metric, two graphs will be presented, corresponding to the same clusters previously analyzed for the SPP analysis. The gray lines represent the values defined for all clusters in relation to the levels: minimum (25%), target (35%) and maximum (45%).

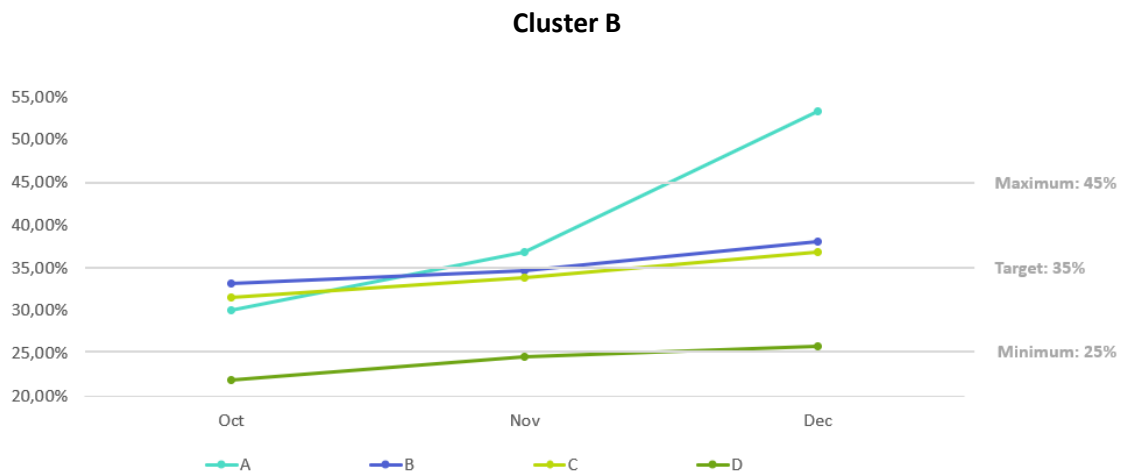


Figure 7 - Cluster B %Digital performance in 2022.

Although there is competition between cinemas A, B and C in the months of October and November, there is a disparity in the behavior of the metric when compared to cinema D. This difference is intensified in the month of December, when cinema A makes more than half of sales on digital channels, and cinema D makes around 25%. It's not fair for cinemas with such different performances to compete in the same group with the same type of objectives.

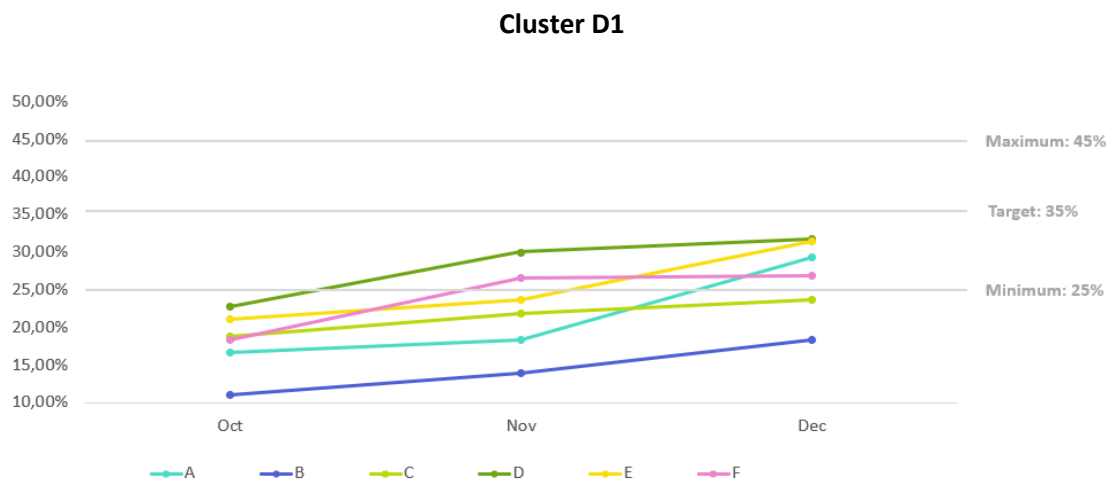


Figure 8 - Cluster D1 %Digital performance in 2022.

In relation to cluster D1, it is possible to identify a mismatch between the values defined in the model and the real performance of the cinemas. During the period considered, it appears that none of the cinemas managed to reach the target, and cinemas B and C never reached the minimum level. Once again, it shows an unfavorable situation and possible demotivation on the part of employees.

4.1.2. Survey analysis

After 9 months of implementation, cinema managers raised some questions about how the gamification model worked. Some points are in line with the conclusions drawn from the previous analysis. The main question raised was whether there was any way to optimize the model so that competition between cinemas is fairer and more balanced.

In order to understand the point of view of cinema managers and employees regarding the NOS Casting 2022 gamification model, a survey was created with the aim of collecting feedback. It is essential to understand the opinion of the people who deal with the dynamics on a daily basis, as they are the best people to identify strengths and limitations. The survey was created on the Google Forms platform and shared with cinema managers, so that they could share with their teams. Through this tool, it was possible to give all managers and employees the opportunity to express their point of view, anonymously and in detail.

In order to simplify and summarize the analysis of the survey, the main results obtained will be presented below. The complete survey is available in the Annexes.

Among the various points covered in the research, the main topics to be analyzed are listed below.

- 1) Participation rate;
- 2) Level of satisfaction with the gamification model in general;
- 3) Agreement on the distribution of cinemas by groups;
- 4) Opinion on replacing the SPP metric with another similar indicator;
- 5) Most valued points;
- 6) Less valued points;
- 7) Improvement suggestions.

1) Participation rate

The survey was shared with the 30 managers and distributed by them to members of their respective teams. Although the number of collaborators fluctuates depending on the periods of greatest attendance at cinemas, at the time the survey was launched the staff was made up of more than 500 collaborators. The survey was available between December 5, 2022 and January 4, 2023. Despite the incentive to respond, the participation rate was quite low, only about 12% of all the staff responded. A reduced attendance rate was expected due to the busy period in cinemas and the volume of staff work, however, this figure fell short of expectations.

2) Level of satisfaction with the gamification model in general

The first question in the survey asked participants to choose, on a scale of 1 to 5, where 1 means “very dissatisfied” and 5 “very satisfied”, their level of satisfaction with the dynamics of NOS Casting 2022 in general. The responses are compiled in the chart below.

