University of Miskolc
Faculty of Economics

Hantos Elemér Business and
Regional Sciences Doctoral School

Gergely Kiss

The practice of applying gamification among medium-sized and large companies in Hungary

Theses of PhD dissertation

Miskolc, 2025

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1. INTRODUCTION TO THE RESEARCH

This chapter discusses the rationale behind my choice of topic and describes the research. The summary diagram of my research forms an integral part of this chapter.

1.1. Justification for the choice of topic

The growth of Earth's population, the increase in the number of young people, the widespread use of computers and the Internet by older generations, and the development of information technologies pose many challenges to us. The strengthening of digitalisation has become a significant force in our world at the beginning of the 21st century. Smartphones and mobile applications have appeared, we can enjoy the help of smart devices in our homes, 3D printing and cloud-based services have become available. These achievements have become increasingly popular in many areas of life, in our everyday lives or at school, in the world of work.

In recent years, companies and organisations have had to face a multitude of challenges, which have emerged as a result of the increasing competition due to the fourth industrial revolution, the Covid-19 pandemic and the Russian-Ukrainian conflict. Sustainability and social responsibility have become even more valued, and doubts about work, workplaces and the future development of the workforce have also come to the fore. The transformation of work and the emergence of new jobs increasingly require flexibility, innovation and the possession of new competencies in order to maintain competitiveness. Workplaces also expect continuous renewal from employees. Competency expectations have also changed in recent years: we have to use more and more digital tools, knowledge of foreign languages, and flexibility have become more valued. The demand for productivity and independence has increased further. Difficult situations have strengthened the expectations for problem-solving, innovation skills, continuous learning and creativity. The increasing amount of data, along with data analysis and critical thinking, has contributed to increased efficiency. In addition to the numerous negative effects of the coronavirus pandemic, there have also been some positive benefits, such as the further strengthening of home offices, digital education, and e-commerce, which have remained with us ever since and often have a positive impact on us. However, it should also be mentioned that on the other side of the scale, isolation, burnout, lack of motivation, and loyalty have become characteristics of our constantly changing and accelerating world.
Changes in the labour market, the growth of robotisation, and the establishment of more and more production plants have resulted in a labour shortage. Among the existing workforce, we can often experience a gap between the younger and older generations in terms of fresh knowledge and professional use of IT tools. Increasing efficiency and balancing differences is therefore key. So we need to talk about what solutions we can use to bring our employees to a common denominator and shape their work in an experience-oriented way, since younger and older people perform similar tasks side by side, but their knowledge and understanding develop differently due to generational differences. I also consider it important that members of the younger generations tend to change jobs more quickly, as they are not inspired by working for the same company for a long time. In addition to the advantages of this, the disadvantage for companies is that they have to pay more attention to preventing the emigration of qualified, specially trained labor than in previous periods.
Scientists are looking for new solutions to these challenges, which strengthens the desire to better use the opportunities of technological development and digitalisation, but this situation also requires continuous adaptation. During this period, the topic of gamification

has also gained increasing interest, which means the application of game elements in non-game environments. Games create experiences even in tiring everyday life, and work done with joy has a positive effect on customers and employees. Gamified programs help generations cooperate, break monotony, support knowledge expansion and are also suitable for enhancing innovation potential.
Companies have also started to use gamification to address the challenges already detailed, using the results achieved by science, thus connecting pleasant and helpful elements with the world of work. The gamification method has also proven to be very effective in addressing the challenges created by population growth and generational differences, digitalisation and the achievements achieved by innovation. Increasing competition, ensuring sustainability criteria, increasing social responsibility and the significant transformation of the labour market are also areas for which gamification can provide a solution. In addition, gamification can also be a good tool for companies to manage the job changes of members of younger generations.
Finally, my choice of topic was greatly influenced by the fact that I first encountered gamification when I became acquainted with scouting, and it made a deep impression on me. My commitment to the topic has intensified in recent times, despite the fact that the scope of my research presented me with numerous challenges due to the elusive nature of the topic. Since the situation of gamification in Hungary, especially the mapping of gamified programs implemented for employees, has not yet been explored, I conducted my research in this direction.

1.2. The aim of the research

Gamification is an approach that affects our world and processes in many areas. In the scientific world, many researchers in different fields deal with gamification from different perspectives, but there have been no analyses of its Hungarian and business-type, internal programs intended for employees. Identifying this research gap, the main goal of my thesis is to explore the gamification knowledge of medium-sized and large companies operating in Hungary and to find out how they apply it to their employees.
In my thesis, I limited myself to internal gamification, which aims to increase productivity within the organisation, promote innovation, enhance cooperation between colleagues and have a positive impact on business results by involving employees. My first intention was to explore the Hungarian gamification landscape: whether they know about and use gamification. My second objective was related to internal gamification programs: in the case of gamification for employees, I explored in which areas, for what purpose and how such programs are applied. My third intention was limited to the evaluation of internal gamification, in which I believed there was a gap. The measurement and evaluation tasks of internal gamified programs receive less attention, which makes it difficult to judge the implemented programs and may also reduce the willingness to use gamification in the future.

1.3. The significance of the research

To summarise the significance of my research work, I consider the following results to be decisive. One is the identification of a research gap, as many people deal with various aspects of gamification, but there is little research on internal corporate gamification programs, both domestically and internationally. The other is the complex approach, as I examine the topic as follows: I explore the prevalence and method of application, the reasons for non-application, I examine the achieved effects, and I discuss the exploration of impact measurement practices. The third result is that since it is not simple and there is no exact

practice for measuring impact, I have developed an evaluation model that provides opportunities and guidelines for both corporate self-evaluation and inter-company comparison. Fourth, in addition to enriching science, its practical application is also possible, helping to increase the efficiency of corporate gamification programs, thereby having an indirect impact on the operation of companies. Fifthly and finally, examining the topic supports the education of future generations and can also be a precursor to further research.

1.4. Presentation of the research

This chapter presents the research process, which is illustrated in Figure 1.

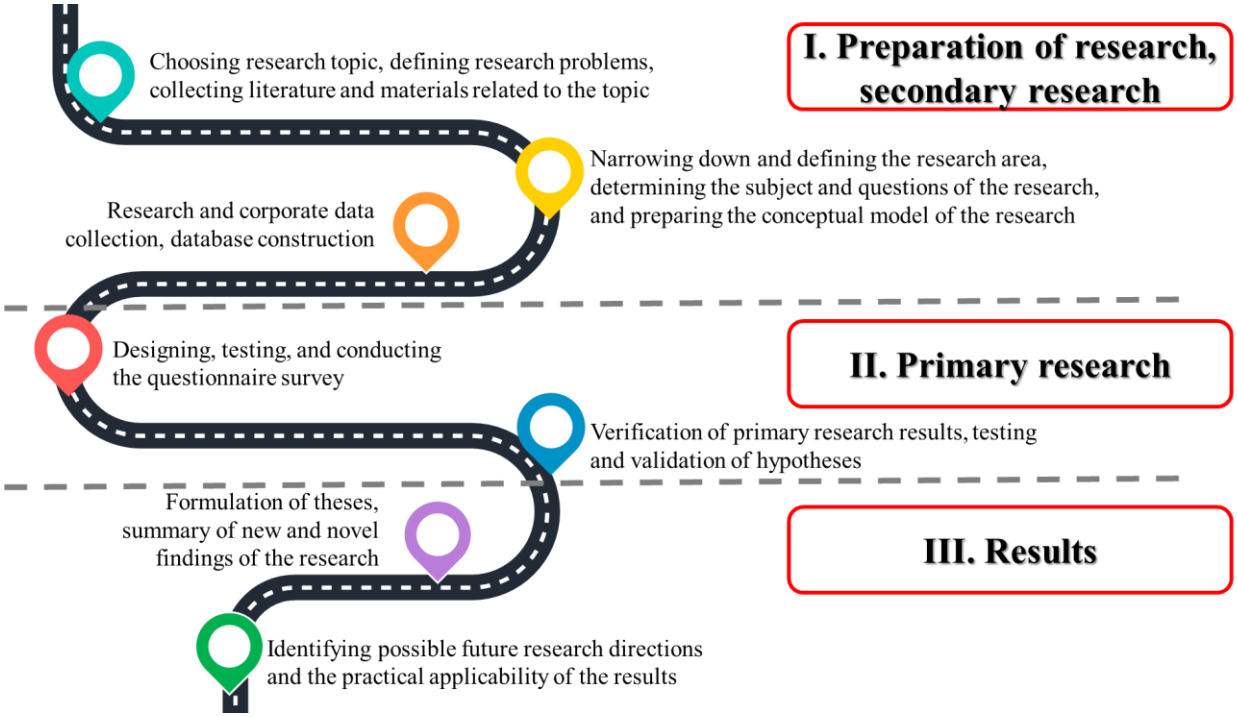

Figure 1: Research map
Source: own editing

Figure 1 shows that the research consisted of three main stages:

I. Preparation of research, secondary research. In the first stage, the research topic was selected and the research problems were defined. In the framework of the literature systematisation, I summarised the concepts and topics related to gamification with the help of domestic and international publications. During the synthesis of the definitions, I was faced with a cavalcade of definitions from different authors, and I wanted to create a clear picture. Several authors use gamification generally, but there are researchers who think of gamification as an approach - I currently agree with them. These elements were followed by the narrowing and delimitation of the research area, within the framework of which I examined corporate gamification programs, with particular attention to internal initiatives affecting employees. I defined the research problem: a general picture of domestic corporate gamification programs is missing, and their measurement and evaluation have not been researched. Then I formulated four research questions and prepared the conceptual model of the research.

II. Primary research. In the second stage of my empirical research, I conducted a survey to map the prevalence and implementation of internal gamification activities in medium-sized and large companies operating in Hungary. Therefore, the next research phase was the planning and implementation of the questionnaire survey, followed by the evaluation of the questionnaires. During the creation and testing of the question blocks, I conducted a pilot survey, which was used to prepare the final questionnaire. Within the framework of the questionnaire survey, I addressed companies operating in Hungary with more than 50 employees. Based on the data received, I learned about the internal gamification programs, their processes, and the arguments behind their decisions in domestic companies. Based on this, I evaluated the companies' performance in terms of gamification.

III. Results. Based on the analysis of the primary research data and the examination of the eight hypotheses formulated, I created eight theses, which I summarise in the chapter entitled “New and Novel Findings of the Research”. In the last stage of the research, possible future research directions were determined, and I summarised the practical applicability of the results.

My thinking is complex and aims to serve a better, deeper understanding of the gamification approach and to make it adaptable for organisations.

The subject area under study is located on the borderline of multi-, trans- and interdisciplinarity, and in my opinion, it leans best towards an interdisciplinary approach. In the course of processing my research topic, I deal with a number of methods and topics that belong to different disciplines, but partly remain within the framework of social sciences (for example, economics and sociology), and partly belong to the humanities (mainly pedagogical, i.e. related to education and sports sciences). I prepared my thesis according to an economic approach, based on the aspects of management and organisational sciences.

2. THEORETICAL BASIS OF THE RESEARCH

Gamification is no longer a novelty in international literature and business life, but in Hungary, it is still rarely researched and even less frequently applied in the corporate sphere. In my work, I attempted to systematise the knowledge about the definition of gamification based on the literature and to identify the elements and implementation frameworks that are commonly used.

2.1. Definition of gamification and summary of its main key elements and systems

The word gamification is a combination of the words game and fication (transformation into something). Other common uses of the word are gamified systems and game-like design. The term was coined by game developer Nick Pelling in 2002 (Pelling, 2011). Gamification is fundamentally based on games and playing, as participants have fun in a relaxed and self-forgetful way, gain experiences, often new and useful experiences, and develop their social skills and competencies. This approach transforms everyday processes in such a way that they are driven by the motivation of the participant, which is fundamentally based on human curiosity. It can be stated that play accompanies us from infancy to the end of our lives, as play experiences can make tiring everyday life exciting and interesting, and work done with joy can become a positive driving force for the participants. In the gamification approach, not every element applied will be fun, but if the processes are combined well and the gamification system is designed correctly, it can be made so. The planning and support of gamification is a particularly important aspect, since if the triggers are not selected appropriately in the initial step, the experience may be missed and the participant may even enter a state of cognitive dissonance.

