

Consciously dealing with the subconscious

About the relevance of gamification
to internal auditing



The Institute of
Internal Auditors
Netherlands



Consciously dealing with the subconscious

About the relevance of gamification to internal auditing

(Including an initial exercise focused on applying gamification to internal auditing in the healthcare sector)

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Title

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Foreword

At the recent annual symposium of the Internal Auditing & Advisory and IT Auditing & Advisory programmes of the Erasmus School of Accounting & Assurance (ESAA) we presented a report discussing the findings of a study into emerging trends in the professional practice of internal auditors. One of those trends is the 'psychologisation of the internal audit profession': it has become nearly impossible to separate risks from the related behaviour and the risk perceptions of those involved.

The internal audit function plays a key role in assessing and identifying risks, and is at the same time looking for ways to improve the effectiveness of its assessments and interventions. This increasingly involves the use of concepts that extend beyond the content of the message and focus on the 'form' of the message, the timing of the message, etc.

Experiments in the field of behavioural economics have shown that subtle changes to how a message is presented can influence people's decision-making, particularly when it comes to decisions about risks. Knowledge about heuristics and biases in human decision-making has led to the successful application of 'nudges': simple interventions that 'entice' to adopt the desired behaviour and gently push them in the right direction. It has been shown that nudges are effective because they make the desired alternatives easier, more attractive, more socially engaging or timelier. So nudging could be an interesting addition to the classical repertoire of the internal auditor.

In the public sector interest in nudging has been increasing in recent years because it provides an effective means to influence people's behaviour. Lines are painted on dangerous roads to make the road appear narrower. As a result, drivers slow down and drive more safely. Applying the image of a fly in urinals and placing waste baskets near traffic lights for people to aim at are playful incentives for safer and more hygienic behaviour. By making smart use of our subconscious inclination to play games and improve our game playing skills, we can actually bring about safer, more hygienic and therefore less risky behaviour. These are special forms of nudging known as 'gamification', which plays an increasingly dominant role in risk management and safety management, for example in hospitals. Gamification is also slowly but surely receiving more attention from the Executive Board and the Supervisory Board or Board of Trustees.

The application of nudging (and gamification as a special form of nudging) that we increasingly encounter in our day-to-day practice in the public and private sector obviously raises challenging questions for the internal audit practice: Are we able to, are we allowed to and do we want to use these types of tools to influence behaviour? Can we ignore these tools, which have such a big impact on risk behaviour in the public and private sector and which are increasingly incorporated into the risk management of all kinds of organisations, including hospitals? And how can gamification be reconciled to the professional seriousness of the internal audit profession, where contributing to the controlling of risks is a key priority, but focusing on the game element of this may nonetheless feel a bit awkward, to say the least?

The emergence of the phenomenon of gamification raises challenging questions for the internal audit practice and demands in-depth research into the opportunities, dilemmas and limits of the application of gamification in the professional practice of internal auditors.

In exploring this phenomenon, we will zoom in on the healthcare sector, where gamification plays an increasingly prominent role in the operational and governance practice with regard to risk control, and is therefore increasingly encountered by the internal audit function. Risks manifesting themselves in the healthcare sector have a major social impact and healthcare institutions face a rich palette of risk types that fall under the remit of the internal audit function. We believe that the lessons we have drawn from our exploration in this sector may also offer interesting starting points for a broader discussion about the application of gamification in the internal audit profession. The practical part of this exploration focuses on an initial exercise with gamification in the healthcare sector, but the findings are also relevant to the much larger Dutch internal audit profession as a whole, including internal auditors operating in entirely different fields.

Content

Foreword	3
1 Introduction	7
1.1 Exciting challenges for the internal audit profession	7
1.2 An intractable daily problem as an example	7
1.3 Gamification: the problem holds the solution?	8
1.4 Gamification versus serious gaming	9
1.5 Gamification for internal auditors?	10
2 Internal auditing: a serious profession	13
2.1 Serious role within corporate governance: high expectations	13
2.2 Serious but elusive issues: technology and behaviour	13
2.3 Seriously weighing up information: the devil is in the detail	14
2.4 Seriously addressing organisational interests and professional responsibility	14
2.5 Seriously addressing external transparency	15
2.6 Internal auditing: a serious profession	16
3 Gamification	17
3.1 Emerging trend or renewed realisation?	17
3.2 Defining gamification in more detail	17
3.3 Learning through playing	18
3.4 Applications in numerous areas	18
4 Internal auditing & gamification?	21
4.1 Intrinsically irreconcilable?	21
4.2 Motivating people to demonstrate desired behaviour: concepts from gamification	21
4.3 Influencing behaviour is a very serious matter	23
4.4 Gamification and ethical limits	24
4.5 Gamification: a supplementary perspective for internal auditors?	25
5 Applying gamification to internal auditing	27
5.1 Gamification and data gathering	27
5.2 Gamification and reviews/judgments	29
5.3 Gamification and implementing improvements	30
5.4 Gamification and developing norms/frameworks	31

6	Internal auditing: gamestorms and game design	33
6.1	Smart designing through play	33
6.2	Purpose: what do we want to achieve with the game?	34
6.3	People: who are the players and what drives them?	36
6.4	Process: movement	37
6.5	Performance: towards concrete rewards	38
6.6	Play: the experience of the game	40
6.7	Game design and internal auditing	40
7	Exercise: gamification in internal auditing in the healthcare sector	43
7.1	Internal auditing in the healthcare sector	43
7.2	Key issues in risk management in the healthcare sector	43
7.3	Tackling wicked problems in the healthcare sector	44
7.4	Back to examples of gamification in the healthcare sector	45
8	Conclusions & debate	51
8.1	Overall conclusion	51
8.2	How can gamification help internal auditors with their core duties?	52
8.3	What do we run up against when we put gamification into practice?	53
8.4	Is gamification reconcilable to the seriousness of the internal audit function?	53
8.5	To what extent is gamification a useful addition to the toolkit of internal auditors?	55
	Acknowledgements	56
	Author Profiles	57
	Sources	58

1 Introduction

1.1 Exciting challenges for the internal audit profession

Today, the internal audit profession faces great challenges, as the Executive Board and the Supervisory Board or Board of Trustees increasingly seek comfort that the risks in the organisation's operational management are adequately controlled and the risk of unwelcome incidents is minimised. As evident from the prominent role allocated to the internal audit function in the new Dutch Corporate Governance Code, for example, expectations are high. At the same time, the challenges faced by the internal audit function have increased enormously, particularly because organisations are increasingly abandoning fixed structures, making it increasingly difficult to define and map organisations and the risks they run. Facilitated by the opportunities of information technology, organisations are working together in temporary partnerships where information is shared, which has many advantages, but also creates many risks. In short, the boundaries between organisations are fading and constantly changing. Staff members are becoming increasingly flexible, having flexible work locations and working hours and using mobile devices that increasingly blur the boundary between their work and private life. Small human errors occurring in the organisation's day-to-day practice can unintentionally spread with lightning speed and harm the organisation as a whole. Increasingly, the reality in the organisation and the actual risks it runs are not captured by the organisation's fixed, assessable procedures and structures, but hidden in the staff members' day-to-day working methods, the information technology they use and the links they forge with others inside and outside of the organisation.

This 'interactive complexity' creates new challenges for the internal audit profession and forces us to consider the question whether our conventional toolbox of norms and assessment instruments will remain adequate in the coming years (Nuijten, Twist & Sarens, 2014; Nuijten, Twist & v.d. Steen, 2015). Consequently, we will have to look at new forms or risk control and new risk control tools. We believe that gamification is one of the new forms of risk control that is worth exploring.

1.2 An intractable daily problem as an example

We start our exploration of the contribution that gamification could make to influencing behaviour by looking at a familiar, intractable daily problem related to risky behaviour: the use of mobile phones in cars. Suppose that the internal audit profession were to receive the challenging request to assess the issue of unsafe mobile phone use in cars and to carry out an intervention to ensure that motorists start behaving more safely. First all, there are obviously all kinds of professional considerations that would preclude us from accepting such an engagement. However, our aim here is to look at the challenges and conundrums that this daily problem creates to parties who want to be able to make the relevant risks controllable, assessable and influencable. So what would we run up against if we accepted this engagement?

The objective of reducing the risks of mobile phone use in cars, and thereby reducing the number of road accidents and casualties, will garner broad public support. It is a clear and praiseworthy objective. Even people who commit this 'offence' will acknowledge that safe mobile phone use in cars is a necessity to reduce the number of road accidents and casualties.

The problem is how we can assess the 'offence'. It is a small 'offence' that people commit in the privacy of their car. The offence is part of the routine behaviour people have taught themselves. Although they may have the intention not to use their phone, they are 'enticed' into it while driving: by the boredom of the queue, an incoming message, their curiosity, the need for social interaction, the urge to play a game, or purely out of habit. These are the types of incentives that trigger 'small offences'. And there is always a justification or reward for this type of small offence: 'good that I checked that message' or 'what's the difference to using my radio?'. Moreover, this small offence is not immediately penalised, because usually there are no direct adverse consequences. So time and again, this reinforces the feeling that 'it's not that dangerous'. The driver also justifies the small offence through additional incentives like 'they expect me to be reachable' and 'competition and interaction with colleagues and friends'. Because the small offence generates small benefits time and again, the behaviour is constantly repeatedly and expanded; this all goes well, until it goes wrong. And when it goes wrong, it really goes wrong. Small human errors can have huge consequences when they coincide with other events, such as suddenly being confronted with a traffic jam or an abrupt manoeuvre by another driver who happened to be distracted by their phone.

As the above description illustrates, it is very difficult to formally assess this issue. The norm seems clear, but it is virtually impossible for outsiders to objectively assess the level of compliance with it. The seriousness of deviations from the norm – the 'offences' – is difficult to determine in terms of the likelihood and impact of the associated risks, as these depend on a random coincidence of events. And that brings us to the question of possible interventions. Using the internal auditor's traditional repertoire, we would perhaps choose to (1) highlight the norms and the risks created by behaviour that doesn't comply with the norm, for example by using billboards showing images of road accidents and their consequences. This is based on the idea that better educating people will raise awareness, which will drive behaviour in the right direction. (2) In addition, our approach would include financial incentives, such as fines penalising the offence. But this still leaves the problem that no distinction is made between extrinsic and intrinsic incentives, nor between incentives focused on the long term and those in the here and now. How drivers use their mobile phones is affected by intrinsic incentives in the here and now. Time and again, our good intentions and common sense give way to our curiosity, the urge to play, the need for social interaction, time pressure, boredom and habit. Or in terms of Kahneman's 'thinking fast and slow': when push comes to shove, our intuitive system wins out over our rational system every time. So making a stronger appeal to our reason and good intentions will not help to change the behaviour.

1.3 Gamification: the problem holds the solution?

The Dutch insurer Interpolis recently introduced the free AutoModus mobile phone app to fight the dangerous habit of playing with your phone in the car. The app fights fire with fire: it which operates while you're driving in your car and features a game that plays to the intrinsic incentives of 'fun', 'friends' and feedback'. The game encourages you not to touch your phone,

for which you earn points per car journey, it gives you no penalty points as long as you use your phone at speeds below 10 kilometres an hour, and it invites you to online battles with friends/colleagues to establish who is the safest phone user behind the steering wheel. With the points you earn you can get a discount on your insurance premium.