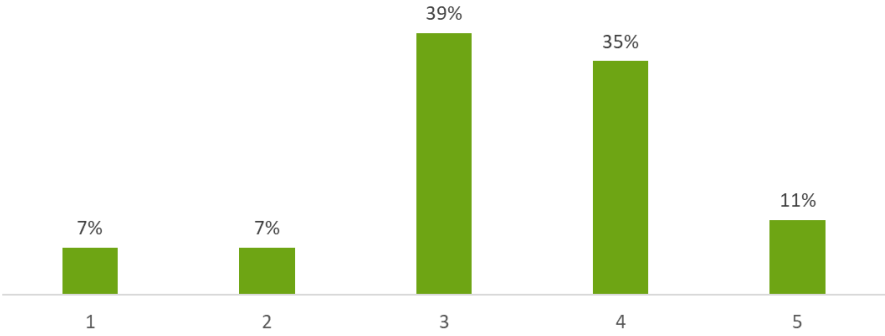


Figure 9 - Level of general satisfaction in relation to the current gamification model.

In general, employees are satisfied with the dynamics, since 46% of participants chose level 4 or 5. The percentage of neutrals (39%) stands out which may mean that a relevant part of the employees feels indifferent about the dynamics. The goal of the gamification model is to be something motivating and satisfying for the staff.

3) Agreement on the distribution of cinemas by groups

The participants were also asked whether they agree with the distribution of cinemas by groups, depending on attendance. It is concluded that 71,4% of the participants agreed with this type of distribution.

4) Opinion on replacing the SPP metric with another similar indicator

After analyzing the SPP indicator, presented earlier, the Marketing team reflected on whether this metric should remain in play. Despite being one of the main metrics in evaluating the performance of cinemas, the results showed that comparing cinemas in terms of their monthly SPP generates an unbalanced competition. Thus, the option arose to create a new indicator that measured the percentage growth in bar sales, per cinema, to be applied in the next dynamic “NOS Casting 2023”.

When questioning employees about whether this new option made sense or not, it appears that 62% of participants think that it makes no sense to replace the SPP with the new option. However, of the remaining 38%, some left their comment justifying their preference for the new indicator. The dominant reason is based on the fact that these participants think that each cinema should compete with itself, that is, in comparison with its SPP values in previous periods. Instead of competing against

the SPP of other cinemas, with different characteristics, they should aim to surpass their SPP value from previous periods, for example from the same period of the previous year.

5) Most valued points

In order to collect feedback from the staff regarding the gamification model, participants were asked to select or indicate the points that they valued most during the dynamic.

It is concluded that competition (44,3%) and maximizing motivation (40%) were the key points. Employees value the gamification model as it provides a motivational stimulus and encourages overcoming goals. Furthermore, the prizes were valued by 31,4% of the participants, as well as the theme (30%) involving the dynamics of NOS Casting. Within the “Others” category, one of the participants revealed that he valued “public recognition” in the context of the company NOS Cinemas, and another participant highlighted “team unity” as the most valued point in the dynamic.

6) Less valued points

Following the same line of reasoning, participants were asked to select or indicate the points they least valued during the dynamic, in order to consider potential improvements in the next gamification model.

It is concluded that the least valued point by the participants is the way the clusters are defined. Although in the third question, 71,4% of the participants agreed with the distribution of cinemas, in this question this was the least valued point. Furthermore, 25,7% of respondents were dissatisfied with the recurrence of information. This is an extremely important point, as it has been the subject of reflection by the Marketing team, since access to information through the extraction of reports has been one of the main difficulties during the dynamics. This limitation, which is beyond the control of the Marketing team that manages the dynamic, is also felt among the cinema staff and should be resolved and optimized by the IT team. Due to the difficulty in extracting information, cinemas are only able to know the results of the dynamic every two weeks, and the announcement of the winners is often delayed, more than would be expected. However, this is an issue that has been discussed in meetings and is being optimized in collaboration with other teams in the company. Another point undervalued by 24,3% of the participants are indicators, which are the variable metrics that come into play every month and are often repeated.

Within the “other” category, some points mentioned by the participants were “the prizes” and the confusion that the complexity of the dynamic generates, when involving various concepts such as actors, managers, resident directors, and guests, among others.

7) Improvement suggestions

Last but not least, the final survey question allowed participants to express their ideas and suggestions for improvement regarding the implemented gamification model.

It appears that the most common suggestion is based on the creation of tools that allow cinemas to access information regarding dynamics, at any time, namely the competition ranking. Then, 8% of the participants suggested redefining the clusters so that there is competition between cinemas with similar characteristics, in addition to ATT. Among the most frequent suggestions, it is also possible to highlight the change of theme in order to reduce the complexity of day-to-day dynamics (6%) and the consideration of the SPP history of each cinema in the evaluation of this metric.

In addition to the points mentioned above, it is possible to highlight other less common suggestions, but which will also be considered by the Marketing team, such as the following:

- Eliminate clusters so that each cinema can compete with itself;
- Innovate variable metrics, placing more bar products as indicators;
- Provide cinemas with more self-vending machines to encourage the growth of the digital channel;
- Create competition within the staff of each cinema, rewarding, for example, the collaborator with the highest number of sales.

Although the participation rate was reduced, the survey was extremely important during the project. This tool made it possible to collect data that will be very useful in the redesign of the gamification model, which will be detailed below.

4.2. REDEFINITION OF THE GAMIFICATION MODEL FOR NOS CINEMAS STAFF

The results of all previous analyzes such as the SPP and %Digital analysis, and the survey were presented to the Marketing team and discussed together. After reflecting on the results, it was possible to reach several conclusions supported by the data that allowed the director to make decisions.

There was, in fact, a need to redesign the gamification model for cinema staff. Creating a new model, with a completely different theme would not be the best option, since, from the perspective of the director of the Marketing team, a gamification model should be in progress in a minimum period of one and a half to two years. This would be the optimal period for the teams to be fully involved with the dynamics and provide relevant and sufficient data for model evaluation. After the two-year period would be the ideal time for a complete change so as not to tire and demotivate employees.

Thus, it was decided that the new gamification model for cinema staff, called “NOS Casting 2023”, would follow the same logic as the previous model, with the same theme but with a different structure. The need to redesign the structure of the model is linked to the objective of creating fairer competition

between cinemas, with a more balanced dispute, and incorporating suggestions for improvement given by collaborators, whenever possible.

Below are listed 6 key points defined by the Marketing team that served as guidelines and objectives to be achieved in the process of redesigning the gamification model.

- 1) Reduce the complexity of the model, better clarifying the rules and concepts;
- 2) Redefine the clusters that make up cinemas;
- 3) Define new values for minimum, target and maximum levels per cluster based on historical values of cinemas;
- 4) Increase the recurrence of information to be shared weekly;
- 5) Include new indicators as variable metrics;
- 6) Create additional ways to maximize employee motivation and satisfaction.

The changes and new introductions made to the model will be detailed below, according to each objective mentioned.