In order to define gamification, in my thesis, I dealt with the division of games according to the game-likeness and playfulness that arise in the process, as well as the partial or complete application of game mechanisms. Based on the research, I came to the conclusion that we can talk about gamification if it uses game elements (e.g. points, badges, levels, avatars, achievements, leaderboards, community graphs), which are the first things the user encounters. Then, building on this, gamification applies game mechanisms (e.g. challenges, chances, competitions, turns, cooperation, feedback, resource acquisition), which are already more concrete elements in order to advance the gamification plot and generate player engagement (Kuutti, 2013:19, Werbach and Hunter, 2012:79). Finally, it applies game dynamics (rules, emotions, storytelling, development, self-expression, relationships) in order to achieve the game experience. González-González and Navarro-Adelantado (2021:4) write that mechanics refer to the structure of the game, while dynamics refer to the function of the game. Game dynamics are at the highest level and build on the previous two levels, according to Kuutti (2013:18), "*They are themes around which the game revolves.*" In my opinion, the use of the named elements is necessary, but their number depends largely on the purpose of the gamification, range of stakeholders and application of the gamification and based on this, I accept that gamification programs should include at least one of each component level.
In the world of gamification, the playful experience plays an important role: an experience that has a before and after state, which is directed towards the desired outcome. During the gamification process, it is of paramount importance that the feeling of joy is available to everyone, and not just to those who achieve a given outcome (González-González and Navarro-Adelantado, 2021:12). The quality of the user experience should be a key element, since the contributor will be subject to the flow effect.

The information we have learned so far paints a nuanced picture, but it is even more important to learn the researchers' viewpoints in order to have a coherent and unambiguous picture of gamification. Based on this, I defined my assumption (A) for research question Q1:

A: There is no unified definition of gamification.

The definition of gamification is characterised by diversity, and I did not find a unified position and a commonly used definition in the publications of domestic and international researchers. Therefore, I created a collection of gamification definitions (which contains about 50 definitions) and evaluated them based on the following predefined criteria: (1) Basic gamification elements: non-game; game criteria; (game)experience; (2) Goals: individual goals; organisational goals; (3) Method of implementation: digital; approach; (4) Mechanisms of action: motivation, commitment; attitude, behaviour.
Summarising the analysed definitions, it is important to distinguish according to the environment in which they are applied, since other elements are decisive in the case of achieving a marketing, an educational or a corporate goal. In terms of common features, it can be said that the use of game elements in a non-game environment, the designation of the goal you want to achieve (which can be an organisational or individual goal), the effective implementation method by creating motivation, commitment, and providing an experience, appear in most cases during the definitions.

My assumption (A) related to the research question (Q1) was confirmed. After reviewing the secondary literature and information I have learned, I have come to the conclusion that there is no uniform definition of gamification. I regard this as a research result (RR), and in my thesis, I define gamification as follows:

RR: Gamification is a system that contributes to the achievement of individual or organisational goals and results in a non-game context by applying game elements (e.g. points, levels, ranks, badges), game dynamics (e.g. rounds, challenges, competitions, feedback) and game mechanisms (e.g. emotions, relationships, constraints, story) and providing a game experience, as well as continuous feedback to participants.

After this, I dealt with the historical development of gamification, which dates back to ancient times. According to Fuchs (2014:133-134), gamification appeared in the Roman army in the first centuries of our era, where gamified methods were used in warfare. There are separate mentions in the literature, which can be linked to Napoleon, the scout movement or business life (Zichermann and Cunningham, 2011, Werbach and Hunter, 2012).
The major breakthrough came with the rise of digital tools, so gamification developed in the 2000s. In 2011, the first gamification conference was held in San Francisco, and the method, which had been in operation before but did not exist in such a formalised framework, began its global journey. This decade saw the beginning of gamification's corporate expansion: following the success of gamified applications like Foursquare, large companies such as Coca-Cola, IBM, and SAP began using this method (McCormick 2013, Fromann 2017). Gamification was included in the Hype Cycle of the American technology research and consulting company Gartner for four years starting in 2011.
Gamification works with several frameworks, which aim to support the systems approach. Duchon (2021:37) summarised three perspectives on gamification frameworks, which can be: scientific or non-scientific, they can focus on the entire gamification process or only a part of it, and the approach to the process can be general or specifically tailored to a given environment. I dealt with one of the best-known, the so-called MDA (Mechanics, Dynamics,

Aesthetics) framework. In Yu-Kai Chou's (2013) model, gamification is viewed as a design in which, instead of function-centricity, human motivation and the human-centred design based on it are emphasised, aiming to change the behaviour of the participant. During its development, it relies on behavioural science and includes the experiences of game design in the framework. The Hungarian Kollektíva team also created its own gamification system, which they named KOJAK (Hungarian abbreviation of Kollektíva Gamification Framework).

2.2. Types of gamification and possible applications

In their work, Werbach and Hunter (2012) discussed the different forms of gamification depending on whether it is used to achieve individual or organisational benefits, or whether it is used with an individual or community approach. This is shown in Figure 2. Gamification achieves personal benefits and personalised effects through changes in individual behaviour, with a focus on forming new habits. External gamification encompasses programs aimed at consumers and customers, which, in my opinion, is the most common form. In this case, gamification is mainly used for marketing purposes. The penultimate area is when the community of participants enjoys personal benefits by participating in corporate programs and thus developing. The goal of internal (enterprise or organisational) gamification is to "*…improve productivity within the organisation in order to foster innovation, enhance camaraderie, or otherwise derive positive business results through their own employees.*" It should be noted that in this case, the people involved in gamification are already participants in the company (Werbach and Hunter, 2012:20). I have not found any significant studies on this topic, but Singh and Gupta (2020) and Vesa (2021) have examined internal gamification, while Grönvall and Holmner Härgestam (2019) have looked at the connection between internal gamification and internal marketing activities.

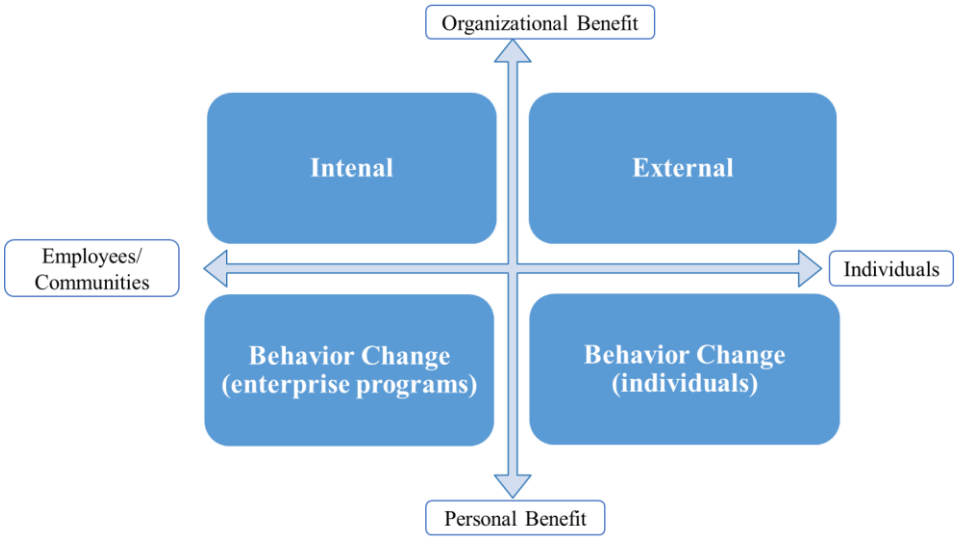

Figure 2: Presentation of gamification categories
Source: Werbach and Hunter (2012:21)

Gamification can be applied in many areas, mainly for business purposes. In marketing, gamification has been quite popular for a long time, as it is used to facilitate sales and the purchasing process, but also to increase the activity of loyalty programs and brand loyalty. In the field of school and non-school education, numerous studies and applications have been published that promote competence development and language learning (e.g., Doulingo, Babbel). Several companies (e.g., Deloitte, Generali) use gamification elements

in their training programs. These have been summarised by Wang et al. (2022). The corporate and business manifestation of gamification can also be identified in human resource management, for example, in processes aimed at improving the workplace atmosphere, in recruitment and selection, multi-round hiring, but it is also successfully utilised in career planning and talent management (Barna and Fodor, 2018, Ērgle and Ludviga, 2018, Kovács and Várallyai, 2018, Czeily and Dajnoki, 2024).
In addition, there are many opportunities to support a healthy lifestyle and driving, which encourage users to use their cars more balanced and to choose a more environmentally friendly driving style for their own protection and the environment. In the field of innovations, in addition to various idea competitions and mentoring programs, there are also gamification initiatives aimed at supporting entrepreneurship. Within the topic of innovation, gamification can also be applied when dealing with social innovations and social challenges (Kiss, 2021).
Regarding the application of gamification within a company, it can be said that it has a wide spectrum: it appears in the recruitment of new employees, in the integration and adaptation process, during corporate training and education, in the development of corporate culture, in employee evaluation, and in company news. Companies often use it to increase the general level of productivity, select managers, promote the development of a given employee and the entire team, provide employees with immediate feedback on the results of activities, increase the visibility of individual employee results, improve the quality of communication in the team, reduce the number of conflicts, unite employees with a common idea, involve them in teamwork, familiarise employees with the company's values, and develop an understanding of the HR brand (Kamasheva at al. 2015).

I have completed an analysis of the advantages and disadvantages of the application of gamification, and then I have summarised the elements influencing the operation of gamification, which represent the defining concepts, factors and approaches that affect gamification, and are related to the gamification process and serve to provide a better and more detailed understanding of it. First, I will discuss the age related to the individual's abilities, as well as the generational classification of the participant, then, in addition to motivation and efficiency, I will deal with generational differences, as these are becoming increasingly prominent. We feel this situation in everyday life: during shopping, in schools, in the family environment and in the world of the workplace. Furthermore, I have also analysed a special case of gamification when the method can become counterproductive, and finally, the discussion of theoretical approaches related to boredom is also relevant to this topic.

I further dealt with gamification in the workplace. I studied the possible outcomes of game activities at different analytical levels of the organisation (Tóth, 2022). I collected corporate examples of what gamification programs and initiatives companies have implemented for employees. L'Oreal used it to try out positions in order to increase work effectiveness, and Colgate-Palmolive used it in career path planning (Makarius et al., 2024). Target used it to provide cashiers with real-time feedback, to increase efficiency and performance (Zichermann and Linder, 2013). In the case of domestic companies, Magyar Bankholding (Hungarian Bankholding), in addition to rethinking previous preboarding processes, used gamification for the strategic goals of the new organisation (HR Next, 2023). MOL Hungary created the PlayCampus gamification platform as a further development of its onboarding program (HRBEST, 2024a). In one of the Bosch factories in Miskolc, gamification was used to present transparent career paths (HRBEST, 2024b), while Legrand, operating in the field

of electricity and building automation, uses gamification in its internal training (N. Kovács, 2025).
Based on the examples presented, it is evident that gamification programs aimed at employees have already appeared in Hungary. They are implemented in a variety of ways, mainly from an HR perspective, and have been well received. The main goals of the programs are to increase employee engagement, knowledge acquisition, and community building, and according to the organisers' statements, these goals are being achieved, although they are not actually measured. Participation in gamified programs is voluntary. I believe there is openness towards gamification, which is supported by the fact that there are signs of long-term planning in this area. In many cases, professional competence is ensured by relying on external partners. Gamified programs are also supported by managers.

Gamification is an increasingly important and researched topic for the scientific world. In the framework of a systematic review and analysis of the literature, I summarise in which areas gamification is applied and what research has been done on the topic, which contributed to the preparation of my thesis as background research. The result of the literature review is the finding that although many researchers and many sources touch on the topic of gamification, the number of those that deal with internal gamification, i.e. gamification aimed at employees, is significantly smaller. I therefore believe that my research work is significant and fills a gap, which can help companies in both the domestic and international arenas.
By further examining the literature, I aimed to explore what research and analyses have been carried out in the field of management and organisational sciences in connection with the study of the relationship between gamification and employees. Therefore, I assessed the spread of gamification in the literature based on the Scopus international scientific journal archive database, which is maintained by Elsevier Publishing (2023) and aims to function as a comprehensive and reliable abstract reference database in the spirit of multidisciplinarity. During the study, I used the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) procedure, which allows for a systematic and structured literature review (Moher et al., 2009, Beller et al., 2013, Kamarási and Mogyorósy, 2015). The procedure involves a four-step narrowing analysis of the publications in the selected database in order to identify relevant publications, thoroughly answer the question posed, and explore the topic. The PRISMA method flow chart is shown in Figure 3.