The app is linked to your GPS, so it could potentially be used to analyse under what circumstances drivers relapse into using their phone, and a next-level game element could be developed to address this. The data gathered by these types of apps can also give us valuable insights into motorists' actual use of mobile phones.

This example of gamification shows that new forms risk analysis and behavioural intervention are potentially an effective addition to the current repertoire. Of course in reality, internal auditors will not be suddenly asked to find the solution to the traffic problems of the Netherlands. But similar problems occur in organisations, and these problems may actually fall under the remit of internal auditors: the problem of data security on the workforce, for example, or hygiene in a hospital. We will look at a few examples of such problems to explore the potential applications of gamification for internal auditors.

1.4 Gamification versus serious gaming

The term gamification refers to the use of game elements in a non-simulated context that is not directly related to a game (Deterding, Dixon, Khaled & Nacke, 2011). Gamification is thus distinct from serious gaming. In serious games, game elements are used in a temporary and delimited environment that focuses on simulating reality. Examples include numerous management games, as well as PwC's Game of Threats, where players participate in a cyber security risk simulation game with simulated events and opponents. The aim of a serious game is to raise awareness and gain experience and skills, so that the organisation will be better prepared to deal with an actual occurrence of such events.

Gamification is about real-life situations; it involves turning reality into a game, so to speak, in a way that entices people to 'join the game'. Rather than being a simulation in which people play a role, it is a designed reality in which people take real actions with real consequences. But despite this key difference, gamification and serious gaming are also closely related, as they are both applications that aim to engage people with a topic or to motivate them to demonstrate certain desired behaviours (Ranj, 2014). In gamification and serious gaming, games are used for a specific purpose; they are not just games played for fun, but a way to achieve an objective. This makes both these types of 'gaming' distinct from 'playing'. Gamification is effectively about enticing people to actually do what they intended to do, but currently don't do because of all kinds of (conscious or subconscious) considerations.

We frequently encounter gamification online, for example on websites that show the number of likes, the number of followers or the number of people searching for the same product or service, to entice people to compete and increase their efforts. Gamification fits into the trend of the psychologisation of behavioural interventions that can be seen in numerous areas. It links up with the realisation that people's decision-making is not solely based on rational considerations, but also influenced by subconscious drives and motivations that facilitate or impede a particular (desired or undesired) behaviour. Gamification is an intervention

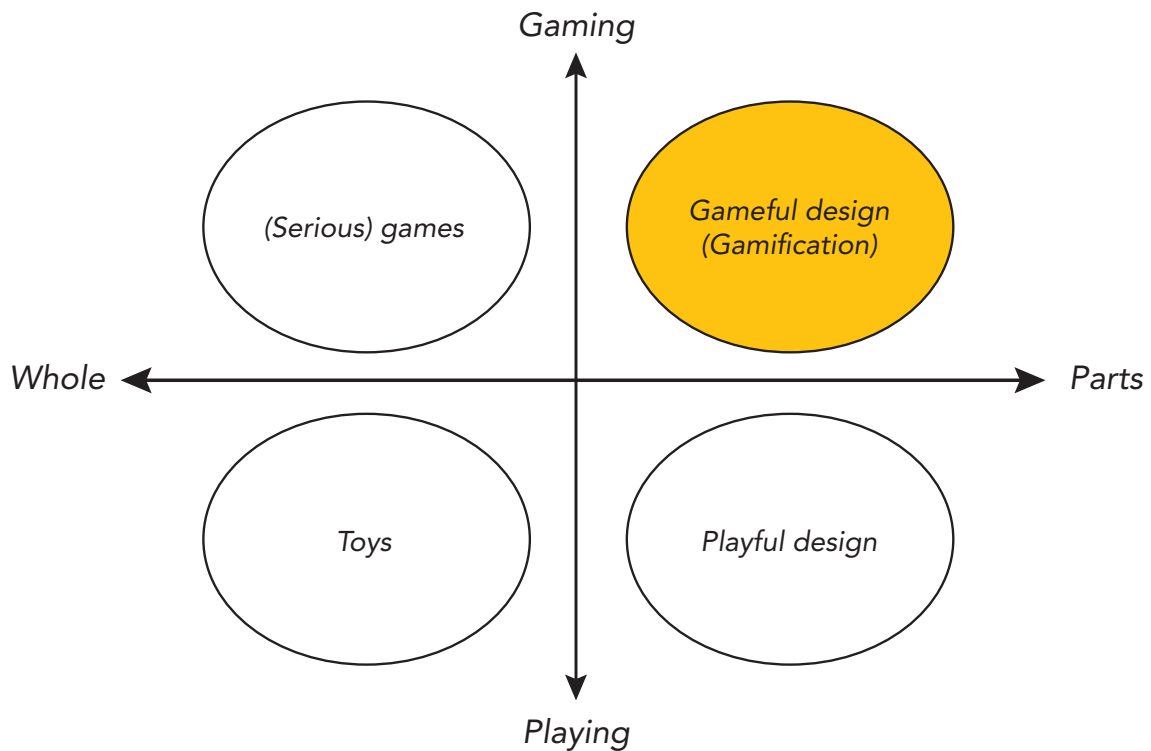


Figure 1. "Gamification" between game and play, whole and parts

technique that fits into the broader debate about nudging and the thinking about decision-making architecture; in other words, the way in which considerations are presented and how that influences the decisions people make.

1.5 Gamification for internal auditors?

Gamification is potentially also relevant to internal auditors, both in terms of how they perform audits (data gathering, exercising judgment) and the contribution made by the internal auditor's review procedures to the organisation's behavioural controls.

Internal auditing is not an environment where the introduction of (seemingly) frivolous 'game elements' is considered an obvious thing to do. Perhaps the profession is too serious and too important for this. Nonetheless (and precisely because of this), gamification may offer key opportunities to more effectively address intractable problems internal auditors encounter in practice, thereby enabling the internal audit profession to better perform its serious and meaningful function in organisations in the private and public sector.

Gamification therefore raises interesting questions for internal auditors, which we explore in this essay:

1. Can gamification help internal auditors with their core duties of (1) gathering information, (2) exercising judgment, (3) initiating improvement actions and (4) developing norms, and if so, how?
2. What do we run up against when we put gamification into practice?

3. Is gamification reconcilable to the seriousness of the internal audit function? How do the concepts of 'fun', 'feedback' and 'friends' fit in with the professional ethos of the internal audit profession?
4. To what extent is gamification a useful addition to the toolkit of internal auditors, given the challenges the profession faces?

To answer these questions, we have structured our essay as follows. In section 2, we identify a number of factors that make internal auditing such a serious profession, and we describe a number of challenges faced by internal auditors. Insight into these factors and challenges will enable us to analyse whether the playful elements of gamification could make a contribution to, or would be detrimental to, the serious practice of internal auditors. In section 3, we delve more deeply into phenomenon of gamification in a broader social context. In section 4, we conduct an initial exploration into whether the principles of the serious internal audit profession are potentially reconcilable to the principles of the much more playful phenomenon of gamification. In section 5, we outline our initial thoughts on how gamification relates to the key pillars of the internal audit profession: gathering information, analysing and exercising judgment, carrying out interventions to bring about improvement, and developing norms. In section 6, we look at the process of designing gamification applications, focusing on gamestforms and game design. In section 7, we discuss an exercise with the application of gamification in hospitals from an internal auditing perspective. In section 8, we conclude our essay by presenting our conclusions and discussing the question to what extent the use of gamification could be an interesting addition to the internal auditor's repertoire.



2 Internal auditing: a serious profession

2.1 Serious role within corporate governance: high expectations

Internal auditing is a serious profession that is taken seriously and becoming ever more relevant worldwide. This is also the case in the Netherlands, in part because of the significant role allocated to internal auditors in the revised Dutch Corporate Governance Code published in December 2016. Because the internal audit function is tasked with assessing the design and operating effectiveness of organisations' risk control and internal control systems, it performs a key role towards the Executive Board and the Supervisory Board or Board of Trustees. The Code provides specific guidance on the appointment of the lead internal auditor, the annual assessment of how the internal audit function performs its duties, the work plan of the internal audit function, its performance of procedures and its reporting of findings. All this should be done in close consultation with the Executive Board and Supervisory Board. The message of the Code is clear: the internal audit function plays a serious role in terms of risk control and transparency and as such makes an essential contribution to ensuring effective management and supervision in Dutch organisations.

The relevance of internal auditors is increasing in the Netherlands, not only in the private sector, but also in the public sector, where the internal audit function fulfils a key role in assessing and reporting on risk control in central government bodies, provinces and municipalities. In this context, the internal audit function is expected to focus on the key risks and serious issues that may have social relevance.

2.2 Serious but elusive issues: technology and behaviour

The internal audit function fulfils a serious and unique role in the management and supervision of organisations and it deals with serious issues. In consultation with the Executive Board and stakeholders, the internal audit function focuses on serious and often highly sensitive issues: risks that could have a social impact because they may compromise the personal safety of third parties. This includes, for example, the privacy of personal data in patient records, the contamination of foodstuffs during a production process, or hospital surgery errors that occur because formal procedures are deviated from under time pressure. These examples illustrate that issues like information technology and human behaviour are gaining prominence on the agenda of the internal audit function. It is no accident that both these issues are explicitly mentioned in the Dutch Corporate Governance Code. Organisations are becoming increasingly complex and information technology is essential to keep a grip on this complexity. Information technology creates new opportunities, but also introduces new risks: small human errors – like losing a USB stick – can have major consequences for the organisation as a whole. When it goes wrong, it really goes wrong. Information is interwoven in our daily activities, grabbing our attention and driving our behaviour (using your mobile phone while driving is an example of this), and this can trigger human errors (Nuijten & Twist, 2014). At the same time, the work

context in organisations can actually contribute to or even elicit errors by staff members, for example due to a high work pressure or inattention, or because deviations from procedures and norms gradually creep in and come to be regarded as 'normal'. Increasingly, the actual situation in the organisation is no longer captured by tangible procedural rules and regulations, but hidden in the information technology and the behaviour of the people in the organisation. Issues that are less tangible and assessable, like information technology and culture, are no longer marginal items on the agenda of internal auditors. They have become serious issues and a core component of the risk spectrum about which the internal audit function provides insight and assurance to the Executive Board and Supervisory Board.

2.3 Seriously weighing up information: the devil is in the detail

The internal audit function is expected to deal with serious issues. Moreover, even when issues only turn out to be serious in hindsight, after an incident has occurred, often the question is asked: 'Where was internal audit?' It then turns out that the organisation – including the audit function – overlooked small warning signs of impending risks or failed to take these signs seriously. Of course, internal auditors do not have the primary responsibility for identifying small signs of impending risks. After the organisation's management, which is the first line of defence, and the risk management functions, which form the second line, the internal audit function is the third of the three lines of defence put in place to ensure a healthy operational management and to control risks (IIA, 2013; Driessen & Molenkamp, 2008). Precisely because the internal audit function is not part of the daily processes and can therefore keep an overview, it should take very seriously any indications or information from the daily processes that may be early warning signs of a pattern of increasing risk that could have major future consequences. Because of its independent position, the internal audit function can systematically identify risks, highlight deficiencies in the organisation and processes, and demand that improvements are made in the organisation. So in addition to having a serious role and dealing with serious issues, the internal audit function should be very serious in addressing the information it receives from within the organisation, in order to fulfil its early warning role.