Objective 1 – Reduce the complexity of the model, better clarifying the rules and concepts

In order to simplify the new gamification model, the number of metrics that evaluate the performance of cinemas was changed. Each month, cinemas will be measured by two fixed metrics instead of three and one variable metric instead of two. SPP and %Digital remain fixed metrics, and %Large_Menu is no longer part of it. The variable metric, as the name implies, will be different each month. The choice of metrics belonging to the new model was made by the director, based on the prioritization of the importance of each metric, associated with the company's objectives. Thus, it is intended that managers and staff can focus on 3 metrics per month, which boil down to sales objectives, instead of 5 metrics, in order to facilitate the management and strategy of employees.

Regarding the clarification of rules and simplification of concepts, it was decided to remove the names “resident” and “guest directors” that represent fixed and variable metrics. As suggested by the collaborators in the survey, the fact that there are many different concepts confuses the staff on a day-to-day basis and does not add significant value to the dynamic. In addition, an attempt was made to clarify the text of the monthly communication with cinemas, better explaining the calculation of metrics and respective scores.

Objectives 2 and 3 - Redefine the clusters that make up the cinemas with new values for minimum, target and maximum levels

As demonstrated in the previous analyses, defining the groups based on cinema attendance was not the best option to obtain a more balanced competition regarding the defined metrics.

The first attempt to solve this problem was to keep the same groups and define new values for the minimum, target and maximum levels for each cluster. The analysis was repeated, carried out on the SPP performance by cluster, defining new values according to the performance of the cinemas, in order to make them more adjusted to reality. After analyzing the results with the team and director, it was understood that despite making the competition fairer, it is not sufficiently balanced due to the discrepancy that exists in cinemas that belong to the same groups.

Eliminating the first option, the team thought of a second solution. The creation of groups for each fixed metric based on the performance values of each cinema in 2022 was suggested. For the variable metric, as there will be more than ten different metrics and due to the limitation of information extraction, it was proposed a competition among the 30 cinemas, without being associated with any group.

Regarding the SPP metric, it was considered the values extracted in the previous analysis, namely the monthly SPP of each cinema throughout 2022. With these values, it was possible to calculate the annual average SPP of each cinema. The objective is to carry out a cluster analysis, which is a data analysis technique that explores the formation of groups based on the information collected. Based on the annual average, the cinemas were grouped so that they belong to a group with cinemas that have the closest value to their own. After the analysis, 6 clusters composed of the 30 cinemas were defined: group 1 with 4 cinemas, group 2 with 6, group 3 with 5, group 4 with 5, group 5 with 6 and group 6 with 4.

The minimum, target and maximum level values were defined based on the average SPP of the cluster, and therefore, will be different for each cluster. To define the target value, an increase of 5% was proposed over the average SPP of the cluster. For the definition of the minimum value, a decrease of 10% was proposed, and for the maximum, an increase of 10% was proposed on the average SPP of the cluster.

In order to exemplify the new approach, the table below presents the values defined for the SPP metric in group 1. The logic is repeated for the remaining groups, changing the values according to the group's average SPP in 2022. The proposed values for the levels of each cluster in relation to the SPP metric in the new model are presented in the table 10, present in the Appendix A.

Table 7 - Proposed values for the SPP metric in group 1 in 2023

2022 AVERAGE	PROPOSALS FOR 2023		
SPP	Minimum	Target	Maximum
2,20€	2,00€	2,30€	2,40€

The values were calculated based on the explanation made and presented in rounded form. Thus, with this new proposal, the competition will be between cinemas with SPP characteristics similar to each

other, and with attainable objectives adjusted to their performance. Scoring will maintain the same logic as in the previous gamification model.

Regarding the second fixed metric, %Digital (percentage of sales in digital channels), it was used the same line of reasoning as the previous metric. For the formation of the groups, it was considered the average of the annual %Digital of each cinema referring to 2022.

Based on the annual average, cinemas were grouped so that they belong to a group with cinemas that have the closest value to their own. After the analysis, 5 clusters composed of the 30 cinemas were defined: group 1 with 5 cinemas, group 2 with 7, group 3 with 5, group 4 with 7 and group 5 with 6.

The minimum, target and maximum level values were defined based on the average of the %Digital of the cluster, and therefore, they will be different for each cluster. Following the same logic of the previous metric, a 5% increase was proposed over the average of the %Digital of the cluster for the definition of the target. For the definition of the minimum, a decrease of 10% was proposed on the average of the %Digital of the cluster, and for the definition of the maximum, an increase of 10% was proposed.

Similar to the previous example, the table below presents the values defined by the new approach for group 1. The proposed values for the levels of each cluster in relation to the %Digital metric in the new model are presented in the table 11, present in the Appendix A.

Table 8 - Proposed values for the %Digital metric in group 1 in 2023

2022 AVERAGE	PROPOSALS FOR 2023		
%DIGITAL	Minimum	Target	Maximum
40,3%	36,3%	42,3%	44,3%

Similar to what was done for the SPP, each cluster will have a set of goals suited to its 2022 performance. Regarding the variable metric, as mentioned earlier, all cinemas will compete with each other. The formation of clusters for the variable metric would be an unfeasible option, since there will be more than ten metrics throughout the dynamics, and it would take a long time to collect and process all the data of the various indicators referring to 2022.

In order to facilitate the organization of the dynamics, a calendar with a variable metric associated with each month of NOS Casting 2023 was proposed, including indicators suggested by employees in the survey.

The definition of the values for target, minimum and maximum values will be done monthly, associated with the metric in effect. However, the same line of reasoning was followed, always considering the performance of cinemas in previous periods. For example, for the month of March 2023, the variable

metric in play was %Gift_Cards (percentage of gift cards sold over ATT). To define the values, it was considered the average of gift cards sold in February. It was calculated the percentage of gift cards for each cinema in February and considered the average of the 30 cinemas. As it is a different product, which is occasionally sold in cinemas, the logic of increasing 5% for the target, 10% for maximum and reducing 10% for the minimum level was not followed. To define the values, strategic sales objectives for the company were considered, ensuring adjustment to the average of the 30 cinemas. The monthly change of the variable metrics allows flexibility in the gamification model, which is based on a line of reasoning, but which is not mandatory, that is, it is a model that is easily adaptable to the company's strategic needs and the current market context.

Objective 4 - Increase the recurrence of information to be shared weekly

As previously mentioned, one of the main challenges in the management and control of the gamification model is the extraction and processing of information, due to the limitations of technological resources. Through the survey, employees showed dissatisfaction with the fact that they were only able to access the results of the dynamic every two weeks and even, frequently, over a longer period of time. Extraction of information from the cinema database is extremely time consuming, extending the time of the information organization process.