I conducted the study on September 6, 2023, and then the analysis of the publications was carried out during the fall. In the first step, identification was implemented as the starting point of the search, as a result of which the application found 42,078 hits for the term gamification in the database search engine. Due to the complexity of the database and gamification, I refined the identification: I performed a title and keyword search for the term gamification. After that, in the second step, narrowing followed, during which I formulated the following five filter conditions (keeping the narrowing order and input of the search engine):

1. the publications must have been published between 2014 and 2023,
2. they must be published in the fields of Business, Management and Accounting, and Economics, Econometrics and Finance,
3. they must be of the scientific article document type,
4. they must be in English, and
5. they must be open access.

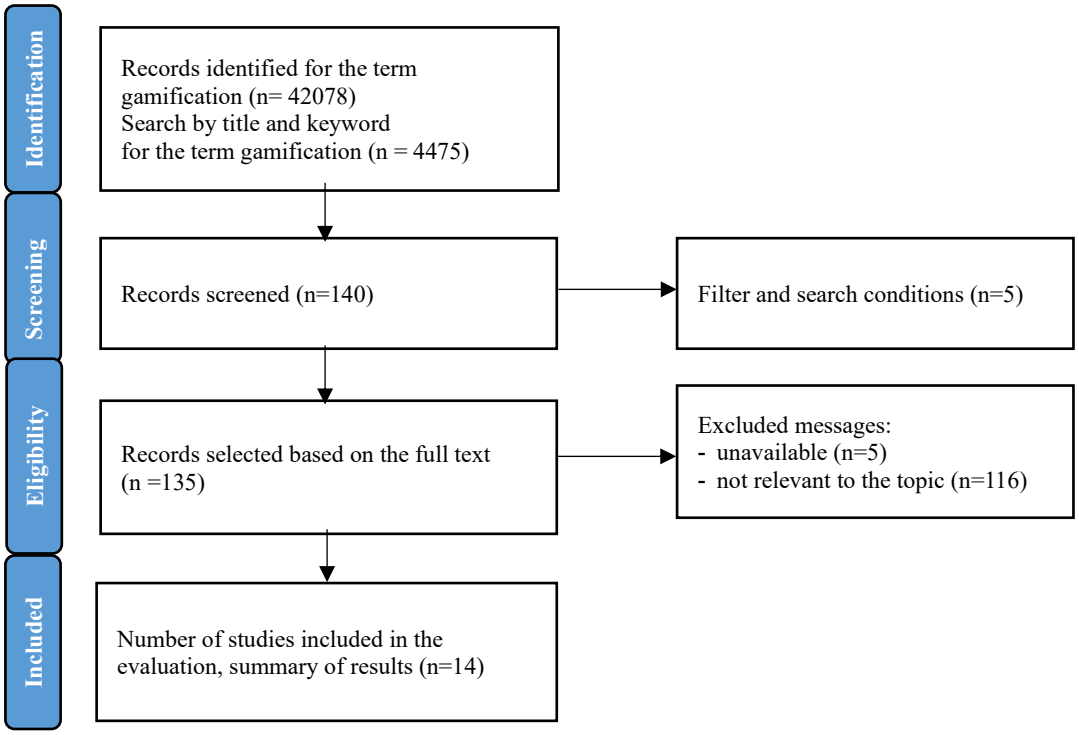

Figure 3: Flowchart of the PRISMA method
Source: own compilation based on Moher et al. (2009), Kamarási and Mogyorósy (2015), Beller et al. (2013), Varga (2021)

These conditions were important for me so that the results obtained were current and related to our current technical, social and scientific world, and fit the topic of the thesis. My goal was to get to know international studies that are open and available free of charge, which can be searched by all interested parties, both researchers and companies. I included articles published up to the date of the search in my study, so it can be said that the first three quarters of 2023 were included in the filtering. The result of the narrowing phase was that I started the phase of assessing the suitability with 140 selected publications, during which the publications were studied: I classified the sector to which it applies for each publication, and I defined the study area, I identified the method and procedures used by the author(s) and recorded the parameters related to these. In addition, I included a brief summary of the publications, their research questions and hypotheses - if they were defined.

The final, fourth stage of the PRISMA method included 14 studies that were considered relevant and related to the topic area. The topic of my thesis deals with one area of gamification, internal gamification, which refers to the totality of gamification programs aimed at employees used during processes within the company. Below, I present a summary of the contents and results of the selected publications that can be specifically linked to this sub-area. During the presentation, I narrowed down the scope and presented these publications along this logical line. Hussain et al. (2018) examined the impact of gamification on employees, highlighting that gamification can be applied not only to consumers. This is followed by the work of Prasad and Mangipudi (2021), in which they present the role of gamification in making the employee community more effective. Mitchell et al. (2020) deal with understanding the individual participating in gamification more deeply, their internal drive, motivation and managing further relationships. Oxarart and Houghton (2021) discuss the connection between elements of gamification and the topics of self-management and awareness. I describe the corporate and business use of gamification

in specific areas based on publications, such as HR, e-commerce, sales promotion, retail, telemarketing, and warehousing. Rodrigues et al. (2021) draw attention to the effects of gamification and how to measure them, while Patricio et al. (2022) seek to establish a link between gamification and the results of corporate innovation teams. The relationship between gamification and legislation, with a particular focus on employee rights as aspects to be considered, is discussed in an article by Hinton et al. (2019). Finally, Wójcik (2023) examines the impact of gamification on the communication of CSR issues.

From what we have seen so far, it is clear that proportionally significantly more people in the international scientific community are involved in the field of gamification than Hungarian researchers. Unfortunately, this can be an obstacle for those who do not know foreign languages or are less proficient in them, and there remain grey areas and good practices that have not been explored in relation to the exploration of gamification knowledge in Hungary. For this reason, I analysed the doktori.hu database for a deeper examination of the topic and, based on my personal knowledge, I also explored which areas, who, and what topics are being studied. Summarising the results, I concluded that the topic is becoming increasingly popular in Hungary in both the social sciences and technical sciences.

Among Hungarian gamification researchers, Árpád Szörény Rab was probably the first to analyse the impact of digital culture through the example of gamification in his doctoral thesis in 2013. While Richárd Fromann's work focused on gamification, the motivational power of digital games, and their potential uses, he also founded the JátékosLét Research Center.

Among Hungarian researchers, it is worth mentioning the work of Mária Jaskóné Gácsi, who examines gamification in the field of education from a pedagogical perspective (Jaskóné Gácsi, 2022, Jaskóné Gácsi, 2023). Her latest research focuses on social and group dynamics (Jaskóné Gácsi, 2024). Andrea Bencsik and Andriana Mezeiová have examined the practice of gamification in higher education: they presented the topic of gamified knowledge transfer (Mezeiová and Bencsik, 2019) and presented a case study on the gamification of a university management course involving 260 students with the aim of identifying learning motivation factors and preferred types of classroom tasks (Bencsik et al., 2021).

2.3. Measuring and evaluating gamification programs

My key question is: how and in what way can we measure the results of gamification? My goal is to identify the indicators that make the effects achieved by gamification noticeable. These metrics can be quite broad: in the educational segment, they are related to student performance, while in the business area, they can extend from customer and employee satisfaction to the categories of sales and profitability.
In addition to the conceptual definition of gamification, the use, stakeholder group, target group, reception, implementation and content of gamification programs have already highlighted that it is a very diverse and varied method, which makes measurement and evaluation tasks complex and difficult. The situation is further complicated if we want to compare and measure different gamification programs with each other.
There is little actual literature on measuring gamification (Hamari et al., 2014, Dyer, 2015). In the gamification literature, researchers are mainly limited to educational evaluation studies, which resulted in, for example, the gamification taxonomy consisting of 5 dimensions and 21 elements (Toda et al., 2019) or the Gamification measurement framework published by Dyer (2015).
During the measurement, in addition to input and output variables, it is also necessary to identify impact indicators, which can help the evaluation work of the program implementers, both in judging the success of the given program and in the subsequent improvement and development work, but it may also be important to facilitate the adaptation of the program elsewhere. In addition to quantitative data, the topic and the situation are further coloured by the fact that qualitative data are difficult or impossible to measure at all, and many indicators are either not measured or recorded poorly and are not analysed with due attention by the program managers and leaders, who are familiar with the practices. This is exacerbated by the fact that, in many cases, there are no recommendations or real practice regarding which elements and variables should be defined and how during the measurement of gamification.
There are also additional problems with measuring gamification: on the one hand, the situation resulting from asymmetric information can distort the accuracy of the measurement, and generational differences (e.g., deficiencies resulting from tool use, lack of knowledge) can also have an adverse effect. It should be emphasised that poorly chosen (measurement) tools can divert gamification in the wrong direction. It can also be a problem if the participant withdraws from the game (e.g., due to bad childhood experiences) or if the participant's results may be distorted due to mandatory participation.
During the measurement, we aim to achieve and fulfil the designated goals, which should be set according to SMART goals, and for this, it is necessary to determine the performance indicators (Key Performance Indicators, abbreviated as KPI), which help determine the fulfilment of the goals. These indicators can be broken down further into, quantifiable metrics (Conley and Donaldson, 2015, Pusztai, 2019, Palenčárová et al., 2022). The achieved effects can be classified into direct and indirect groups according to whether the change is noticeable after the program or later. A direct effect can be an increase in motivation, while an example of an indirect effect is the improvement of financial indicators. In addition to these, it is also worth mentioning the induced effect, because an effect can trigger new actions and initiatives.
The most common way to measure gamification programs is to examine the number and composition of the group of participants, but an analysis can also be conducted in relation to the participants' prior knowledge, since one of the goals of gamification is to achieve knowledge expansion. During a more detailed examination, an analysis related to the activity of the given participant can be carried out, which can be, without claiming to be complete:

playing time, in-game interaction, in-game skill utilisation, in-game transactions. These factors can represent game elements known from the system of gamification components.
The results of gamification are quantified in many places in education and business. One of the most expressive tools for assessing performance is the collection of points. "*One of the great advantages of point systems is that they focus primarily on development, accumulation and collection*." (Fromann and Damsa, 2016:78) The feedback system can range from simpler evaluation methods to more complex techniques. Badges, leaderboards and new goals and challenges received after points all serve as motivation for the participant in gamification, who can also receive immediate feedback.
The reception of the participant also requires special attention, as this allows for feedback on whether the program designers have correctly assessed the use of the elements included in the program. The opinions and reactions of the participants can be asked individually, verbally or in writing. The latter case is more common and is implemented using an evaluation questionnaire (Karoliny and Poór, 2019).
It is advisable to use a Likert scale measurement in the survey questions due to the bipolar concept of assessment. This was also used by Mukerjee et al. (2023) when they undertook to measure organisational play in a small company with 278 stakeholders. Their results showed that the scales developed using their questionnaires are suitable for measuring serious play and diversionary play (play that distracts the employee from work). "*Research indicate that play - both as a diversion and as a way of engaging with work - have a multitude of effects or outcomes on the employees, their work, and the organization at large.*" (Mukerjee et al. 2023:2448).
Among the research methodological procedures for evaluating gamification programs, program evaluations, also known as evaluative research, can be used by researchers with the aim of exploring the effects of a social intervention. The study may measure knowledge, attitudes, and behaviour, but other indicators related to the program can also be identified. The main argument in favour of this methodology is that special problems that arise in real life are evaluated in the context of their occurrence, paying attention to maintaining ethical and legal rules. Program evaluation is part of applied research and its goal is to have an impact on practical life, to increase social utility, and to create the opportunity for participants to have a real say. In general, evaluative research is "*the process by which we can determine whether the desired effect has been achieved.*" (Babbie, 2001:383).
A common characteristic of evaluation research is its high practical relevance, which can be manifested in the fields of jobs, programs, political-social reforms and investments. Among the social sciences, sociology often applies, for example, the works of B. Erdős (2010 and 2015) and Kelemen et al. (2015). In economic publications, Molnár et al. (2010) and their co-authors used it for the outsourcing of HR activities, Artar and Huseynli (2019) used it for the evaluation research of a gamified performance appraisal system.
My suggestion is to strive to develop a measurement and evaluation model that serves to evaluate the experiences and results of internal gamification programs, taking into account the measurement principles and measurability, but also shows the stakeholders which are successful and which areas still need to be developed. It is advisable to include the goals, implementation, communication, and reception of the program, but in the spirit of the long term, attention should also be paid to the strategic aspects of the company, such as adaptation, sustainability, formalisation, and integration. The evaluation should contribute to managerial decision-making, i.e. to determining which parts of the program should be monitored as areas for future development. In the future, the addition of these parameters can be even more significant in assessing the program, which means not only financial, but also qualitative data that are difficult to measure and evaluate.