2.4 Seriously addressing organisational interests and professional responsibility

The audit function also performs its role in a serious context, in which major interests may be at stake. Therefore, internal auditing involves more than just methodical, systematic and disciplined fact checking and assessing whether the facts comply with the applicable norms in the area of risk management, control or governance processes. The internal audit function performs review procedures, aimed at establishing the facts, but always against the background of the ever impending collision of interests – interests that may not necessarily be aligned, not even within the organisation. For example, the internal audit function has a complicated relationship with its organisational stakeholders. In this complicated context, internal auditing is tasked with protecting the senior management and Executive Board against the cost of failing processes or high-profile incidents, but its role also involves being critical of the senior management and Executive Board when necessary in order to identify risks and weaknesses in the system of internal control. While the relationship with the Supervisory Board is defined in the Code, implementing this dialogue is often difficult in practice. One of the reasons for this is that

Supervisory Board members often have insufficient knowledge of specific risk areas, such as information technology. But the same time, Supervisory Board members are increasingly aware that incidents relating to such specific risk areas can be very damaging to the organisation and to their own reputation as a Supervisory Board member. Operating between these conflicting interests, internal auditors will therefore have to take their professional responsibility seriously in order to fulfil their role of providing criticism to and assessing the organisation.

While internal auditors are not the ultimate answer when it comes to avoiding incidents and scandals in the public and private sector, they do share some of the responsibility when such problems arise, and therefore also have a responsibility to energetically address such problems (Van Twist et al, 2013). So the internal audit function should help the organisation in terms of learning from the errors that were made and improving the processes and structures aimed at controlling risks.

2.5 Seriously addressing external transparency

The primary responsibility of the internal audit function lies within the organisation; it reports internally. It is up to the senior management or Executive Board to decide whether the findings of its audits should be shared more broadly or published. The internal auditors create transparency about the organisation's systems, processes and performance, but as a rule, the resulting information and insights remain 'within the walls' of the organisation, except if others disclose it. This is a sensitive issue (according to Dees, 2012; Van Rijn & Van Twist, 2009).

But the days when organisations operated exclusively 'within their own walls' are long gone, nor do they always control what is being reported about them to the outside world. Information technology has broken down many of the walls: individual staff members can leak information to the news media or other stakeholders via social media channels. Nor is the internal audit function the only party that seeks a confrontation between facts within the organisation and norms. The news media do this too, but often with a very different purpose: to reveal and publish the findings resulting from this confrontation between facts and norms. News reports about the organisation (e.g. about alleged or actual incidents or scandals) can put the internal audit function under pressure to accelerate its review of the issue. In this sense, review procedures performed by the internal audit function, whether reactively (reacting) or proactively (anticipating), can be an answer to the interplay between the organisation and its environment. But in general, observing discretion and confidentiality towards the outside world to serve the interests of management are key pillars of the internal audit profession.

Precisely because of the sensitivity of the information and insights that may arise from audits and the confidentiality that is part of the internal audit profession, internal auditors are cautious when it comes to disclosing issues. If an internal auditor reveals wrongdoing, identifies behaviour that breaches norms or demonstrates that processes and procedures are not properly followed, sharing this information to the outside world without forethought and unredacted may lead to reputational damage. On the other hand, if this information reaches the public domain through other channels, a form of reticence in an organisation about incidents or wrongdoing may generate exactly the sort of publicity and perception about the organisation it had hoped to avoid. Moreover, when an organisation decides to categorically refuse to share information about the quality and deficiencies of its business processes with external parties, there is also a lack of external incentives (think of the rating of hotels, for example) to improve.

2.6 Internal auditing: a serious profession

Internal auditing is a very serious profession. Serious matters are at stake in the professional practice of internal auditors: the control of internal processes and along that line also the organisation's integrity and its good name in the outside world, which takes a long time to earn and can be lost in an instant.

This means the profession has a great responsibility in terms of its external communications, but is also in a vulnerable position within the organisation. If the internal audit function reports critically about particular parties, they will not easily accept this criticism, but will instead pore over the findings to look for any weaknesses, inaccuracies or loopholes they can find. There are always people for whom the work of internal auditors has major consequences – for their position, their reputation and their future.

Precisely because of this, the internal audit profession involves much more than only applying techniques, measuring performance through models or deploying instruments. Maintaining professional scepticism is at least as important: an attitude that leaves room for empathy, but without impeding the autonomy and independence of the internal auditor. The internal auditor has to build bridges, but should not shy away from confrontation if necessary.

A growing number of internal auditors are increasingly coming to the realisation that while their profession requires seriousness, because of the great responsibility and enormous sensitivity it involves, they also need to reflect on their attitude and behaviour and on their work and interventions, to ensure the continued effectiveness and legitimacy of their profession. Demonstrating seriousness (which by the way is not the same thing as dour earnestness) is not the only way, nor necessarily the best way, to achieve this. Sometimes, it can actually help when things are (also) fun, so when your work and interventions are supported by the principles of gamification: friends, feedback and fun.

3 Gamification

3.1 Emerging trend or renewed realisation?

There has been a surge of interest in gamification in recent years. Some say it's a real hype. Hamari, Koivisto & Sarsa (2014), for example, advocate gamification as a 'next generation method': a different way of thinking and doing that generates disruptive development in numerous sectors, ranging from marketing to finance and from security to healthcare.

While the phenomenon is obviously not new, the word 'gamification' is of relatively recent coinage. The literature on gamification credits the computer programmer and inventor Nick Pelling with coining the term, in a text he published in 2002 (cf. Zicherman, 2012). The emergence of the term can be explained by the intense focus around the turn of the millennium on the design of games (or to be precise: computer games – before that time often referred to as video games), where often the main challenge is considered to be creating games that are not only fun and entertaining to play, but also combine this with ways to motivate you to persevere and advance, for example through competition elements (Huataro & Hamari, 2012).

Obviously, it should be noted that this combination partly draws from earlier insights that have been around since long before the invention of video games, and which can be traced back to rituals around harvesting and hunting and the classic game elements already found in early warfare, for example. In this sense, gamification is not new. What is new about gamification, however, is its strong focus on design elements (badges, scorecards, storylines, etc.).

In that sense, the interest in gamification also links up with a (renewed) awareness of how we absorb content: by passively listening (e.g. attending lectures), actively reading (books), watching something that is static (photos, drawings, paintings) or dynamic (animations, films, videos), but also by playing games, where all these elements can be combined and actively experienced through interaction (Hufen, 2016).

3.2 Defining gamification in more detail

With its emphasis on feedback, friends and fun, gamification draws from the concept of the 'homo ludens' as used by Huizinga (1952) to express that being challenged and having fun are essential factors in the emergence of culture and can therefore be found in nearly all aspects of daily life. Gamification plays to people's group behaviour, while leaving room for a mix of competition and cooperation.

It should be reiterated that gamification refers to the application of game elements outside the context of a game. So it involves employing insights gained from game design in non-simulated contexts not directly related to a game (see Deterding, Dixon, Khaled & Nacke, 2011). Gamification is about real-life situations; it involves redesigning reality into a game, so to speak, in a way that entices people to 'join the game'. Rather than being a simulation in which people play a role, it is a designed reality in which people take real actions with real

consequences. Games are used for a specific purpose; they are not just games played for fun, but a way to achieve an objective.

Therefore, Lovelock & Wirtz (2011), for example, describe gamification as intensifying the experience around a product or service by adding game experiences, which supports the total value creation for the user. Priebatsch (2010) believes that building a game layer on top of the real world can contribute to a focused approach to key issues, because instead of forcing people to change their behaviour, they are encouraged to demonstrate the desired behaviour of their own accord.

3.3 Learning through playing

The interest in gamification comes from the awareness that games contain techniques and mechanisms which challenge players to demonstrate behaviours that can help them improve their scores through routinisation, and which even make it fun to do so. Game design cleverly utilises people's intrinsic needs, such as the need to constantly get better at what they do. Players want to achieve a level up progression every time they play (Hufen, 2016).

Game design also cleverly utilises other human drives in a way that can also be useful for the day-to-day practice in organisations. Think of the urge to collect that drives many of us, or the urge to find hidden gems or to complete (increasingly difficult) tasks. Continuous feedback (auditory, visual or even tactile) about your performance relative to that of other players is also a key component in game design.

Games enable people to develop their learning ability: by continuously experimenting, players learn the potential consequences of particular actions, behaviours or steps in a range of contexts, which may differ per level. The aim is that players ultimately get into a flow; in their efforts to improve their performance, they start to understand which logical sequence of routine actions generates the highest score. Game design always involves finding the right combination of a goal and appropriate challenges, actions players have to complete to achieve the goal, feedback on their performance, and a game loop with a storyline that makes it attractive to keep playing. Through the feedback, players learn which behaviours are constructive or destructive to their progress in the game, which reduces their behavioural repertoire to a set of behaviours they can be easily managed or at least easily understood.

In short, there have been successive advances in the design of (video/computer) games, leading to the development of a true game design profession. Only later did the idea emerge to apply some to the insights developed by this profession, and key elements discovered based on these insights, to revise and enrich products and services or processes that are entirely outside of the scope of these games.

3.4 Applications in numerous areas

The introduction of gamification in the commercial service industry and in (relatively obvious) professions like marketing and advertising is unsurprising. But the concept has in rudimentary forms also had an impact in very different professions like internal auditing and domains like the public sector. There are plenty of great examples.

In the UK, for example, a game has been developed to achieve energy savings by giving neighbours insight into each other's energy bills. By challenging people to become the most energy-efficient household in the neighbourhood, the game tries to make them more aware of their energy use. In Germany, elements of gamification have found their way in yet another sector: road traffic. German motorists get penalty points for every traffic offence they commit. If they reach a specific number of penalty points, their driving licence is revoked. Another application in various countries, including Japan, is the introduction of stairs that make music when you step on them to making physical exercise and stair-climbing more attractive. The idea is to make climbing stairs more fun, interesting and attractive, which is obviously also good for your health because you burn extra calories.

In addition to applications to promote energy saving, monitor responsible driving and encourage physical exercise, gamification is also used to improve healthcare. There are numerous examples of the use of gamification in healthcare.

One example is the introduction of gamification elements to make it more fun and attractive for elderly people to do exercises advised by their physical therapist, which they usually experience as something they have to do. This can involve using simple game elements like competing or collaborating with others, but also more complicated elements like motion sensors that give feedback scores and rewarding people if they outperform others or their own previous scores. The idea is that by introducing these types of elements, people no longer see themselves as patients, but as players in a game where they can win something (e.g. self-respect).