The ideal option for cinemas in this regard would be to automate the extraction process and make the data accessible to managers in real-time. Given the limitations of technological resources, this option has not yet been possible to practice.

However, decreasing the complexity of the model with three metrics instead of five allowed to increase the recurrence of information. As the process takes less time, this change in the model made it possible to disseminate the results and ranking to cinemas on a weekly basis. Every week, namely on Monday, an email is sent disclosing the accumulated results for the day of the month in question.

This alteration to the model contributes to the maximization of employee satisfaction and allows managers to be aware of the situation of their cinema during the dynamics. The more recurrent access to information helps in controlling performance and helps in decision-making.

Objective 5 - Include new indicators as variable metrics

One of the survey questions shared with cinemas asked participants to indicate, if possible, examples of products they would like to see as a variable metric throughout the dynamic. The products with the highest number of votes were considered as new model metrics and included in the variable metrics calendar.

Objective 6 - Create additional ways to maximize employee motivation and satisfaction

In addition to the inclusion of various proposals given by employees in the new gamification model, it was proposed to occasionally launch additional challenges to the dynamics, which serve as an extra for the monthly award. For example, in April 2023, where the theme of the dynamic was the Super Mario Bros movie, an extra challenge was launched, called “the magic mushroom” in which the cinema staff would have to take a group photo. The three cinemas with the most creative photographs received an extra prize at the end of the month.

Introducing new challenges contributes to employee satisfaction and increases their motivation to want to win the competition and be involved with the team.

4.2.1. Analysis of results of the redefined gamification model

The new gamification model started on February 1, 2023, and it was monitored until April 14, 2023, the final date of the internship period at NOS Cinemas.

Following the same logic of the analysis of the results of the previous model, the results of the fixed metrics will be analyzed. However, only the results from February to April 2023 will be shown, as the process of redesigning the gamification model was done in January.

SPP analysis

As the clusters were redefined, it is not possible to establish a direct comparison with the analysis carried out for the 2022 gamification model. However, the results of the redesigned model will be demonstrated for the G3 and G5 clusters.

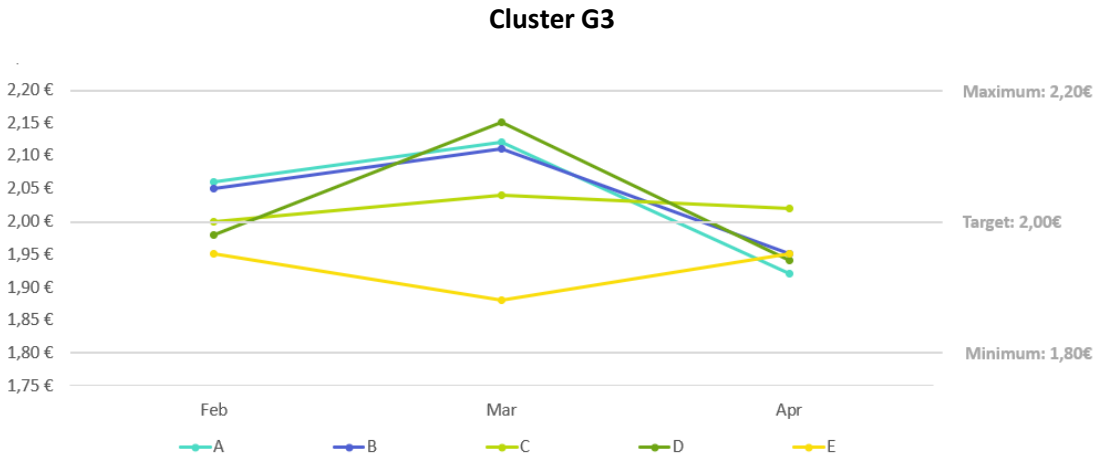


Figure 10 - Cluster G3 SPP performance in 2023

When analyzing the graph, it is noticed two major differences compared to the previous model. On the one hand, the values of the levels defined for this cluster are adjusted to the reality of cinemas, since they are all above the minimum expected level. All cinemas manage to achieve the target, except for cinema E, which has a similar performance to its competitors in the month of April. On the other hand, there is no cinema within the cluster that is constantly a winner, as it differs monthly.

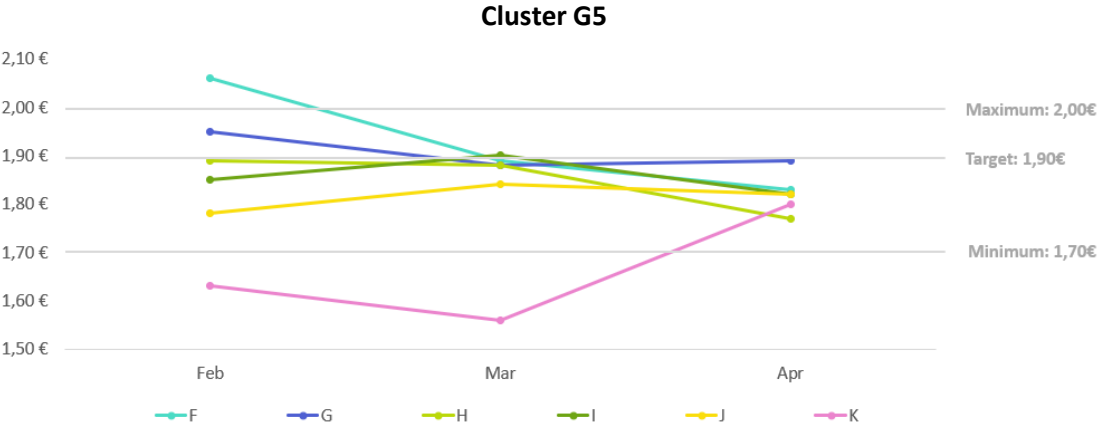


Figure 11 - Cluster G5 SPP performance in 2023

Like the previous cluster, there is also fairer competition, due to the fact that there is diversity in the winning cinema and the values are more adjusted to the performance of the cinemas. In the period considered, it is concluded that the personalized definition level values per cluster had a positive impact on the performance of cinemas, compared to the previous model.

%Digital analysis

Regarding the performance of the %Digital metric, the graphs below show the performance of two clusters in the period considered.