1.5. Conceptual model of the research

Based on the theoretical research, I formulated the conceptual model of the research. During the research, I illustrate the examination of internal gamification programs implemented in Hungarian companies in 7 steps, which is presented in Figure 4.

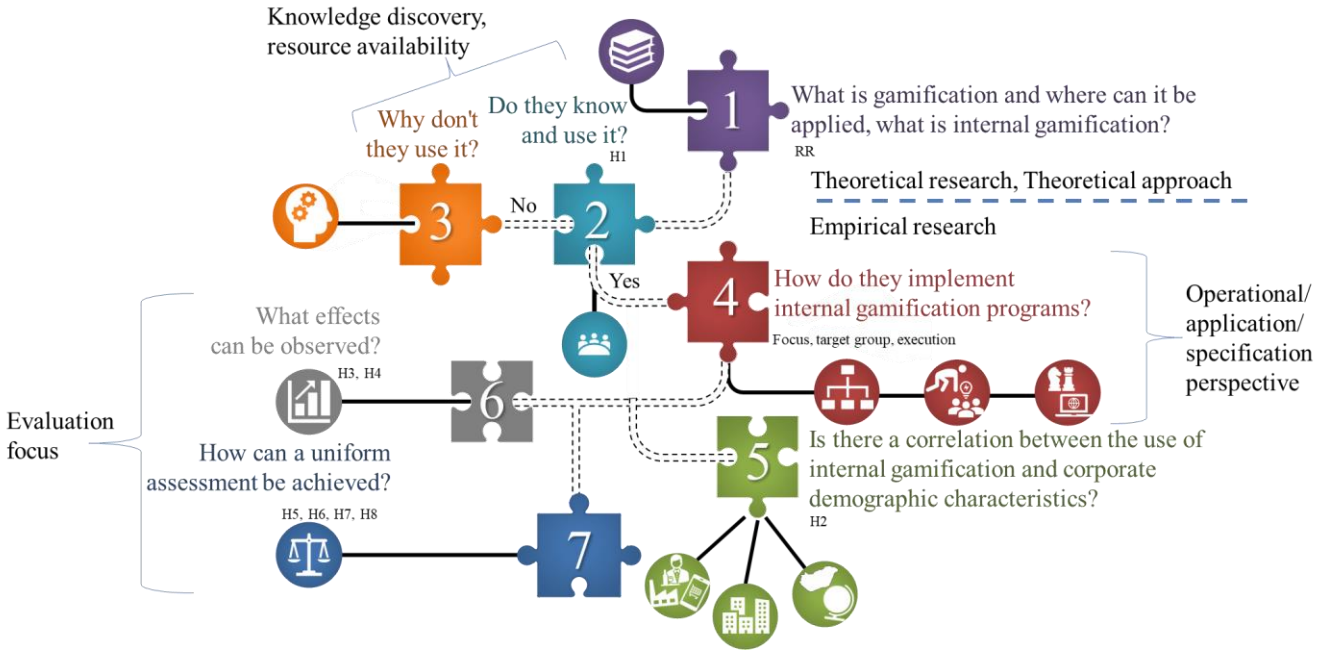

Figure 4: Conceptual model of the research
Source: own editing

In the first step, I created my own definition of gamification to resolve the diversity of definitions I learned during the literature research, which I also used during the primary research, thus helping to develop a common language. From the second step, I assessed the practices of companies in my questionnaire used in the primary research. It was important to clarify whether companies are aware of and use gamification. I also found it interesting from a professional perspective to explore the reasons why those surveyed in the target group do not use gamification. Based on this, it is possible to make fine-tuning in the future and thus help companies' gamification efforts. In the fourth step, I detailed the domestic application and implementation of internal gamification programs: what focus (areas, goals), target group (for which group of employees) and what implementation (individual or team nature; online, offline or hybrid solution; voluntary or mandatory) the programs operate with. In the fifth step, I also analyse company demographic data, revealing whether there is a pattern of companies using gamification. Getting to know them is a gap-filling exercise, as a comprehensive study has not been conducted in this area of research so far. The main idea of the thesis is related to the measurement and evaluation of gamification programs, so in the sixth step, I explored the measurement and evaluation work and indicators used by companies. With this, I want to help ensure that the application of game elements in non-gaming environments is done consciously, which allows companies to achieve results. Here, I detailed the employee reception and the factors affecting the gamification program. In the seventh and final step, I aimed to develop common measurement and evaluation frameworks, with which the company can receive feedback on the performance of internal gamification programs. Table 1 summarises the research questions (Q), my assumption (A), and the hypotheses related to them (H), as well as the research methods used.

Table 1: Summary table of research activities

Examination method	Examination aspect	Research questions	Assumption/Hypothesis
Theoretical research	Theoretical approach	Q1: What is gamification and where can it be applied, what is internal gamification?	A: There is no unified definition of gamification.
Empirical research	Knowledge discovery, resource availability	Q2: How widespread is the use of gamification among medium-sized and large companies in Hungary?	H1/a: Most of the companies surveyed are familiar with gamification but do not use it.
			H1/b: The main obstacle to the application of gamification is the lack of knowledge and resources.
	Operational/ application/ specification perspective		H2: Due to the diversity of their goals and implementation forms, internal gamification programs can be successfully applied regardless of the demographic characteristics of companies.
	Evaluation focus	Q3: How do domestic companies evaluate the effects of internal gamification programs? Is there a difference between observed effects (users) and perceived effects (non-users)?	H3: The impact measurement of internal gamification programs is limited to activity indicators.
			H4/a: Internal gamification programs contribute to the achievement of corporate goals.
			H4/b: There is a difference between the observed and perceived effects of internal gamification programs.
		Q4: What are the strengths and weaknesses of the gamification programs of domestic companies, are there any patterns among companies based on the Gamification Evaluation Model and the Overall Impact Assessment scores?	H5/a: The strongest point of internal gamification programs is their execution.
			H5/b: The weakest point of internal gamification programs is their strategic approach.
			H6/a: Based on the overall evaluation of internal gamification programs, companies can be classified into distinct groups.
			H6/b: Based on the overall evaluation of internal gamification programs, the main drivers of successful execution can be identified.
			H7: The acceptance of internal gamification programs by participants is most significantly influenced by implementation and management-organisational support.
			H8: A more intensive appearance of Performance Optimisation goals in internal gamification programs results in a higher GEM Total Score.

Source: own editing

The results of the research will help to understand the relationship between Hungarian medium-sized and large companies and gamification: whether they are familiar with and use this method. The primary research will also reveal in what areas, for what purpose and for whom internal gamification programs are used. The measurement of results and its methods and indicators will also be mapped. It will also be possible to identify the reason why a responding company does not use the gamification toolkit. As an additional result, case

studies in the literature can be created in order to further enrich the scope and toolkit of gamification. The opinions of the participants and the program designers will be expressed, the emerging problems and issues will be identified, and attitudes, performance values and forms of behaviour will also be detected. Overall, it can be said that the expected results provide a good opportunity to deepen the topic and can be useful elements for the development of higher education and science, which I wish to popularise both domestically and internationally. My goal is to be able to quantify the results revealed and thus provide information to leaders.

3. PRIMARY RESEARCH AMONG DOMESTIC COMPANIES

I conducted the primary research for my dissertation among domestic companies, in which I used a questionnaire method to explore whether domestic medium-sized and large companies apply internal gamification processes, and if so, in what form. I undertook to present a picture of the situation that illustrates whether gamification, one of the newer methods and approaches, is part of the everyday life of Hungarian companies.

3.1. Presentation of the questionnaire survey

During the study, I prepared a questionnaire for primary research. The relevant literature materials described earlier helped me in compiling the questionnaire questions.
By compiling the questionnaire and querying it, my goal was to map the prevalence and implementation of internal gamification activities implemented in companies operating in Hungary, and to use the results to help both the scientific world and companies gain greater insight into the gamification approach, which can lead to the acquisition and integration of new knowledge. The focus of my approach was to examine what internal, employee-oriented gamification programs companies implement. The goal of internal gamification is to increase productivity within the organisation, promote innovation, enhance cooperation between colleagues and have a positive impact on business results by involving employees. In my study, I therefore intend to present the prevalence and implementation of internal gamification programs used by companies, as well as their effects. The planned population of the study consists of Hungarian companies with more than 50 employees. I made the questionnaire available to those employees of the companies who understand the internal gamification processes. It was also particularly important for me to indicate whether they do not use gamification in their internal processes. Therefore, I designed the questionnaire in such a way that I could gain more valuable experience from negative answers in this regard during my research work.

The planning, formulation and compilation of the questionnaire questions took six months, and the test version and the version used during the research were also entered into the EvaSys (version: V9.1) software system. Following the compilation, a test version was carried out (between June 5-12, 2024), where the pre-requested respondents (n = 7) helped to clarify and finalise the questions. The final questionnaire was compiled on June 15, 2024, and could be completed electronically between June 17 and July 24, 2024.
The basic population of my study is domestic for-profit medium and large companies, with a total number of 6,171 people at the end of 2022 (KSH, 2024). As a target population, I addressed the program managers of the internal employee gamification of for-profit medium and large companies operating in Hungary. For the sampling frame, I compiled a list of recipients based on a data request from the CrefoPort database used by the Faculty of Economics of the University of Miskolc, and using data from a previously established partnership with the University of Miskolc. I conducted the search in the database on June 5, 2024. The basis of the population is thus n = 3,477 companies, which I contacted using electronic mail based on a previously prepared address list. I identified coverage, sampling and non-response errors in connection with the sampling.

It should be emphasised that the sample is not representative, so the findings apply to the sample. The survey was completed using non-random sampling based on voluntary responses, which can be defined as a convenience sample based on the literature recommendation.

The questionnaire was completed by 218 companies, resulting in a response rate of 6.27%. The final sample included in the analysis consisted of (N = 216). It is important to note that the questionnaire was not sent to private individuals, nor was it shared on social media sites.

3.2. Data analysis, methodological summary

Data cleaning and analysis were performed using Microsoft 365 Excel (version number: 2405) and JASP (version: 0.19.0) computer programs (JASP Team, 2024).
I analysed the sample using descriptive statistics indicators (such as mean, standard deviation, median, mode, and quartiles), and I also used frequency and distribution occurrence. I evaluated the indicators several times using cross-tabulations. For deeper analyses, I used statistical tests, the conditions of which I checked in advance in each case. I analysed the relationships between variables with the Pearson (denoted: r) and Spearman (denoted: ρ) correlation, while I used the Pearson χ^2 test and Cramer's V coefficient to analyse the relationships between dichotomous data. For binary variables, I compared related measurements with the McNemar test. For scale-level variables following an ordinal or non-normal distribution, I used the Wilcoxon rank-sum test for related-sample analysis and the Mann-Whitney test for independent-sample analysis.
I analysed the results of the users of the gamification programs with a one-sample Wilcoxon test, in order to determine whether there was any deviation from the median value of 3 among the users. I also applied the Kruskal-Wallis test, for example, to identify differences between different areas of activity (producer, trader, service provider), and if necessary, I also used Dunn's post-hoc test.
During the primary research, I set the significance level at $\alpha = .05$. I paid attention to reducing the study dimensions where necessary, so I used principal component analysis as a data reduction procedure. I also created new, aggregated indicators (e.g., Overall Acceptance Index; GEM Total Score; Overall Impact Assessment), where I was convinced of the Cronbach's α value used to measure reliability. During the analytical work, I also built a multiple regression model to identify the relationships between the Overall Acceptance of internal gamification programs and the GEM Total Score output variables predicting the program's outcome.
In connection with the qualitative analysis, I observed similarities and occurrences, with which I created a quadrant and matrix. I used various data visualisations to illustrate the data and relationships.