An example of an application of gamification in another area is the mobile phone app mySugr, which enables diabetes patients to check their blood sugar levels in relation to their food intake and insulin injections. The app also includes game elements. For example, by correctly entering their blood sugar levels, patients can beat the sugar monster, which makes it more fun and attractive to follow the right lifestyle, particularly for children, while making it easier for parents to monitor and check up on their children with diabetes. In this way, gamification makes it a bit easier for patients, as well as the people close to them, to adjust to the circumstances associated with the disease (Leeuwerink, 2013).

As a final example, gamification is used by healthcare institutions in the United States who due to government spending cuts have to find room in their available budget, while continuing to safeguard the quality of their care (see Nieuworganiseren, 2014). The company Caneva developed assessment software for these institutions, including the app AMPT. This app provides information about the job performance, work enjoyment, productivity and level of engagement of staff members and about their competencies, characteristics and cooperation. AMPT features all kinds of game elements that motivate staff members to improve their job performance – not through rules and guidelines but by giving constructive feedback. For example, staff members get points and other rewards if they work together well, complete tasks correctly or come up with a clever solution to a problem. It also includes an element of competition, as players can see each other's scores. They can also see how their own job performance contributes to the hospital's results, which encourages broader engagement among staff members.

Notwithstanding these great examples of the current use of gamification, there is still a world of potential applications waiting to be developed when it comes to a more innovative design of processes and better services.



4 Internal auditing & gamification?

4.1 Intrinsically irreconcilable?

Traditionally, internal auditing is focused on using review procedures to assess on behalf management whether the system of internal control operates effectively by checking whether rules and guidelines are complied with. That doesn't sound like a lot of fun and bears little resemblance to a game. So applying gamification to introduce game elements doesn't seem an obvious thing to do. However:

- o As in internal auditing, in gamification careful consideration is given to the underlying goals and considerations: why is something necessary (or unnecessary)?
- o As in internal auditing, in gamification it's important to determine whether progress has been made: are the required actions producing progress compared to the current situation?
- o As in internal auditing, in gamification rapid and adequate feedback needs to be generated to be able to make focused recommendations.
- o As in internal auditing, in gamification there needs to be a context that has the potential for errors and the violation of rules.

Lastly, in gamification, as in internal auditing, it's essential to create a context where complying with the standards is seen as an exciting challenge rather than a burdensome obligation or meaningless waste of time.

What gamification brings to the table, and what could potentially enrich the working method of the internal audit profession, is that it tries to create a productive link between extrinsic and intrinsic motivation. Game design is explicitly about incorporating feedback, but also about other elements, namely feedback and fun. These latter two elements are usually much less in the foreground in internal auditing.

4.2 Motivating people to demonstrate desired behaviour: concepts from gamification

According to Zicherman (2012), people are motivated by receiving constructive feedback, by seeing in their social environment that their behaviour is in line with or differs from the behaviour of others (friends), and when playing the game is enjoyable (fun). Feedback and fun motivate people to keep playing the game; friends are important in increasingly aligning their behaviour to the norm that others in their environment apparently base their actions on as well. Below, these game concepts are discussed in more detail and related to the internal audit profession.

Feedback and internal auditing

Feedback is one of the most important concepts in gamification. But perhaps even more important, and a prerequisite for giving feedback, is setting clear and measurable goals. The importance of setting clear and measurable goals is also highlighted by the examples we already looked at in this essay. An example of feedback based on clear and measurable goals is a progress bar shown when completing a survey or social media profile (e.g. LinkedIn). This bar shows the progress you have made in filling in the answers or details. LinkedIn also gives a suggestion what you still need to do to reach 100%. Because the goals are specific and measurable in gamification, focused feedback can be given and the progress made can be tracked, for example through a score. This gives participants insight into their performance, which may be an incentive to complete the task or potentially to compete with other participants.

In the internal audit profession, the concept of 'feedback' usually takes the form of formal reports issued at regular intervals that focus on risks and deficiencies. Recipients do not always experience this feedback as an incentive encouraging them to step up and achieve concrete goals. It may cost lots of valuable time and energy to push people in an organisation to take steps in the desired direction. And sometimes they only take those steps because they have been told to do so by the internal auditor. Gamification may offer internal auditors interesting starting points for giving feedback in a form that is better aligned to the intrinsic motivations of those involved.

Friends and internal auditing

Utilising the need to stay in touch with your social environment (friends) is a frequently applied strategy in gamification design. Many digital applications offer the option to post your progress or achieved results on social media. This encourages players to give their friends updates on their performance, but potentially also encourages others to participate in the game. This use of social media has a major impact, as it leads to the creation of group norms that can be powerful behavioural incentives. This may be limited to people showing others what they are doing, but can also involve creating rankings that show users how their performance compares to that of their peers. An example of this is the leaflet used to inform people about their energy use compared to the average energy use in their neighbourhood. People see how they compare to others and that triggers them to change their behaviour; they play against or with each other through the published energy use data.

The concept of 'friends' has a problematic significance in the internal audit profession, as internal auditors usually maintain a degree of professional distance. However, an organisation is unquestionably a social network of which managers and internal auditors are a part and in which competition, empathy and social norms may play a role. For example, recent research (Verbraak & Nuijten, 2017) shows that internal auditors' messages are sometimes more effective when they also address the behaviour of fellow managers (peers). Gamification may offer internal auditors interesting starting points for utilising the intrinsic incentives people get from being able to compare themselves to others in the organisation, with some people being inclined to conform to the behaviour of their colleagues, while others are eager to compete.

Fun and internal auditing

Enjoyment (fun) and motivation are characteristics of gamification. Various strategic principles play a role when it comes to creating enjoyment and appropriately applying incentives to motivate participants. Whether people enjoy a game depends on their preferences and

interests. These differences have been categorised in Bartle's taxonomy of player types. Whereas some enjoy competing with others, other players enjoy meeting challenges and accomplishing objectives. Here too, knowledge about the target group and what motivates the target group are crucial to successfully apply gamification.

The concept of 'fun' is not readily used in the internal audit profession; at first look, it seems at odds with the professional seriousness of the internal auditor. But at the same time, it cannot be right for internal auditors to do their work purely out of a sense of duty; that would actually be detrimental to their professional seriousness. In fact, their commitment to fulfilling their professional responsibilities goes hand in hand with the intrinsic motivation (the enjoyment or satisfaction) they get out of doing their job. Similarly, internal auditors expect to encounter the same professional drive among the people in the organisation they assess. Internal auditors may enjoy analysing information, looking for a needle in a haystack or creating a well-crafted message, or they may get their work enjoyment out of the appreciation they receive from the recipients of their services, or the visible improvements brought about by their recommendations. And just like other people in the organisation, internal auditors enjoy getting better at things that interest and motivate them. Gamification may offer internal auditors interesting starting points for utilising the intrinsic incentives created by the enjoyment people in an organisation get out of doing their job.

4.3 Influencing behaviour is a very serious matter

Gamification: it may sound like an innocuous and praiseworthy thing, but that's not always necessarily true. Gamification is no game. It is more than just 'fun' and actually has very serious implications. Because gamification is about influencing behaviour with the aim of enticing people into behaviour that meets a preconceived goal. It is a subtle, sometimes even slightly manipulative way of steering behaviour that we cannot and should not use without giving it careful thought.

There are limits to what behavioural influencing can achieve and to its acceptance, for example by governments. In its report 'De verleiding weerstaan' [Resisting Temptation] published in 2014, The RMO [Council for Social Development] focused on the controversial aspects of nudging, the broader category of behaviour-influencing interventions that includes gamification. The RMO considered under which criteria such behavioural influencing would be acceptable; in other words, what 'rules of the game' should apply. These rules include that people should be informed that they are the target of behavioural influencing and should have the option to decline to participate if they feel this influencing is unfair.

'Credibility' is a core principle in the internal audit profession and has traditionally been the function's *raison d'être*. This abstract principle is the basis for many concrete professional principles that internal auditors have to put into practice, such 'independence', 'impartiality' and 'due professional care'. Internal auditors must take into consideration that their behaviour should not, neither in fact nor in appearance, compromise the credibility of the audit profession. Because of this tradition, auditors are used to carefully weighing up their statements and the interventions they carry out. So carefully weighing up if it would be appropriate to add gamification to the internal auditor's repertoire, and if so, in what way, fits in with the profession's tradition. If gamification is perceived as manipulation and a lack of transparency, this could

compromise the credibility of the internal audit function. By contrast, when gamification helps staff members to voluntarily and eagerly make a contribution to the organisation's risk control and its objectives, this actually helps to increase the credibility and relevance of the internal audit function. Gamification may offer the internal audit profession interesting starting points for reinforcing its credibility in situations where the behavioural component is a dominant factor in the risks the organisation runs. In addition, applying gamification creates the responsibility to do this in a careful and transparent way, so as to mitigate its adverse side effects.

Applying gamification requires knowledge about the target group and the underlying behavioural principles, as well as an explicit debate about the ethical and moral issues involved to determine the rules of the game to be followed by the 'playful' internal auditor. Playfully interventions by internal auditors are not as innocuous as they sound. We cannot ignore the rules of the game that should be observed. The question is: where does playing end and manipulation begin?

4.4 Gamification and ethical limits

The critical boundary between ethically responsible and irresponsible game design was also highlighted by game designer Jane McGonigal at the Digital Ethics Symposium in 2011: "If you use the power of games to give people an opportunity to do something they want to do, then you're doing good. If you're using the power to get people to do something you want them to do, then you're doing evil" (Fazio, 2011).

An example of playfulness crossing over into dangerous manipulation is the Chinese game Sesame Credit. This is a game where citizens can earn points by demonstrating behaviour that fits in with the policy objectives of the political leadership. Through game elements, citizens are encouraged to do specific things, buy specific products, read specific books or watch specific TV programmes. Today, participating in Sesame Credit is still optional, but there are rumours that it will eventually become mandatory for everyone. What if citizens were to face real consequences because they have a low score, or receive real rewards for a high score, such as a faster internet connection or preferential treatment in job applications? What if your total score was linked to that of your friends, leading to a situation where people not only criticise each other's behaviour, but potentially even ostracise friends because their score is too low. This is an extreme example that fortunately has not become reality yet. But it is an example, although admittedly extreme, that highlights the viciousness that can lurk behind the principles of behavioural psychology. Utilising the herd mentality, social processes and the performance drive is likely to be successful, but should never be done without setting limits.

Clearly, gamification should not be used as a 'quick fix', and the playful internal auditor in particular should follow specific rules of the game to avoid that their contribution becomes manipulative. Therefore, transparency and consciously preserving freedom of choice are core principles that limit the application of gamification in internal auditing.

4.5 Gamification: a supplementary perspective for internal auditors?

The research into gamification in the context of internal auditing is part of a broader trend that can be defined as the psychologisation of the intervention repertoire (De Jong et al., 2016; Verloop et al., 2015). Where internal auditing focuses on influencing behaviour, we need to reflect on how people make choices. Using game elements requires understanding what people's strongest motivations are, how they divide their attention, and what prevents them from making certain choices.

Reflecting on the opportunities and limits of gamification requires explicitly asking questions that are generally not explored in other contexts. What motivates the target group, how and when do they make choices? What are their intentions and motivations, and how can you cater to them as best as possible? Could you use humour to get people's attention on a one-off basis, or do you need to use a ranking with points or badges to keep them engaged over a longer period? What makes for a good design will depend on the issue and the target group.