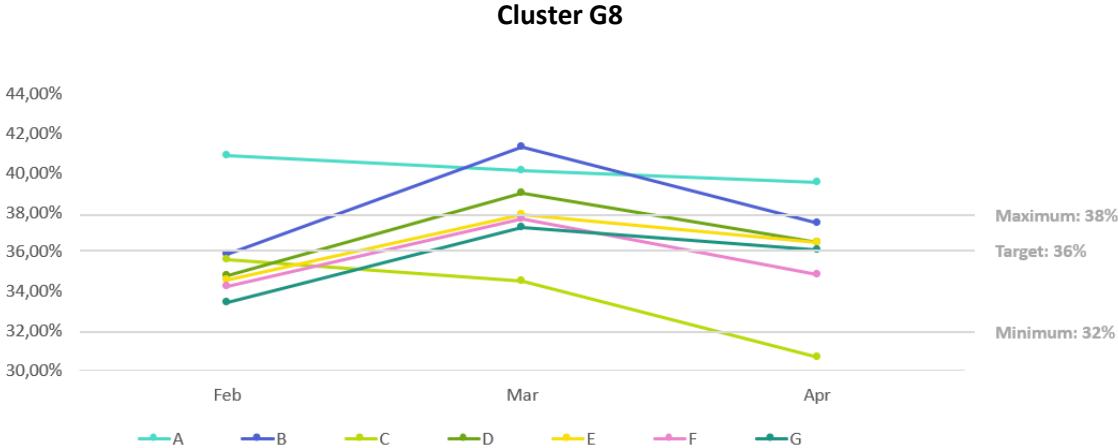


Figure 12 - Cluster G8 %Digital performance in 2023

In relation to the %Digital metric, it also appears that the values are more adjusted to the reality of cinemas. When analyzing the G8 cluster, it is understood that there is in fact fairer competition between cinemas and that they easily reach the target, even surpassing the maximum level.

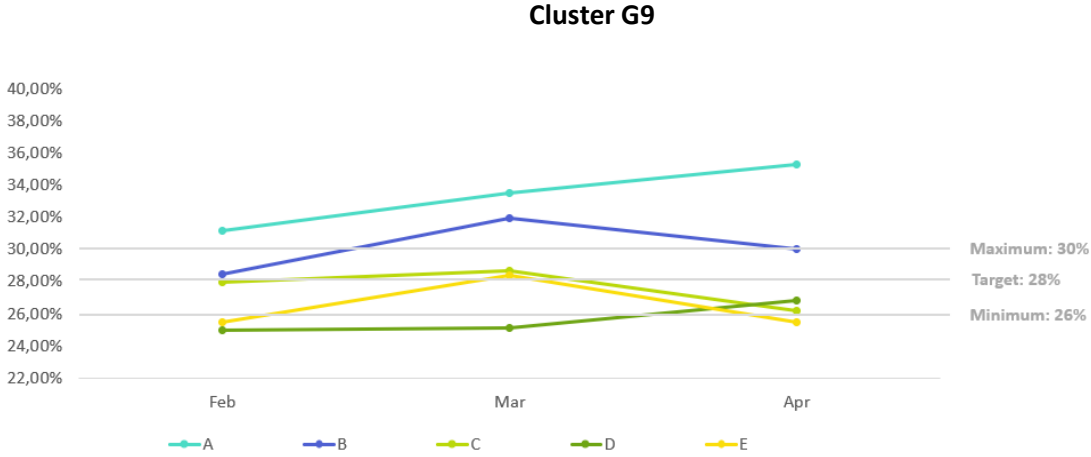


Figure 13 - Cluster G9 %Digital performance in 2023

In relation to the G9 cluster, there is a similar behavior with adjusted level values. Despite the fairer competition, there is still a significant difference, especially in cinema A compared to the others. However, the flexibility of the model allows the values to be adjusted if the same situation occurs in the following months of the year.

4.3. MODEL RESULTS AND DISCUSSION

In order to be able to compare the two models, only the period in which monitoring of the model was possible was considered, namely the last quarter of 2022 vs first quarter of 2023.

Despite monitoring the new model for only two and a half months, the results were, in general, very positive. Although it is not possible to compare results using a common tool, such as a survey, since this is only applied at the end of the dynamic, the feedback from the Marketing team has been very positive regarding the new model, that managed to achieve all the proposed objectives.

The main difference between the models is based on the formation of the groups that make up the cinemas. In the 2022 model, there were only six groups, with the same values for target, minimum and maximum levels. In the new 2023 model, there are 11 groups with different values for the levels, in order to be adjusted to the performance of cinemas. This change made it possible to double the number of winning cinemas, as there is always one winner per group and one winner for the variable metric. This model allows rewarding more collaborators and giving their due recognition.

The simplification of the dynamic allowed for an increase in the recurrence of information and, consequently, for greater follow-up and control compared to the previous model.

The adjustment of values made to the two fixed metrics for each cluster allowed the establishment of achievable objectives aligned with the real performance of the cinemas. It was verified, through the analysis of the results of the redesigned model, that this adjustment had a positive impact on the dynamics, as it allowed to increase the diversity of the winning cinemas, thus enhancing the teams' motivation.

The collaboration between the managers, staff and marketing team in the redesign of the model was essential to jointly create the best possible option. In addition to having made it possible to identify new points that had not been considered until then, it also contributed to increasing the union between employees and team spirit.

5. LIMITATIONS

Throughout the report, various challenges experienced in each phase of the project were described. The first and main challenge was the collection and processing of information. As previously mentioned, the only way to collect information was by extracting the report from the ARPUX platform to Excel. The platform was not easily navigable, as it contained many different reports, and several ways of accessing the same information, which made it difficult to use and very confusing. Extracting reports was a very time-consuming process, and the extraction time increased significantly the longer the time period selected. To obtain transactional data for certain products, such as number of sales, gross and net revenue, for each cinema over a two-week period, the report processing time could be an hour or more.

Consequently, to know the same information in a period of one month, as is the case with the gamification model, the process was quite time consuming and in certain cases even null due to errors in the system. The extraction of empty reports was frequently reported to the support team regarding information systems, but the resolution process was also time consuming. Thus, the extraction of information was the biggest challenge in the management and control of the gamification model, which requires the analysis of several reports because they contain different metrics.

One of the proposed solutions was to obtain direct access to the company's database in order to reorganize the way in which information is extracted. However, after several attempts, it was not possible to access it during the internship period at NOS Cinemas. Another proposed solution was the creation of a specific report in ARPUX for the gamification model. This report was composed of the defined metrics and allowed selecting several periods in order to follow the results during the month. Although the report was created in Excel, it was not possible to recreate it in the format allowed to be imported into the ARPUX platform.

In addition to access management and information extraction, the low participation rate in the survey was also a limitation in the sense that it did not fully represent the cinema staff, not guaranteeing the diversity of responses that it should have. The fact that the internship period at NOS Cinemas ended in April did not allow to compare the results of the gamification model in the same period of time. Ideally, the model would have to be monitored for 9 months, in order to repeat its evaluation through the survey at the end. Only then would the comparison of results be done effectively and fairly.

To face the main limitations of the gamification model, several ideas were discussed together with the team, which will be presented in the next chapter of recommendations and future work.