3.3. New and novel findings

The first stage of my research involved reviewing the literature on gamification. Due to the diversity of definitions, it was important to document what we consider gamification to be.

A: There is no unified definition of gamification.

I consider it a new research result (RR) of my thesis that, after systematising and synthesising the definitions found in the literature, I created my own definition of gamification.

RR: Gamification is a system that contributes to the achievement of individual or organisational goals and results in a non-game context by applying game elements (e.g. points, levels, ranks, badges), game dynamics (e.g. rounds, challenges, competitions, feedback) and game mechanisms (e.g. emotions, relationships, constraints, story) and providing a game experience, as well as continuous feedback to participants.

After reviewing the literature, I created a conceptual model for my research, which I used as a basis for conducting empirical research among medium-sized and large companies in

Hungary. In my research, I explored the application of gamification in Hungarian companies and practical experiences with it. It should be emphasised that the sample is not representative, so the findings apply to the sample. The survey was conducted using non-random sampling based on voluntary responses and can be defined as a convenience sample based on the recommendations in the literature. My findings are summarised below.

The first part of my analysis was aimed at exploring whether the surveyed companies are aware of and use gamification. I assumed that the companies had heard of the method. However, since it can generally be said that Hungarian companies operate within tight budgets and have few resources, I expected that they would not be able to devote adequate resources to a method that does not directly affect their main activity, such as gamification. Furthermore, since this method cannot yet be considered widely used in Hungary, despite the fact that some have already heard of it, few actually apply it. Based on this, I formulated my H1/a hypothesis.

H1/a: Most of the companies surveyed are familiar with gamification but do not use it.

Of the responding companies, 93 (43.06%) are unfamiliar with gamification, while the majority, 123 (56.94%), are familiar with it. Subsequently, before the question on the use of gamification, I presented the definition I had created in the questionnaire. I did this because I assumed that some companies might be using elements of the methodology without being aware of gamification. Of the 216 companies, 41 use it (28 on an ad hoc basis and 13 on a continuous basis), 3 indicated that they had used it in the past but no longer do so, while 172 do not use it (of which 45 plan to use it).
I compared the knowledge and use of gamification, and this confirmed my suggestion that companies can intuitively incorporate elements into the workflow that correspond to existing gamification practices to motivate employees, even without knowledge of the method. As a result, a total of 8 companies, although they answered that they were not familiar with the concept of gamification, later indicated that they had previously used or are currently using such techniques, and after the definition, the respondents were also familiar with their gamification practices.

Based on the data I have learned, I accepted the hypothesis H1/a, from which I formulated the following thesis T1/a regarding the companies in the sample:

T1/a: Based on the questionnaire research, the majority of the Hungarian medium-sized and large companies responding have heard of gamification, but do not use it. The use of gamification is not always conscious, companies often intuitively integrate elements into their work processes that meet the criteria of gamification practices.

As we have seen, the majority of the responding companies do not use gamification. Therefore, I considered it important to explore the reasons for their aversion to gamification. I have formulated my hypothesis H1/b regarding this below.

H1/b: The main obstacle to the application of gamification is the lack of knowledge and resources.

Companies were given multiple response options to indicate the reasons for their reluctance to use gamification. Summarising the responses, the most common reasons for non-application include that the companies in the sample do not know how to implement gamification (42.5%), do not consider the gamification method relevant (41.7%), do not have the necessary resources (40.9%), and often have to comply with strict regulations

(34.6%), so they cannot imagine using this method. In many cases, it can also be stated that the companies in the sample do not know gamification. Much less common reasons than those listed are lack of motivation (19.6%), long-term unsustainability (8.7%), distraction (5.5%), the method being too expensive (4.7%), generating tension (4.7%), and excessive, unnecessary competition (3.9%). The lowest value was achieved by the answer option that gamification leads to counter-productivity (1.6%). I consider it positive that no one selected the option that gamification causes boredom. Based on the analysed data, I accept hypothesis H1/b, from which I formulated the following thesis T1/b for the companies in the sample:

T1/b: The main reasons for refraining from using gamification are the lack of knowledge about the method and the resources and time required for implementation.

I believe that education related to gamification plays an important role, and effective tools for this can include publishing scientific publications, sharing corporate good practices, training for companies, and teaching students about the gamification method.

During the empirical research, we got an idea of in which areas, for what purpose, with which target groups and in what way the responding companies apply gamification. Internal gamification programs are mainly used in the field of human resource management, HR, during internal training, education, as well as in a comprehensive, general manner (for example, supporting a healthy lifestyle, activity), but the number of users during internal communication is also significant. The main goal of such programs is community building, improving the workplace atmosphere, and increasing employee satisfaction, but increasing employee commitment and loyalty is also significant. These are followed by individual goals: improving individual performance, which includes motivation, competence and skill development, and providing feedback to individuals. Efficiency improvements in a given functional area (e.g. marketing, HR, logistics, customer relations, etc.), performance indicators, and financial performance (e.g. increasing sales, profits, liquidity, ROI) are mentioned less frequently.
Companies apply gamification to their general workforce, targeting middle managers and lower-level managers to a significantly lesser extent. It is also visible that they mainly address white-collar workers. During implementation, voluntary participation is more dominant than mandatory participation. Participants generally have to participate individually. Companies implement gamified programs with a combined solution: they use a self-developed program and involve an external partner in the design. Internal gamification programs are implemented with a hybrid (online and offline) solution in terms of design form.
Based on the results of the situation analysis, it can be stated that gamification can be applied in many areas and in many ways, so I assume that the successful implementation of gamification does not depend on the demographic characteristics of the companies. In relation to this, I formulated my hypothesis H2 as follows:

H2: Due to the diversity of their goals and implementation forms, internal gamification programs can be successfully applied regardless of the demographic characteristics of companies.

To verify the hypothesis, I conducted a two-level analysis based on company demographic characteristics (size, type of activity, customer base, ownership background). In the first step, I analysed whether there was a significant relationship between the use of gamification and company demographic characteristics among the companies in the sample. Of the 216 companies, 123 are familiar with gamification. I used Spearman's correlation to examine the relationship between the use of the method and the number of employees in the companies,

according to which I found a significant, positive weak relationship ($\rho = .20$ $p = .002$), i.e. larger companies are typically more likely to use gamification than smaller ones. However, I did not discover a significant relationship for the other company demographic indicators. In the second step, I narrowed down the investigation to those who use gamification ($n = 41$) and compared the items in this sample of companies with corporate demographic data. Here, I analysed the relationships between knowledge, use, and implementation of gamification (focus, target group, execution) and corporate demographic factors. The methods used for the analysis were Spearman's correlation, χ^2 tests, and the Kruskal-Wallis test, followed by the Mann-Whitney test. The results of the analysis are summarised in Table 2. In most cases, the analysis did not confirm a significant relationship between the use of gamification and company demographic data.

Table 2: Correlation analysis between knowledge, application of gamification and corporate demographic indicators

<table>
<tr><th colspan="2">$n = 41$</th><th>Employee size category</th><th>Customer base</th><th>Type of activity</th><th>Ownership background</th></tr>
<tr><td colspan="2">Knowledge of gamification</td><td colspan="2" rowspan="2">Spearman correlation
no significant relationship</td><td rowspan="2">χ^2-test
no significant relationship</td><td rowspan="2"></td></tr>
<tr><td colspan="2">Use of gamification</td></tr>
<tr><td rowspan="2">Focus</td><td>Corporate areas</td><td>Spearman correlations
no significant relationship</td><td>Spearman correlations
2 significant relationships</td><td>χ^2-tests
no significant relationship</td><td></td></tr>
<tr><td>Goal (individual, corporate)</td><td colspan="2">Spearman correlation
no significant relationship</td><td>Kruskal-Wallis test
followed by the Mann-Whitney test
no significant relationship</td><td></td></tr>
<tr><td rowspan="2">Target group</td><td>Position</td><td colspan="2">Spearman correlations
no significant relationship</td><td>χ^2-tests
1 significant relationship</td><td>χ^2-tests
no significant relationship</td></tr>
<tr><td>Nature of work</td><td colspan="2">Spearman correlations
no significant relationship</td><td>χ^2-tests
1 significant relationship</td><td>χ^2-tests
no significant relationship</td></tr>
<tr><td rowspan="4">Execution</td><td>Form of participation</td><td colspan="2">Spearman correlations
no significant relationship</td><td>χ^2-tests
no significant relationship</td><td></td></tr>
<tr><td>Mode of implementation</td><td>Spearman correlations
1 significant relationship</td><td>Spearman correlations
no significant relationship</td><td>χ^2-tests
no significant relationship</td><td></td></tr>
<tr><td>Implementation framework</td><td colspan="2" rowspan="2">Spearman correlation
no significant relationship</td><td rowspan="2">χ^2-tests
no significant relationship</td><td rowspan="2"></td></tr>
<tr><td>Form of implementation</td></tr>
</table>

Source: own editing

Based on this, I accepted the contents of my hypothesis H2 and formulated the following thesis regarding the companies in the sample:

T2: Due to their diverse design and flexible customisation, internal gamification programs can be successfully applied in most areas of corporate operations, regardless of the company's size, clientele, activities, and ownership.

The conclusion that there is no correlation between the demographic characteristics of companies and the use of gamification can greatly contribute to the wider adoption of gamification programs. I believe it is worth communicating this to companies, as many may

have been reluctant to adopt gamification because they could not imagine how it could be applied.

Scientific publications are less concerned with measuring the impact of corporate gamification programs, despite the fact that this can be an extremely important and sensitive point for the successful application of gamification and the spread of the method. Having identified this research gap, I first examined whether companies evaluate the effects of gamification, what it covers and what method is used to measure it.
My assumption is that companies most often only consider activity indicators during the evaluation (Garett and Young, 2019, Koivisto and Hamari, 2019, Paixão and Cordeiro, 2021), although several other indicators revealing (direct and indirect) effects could also help in the specific evaluation work. Hypothesis H3 is related to the impact measurement practices of companies.

H3: The impact measurement of internal gamification programs is limited to activity indicators.

Respondents from companies using gamification (n = 41) could choose from three answer options (3: yes, we evaluate; 2: we partially evaluate; 1: we do not evaluate), so that I could determine which solutions the companies use and which ones they do not.

It emerged that performance-related elements (program performance, participation indicators) are most often measured. This is followed by employee-related factors (acceptance, commitment, change in workplace atmosphere), which are taken into account to a lesser extent. From a professional perspective, I find it interesting that the least relevant aspect is the resource management (financial and non-financial) of gamified programs. The data are presented in Figure 5. The measurements are carried out using questionnaire(s) or quantifiable indicators, 46.3% of respondents indicated both answer options in equal proportion. Companies use both formal conversation (41.5%) and informal consultation (36.6%).