What incentives are actually created by audits and auditors? To what extent are the selected interventions aligned to the processes by which the target group divides its attention and makes choices? If the design of the intervention is based on the assumption that people are rational, calculating citizens, this will often have unexpected and unintended consequences, or the envisaged change in behaviour will not occur.

The assumption that people always make rational decisions is an inadequate basis for understanding how auditing works. What matters is not only the message the internal auditor tries to bring across, but also (or especially) how that message is presented. Human beings are so much more than only a 'homo economicus'; they are also impulsive and influenced by emotions and intuition. In 2011, the psychologist Daniël Kahneman published the book 'Thinking, Fast and Slow', in which he explains that many decisions people make are not based on the analytical system but on the intuitive system.

We often think that we make highly conscious choices, but often we are subconsciously driven by emotions and associations, by what the standard option is, or by the design of the environment. This is also known as the decision-making architecture: the way in which choices are presented.

When it comes to achieving ambitions in the public sphere, such as improving road safety, reducing energy use or preventing aggression in the streets, it appears that gamification potentiality has an important added value. We are seeing great examples of this in various domains, but at the same time gamification is not the most obvious perspective to take when reflecting on the internal audit function. Which brings us to the key question in this essay: What can we learn from the world of games and gaming to help enrich the internal audit profession?



5 Applying gamification to internal auditing

Gamification can be applied to internal auditing in various ways. We distinguish the following applications:

- Gamification and gathering data/information (facts)
- Gamification and reviews/judgments (exercising judgment)
- Gamification and learning/implementing improvements (interventions)
- Gamification and developing norms/standards of review (normative/control frameworks)

5.1 Gamification and data gathering

Internal auditing requires gathering information about developments or changes to establish the relevant facts. The application of gamification can motivate (potential) informants to start or continue to contribute to an information gathering project.

Garcia Martí et al. (2012) describe how participants were motivated to contribute to a project to measure noise pollution by applying game elements based on the SAPS model. In this experiment, the environment was divided into different areas and each participant was allocated an area where they could conduct measurements. The participants received points (stuff) for every measurement they sent, with the number of points depending on the quality of the measurement. The app used for this purpose included a tool indicating the quality of the measurement, enabling the participants to decide whether they needed to reperform the measurement before sending the results. Upon accruing a particular number of points, participants advanced to a higher level (status). Once they had progressed to a higher level, participants had the opportunity to play for access to more areas, where they could then conduct more measurements (access). Within the project, participants could battle each other. In these battles, participants could conquer each other's areas, where they could then conduct more measurements. In addition, participants could send noises to each other that signalled the 'power' they had attained in the game (power). Through the incorporation of these mechanisms, participants were in a playful way motivated to conduct and send the best possible measurements. These elements also motivated other participants who mainly got their motivation from the competition element, or from the results or objectives they achieved.

Another example of an application that is useful for internal auditing, and which has become so ubiquitous that it goes virtually unnoticed, is the status bar showing the percentage of completed questions used in online surveys. For many people, this is the gentle push that motivates them to complete the last bit. They don't really feel like it, but they are eager to reach the end of the progress bar. And every question answered brings them one step closer to the end of the bar. Although people know that the game doesn't have a real winner and they are not actually playing against the bar but against themselves, it is still a powerful incentive

(nudge), which can be enormously helpful if you want people to complete a long survey, but you don't have the opportunity to look over the respondent's shoulder.

In fact, the TV programme 'Opsporing Verzocht' (the Dutch equivalent of Crimewatch) has been using certain principles of gamification that are relevant to solving criminal investigations since 1975, although without explicitly referring to this as 'gamification'. Initially, the programme featured police officers explaining the bare facts of each case. But soon, following the example set by the German programme 'Aktenzeichen XY... ungelöst', actors were engaged to re-enact the murders and robberies. Although the term 'fun' is perhaps not appropriate in this context, this did at least create a form of entertainment that kept many people glued to their TV sets on a weekly basis, entirely of their own accord and driven by intrinsic motivations like curiosity and excitement. In contrast to the fictional cases in popular TV detectives like the German Tatort series, these were real murder cases that really needed to be solved and where viewers could make a real contribution. The idea that any viewer could solve part of the puzzle, and the viewers could together solve the entire puzzle, motivated citizens to 'participate in' the programme and assist the police with its information gathering. In later years, the show began to give feedback about solved cases and viewers' responses to requests for crucial information that came with cash rewards. So by the end of the show, viewers were already wondering what next week's broadcast would bring.

The 'feedback mechanisms and the 'social element' in the information gathering made this 'exciting' TV programme a powerful addition to the instruments available to the police. The emergence of more interactive forms of information technology enabled a personalisation of the feedback, gave the social element a new dynamism, and facilitated an even better alignment of the fun factor to the participants' personal interests and motivations. This created even more powerful instruments for gathering information using game elements to solve even more intractable issues. A fantastic example of such information gathering is the help given to science by gamers who, driven by fun and competition, applied their spatial awareness, trained in video games, to play the online 3D puzzle game Foldit. Their efforts have made a huge contribution to unravelling the complex spatial structure of enzymes that play a key role in the development of AIDS (Khatib et al., 2011). This shows how information technology can combine the power of social interaction and gamification and lead to new socially relevant insights.

The above examples suggest that gamification can be useful for internal auditors when it comes to gathering relevant information. Gathering information is a key part of the internal auditor's duties and traditionally takes the form of conducting interviews, studying documents about processes and procedures and sampling paper files or data files. Internal auditors usually have to apply an active and systematic approach to gathering information. The internal auditor asks questions in interviews, trying to gain an understanding of the correlations and details hidden behind the answers, while realising that interviewees may sometimes be hesitant to reveal awkward details about what goes on in the organisation's day-to-day practice. When taking samples, the internal auditor assumes that a certain sample size, such as 25 selected files, will provide a representative view of the risks in the total data population. However, it could very well be that detailed information in one of the non-selected files provides a key indication of an impending risk. As in our opening example about mobile phone use in cars, the challenging question is: As an outsider, how do you obtain information about the actual risks that are hidden in small day-to-day habits and ways of doing things, but which could eventually have a huge

impact? Gamification could play a role in this because it could, for example, entice people to detect and report anomalies. This is comparable to the example given above of the utilisation of the skills of gamers in the Foldit game. In addition, gamification can contribute to the sharing of information and performances among colleagues in a digital form, creating a valuable source of information that could support forms of continuous monitoring and continuous auditing and generate early warning signals. A recent study at the Erasmus University Rotterdam has even shown that gamification is an effective way to improve the reliability of answers obtained in interviews (Baillon, 2017). Gamification appears to offer international auditors interesting starting points for improving the information gathering process in certain situations.

5.2 Gamification and reviews/judgments

Gamification can also be applied to engage different parties in the process of judging or reviewing whether behaviour is compliant. When it comes to engaging staff members or other stakeholders, the first thing that often comes to mind at the internal audit function is conducting interviews to give everyone a fair hearing. But there are also other, more fun ways to encourage engagement.

For example, at the Wuppermann steel plant in Moerdijk, the Netherlands, gamification is applied to create a form of continuous monitoring. Errors by staff members can seriously disrupt the operating processes at the plant and annually cost 4.5 million euros. To prevent errors, an interactive touchscreen has been placed in the coffee area in the factory. The screen shows real-time data and infographics to give staff members insight into the production process, their targets and the number of errors. This information enables staff members to compare the performance of their own shift to that of another shift. This increased insight into performance leads to more engagement, better production and ultimately cost savings (Ranj, 2014). Gamification can also be used to motivate participants by providing virtual rewards that give them a sense of accomplishment or validation.

In Germany, huge numbers of viewers participated in the controversial TV show 'Terror' aired by the public broadcaster ARD in 2016. The show was an experiment around a terrorism scenario, in which the viewers were asked if it was permissible for a fighter pilot to shoot down a hijacked plane with 164 passengers to prevent it being crashed into a football stadium with 70,000 spectators. In this 'game', the viewers were put in the court's shoes and weighed up the information they were incrementally provided with, such as details and backgrounds, in order to reach a judgment, which they did through an interactive process that showed how seemingly insignificant information could ultimately prove crucial to their judgment about the fighter pilot who shot down the plane.

This raises interesting questions about whether, and if so, how, gamification can be useful for internal auditors when it comes to making judgments that extend beyond the gathering of information. After all, exercising judgment is a core component of the work of the internal audit function. On the other hand, looking at the example above, if a court were actually to refer to the considerations made by a panel of 70,000 actively motivated and voluntarily participating viewers, wouldn't that comprise the court's independence, its impartiality and observance of due professional care? And how does the application of gamification in making judgments relate to the more common practice of performing control risk self-assessments, where the

internal auditor plays a leading role, challenging the organisation to analyse its risks, with the envisaged secondary objective of encouraging the organisation to hone its skills in the self-assessment of risks? Gamification appears to offer international auditors starting points for improving the process of making judgments in certain situations, including by better utilising the analytical capabilities of staff members in the organisation or fellow internal auditors. A key prerequisite for this is that gamification is implemented in a way that ensures that the internal auditor continues to be able to bear the responsibility for exercising judgment.

5.3 Gamification and implementing improvements

Gamification can be applied not only in the information gathering and judgment phase of the internal audit, but also in the implementation of improvements and innovations.

An example of this is the development of an e-learning model incorporating gamification techniques, which lacks direct engagement with a teacher, but features other built-in incentives to keep participants motivated (Muntean, 2011). Another example of how gamification can be beneficial for internal auditing is the practice of websites giving people points or badges to reward them for certain actions or purchases. The status people derive from these points and badges can not only provide added benefits to the individual concerned, but also encourage others to participate. Badges, titles, awards and other prizes can be granted over the course of a game to mark milestones people have achieved in the game and to energise them.

A further example is the Ideastreet platform of the Department for Work and Pensions (DWP), a government department in the United Kingdom. Through Ideastreet, staff members in the department can contribute ideas and vote on or make improvements to ideas of colleagues. In this way, they jointly generate and hone ideas and bring them to the attention of the relevant policy-makers. Ideastreet is an online version of the traditional suggestion box, but also incorporates gamification principles like rewarding players with points and a leaderboard. The leaderboard proved to be an added incentive, particularly because staff members derived status and validation from their position on the leaderboard. In addition to the status they attained through the platform, staff members were motivated by the feeling it gave them that their ideas were truly listened to.

Gamification could also be useful for internal auditors when it comes to implementing the improvements and innovations deemed necessary on the basis of the information gathered and judgments made. In practice, quite often it costs lots of energy and time before an organisation actually implements the internal auditor's recommendations for improvements. First of all, it often takes a great deal of convincing to get the organisation to actually develop the intention to implement the recommended improvements. And even then, it often proves difficult to make good on this intention because of the busy workload and day-to-day priorities. Research in the field of behavioural science shows that these hurdles are often much lower if the managers involved are given room to come up with a creative solution, and enticed to challenge themselves and set themselves ambitions. This research also indicates that visualisation techniques can help to nudge them into walking their talk. So there appear to be opportunities for applying gamification to help implement improvements. The above example of Ideastreet may also be a model for effectively putting this in practice in internal auditing. The application of the game principles of gamification can create a context in which managers

and staff members enjoy improving their control of risks and enhancing their skills in this field. Embedding a lasting improvement of the behaviour in the organisation is more likely to succeed when it is driven by the intrinsic incentives of gamification than when the changes are only initiated because people were told to do it by the internal auditor.