6. RECOMMENDATIONS AND FUTURE WORKS

After several moments of team reflection during the course of the project, the main limitations and respective recommendations for the future were identified.

On the one hand, it is necessary to optimize the information systems, namely the ARPUX platform, in order to facilitate its use, make the management of the gamification model more efficient and speed up the process.

One of the proposed solutions was to incorporate a Business Intelligence solution, such as the creation of a dashboard, to be developed during this project through PowerBI. The purpose of the dashboard would be to allow the team to recurrently visualize the most relevant information and draw insights through KPIs. Using KPIs and the resulting indicators of achieving intermediate goals and objectives will provide, on the one hand, an opportunity to track progress towards the company's strategic goals, and on the other hand, help the company manage its operations and take timely corrective action towards achieving its strategic objectives (Safonov et al., 2022).

Ideally, the dashboard would be accessible not only to the Marketing team that manages the gamification model, but also to cinema managers who need information regarding the model's metrics in order to make the best decisions in managing their teams. Despite PowerBI having been installed on the Marketing team's computers, the proposal to create the dashboard did not advance due to access limitations. During the internship period at NOS Cinemas, it was not possible to resolve the issue of access and integration of the data source with PowerBI. Without access to transactional data, the dashboard loses its usefulness. However, a reflection was made on a possible dashboard structure that would present, in real time, the performance of cinemas in the gamification model, making it possible to follow the evolution of the defined metrics.

Thus, the development of a Business Intelligence solution is a recommendation for the team to implement in the future to help monitor the performance of cinemas, quickly and effectively. In addition to the gamification model, the dashboard can also be useful to effectively evaluate marketing actions, such as campaigns, new product launches and sales in the various available channels. Thus, it would be important to integrate all the necessary data sources and empower people to use and manage the Business Intelligence solution. As the analytical and Business Intelligence part remains to be explored, this project becomes an important starting point for future projects that effectively contribute to the company's growth and the improvement of the methods used.

Regarding the evaluation of the gamification model, it is recommended to launch the survey again at the end of 2023, giving greater incentive to employees and managers to respond, in order to collect feedback and understand their level of satisfaction. Despite the need to keep some questions in order to have a comparative means, it would be interesting to address other dimensions in order to obtain a more complete assessment. It would be important to understand whether employees feel more motivated, whether they prefer the new model structure, whether there are still significant barriers to

their good performance, whether they understand the model's objectives, and whether they have the necessary tools to do their job well. In addition to the survey, one option would be to carry out individual and group interviews, with adequate time, to obtain various evaluation perspectives. It was important to understand whether general satisfaction increased with the new model and what the main drivers of employee engagement are.

7. CONCLUSION

By analyzing and redesigning the 2022 gamification model, this project's main goal was to find ways to improve the model, increasing its efficiency, competitiveness, and ease of monitoring. Looking at the six specific objectives defined in the introduction of the report, it is concluded that this project was successful, as it achieved all the proposed objectives. Based on the results, this project proved to be an important starting point for future projects aimed at continuous improvement in this dimension.

By collecting feedback from NOS Cinemas staff through a survey, it was possible to identify strengths and opportunities for improving the model, understand the level of satisfaction of participants and indicate the main areas of activity. Furthermore, the exhaustive analysis of the results of the previous model allowed to obtain important insights and reinforced points for improvement that had been mentioned by employees in the survey. This information was essential to guide the process of redefining the gamification model, considering the needs and suggestions of employees.

The new model built based on the objectives proposed by the Marketing team was approved and successfully implemented in the cinema staff. The results of implementing the redefined model demonstrated that the main barriers of the old model were addressed. Namely, reducing the complexity of the model, ensuring that cinemas with similar behavior in metrics compete with each other, and the values of the levels to be achieved are adjusted to their business reality. Furthermore, the model's monitoring was significantly improved and recognized by the Marketing team, allowing greater ease and speed in monitoring cinemas' performance.

These results are extremely important as they highlight the positive impact that the gamification model has on achieving the company's strategic objectives, mainly in identifying a strategy for continuous improvement in monitoring the performance of cinemas. Through greater employee engagement and providing a more stimulating and rewarding environment, the company is able to drive performance and efficiency.

However, it is important to recognize the limitations faced during the project, such as a poorly optimized information system that takes a long time to extract data and delays the monitoring process. The unavailability of Business Intelligence tools, such as PowerBI, did not allow them to be incorporated into the current project, as initially intended. Furthermore, due to the duration of implementing the model being longer than the determined duration of the internship at the company NOS Cinemas, it was not possible to repeat the survey to evaluate the redesigned model and establish direct comparisons. These limitations highlight the need to invest in continuous improvements and look for solutions that speed up data collection and monitoring of the gamification model.

Based on the study's conclusions, it is recommended that future projects related to the staff gamification model incorporate a Business Intelligence solution, such as the use of dashboards, to monitor the evolution of the main key performance indicators (KPIs) and assist in monitoring the

model's objectives. This will provide a real-time view of cinema performance and allow for faster and more effective adjustments to the gamification model.

According to the company's report for the first quarter of 2023, there was in fact a continuous recovery of the company NOS Cinemas, as box office sales increased by 52% compared to the same period last year. Cinema and Audiovisual revenues grew 22,6% in the first quarter of 2023 year-on-year, reflecting the continued recovery of the cinema area in particular driven by box office successes such as "Avatar: The Way of Water", which became the absolute record holder in Portugal in terms of gross revenue (NOS, 2023).

In summary, the process of redefining the staff gamification model for NOS Cinemas has so far proven to be a successful initiative, resulting in fairer competition between cinemas and improved monitoring. Based on the results obtained, it is clear that the gamification model plays a crucial role in the performance of cinemas and in achieving the organization's strategic objectives. Analyzing results at the end of the 2023 gamification model and implementing Business Intelligence solutions in the future will further expand the potential of the model, promoting its efficiency and boosting the company's success.

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APPENDIX A

In order to complement the variable metrics analysis in the 2022 gamification model, the table below presents the percentage of gift card sales for each cluster in two different time periods. The goal is to understand the difference in percentage points (pp) between the period in which the metric %Gift_Cards was in play (December 2022) and the same period last year, when the model had not been implemented.

Table 9 - Difference in %Gift_Cards sales by cluster (Dec 2022 vs Dec 2021)

CLUSTER	DECEMBER 2022	DECEMBER 2021	DIFFERENCE (PP)
A	0,31%	0,08%	+0,23pp
B	0,22%	0,08%	+0,14pp
C	0,49%	0,09%	+0,40pp
D1	0,50%	0,07%	+0,43pp
D2	0,67%	0,11%	+0,56pp
E	0,21%	0,07%	+0,14pp

The difference was positive in all clusters, which means that there was a significant increase in the percentage of sales of this product.