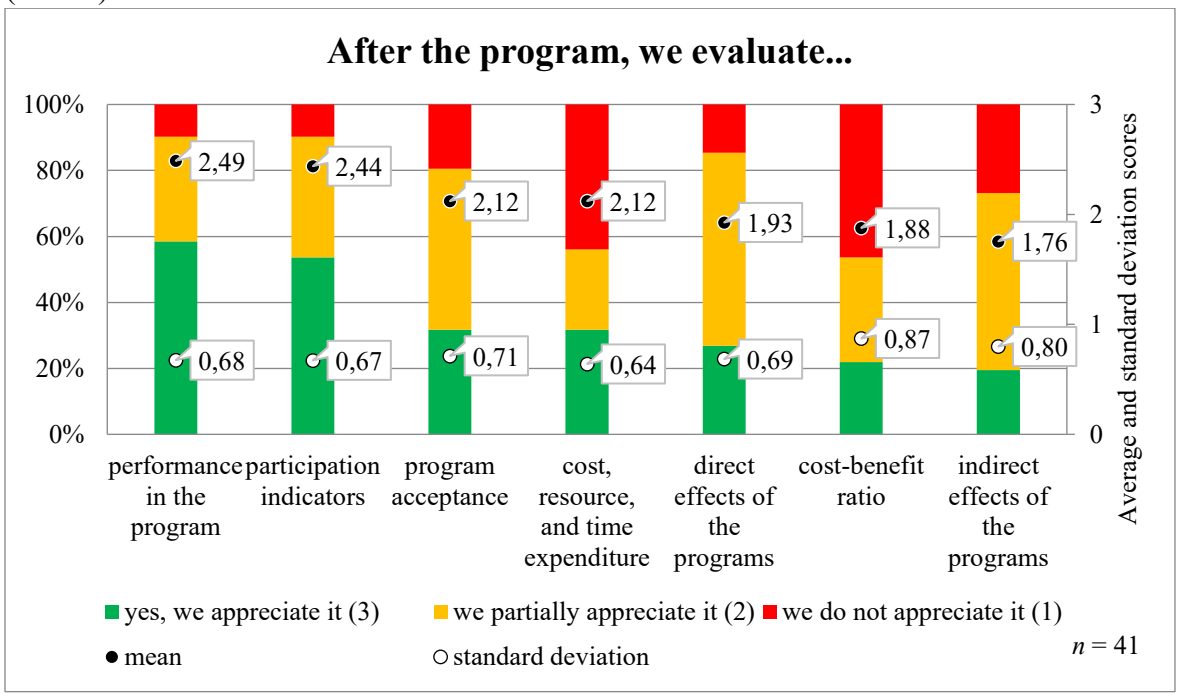

Figure 5: Measuring the results of gamification programs
Source: own editing

Two companies indicated that they do not measure the effects of gamification programs. They gave two reasons for this: (1) measurement is not relevant or important to the company, (2) the program serves a purpose that is difficult to measure. (The latter could be employee loyalty, work ethic, or increasing team spirit.) Taking these findings into account, I accepted hypothesis H3 and formulated my thesis T3 for the companies in the sample:

T3: The impact measurement of internal gamification programs is limited to activity (participation and completion) indicators. Although the program's reception and direct and indirect effects are monitored to a lesser extent, the costs, resource and time expenditure, and cost-benefit ratio are typically not assessed.

After examining the measurement of gamification programs, my goal was to identify the effects of the method. During the more detailed analysis, I focused on the benefits that the individual and the company gain. My assumption was that internal gamification programs support the achievement of corporate goals and have a positive impact on them. Therefore, I conducted my analysis within the framework of hypothesis H4/a among companies that have already implemented the method (n = 44).

H4/a: Internal gamification programs contribute to the achievement of corporate goals.

For the investigation, I initially identified 5 areas and 21 variables based on a comprehensive analysis of literary sources, as well as logical connections and related experiences. After analysing these independently, I connected the related elements using principal component analysis in order to reduce the dimensions and analyse them together. The 3 components created form sufficiently coherent and relevant scales, so I used them for the subsequent investigation. For these questions, I used Osgood's 5-point scale differentiating semantic differences (1 significantly worsens, 2 slightly worsens, 3 does not change, 4 slightly improves, 5 significantly improves).

It is important to mention that in the case of all 21 variables, the perception of gamification is positive: the average values are above 3.00. The companies reported the strongest effect in the case of employee motivation and attitude (M = 3.96) and the development and deepening of team spirit (M = 3.93). I analysed the values with a one-sample Wilcoxon test to determine whether there is any kind of deviation from the middle value of 3 among the users. Significantly positive results were obtained for all factors, meaning that there is basically an improvement, i.e. a positive shift occurs in every case when companies use gamification.

I identified a similarly positive result for the combined averages of the created components. In the case of the component summarising individual employee performance (RC2), the factors improved significantly due to the program's effect (M = 3.63). With a slight difference, the workplace atmosphere (RC1) component also shows an improvement (M = 3.60). The effect of gamification is less noticeable in the case of the variables summed up in the Corporate Process and Performance (RC3) component (M = 3.35).

Based on these data, I created the thesis T4/a for the companies in the sample, accepting the hypothesis H4/a:

T4/a: The use of internal gamification has a positive impact on individuals, the employee community, corporate processes, and performance, thereby contributing to the achievement of corporate goals. The responding companies achieved improvements in all areas through gamification.

In the following, I contrasted the positions of companies using gamification - with respect to the 21 variables and 3 components detailed above - with the expectations of those not using the method, as I assumed that there was a difference between the actually observed effects (users) and the perceived effects (non-users). During the analysis, I compared the responses of companies using gamification (n = 44), planning to use it (n = 45) and not planning to use it at all (n = 127). In addition to the average results, I used statistical analyses (Kruskal-Wallis test, Dunn's post-hoc test) to identify differences between groups in order to verify the hypothesis H4/b.

H4/b: There is a difference between the observed and perceived effects of internal gamification programs.

Based on the average results of the groups, I found that those who plan to use gamification programs rate gamification higher (M = 4.05) than actual users (M = 3.51) and non-users (M = 3.59). In order to identify the differences between the three groups, I used the Kruskal-Wallis test and Dunn's post-hoc test. I came to the conclusion that there are significant differences in the variables: in the case of users and those planning to use, there is a difference in all variables, that is, those planning to use evaluate gamification programs better than actual users. It is also visible that in many cases, those planning to use the method evaluate it better than those not using it at all. Based on these data, I formulated the thesis T4/b for the companies in the sample, accepting the hypothesis H4/b:

T4/b: There is a difference between the observed and perceived effects of internal gamification programs. The real effects of gamification programs fall short of expectations, those who do not use gamification overestimate the achievable effects compared to what those who use the method have actually confirmed.

In connection with the previous thesis, I believe it is very important for companies to formulate realistic expectations, to precisely define and communicate goals and frameworks. This can be achieved by a model that unifies the measurement and evaluation methods of gamification. The absence of these can also cause disappointment and thus prevent the continuous and further application of the method.

Based on the literature I have reviewed, I have created an evaluation framework that identifies the success factors necessary for a gamified corporate program to be effective. The main purpose of the Gamification Evaluation Model (in Hungarian: Gamifikáció Értékelési Modell (GÉM), abbreviated GEM) is to provide companies with an evaluation basis and benchmark, indicating the factors that determine whether a gamification program can be considered successful or, conversely, unsuccessful. Different gamification programs have different goals, audiences, and financial frameworks, but GEM allows for general comparison, making it suitable for both measuring performance at the corporate level and for inter-company comparison. The GEM model is illustrated in Figure 6.

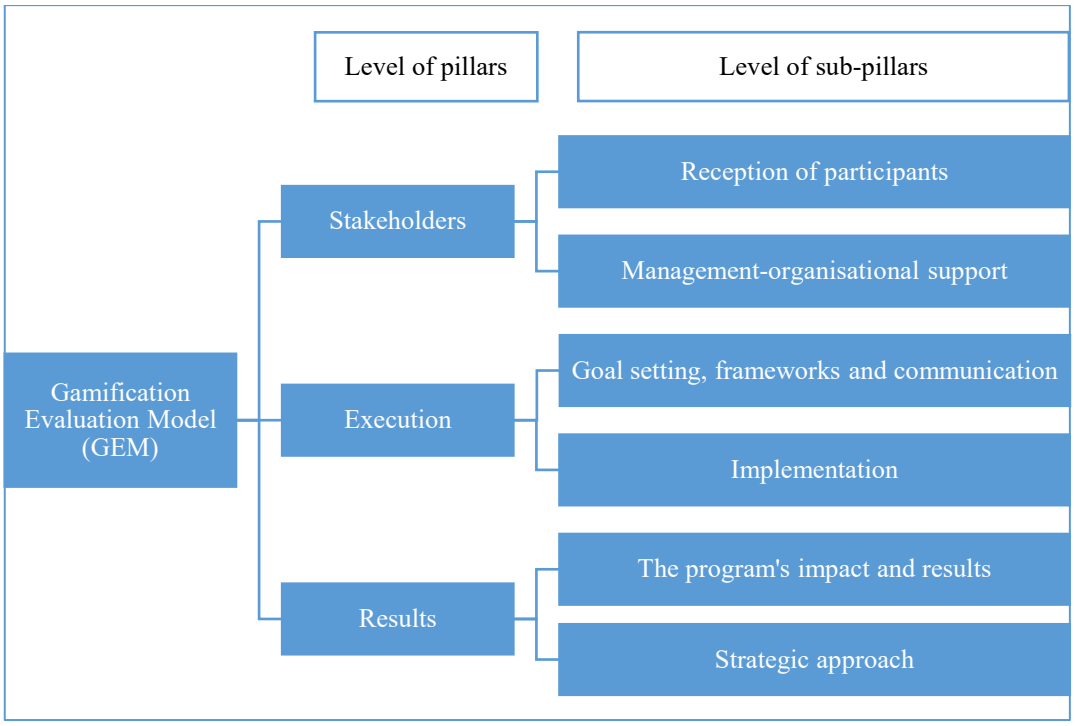

Figure 6: The Gamification Evaluation Model (GEM)
Source: own editing

The model consists of three pillars (Stakeholders, Execution, Results), which can be divided into 2 elements, sub-pillars, per pair. The model was surveyed with 6 (36 in total) statements (components) per sub-pillar, with the variables being answered on a paired Likert scale ranking values between 1-6, in a self-completed manner, and its aim is to examine the corporate gamification activity in detail. The lowest score in the model is 36, the highest is 216 points. The lowest answer option is "not at all", while the highest is "completely". The pillars describe the criteria for the successful implementation of the gamification program, and the stakeholders appear in it, which means the reception of the participants and the management-organisational support supporting the implementation. The execution phase includes defining the program's goal, the implementation framework, and the communication that arises, but also includes implementation. The results of the implemented programs can also be divided into two parts: the effects and results of the gamification program are measured, and the integration into the company's strategic approach. A radar diagram created from the scores of the GEM sub-pillars is suitable for visualising the model. It can also be seen from the representation that the larger the hexagon drawn by the company, the better the result it achieved. The GEM radar diagram allows for comparison between the elements, making it easier to identify the success factors of the program, as well as the elements requiring intervention and attention. In connection with this, I formulated my hypotheses H5/a and H5/b:

H5/a: The strongest point of internal gamification programs is their execution.
H5/b: The weakest point of internal gamification programs is their strategic approach.

Companies using gamification ($n = 44$) participated in the survey. Based on the values of the companies that filled it out, I summarised the most characteristic information in Table 3. A minimum of 6 and a maximum of 36 points could be obtained for each sub-pillar. Based on these, it can be said that Execution is the strongest element ($M = 27.89$), followed by the reception of participants, the other elements were in the middle, between 24.66-26.55 points,

while Strategic Approach appears as the weakest among the companies (M = 21.77). I analysed the data with a box plot and descriptive statistics. It is gratifying that each pillar achieved at least 60% of the total score.

Table 3: Analysis of the total scale scores of GEM sub-pillars

Scale scores	M	SD	Q_1	Q_2	Q_3
I. Reception of participants	27,02	5,95	23,75	29,00	31,00
II. Management-organisational support	24,66	6,98	2,00	25,00	3,25
III. Goal setting, frameworks and communication	26,55	7,14	23,75	26,00	32,25
IV. Implementation	27,89	6,38	24,00	3,00	32,00
V. The program's impact and results	24,75	6,54	21,75	25,50	29,25
VI. Strategic approach	21,77	6,75	17,00	21,50	26,00

Source: own editing

Figure 7 shows the GEM sub-pillars, which reflect the average results of the companies surveyed in the questionnaire.