5.4 Gamification and developing norms/frameworks

Lastly, gamification can also be used to develop relevant norms and frameworks together with the relevant staff members and stakeholders, which then provide a basis for review procedures.

As mentioned above, in 2016 huge numbers of viewers participated in the controversial German TV show 'Terror' aired by the public broadcaster ARD; an experiment around a realistically depicted terror scenario. The viewers were asked if it was permissible for a fighter pilot to shoot down a hijacked plane with 164 passengers to prevent it being crashed into a football stadium with 70,000 spectators. In this 'game', the viewers were put in the court's shoes and weighed up the information they were incrementally provided with in order to reach a judgment, through an interactive process that also involved a normative discussion about the criteria and penalties that should be applied when assessing this and similar situations.

Another form of gamification is the ubiquitous use of thumbs up or down icons ('likes' and 'dislikes') on social media. Through the incentive of attaining a measurably higher social status by increasing their number of likes or followers, people are encouraged to (continue to) share their experiences and opinions with 'friends' or 'peers'. In striving to attain the highest possible number of likes or followers, they enter into competition with others, which encourages everyone to step up their efforts. Tellingly, on the internet you can find vehement accusations levelled at Facebook, with people complaining that it doesn't include all the likes on their photos in the total likes score that is presented to their friends. This direct and visible feedback and interaction between participants can lead to the emergence of 'social norms' for what is and isn't acceptable in terms of behaviour and expressing opinions within the group. The rating of business services and products on websites by using stars from 1 to 5 also contributes to the creation of a 'social quality standard' by which the performance of hotels and other service providers is measured.

The above examples suggest that gamification can be helpful for internal auditors not only in making judgments, but also in establishing and fine-tuning the norms on the basis of which they perform their review procedures. Obviously, the internal audit function is free to determine in consultation with its client what standards of review it applies, and is not under any obligation to follow the current standards of socially acceptable behaviour. But the application of gamification will at least help to make discussable any discrepancy that may exist between the social standard in the organisation and the standard of review applied by the internal auditor.

In this section, we conducted an initial exploration into whether the principles gamification appear to be reconcilable to the objectives pursued when performing internal audit procedures, which are: a. gathering data/information (facts); b. reviews/judgments (exercising judgment); c. learning/implementing improvements (interventions); and d. developing norms/standards of review (normative/control frameworks). Our preliminary conclusion is that gamification could be useful for internal auditors in helping them to adequately and efficiently perform their

procedures. However, the game design process has a number of prerequisites and pitfalls that need be taken into consideration when putting gamification into practice. In the next section, we take a closer look at the design principles that can be applied in gamification.

6 Internal auditing: gamestorms and game design

6.1 Smart designing through play

In this section, we follow up on our preliminary conclusion that gamification could make a contribution to the internal audit profession, focusing on the 'what' and 'how' of the game designs that could be used to help achieve this objective. This immediately brings us to two pitfalls.

When we design games, we need to realise that internal auditing is obviously not an end in itself, but rather a key pillar for bringing the control of risks in the organisation to a higher level through the following core principles: transparency, review and learning/improving. Therefore, the primary aim of the game design should not be to simplify the internal auditor's day-to-day work. Instead, the aim of the game should be to achieve the underlying objective: improving the way in which the organisation controls its risks. With this in mind, the game design should focus on the improvements needed in the information gathering, assessments and implementation of improvements, and on the development and embedding of the related norms.

Given the many examples of gamification available, one might be inclined to simply copy an example and apply it in the business-critical context in which internal auditors operate. But this is a major pitfall, because what has proven to be successful in one context will not necessarily work in another. An ill-conceived game design may even elicit the opposite of the behaviour the intervention aimed to encourage. Therefore, utilising gamification in an organisation requires a careful, but at the same time welcoming, approach. A good starting point generally used in game design is the 'gamestorm'.

A 'gamestorm' is based on the same principles as a brainstorm, except that it focuses on the design of a game, or at least on using game elements in a non-simulated context. Basically, a gamestorm is a process that involves (not necessarily sequentially) completing a number of components (cf. Hufen, 2016). The following internationally applied structure can help when setting up a gamestorm:

- o Purpose: Why and what? So formulating the objectives: What is at stake?; What is the game about?; Why are we playing the game?
- o People: Who? So establishing the situation and the (internal and external) playing field: Who are playing the game?; What are the relationships between the players?
- o Process: How?; actions. So establishing the key obstacles/challenges: What are the issues that make it difficult to achieve the objective?
- o Performance: Which? So defining which actions are needed to help achieve the objective: this includes both constructive and destructive behaviours; and
- o Play to progress: When? So assigning scores to the possible actions.

6.2 Purpose: what do we want to achieve with the game?

When we reflect on how we could usefully apply gamification in a specific situation, we first need to establish what objectives we want to achieve. We can clarify this by asking the applicable questions: 'what is at stake?'; 'what is the game about?'; and 'why are we playing the game?' Therefore, the game should serve a social or organisational objective: 'we want to reduce the incidence of diabetes among children'; 'we want to reduce the number of accidents caused by the use of mobile phones while driving'; 'we want to reduce crime in a particular neighbourhood'. The objective should be SMART, i.e. Specific, Measurable, Action-oriented, Realistic and Time-bound: 'By ensuring that people don't touch their phone while driving, we want to reduce the number of collisions caused by phone use in cars by 50% within a period of two years'.

Logically, the application of game elements in the context of internal auditing will focus on controlling specific risks that are relevant to the organisation and that contain an important behavioural component: 'the short cuts in the organisation that seem effective in the short term, but harm the organisation in the longer term'; 'the timely unmasking of cheats in the organisation in order to eliminate insider threats'; or 'reducing the number of medical errors in a hospital ward'.

We want the game to contribute to people being triggered, challenged, motivated or enticed into the desired behaviour; sometimes on a one-off basis for a large group of people, and sometimes repetitively to create lasting behavioural change among a specific group in the organisation. The application of gamification can support a variety of behavioural objectives. According to De Jong et al. (2016), when it comes to the introduction of game elements that aim to contribute to behavioural change, we can distinguish four key ambitions: simplifying, entertaining, improving and persevering.¹

Entertaining: Applications of gamification are often focused on entertaining people. Behavioural change is then achieved mainly because people enjoy participating in the 'game', and because the game makes it attractive and fun to behave in particular way. Stairs that make music when you step on them are a good example of this. This simply makes it fun to take the stairs instead of the escalator. Drawing people's attention is often a key aspect of this. Applications of gamification need to catch the eye because they are out of the ordinary. Using striking colours, images or sounds in gamification applications draw people's attention. As a result, they will register more consciously the message you want to bring across.

Simplifying: Applications of gamification often also contain an element of simplification. People often put off activities or decide not to delve into something because it's relatively complicated. This holds true for things like completing a tax return, gathering information about buying a new house, bank affairs, insurance, elections, or complex issues you read about in the newspaper. The level of complexity often stops people from delving into these matters.

1 These four ambitions resemble the EAST model created by the Behavioural Insights Team, an organisation set up by the UK government. This model distinguishes for key criteria that need to be met to effectively apply insights from behavioural science: Easy, Attractive, Social and Timely.

Gamification can be applied to give people insight into a process through a stepped approach, for example by presenting information in a different way. An example of this is a smart energy app that combined with a smart meter encourages people to save on their energy bill. Such apps help people gain insight into their energy use and the relationship between their energy use and behaviour. Another example is the Dutch website *ExpeditieWork*, which features a game that helps young people with a vocational degree find a job. In the various levels of the game, the players gradually create a CV and are given tips on applying for jobs and where they can find vacancies. Many other forms of gamification are imaginable that use simplification to help people with complicated matters or to make issues more accessible.

In internal auditing, 'entertaining' and 'simplifying' could involve an internal auditor and a manager going for a walk to discuss the storyline of the findings from the internal audit. This can be an actual or virtual walk. During this walk, the two participating walkers – the internal auditor and the manager – are confronted with vivid incidents, such as a technical failure of a complaint. In looking for a solution, the audit findings are presented by visualising them and the relevance of the findings is experienced 'first hand' during the walk. A Dutch internal audit department recently piloted this form of gamification in an actual audit in a highly complex domain (payment transactions). The lead internal auditor and the manager involved both appreciated the playful form and the insights they gained from the storyline and the images and sounds.

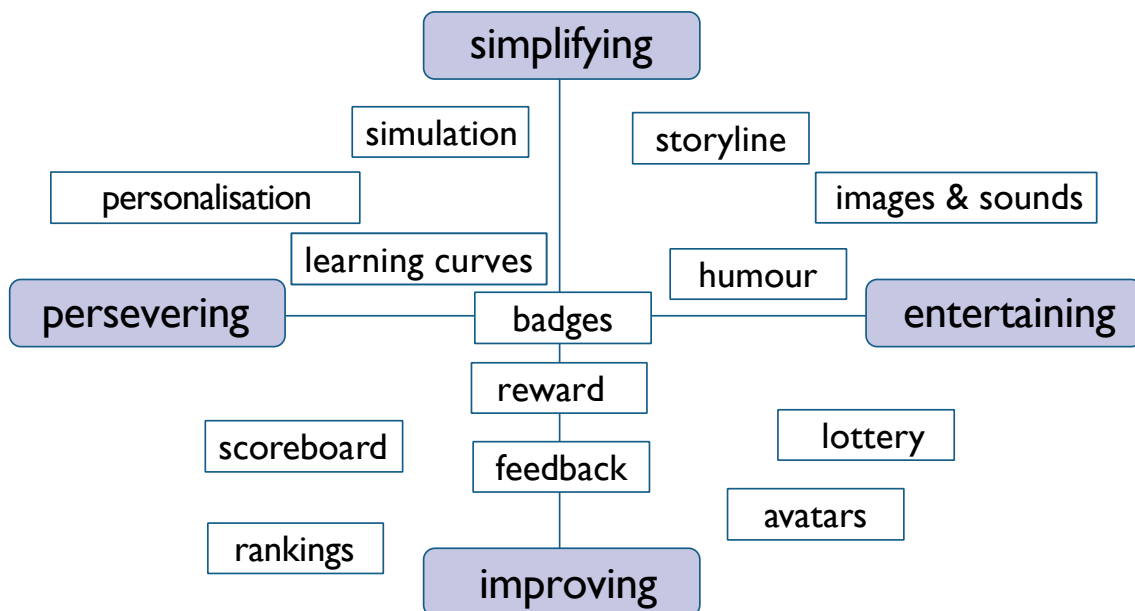
Improving: Gamification is often also applied to create room for people to achieve certain results, and to enable them to gradually improve their performance. For many people, an element of competition makes it attractive to do something (or to keep themselves from doing it). Many applications of gamification challenge users to improve on their own previous performance or that of other users. Computer games, for example, challenge you to improve on your previous scores. By frequently playing the game you can reach a higher level, gain a higher status or attain new powers, for example. Often you can also compare your own performance to that of your friends or peers. In this way, the application challenges players to keep improving their performance. This element of competition plays to people's sense of accomplishment and to their ambition, and therefore often also enables comparison. Apps like *Runkeeper* and *Strava* are well-known examples of this. For many people, these applications make it more fun to do sports. The app shows you how you performed and meticulously tracks the progress you make. It also congratulates you on achieving a new personal best or reaching a milestone (e.g. cycling 100 kilometres this month). This makes these apps effective tools for encouraging many people to start doing sports and to keep at it. In addition, many of these applications use rankings, showing you how your performance compares to that of acquaintances or strangers.