SPP analysis

Additionally, to complement the analysis made of the SPP metric in the remaining cinemas in the 2022 model, the respective graphs for clusters A, C, D2 and E will be presented.

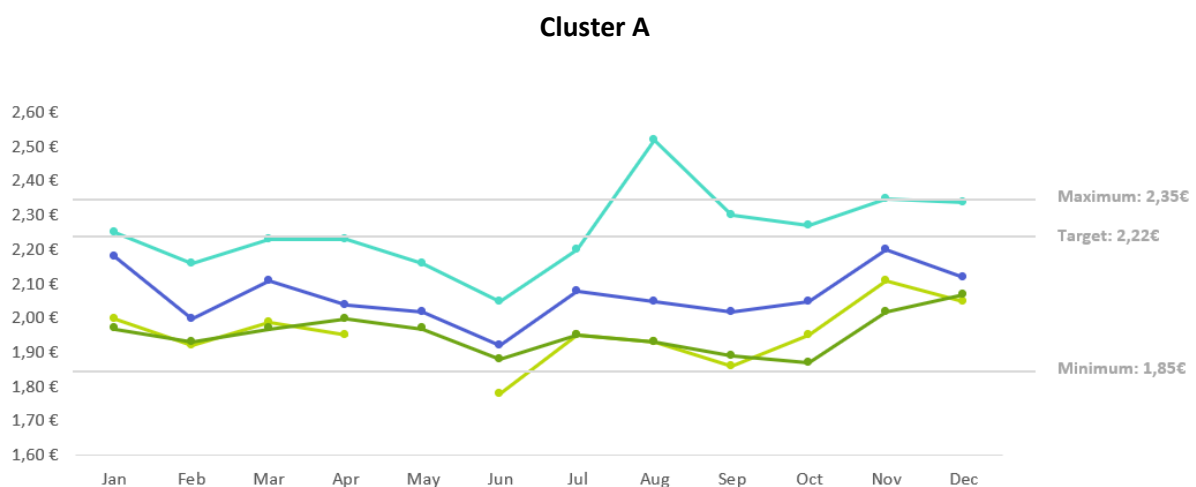


Figure 14 - Cluster A SPP performance in 2022.

Cluster C

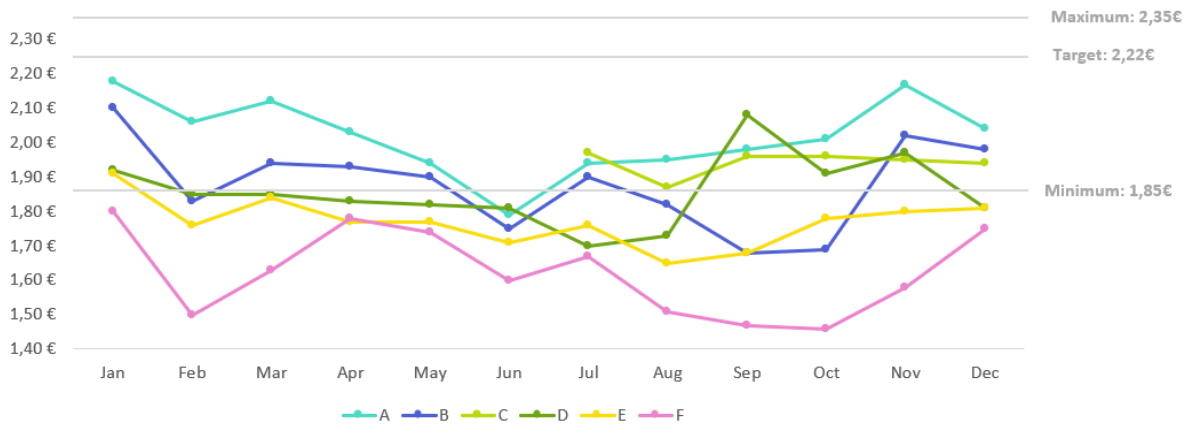


Figure 15- Cluster C SPP performance in 2022.

Cluster D2

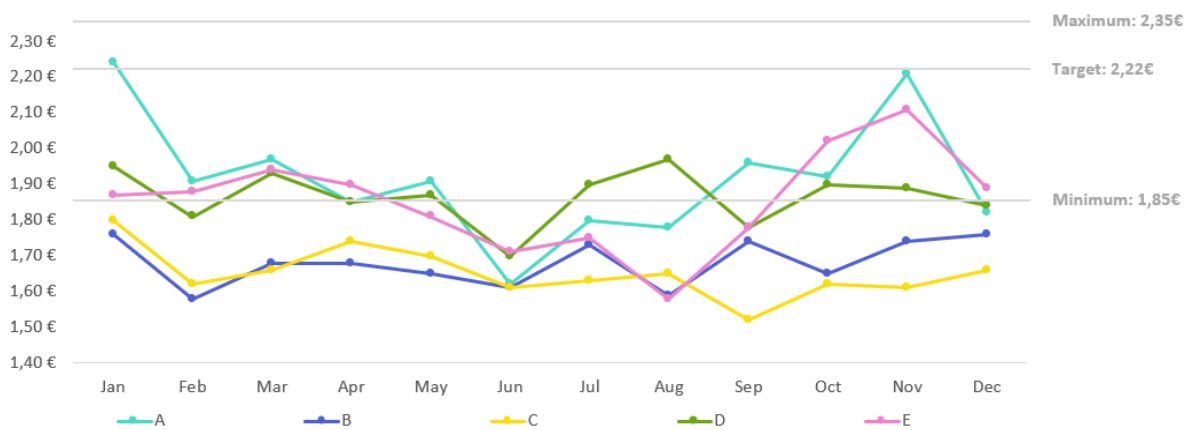


Figure 16 - Cluster D2 SPP performance in 2022.

Cluster E

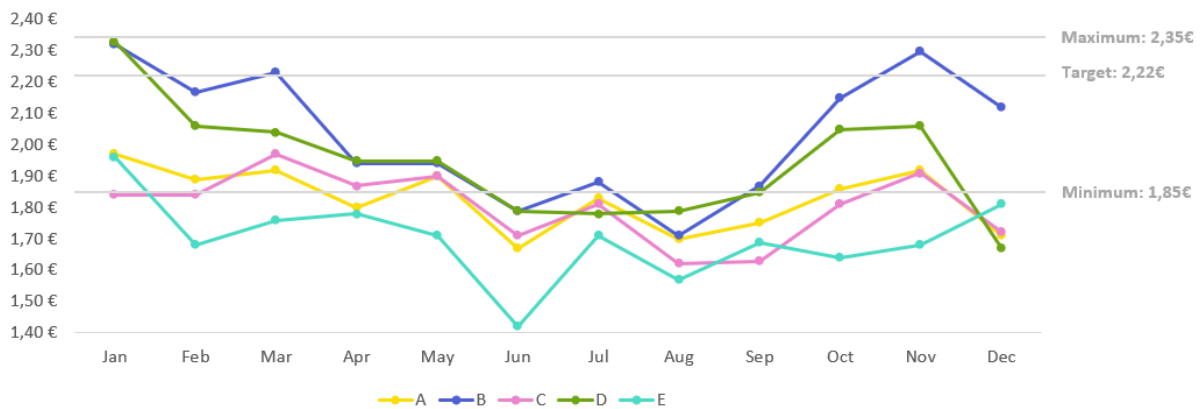


Figure 17 - Cluster E SPP performance in 2022.