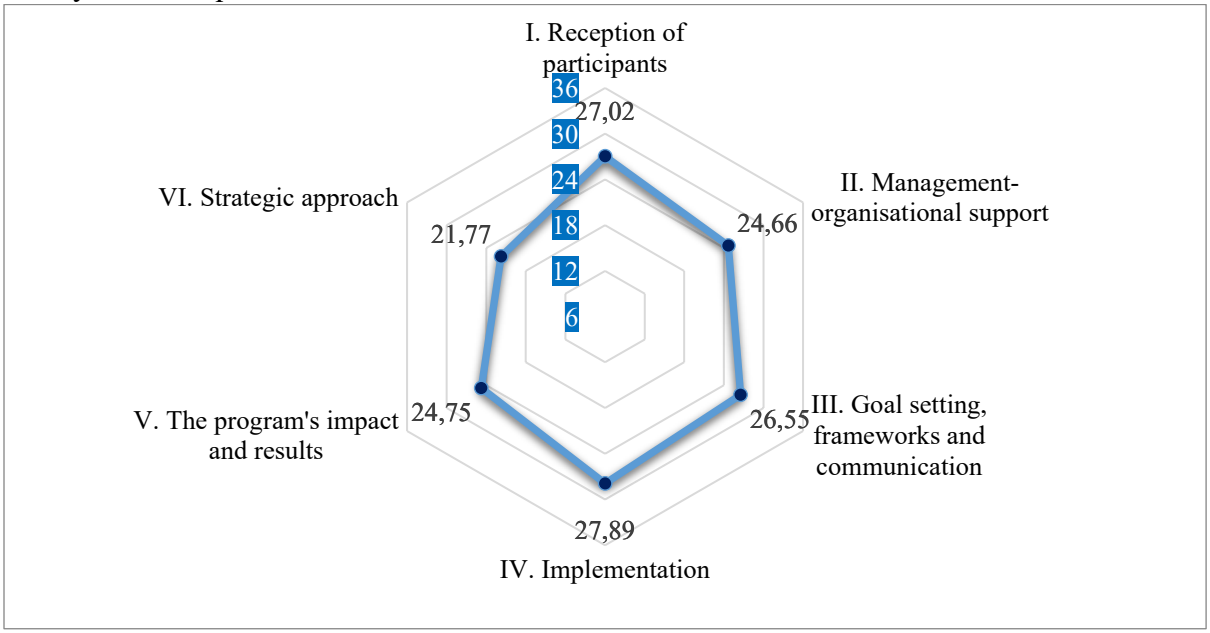

Figure 7: Visual representation of GEM based on the average scores of participating companies

Source: own editing

With the help of the sub-pillars of GEM, I accepted my hypotheses H5/a and H5/b and formulated the following theses regarding the companies in the sample:

T5/a: The strongest point of internal gamification programs is their execution. The domestic responding companies pay the most attention to the implementation of gamification programs, as well as the setting of goals, frameworks, and communication elements related to the program, which makes their implementation successful.
T5/b: The weakest and most developable element of internal gamification programs is the strategic approach. Based on the responses of the sample companies, the inclusion of gamification in corporate planning and strategy creation, which would ensure the long-term and sustainable application of the method, is not widespread.

I considered it important to examine whether companies could be grouped based on the success of gamification programs. My idea was to compare the impact assessment of those responsible for gamified programs with the expert approach of the GEM model. The first variable was created from the 21 items used in theses H4/a and H4/b and is called the *Overall Impact Assessment* (horizontal axis). The variable shows how companies evaluate the effects of the conducted gamification programs between values 21-105. I named the second variable the *GEM Total Score* (vertical axis), which was created from the cumulative values of the pillars of the Gamification Evaluation Model (GEM) and shows the success of the gamified program between points with values 36-216. For the purpose of analysis, evaluation and easier comparison, I converted the indicators into percentage form, which I finally included in the two-axis coordinate system and displayed in Figure 8. I named and characterised the four distinct areas (quadrant elements) created on the Gamification Matrix. The Gamification Matrix is suitable for analysing whether there are patterns regarding the success of companies' gamification programs. In this regard, I formulated the hypotheses H6/a and H6/b.

H6/a: Based on the overall evaluation of internal gamification programs, companies can be classified into distinct groups.
H6/b: Based on the overall evaluation of internal gamification programs, the main drivers of successful execution can be identified.

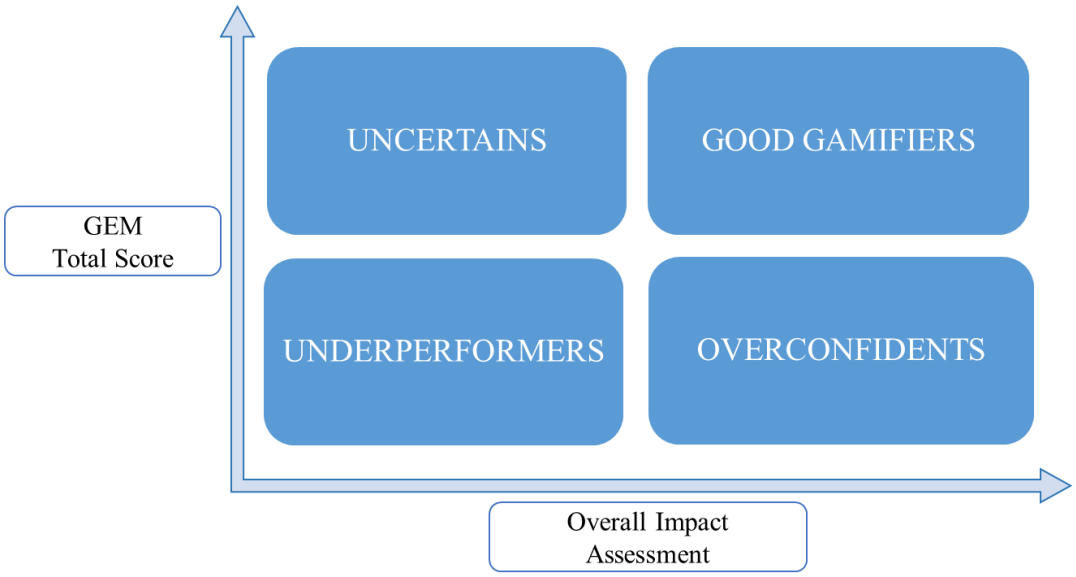

Figure 8: Gamification Matrix
Source: own editing

I named the quadrant groups according to the characteristics they have, based on the evaluation of the results of the gamification programs:
UNDERPERFORMERS: These groups include companies that received low ratings according to both variables during the gamification programs. They evaluated the effects of their programs as low, and did not show sufficient attention in all areas, which did not bring success. Further developments need to be found for them to be better. It is necessary to pay attention to the gamified elements, the program framework, and also to the needs and feedback of the participants.
OVERCONFIDENTS: The companies listed here rated their performance lower, although they achieved better results from a professional perspective. It is possible that their evaluation system needs to be changed, because they did not measure their gamified programs at all, or only in very few aspects.

UNCERTAINS: They rated their own performance as very good, but they fell short based on the professional criteria. Perhaps they see more in their programs than they actually have. It is possible that they need to pay attention to the professional implementation of gamified programs, which they can strengthen and review in a more professional framework.
GOOD GAMIFIERS: Their gamified programs are well designed, have built-in appropriate measurement systems, and represent a high level from a professional perspective. As a result, they perform gamification exceptionally well, ensuring that the resources invested bring results. Their example can serve as a good practice for other companies and organisations.

The Gamification Matrix is suitable for examining whether there are patterns in the application of gamification using the data of the sample companies. I filled the matrix with the company data, and the respondents occupied the space shown in Figure 9.

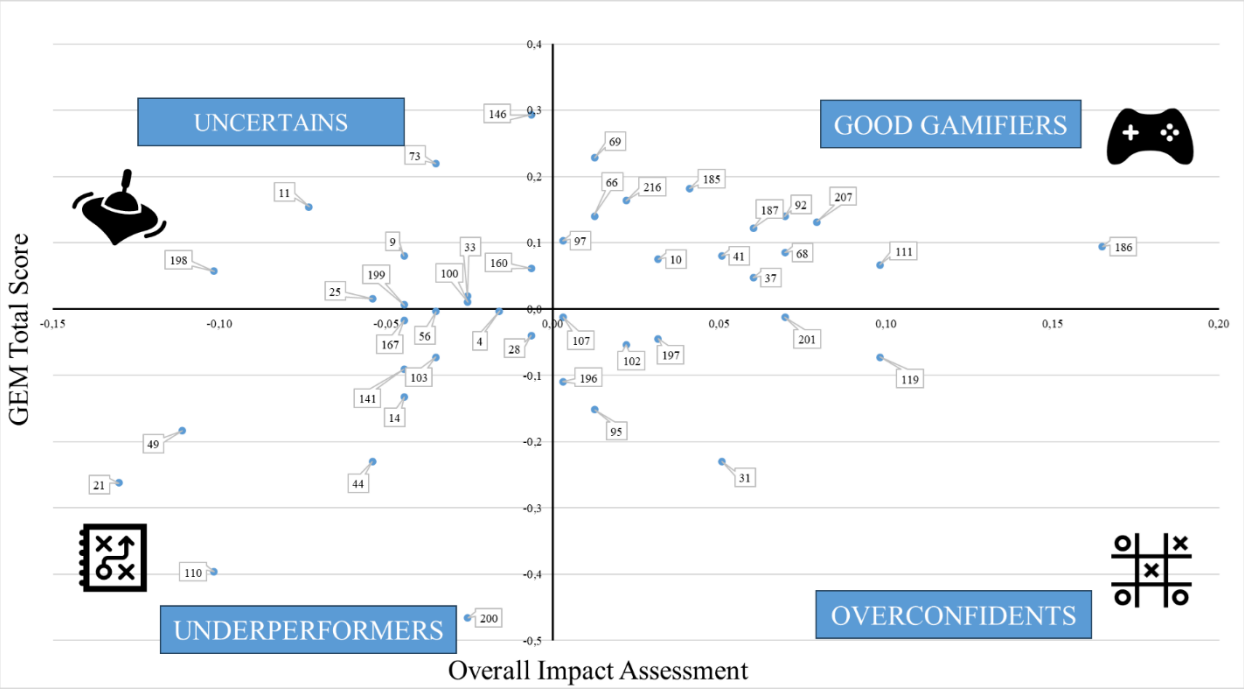

Figure 9: The scores of the surveyed companies illustrated on the Gamification Matrix
Source: own editing

The results show that the average score and median for the Overall Impact Assessment on the horizontal axis are 74, and the standard deviation is 6. Respondents' scores could range from 21 to 105, with the final score ranging from 60 to 91. The vertical axis ranged from 36 to 216, with the average score of 153, the standard deviation being 34, and the median being 156. The GEM Total Score ranged from 52 to 216. It is interesting to note that the results for both axes show an average performance of 70% compared to the upper value of their own axis. The maximum score was not achieved for the Overall Impact Assessment, which is intended for self-assessment, while there was a company on the other axis that showed 100% performance. The Uncertains group consists of 10 companies, while the Underperformers segment consists of 12 companies. The Overconfidents have the fewest (8 companies), while the Good Gamifiers community consists of the most, 14 companies.

Through my analytical work, I have uncovered the differentiating factors that make individual companies perform better, thus arriving at the criteria of frequency of use, number of areas, goals, nature of participation, voluntary/mandatory nature, and implementation framework. I have examined the differentiating factors between the groups created on the Gamification matrix, which I have summarised in Table 4.

Table 4: Grouping of the companies examined

<table>
<tr><th>Quadrant</th><th>Frequency of use</th><th>Number of areas (pieces)</th><th>Most Frequent Goal</th><th>Least Frequent Goal</th><th>Nature of participation</th><th>Form of participation (Voluntary/ Mandatory)</th><th>Implementation framework</th></tr>
<tr><td>UNDER-PERFORMERS</td><td rowspan="3">occasional</td><td>10</td><td rowspan="3">community building, improving the workplace atmosphere, increasing employee satisfaction</td><td rowspan="2">improvement in financial performance</td><td>individual</td><td rowspan="2">both</td><td>self-developed program</td></tr>
<tr><td>OVER-CONFIDENTS</td><td>8</td><td>group</td><td rowspan="3">combined solution</td></tr>
<tr><td>UNCERTAINS</td><td>12</td><td rowspan="2">performance evaluation and feedback, monitoring</td><td rowspan="2">individual</td><td rowspan="2">voluntary</td></tr>
<tr><td>GOOD GAMIFIERS</td><td>continuous</td><td>11</td><td>individual performance enhancement</td></tr>
</table>

Source: own editing

In summary, I concluded that the secret to the application of internal gamification programs is that the company uses them continuously, in multiple corporate areas, for the development of the individual, employee, in a voluntary manner. During the implementation, both the company's employees and external consultants must participate in order to implement an effective and realistic program.
I accepted my hypotheses H6/a and H6/b and formulated the theses T6/a and T6/b for the sample companies:

T6/a: Based on the perceived effects of internal gamification programs (Overall Impact Assessment) and the self-assessment of the program according to expert criteria (GEM Total Score), the companies in the sample can be classified into 4 groups: Good Gamifiers, Overconfidents, Uncertains and Underperformers. The groups can be well characterised based on the frequency of use of gamification and its extent within the company, the goals set, and the framework for implementing the programs.
T6/b: Based on the responses of the sample companies, the key to the success of internal gamification programs is their continuous application across a wide range of areas of the company, serving individual development goals, implemented with individual-level and voluntary participation, and in collaboration with external consultants.