Persevering: Lastly, applications of gamification often also focus on encouraging people to persevere after they have changed their behaviour as required. Many people have New Year's resolutions or intend to change their behaviour, e.g. adopting a healthier lifestyle. However, things that are good for you in the long term are often obstacles for people in the short term. Quitting smoking, doing more sports, saving money: making good on these intentions is often beneficial to you in the long term, but often the alternatives are more attractive in the short term. Applications of gamification can help people to keep up new behaviour and can thus contribute to lasting behavioural change. An example of this is the game 'The Pain Squad', which aims to motivate young children in hospital to keep a 'pain diary'. Another example is an app that helps you quit smoking. The app gives you daily updates on how much money you

have saved already by quitting, the relative health benefit you have achieved, etc. These types of applications help people to keep up the desired behaviour.

In internal auditing, 'improving' and 'persevering' could involve creating a form of competition through scoreboards and rankings. These might show the level of client satisfaction with individual internal auditors, for example, if that is the focus of the behavioural objective. Following up on the example of the pain diary, managers could be asked to record how much of their time is consumed by 'putting out fires' and how much time they invest in bringing about long-term improvements. Such an application requires that the objectives are formulated in a way that is measurable. In addition, the progress made towards the objectives should be presented – and where possible, shared – in a way that motivates people to persevere and achieve further improvement.

The figure below illustrates which game components are suitable for targeted behavioural interventions focused on entertaining, simplifying, persevering and improving.



6.3 People: who are the players and what drives them?

Designing a useful game requires mapping which people within or even outside of the organisation will be part of the envisaged playing field: these are the 'actors' in the game. This should obviously be based on the underlying objective of the game. If the objective of the game is to improve client satisfaction, both staff members and clients will be included in the game.

In the context of internal auditing, the focus of game design will be on controlling risks. Therefore, as a rule, everyone who could make a contribution to this as an 'actor' should be included in the game: the staff members in the relevant organisational unit, the organisation's management, the organisation's clients/patients, and also the internal auditors. And in theory even competing organisations could be included on the playing field and could trigger each other to improve their performances (e.g. in terms of sustainability, safety or client satisfaction).

Of course, the parties involved all have different drives, but they are all part of the same game, so they can motivate themselves and each other into better performances, thus helping to achieve the underlying objective of the game.

The game design will obviously have to consider the different drives of each of the players. The different types of gamers that can be distinguished provide a recognisable and useful basis for applying gamification. The most frequently used typology for gamers is that of Bartle. Through his matrix of player types, Bartle (1996) describes the different drives people have for playing a computer game. Some are motivated by achieving objectives and results, while others play the game because they are motivated by discovering new things, or by the social interaction with other gamers. Bartle places these different types in a matrix with two axes: acting versus interacting, and orientation towards other players versus orientation towards the world. Based on these axes, Bartle defines four player types, which others have further elaborated and applied to gamification (cf. Caron, 2011):

- o Killers are characterised by the desire to win; rankings are important to them and they strive for direct competition between players they perceive to be evenly matched. They are triggered by rankings and scoreboards.
- o Achievers are players characterised by a focus on attaining a particular status or achieving predefined objectives, preferably quickly and completely. They are driven by the urge to achieve results.
- o Socialisers are characterised by the urge to socialise and driven by the desire to develop a network of friends and contacts. They are motivated by lists of friends, chats and newsfeeds.
- o Explorers are characterised by a focus on discovering and exploring and the desire to discover things they didn't know about before. They are driven by the desire to discover previously unknown possibilities.

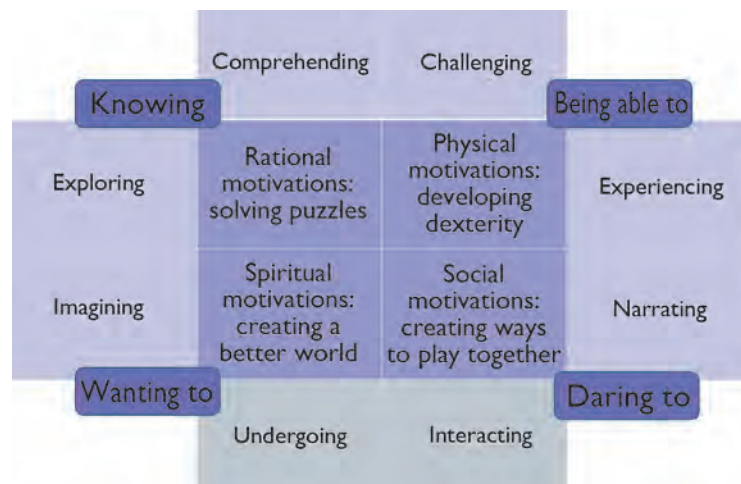
To ensure that the underlying objectives of gamification can be achieved when applying it to internal auditing, the game design will have to be aligned to the intrinsic motivations of the envisaged participants. The above example of an internal auditor sharing audit findings with a manager through 'story walking' will primarily appeal to managers of the 'explorer' type. By contrast, managers who fit the definition of 'achievers' might be motivated by a game structure that quickly gives insight into the performance on measurable objectives like client sanctification and the progress made towards achieving them.

6.4 Process: movement

Designing a process to encourage behavioural change requires establishing what the main obstacles or challenges will be: the issues that will make it difficult to actually achieve the objective and which will have to be supported through game elements. This will be facilitated by having insight into the different drives and motivations people have to play the game and the type of obstacles or challenges they seek to overcome, and also by reflecting on how that can be incorporated into the game:

- o Spiritual: opportunities to help people, and creating a situation that is beneficial to everyone.
- o Mental: overcoming obstacles, challenges and hurdles, and getting feedback on the progress and development achieved.
- o Rational: fathoming the situation, completing, calculating, combining, arranging in the right order, problem-solving, and reasoning.
- o Physical: demonstrating dexterity, acquiring property, and developing competencies.
- o Emotional: experiencing joy, taking up struggles, overcoming insecurities, coping with adversity, and building up character.
- o Social: getting to know others, working together, meeting, connecting, and empowering each other.

Initiating a process in which people will demonstrate the desired behaviour requires that they meet challenges and overcome obstacles that are aligned to their motivations. Obstacles to demonstrating the desired behaviour may be lacking knowledge (knowing), lacking skills (being able to), lacking the will (wanting to) or lacking the capacity to take action (daring to).



Accordingly, the game design should aim to immerse the actors in an experience which motivates them to repeatedly take the desired action, and playfully provides feedback challenging them to take steps and grow in terms of the knowledge, skills, will and daring needed to raise this behaviour to a higher level.

6.5 Performance: towards concrete rewards

Performance is about rewards. The different types of rewards in gamification are often referred to by the acronym SAPS, which stands for Status, Access, Power and Stuff (Zicherman, 2012). Below, we look at how each of these concepts influences motivation in gamification. It is assumed that status has the strongest influence on motivation, while stuff is ultimately the least effective performance incentive.

Status: Status concerns a person's position relative to others. A well-known example of this is the status that can be attained in airline loyalty programmes. A frequent flyer has a higher status than other passengers. Status can be derived from performance, but also from

performance-related rewards that put a person in the limelight. In gamification, status is often represented by badges earned for completing specific actions. In the context of an application, badges are not only a visualisation of achieved objectives and results, but they also represent the storyline, challenges and setting of clear goals (Hamari, 2013). Status is not only a reward but also an incentive for others to also strive for the same status. In this way, the desire for status in the game becomes contagious and spreads throughout a network. This is partly a matter of copying behaviour, as well as wanting what others have. It's about people competing with each other to win. Status is a way to keep track of the score and rank the performance of competitors. Although status may also be linked to various extrinsic benefits, such as a higher income, the psychological satisfaction it brings is a major factor in its impact (Tran & Zeckhauser, 2012). This was shown, for example, by an experiment in Vietnam where students who learned about their status relative to other students, based on their earlier performance in tests, did better in their final exams. However, the researchers also noted that competition should not turn into a rat race, as this may actually have an adverse impact on the participants' motivation. Remarkably, a good game has many winners and relatively few losers. Although not everyone can be a winner, it's important that enough people can obtain enough positive feedback: compliments, status, and progress.

Access: This is about being rewarded by receiving access to previously inaccessible areas, such as frequent flyers getting access to an airport business lounge as part of an airline loyalty programme. It may also involve giving someone information that others don't have. Getting access to things or areas is a reward that motivates people. As with competition, access should not be too exclusive, especially not in the lower 'levels' of the game, but nor should everyone be able to obtain it. So this requires careful calibration.

Power: In gamification, players are also rewarded for desired behaviour by giving them added power, which enables them to influence the behaviour of other participants. An example of this is an internet forum where participants are given moderator rights when they have been actively involved for a certain period. This creates inequality in the game, which can set an example for other players to emulate, but can also serve as a form of discipline. Moderators who have attained power through their good behaviour will hopefully use that power in the same spirit and thus convey it to others.

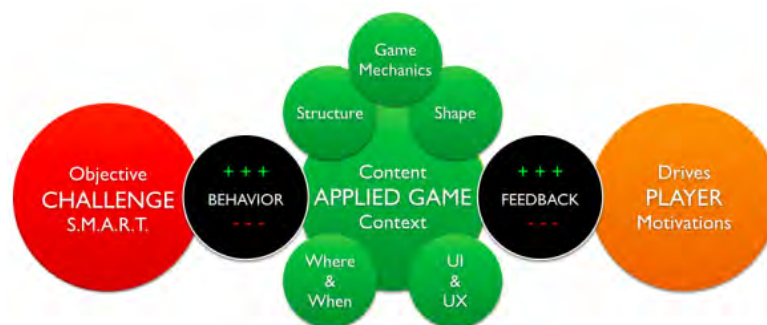
Stuff: This is about rewarding people with things like money, products, discounts or points. Points can be used in various ways: as feedback or as a status instrument, but also as 'currency'. Most loyalty programmes of private sector organisations, for example, enable users to exchange points for products, services or discounts. As mentioned above, stuff is considered to be the least influential incentive in gamification, as people are not really motivated by the prizes they can win. The opportunity to attain stuff is a nice added benefit and may persuade people to join the game, but once they are in it, they are usually motivated by other things. Stuff is also a risky motivator, as it may lead to people's motivation declining or even disappearing once they have received the reward or when the reward is terminated.

Obviously, the way in which performance is measured should be aligned to the behavioural objectives and to the prerequisites for demonstrating the behaviour (knowing, wanting to, being able to, and daring to). For example, the increase of knowledge should be measurable and translatable into a ranking and status relative to other participants. Therefore, the way in which the performance of participants is made measurable and visible should obviously match

their drives (e.g. running apps that show runners their split times per kilometre), so that they can compare their performance to that of others and track their own progress.