Analyzing the performance of the SPP metric in 2022 in these 4 clusters, it is concluded that the same problems identified in the Results chapter are repeated. Cluster A presents an unbalanced competition, with the same winning cinema throughout the year. In relation to the remaining clusters, despite the existence of more balanced competition, the mismatch of the values that define the levels stands out. The majority of cinemas in these clusters are unable to reach the target and maximum level, during the year 2022, which causes demotivation on the part of the teams. It is concluded that it is necessary to redefine the way clusters are constructed and the level values established by the current model.

Value proposal for the SPP and %Digital metrics levels in the new model

As explained, in addition to the creation of new clusters based on the average values obtained in 2022, the values of the levels to be achieved by cinemas were also redefined. To define the target value, a 5% increase in the average value obtained by the cluster was proposed. To define the minimum and maximum value, a 10% decrease and a 10% increase were considered respectively.

The following table presents the new proposed values for the new 2023 gamification model in relation to the SPP metric.

Table 10 - Proposed values for the 2023 model (SPP)

CLUSTER	G1	G2	G3	G4	G5	G6
SPP	2,20 €	2,02 €	1,94 €	1,86 €	1,77 €	1,61 €
Target	2,31 €	2,12 €	2,04 €	1,95 €	1,86 €	1,69 €
Minimum	1,98 €	1,82 €	1,75 €	1,67 €	1,59 €	1,45 €
Maximum	2,42 €	2,22 €	2,13 €	2,05 €	1,95 €	1,77 €

Following the same logic, the following table presents the new values proposed for the new 2023 gamification model in relation to the %Digital metric.

Table 11 - Proposed values for the 2023 model (%Digital)

CLUSTER	G7	G8	G9	G10	G11
%DIGITAL	40,3%	33,65%	27,55%	20,42%	14,6%
Target	42,3%	35,3%	28,9%	21,4%	15,3%
Minimum	36,3%	30,3%	24,8%	18,4%	13,1%
Maximum	44,3%	37,0%	30,3%	22,5%	16,1%

ANNEXES

Survey applied to cinema staff between December 5, 2022 and January 4, 2023:

Secção 1 de 2

Revisão NOS Casting 2022

Com o objetivo de continuar a desenvolver dinâmicas enriquecedoras para os nossos cinemas e garantir que permaneçam motivados e satisfeitos, propomos a realização deste questionário para tomar conhecimento da vossa percepção em relação à dinâmica realizada neste ano, o **NOS Casting 2022**.

Achamos que a vossa opinião é extremamente importante para identificar pontos fortes, pontos fracos e pontos de melhoria, de forma a desenvolvermos, em conjunto, a melhor estratégia de atuação nos cinemas.

Pretendemos obter a vossa opinião sincera e recolher as vossas ideias e soluções, para que seja possível aumentar a eficácia e eficiência das dinâmicas realizadas.

A participação neste questionário é **confidencial** e as respostas serão tratadas de forma a assegurar o **anonimato** das mesmas. A resposta a este questionário não deverá ocupar-te mais de **10 minutos** e poderás fazê-lo até ao dia **4 de janeiro de 2023**.

Contamos contigo!

1 - Numa escala de 1 a 5, em que 1 significa "**Muito insatisfeito(a)**" e 5 significa "**Muito satisfeito(a)**", escolha o seu nível de satisfação em relação à dinâmica do NOS Casting 2022, em geral. *

1 2 3 4 5

Muito insatisfeito(a) Muito satisfeito(a)

2 - Relativamente à estrutura do **NOS Casting**, os cinemas estão distribuídos por grupos, de acordo com o seu número de clientes frequentes. Assim, apenas cinemas do mesmo grupo competem entre si. *

Concorda com este tipo de distribuição?

Sim

Não

Outra opção...

3 - Os indicadores fixos são métricas fixas que avaliam a performance dos cinemas mensalmente. Na dinâmica deste ano, foram definidos 3 indicadores fixos: **SPP** (*valor médio gasto por pessoa em bar*), % **Menu Grande** (*percentagem de menus grandes no total de vendas de menus*) e % **Digital** (*peso do digital nas compras em bilheteira e bar*). *

De acordo com a sua opinião, faz sentido manter a métrica **SPP** como indicador fixo?

Sim

Não

3.1 - Se respondeu "**Não**" à pergunta anterior, indique o(s) motivo(s) pelo qual não faz sentido manter a métrica **SPP** como indicador fixo.

Texto de resposta longa

4 - Na sua perspectiva, fazia sentido substituir o indicador **SPP** por outro indicador que medisse o crescimento percentual das vendas em bar, por cada cinema, na próxima dinâmica de 2023? E porquê? *

Texto de resposta longa

5 - Os **indicadores variáveis**, tal como o nome indica, são métricas que variam todos os meses, de acordo com determinados fatores, nomeadamente, campanhas de marketing em atuação nos cinemas NOS. Alguns dos indicadores utilizados no NOS Casting 2022 foram: % **Nachos**, % **Topping**, % **Gift Cards** e % **Sessões Infantis**. *

Indique uma ou mais opções de indicadores que gostaria de ver contemplados no NOS Casting.

Texto de resposta longa

6 - Selecione o(s) ponto(s) que **mais valorizou** durante a dinâmica do NOS Casting 2022. *

- A competição
- A temática
- Os indicadores
- Os prémios
- Maximização da motivação
- Outra opção...

7 - Selecione o(s) ponto(s) que **menos valorizou** durante a dinâmica do NOS Casting 2022. *

- A temática
- A recorrência da informação
- Os grupos definidos entre os cinemas
- Os indicadores
- Outra opção...

8 - Como já foi referido anteriormente, pretendemos desenvolver, em conjunto, a melhor estratégia de atuação nos cinemas. Relativamente à dinâmica **NOS Casting 2022**, indique sugestões de melhoria e ideias para serem aplicadas na próxima dinâmica de 2023. *

Texto de resposta longa

Obrigado pela sua participação!

Cinemas NOS