The acceptance of the programs by the stakeholders is of paramount importance, as the successful implementation of the program may also depend on it. Therefore, it was an important aspect to analyse how the employees received the introduced gamified programs, and whether there are differences in the acceptance according to the age and educational level of the participants, and whether the aggravating circumstances of generational differences should be taken into account.
With the help of the Wilcoxon rank sum test, I came to the conclusion that employees with higher knowledge (academic and digital) accept the program better. This group of employees is typically made up of white-collar workers. It was interesting that generational differences

are mainly relevant for age-group digital knowledge: younger people learn the application of newer tools and techniques faster than older people. It is more typical for employees who have worked for a long time and have more experience to lose interest and attention more quickly, which can be caused by monotonous work and many new, not yet mature rules and systems.

Due to the great importance of employee acceptance, I examined which factors influence the acceptance of programs by participants from the relevant sub-pillars of GEM.

H7: The acceptance of internal gamification programs by participants is most significantly influenced by implementation and management-organisational support.

To evaluate participant acceptance, I created a new output variable, which I named the *Overall Acceptance Index*. This variable summarises 13 acceptance values, which include age group, position, educational level, digital knowledge, physical-mental work area, time spent at the company, and general employee acceptance. Using regression model building, I sought to answer the extent to which the sub-pillars of the GEM determine the aggregate acceptance index. As predictor variables, I selected those from the level of the elements of the Gamification Evaluation Model (GEM) that have an impact on the output variable, thus I did not take into account redundant (Reception of participants) or non-influencing elements (The program's impact and results).
From the model written during the regression calculation, I conclude that the implementation of the gamification program, including the clear goal settings and frameworks, is of perceptible but not decisive importance. An important element is the organisation's ability to manage resources, whether professional competence is provided, and whether managers encourage and support participants to participate successfully or even participate in the programs themselves. Furthermore, it emerged that corporate gamification programs implemented for employees generally do not yet form an integral part of the corporate strategy.

My hypothesis H7 was confirmed, so I accepted it and created the thesis T7 for the sample companies.

T7: The employee acceptance of internal gamification programs is significantly influenced by the implementation of the program: the setting of goals, the framework of the program and its communication, which elevate the participants' gaming experience to a high level and maintain interest. Management-organisational support also has a significant impact on employees, which includes professional background, competencies and encouragement.

It is important that intensive attention and adequate resources be devoted to the named elements so that employees accept internal gamification programs well and they are thus successful, as this can create their long-term usability.

As the last step of my analysis, I felt it was important to clarify whether the goal of gamified programs influences the Gamification Evaluation Model (GEM) Total Score (GEM Total Score for short), which indicates the effectiveness of the implementation. Therefore, I examined how the goals of the gamified programs of the sample companies and the GEM total score can be connected, and how goals enhance the success of a program. To do this, I examined the goals of the programs using principal component analysis, then I performed a correlation analysis and a regression analysis.

My last hypothesis was that the purpose of internal gamification programs influences their effectiveness. I formulated this in my hypothesis H8:

H8: A more intensive appearance of Performance Optimisation goals in internal gamification programs results in a higher GEM Total Score.

Due to the small number of elements and the limitations of regression calculations, I combined the corporate goals included in the questionnaire using principal component analysis, which resulted in the Performance Optimisation and Satisfaction Improvement components. During the correlation analysis, I determined that there is a positive, medium-strength relationship between the GEM Total Score and the Performance Optimisation component ($\rho = .54$ $p < .001$), while there is a tendency-like, positive, weak relationship with the other (Satisfaction Improvement) component ($\rho = .30$ $p = .06$). From this, I conclude that where performance optimisation goals appear more intensively, the GEM Total Score is higher. This can be attributed to the fact that if the company benefits from the increase in individual or corporate performance, it makes greater efforts to implement the program more successfully.

During the analyses, I came to the conclusion that company demographic data does not explain a significant relationship with the overall evaluation of gamification programs, which also means the confirmation of the T2 thesis, i.e. it cannot be proven that the company's employment size or possibly its extensive customer base would form the basis for a successful gamification program: smaller, larger, and domestic or global companies can also pursue good gamification. Of the two additional variables representing goals, Satisfaction Improvement (which includes the items of increasing employee commitment and loyalty, as well as community building, improving workplace atmosphere, and increasing employee satisfaction) has no influence on the overall evaluation score of the gamification program. The combined element of Performance Optimisation (which included financial improvement, functional area, individual performance improvement, performance evaluation, and feedback objectives) is of greater significance. This is possible because the primary objective of companies is to operate based on the return requirement according to the threshold of good management (Illés, 2008:44).
In summary, this analysis shows that companies create their gamification programs with consciously designed goals that simultaneously support the optimisation of economic operations and individual development, with particular attention to knowledge acquisition and performance enhancement. I also found that Performance Optimisation, which includes financial improvement, functional and territorial performance enhancement, and performance evaluation, positively predicts the GEM Total Score.

Based on the linear regression related to the GEM Total Score, I accepted my H8 statement, from which I state the following thesis regarding the companies in the sample:

T8: A more intensive appearance of Performance Optimisation goals in internal gamification programs results in a higher Gamification Evaluation Model (GEM) Total Score. Gamification programs in which the company focuses on employee and company performance can be considered more successful.

In Table 5, I have summarised the findings of the research. I examined the domestic corporate application of gamification along four research questions, and in connection with these, I have explored the topic with one assumption and eight hypotheses. Based on the conducted studies, I have formulated eight theses regarding the companies in the sample, accepting one research result and eight hypotheses.

Table 5: Summary table of research findings

Research question	Assumption /Hypothesis	Methods	Evaluation	Result/ Thesis
Q1	A	literature review, definition creation	Completed	KE
Q2	H1/a	descriptive statistics, Spearman's correlation, Pearson's χ^2 test, Cramer's V coefficient	✅ Accepted	T1/a
	H1/b		✅ Accepted	T1/b
	H2	Spearman's correlation, Pearson's χ^2 test, Cramer's V coefficient, Kruskal-Wallis test, Mann-Whitney test, multiple linear regression	✅ Accepted	T2
Q3	H3	descriptive statistics, McNemar test	✅ Accepted	T3
	H4/a	descriptive statistics, principal component analysis, Kruskal-Wallis test, Dunn's post-hoc test, one-sample Wilcoxon test	✅ Accepted	T4/a
	H4/b		✅ Accepted	T4/b
Q4	H5/a	descriptive statistics, Cronbach's α coefficient, GEM model, Spearman's correlation,	✅ Accepted	T5/a
	H5/b		✅ Accepted	T5/b
	H6/a	descriptive statistics, GEM model, Gamification Matrix, data visualization,	✅ Accepted	T6/a
	H6/b		✅ Accepted	T6/b
	H7	principal component analysis, Pearson's correlation, Cronbach's α coefficient, multiple linear regression.	✅ Accepted	T7
	H8		✅ Accepted	T8

Source: own editing

3.4. Limitations of the research, practical applicability, and directions for future development

I have summarised the limitations of the research into three main groups:

- Limitations related to the survey: The difference between the target population and the sampling frame resulted in a coverage gap, which stems from the discrepancy between the accurate records of the KSH (Central Statistical Office) and the data of the CrefoPort database. The limitation of the primary research arises from the participation in the survey, as the response rate was 6.27%. Smaller companies and companies operating in Hungary but not headquartered here were not addressed. Representativeness was not achieved, which also stems from the non-random sampling. The survey reflects a single point in time, which means a time limitation, and the completion took place during the summer period, when in many cases the respondents were not available due to vacations. The questionnaire was available for 5.5 weeks, this period can be considered short, but the pace of completion did not justify its extension.
- Limitations related to the address list, database, and digital world/contact management: The database providing the address list was not up-to-date, in many cases the e-mail address was not updated, and other data did not always correspond to reality (e.g., in the case of the number of employees, according to the CrefoPort database filtering, 15 companies were included in the sample that were classified as small companies based on voluntary declarations, but since in this case the 15 companies matched the results of the other companies in the sample well, I accepted the CrefoPort database filtering). Many of the companies surveyed have low levels of digital maturity, make little use of their e-mail addresses, and do not use gamification, are unfamiliar with it, or use it intuitively rather than consciously. In the latter case, lack of knowledge of the method resulted in a lack of participation in the research. The use of various mail filters, which do not allow e-mails from outside the company that are considered unsafe, is also appearing in increasing numbers in domestic companies.
- Shortcomings related to the research methodology: A limitation also stems from the shortcomings of the questionnaire method, since on the one hand, the responses were based on self-reporting, and on the other hand, there was no possibility of follow-up questions. We are increasingly encountering cases where participation in surveys is not sufficiently motivating for respondents, and in my opinion, this, as well as the workload of the employees, also played a role in the number of responses. Finally, the complexity of the topic can also be mentioned as a reason. The questionnaire contained complex and professional questions, and the respondents' knowledge or problems arising from data interpretation led to their abstention from the research.

The research has many practical applications. One of its first results is that a new, comprehensive and complex definition of gamification was created, which was based on previous research and a review of the literature. I identified the research gap and was thus able to assess the internal gamification activities used by medium-sized and large companies operating in Hungary. This way I learned about the Hungarian gamification landscape. In addition to the knowledge and usage issues about gamification, I also learned about the application areas, goals and implementation methods of programs for employees. This was followed by the evaluation of internal gamification programs, which has so far proven to be a grey area for researchers.

As a result of the research, the domestic and international literature has been enriched, and the theses I formulated serve business life and the more efficient operation of companies. An individual and comparable evaluation model has been created, which facilitates the work of

companies in this direction. I consider it important to emphasise that I worked with aspects that provide real assistance to companies, and the processes of civil and government organisations can also be enriched with this knowledge. The information learned can help educate future generations and can be a precursor to further research. As a result of the survey, several companies have become interested in the topic, which makes it possible to exploit new connections. In my opinion, my work also supports the preparation of future theses. A further result of the research is that although some parts of the questionnaire used in the primary research were not presented in this paper due to space limitations and the focus on the topic, the analysis of these questions will be the subject of later studies and publications.

I believe that the results of the research help to point out which application directions for internal gamification programs may become dominant in the future. I see great relevance in the field of corporate HR, as there is an increasing need for employee motivation, feedback, increased engagement, and corporate well-being programs. I assume that more and more companies will channel internal gamified programs into their career management and performance evaluation systems. Digitalisation will continue to be an important area, where artificial intelligence and data-driven operations will connect gamified programs. This can have great advantages in both the development of digital skills and the appearance of even better collected and evaluated data. Attention retention and making complex learning materials more colourful will also become prominent in training areas. Gamification will also play a role in the short and targeted knowledge development of micro-training and learning. As technology advances and new innovations (e.g., Extended Reality (XR)) are introduced, gamification will grow with additional tools and methods. Ultimately, the direction of personalised employee motivation and gamification programs, as well as the development of employee resilience, will become significant.

Future directions of the research will help to gain a more detailed understanding of the topic. In the future, I see it as appropriate to develop further literature case studies in order to further enrich the scope and tools of internal gamification. I also consider it worthwhile to further analyse the opinions of the participants and the program designers, thereby identifying emerging problems and issues, as well as detecting attitudes, performance values and other forms of behaviour. In the future, it may be worthwhile to survey smaller domestic companies due to the expansion of the target group, to consider international comparisons, and to use the questionnaire in a foreign language. A new direction could be to include civil and government actors in the circle of respondents. I also see the opportunity to conduct further studies in the near future, during which I intend to assess the framework of internal gamification aimed at employees among Hungarian public service companies, in order to highlight its importance, revenue- and efficiency-increasing aspects, and to help develop effective evaluation. The relevance of future research lies in the fact that the issues of labour and digitisation are even more pressing for public service companies, as they have limited resources, which also affects financial and human resource shortages. I believe that further areas of gamification, such as competence development, and the examination of ethical and data security issues, are still to be explored, especially in Hungary, but also in other countries. Finally, I consider the possibility of using further qualitative research methodological investigations (in-depth interviews, content analysis) to be relevant for a deeper understanding and comparison of viewpoints.

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