6.6 Play: the experience of the game

The ultimate game design will have to combine game elements in way that makes it fun for the participants to gradually change their behaviour towards the desired behaviour. One way to schematically combine these elements is by using a gamification canvas, a tool that illustrates how these elements can be put together and that certain elements return in all game designs (see also Hufen, 2016). As shown below, the canvas represents in a visually attractive way the relationships between the various elements: objective & target group; content & form; context & content; behaviour & feedback.



At the far left are the objectives the organisation aims to achieve though the application of gamification, as well as the concrete behaviour that is to be encouraged or discouraged. At the far right are the target group and their drives/motivations: what interests and motivates them. The game connects these sides of the canvas, and comes to life through the content of the game (What will we be doing in the game?) and the context in which the game will be played. The content consists of text, sounds, images, music and game mechanisms. Of course, the time and location factors should be applied in a way that is appropriate to the context (e.g. the AutoModus app should obviously not be used while driving) and that supports the objective. The user interface and graphic design should be aligned to the target group, appropriate to the context, and preferably as simple and clear as possible (to encourage the use of the game). The structure and game mechanisms of the game should be designed to keep the players' attention, enticing them to keep playing the game and hone their game skills, and motivating them through forms of social interaction (feedback from others) and by visualising their progress in the game (levels).

6.7 Game design and internal auditing

Based on the above principles for the design of useful games, the game design should focus on achieving the organisational objectives, on the desired behaviour needed to achieve these objectives, and on improving the prerequisites for demonstrating this desired behaviour (knowing, being able to, wanting to, and daring to). In addition, the game design should be aligned to the drives of the participants through the elements of fun, friends and feedback. In the context of internal auditing, gamification will therefore focus on improving the way in which people in (and outside of) the organisation in their day-to-day work deal with specific risks that

could be damaging to the organisation. The key aim is to ensure that participants are enticed into demonstrating the desired behaviour because it's enjoyable and challenging, not because they have been told to do it by the internal audit function. So the game is not there for the internal audit function. Rather, gamification can be part of the playing field in which information is gathered about risks, insight and assurance can be provided on risks, improvement actions can be achieved, and the norms within the organisation can be developed. In short: gamification is not the exclusive instrument of the internal audit function, used only to implement the current working method by means of a new, playful technique. Instead, gamification is part of an organisation in which behaviour and active learning are core components of the way in which risks are identified and controlled, and in which the internal audit function can fulfil its role in an effective manner.



7

Exercise: gamification in internal auditing in the healthcare sector

7.1 Internal auditing in the healthcare sector

Healthcare services are one of the most regulated and controlled types of (public) services. Internal audits are a key tool for healthcare institutions to gain insight into the quality and safety of the healthcare they provide, and also offer them cues on how they can improve this. By means of review procedures, it is established whether healthcare practices comply with the applicable norms, as laid down in rules and guidelines, and whether the controls implemented to safeguard quality and safety operate as envisaged and intended. This benefits not only patients and the people close to them, but ultimately also physicians, nurses and other health professionals, as well as the general public, who should be able to rely on the healthcare system providing high-quality care.

The aim of internal auditing is to establish in a timely and reliable manner what risks healthcare institutions run in the area of quality and safety, based on which improvement actions can be implemented. By periodically repeating audits, it can be established whether these actions have been effective (NFU, 2015). In light of this, integral risk management is an increasingly important element in the governance of healthcare institutions. This concerns, for example, risks directly related to patient care, as well as risks related to operational management, such as in the area of property management, funding, production and IT.

The challenge for the internal audit function in the healthcare sector is that the actual risks are to a large extent not captured by the formal procedures, but instead crop up in the organisation's day-to-day practice.

7.2 Key issues in risk management in the healthcare sector

Key issues in the risk management of healthcare institutions in relation to direct patient care include, for example, preventing postoperative wound infections, early recognition and treatment of patients with deteriorating vital signs, verifying patients' medication upon their admission and discharge, preventing patient identification mistakes and wrong-patient errors, preventing incidents with high-risk medication and preventing that patients suffer avoidable pain.

Medication safety is an example of an issue that has been prioritised in order to improve patient safety. Medication errors sometimes occur due to wilful negligence, but far more often arise from errors in the surrounding process, such as the process of requesting and processing medication orders and providing, administering and monitoring medication. Medication errors include, for example, preparing the wrong medication or dosage or administering it too early or too late, and are often a result of inadequately implemented precautionary measures. In addition, errors are made in medication verification. This verification is difficult because patients

are often attended by multiple health professionals who don't know what each of them is doing. Health professionals often don't properly inform each other about changes in medication, they don't always have access to patient medication records, or they are confronted with patients who don't know the exact details of their medication (Karapinar, 2012). Particularly upon the admission, transfer or discharge of patients, errors can be made in the transfer of information.

Surgical safety is another issue that has been prioritised in order to improve patient safety. Errors can occur before, during, and after surgery. Therefore, national guidelines have been drawn up to prevent preoperative, perioperative and postoperative errors. In practice, it has been found that these guidelines can sometimes be interpreted in multiple ways. The medical profession has therefore formulated its own golden rules, setting out hygiene standards for the operating theatre and agreements regarding compliance and enforcement. In practice, this includes, for example, a ban on wearing wrist watches, rings, armbands or other jewellery, fake nails or nail polish. In addition, the golden rules address the issue of people entering and leaving the operating room during surgery, which should obviously be minimised. Due to the debate and lack of clarity about the rules on this matter, subsequently a guideline was adopted that specifies that everyone should exercise care and discipline in entering and leaving the operating room, and sets a target of using the operating room door no more than five times an hour, and zero times during implant surgery and during procedures that take less than one hour.

Rules and guidelines are clearly required, but they are seldom uncontroversial in practice. The debate surrounding rules and guidelines may relate to their usefulness or doubts about their scientific basis, or to the fact that in addition to potential benefits in terms of safety and quality of care, the requirement to carry out additional actions leads to additional costs, or it may reflect annoyance. Moreover, in practice there is not always a consensus about the precise interpretation of rules and guidelines and how they relate to the underlying objective. This makes reviewing and enforcing compliance with these rules and guidelines (from calling people to account for non-compliant behaviour to denying them access to the institution) a controversial task, and sometimes makes the role of the internal audit function a complicated one.

7.3 Tackling wicked problems in the healthcare sector

From our survey among a number of Dutch hospitals, we learned that in practice they face 'wicked' (intractable) problems in the above-mentioned risk areas. These problems are often typified by the following pattern:

1. An issue is identified: pain cards are not being completed, registrations are not being updated, people are not complying with rules or guidelines (e.g. clothing regulations or access to operating rooms);
2. the issue is broadly recognised and acknowledged and there is broad support for addressing it: the Board of Trustees, Executive Board, medical staff and nursing staff fully comprehend that something has to be done about it;
3. there is a discrepancy between thinking and doing, between knowing and wanting to, between the required practice and actual implementation: awareness about the problem is not a sufficient stimulus to achieve behavioural change;

4. the same interventions are repeatedly called upon: raising awareness, explaining things, penalising non-compliant behaviour, initiating change programmes;
5. this temporarily reduces the problem: things go better for a short period, people do what is asked of them, and there is some improvement;
6. but the change is not lasting: resistance emerges, day-to-day issues begin to take centre stage again, and people relapse into their old behaviour.

Alternative approaches are sought in auditing and advising to tackle these types of wicked problems: more alignment with bottom-up initiatives, assigning ownership roles, giving quicker feedback, creating a podium for celebrating successes, making things more fun. But this is difficult and uncertain endeavour. It may then be helpful to apply gamification, as it involves asking what makes things fun, useful, enjoyable and meaningful for the nursing and medical staff, Executive Board and senior management personnel.

7.4 Back to examples of gamification in the healthcare sector

Earlier, we looked at the AMPT health information app, developed by gamers and used by US hospitals faced with government spending cuts who want to adopt an alternative strategy to strict cost control. These hospitals are trying to improve their organisational processes and their staff's performance with the help of the AMPT app, which focuses on the role of staff and their feedback in the organisation. Hospital staff use the application to give each other feedback on performed task, identified solutions and their cooperation (peer-to-peer recognition). By gamifying this feedback, positive feedback is converted into positive rewards like badges and levels. The application ensures that the organisation's objectives are enforced in a pleasant way in the various departments. This results in increased job satisfaction, which in turn leads to an improvement of the provided services. Besides enabling staff members to give each other feedback and improve their performance, the application also enables management to monitor the performance of individual staff members, teams or departments based on predefined parameters (data science and analytics). It also enables detecting outliers and trends that may be indicators of impending incidents. This makes it possible to analyse points for improvement, predict outcomes and make immediate readjustments where necessary.

Whereas the AMPT app is an example of implementing the mechanisms of fun, friends and feedback, and therefore the principles of gamification, in the remainder of this essay we will look in more detail at the design of concrete and easily manageable applications based on examples taken from the Dutch healthcare sector. These examples are based on interviews with hospital officials and urgent issues they encounter in practice when assessing risks. Some of these interviews took the form of a gamestorm in which we looked for game elements that might help to improve the day-to-day practice in the organisation.

Pain relief in hospitals: the problem

Monitoring pain is an intractable problem in hospitals. Pain is not only distressing to patients, but its occurrence (or increase) can also be an indicator that the patient's medical condition is deteriorating or their underlying condition is spreading further or becoming more serious. So while pain is warning sign, we also want to suppress avoidable pain. If patients in a particular hospital experience more pain than patients in other hospitals in similar situations, this may scare off patients and contribute to the hospital gaining a negative public image. At the same

time, pain is very subjective and therefore not objectively measurable by means of indicators like fever, heart rate or weight loss.

While the objective of pain monitoring is evident, implementing it in practice proves difficult because it requires administrative tasks that people don't get round to doing. This applies, for example, to completing the pain cards used to identify any complications early on. The procedure requires regularly asking patients to score their pain and recording their scores on pain cards to closely monitor the amount of pain and pain patterns, and also to identify how medication affects their pain. In practice, however, this procedure is often not followed. Nurses don't do it; they experience it as a burden and feel it's really superfluous. It gets in the way of their real work and they will notice anyway when things go badly wrong. It doesn't matter to them that it's good for statistics. Patients are not too fussed about it, either: the nurses busy enough as it is, and if they feel it's not necessary, it probably isn't. To patients, the pain card is evidently an insignificant secondary requirement that interferes with the nurses' busy workload.

Pain relief: an initial exercise with gamification

The above issues raise the question how pain monitoring can be made fun, significant and meaningful, while linking up to the motivations and interests of those involved. For the nurses, this could be done by linking up with patient care (which is part of what we consider to be good care; a social norm) and with what **motivates** them in their profession ('patients' gratitude for receiving good care'). For patients, this could contribute to their satisfaction with the care they receive ('I can complain and let them know I'm feeling poorly'), their agency and their individual responsibility (I can let them know I'm in pain). This creates the first starting points for a gamification design.

A gamestorm about pain relief in a hospital that we conducted with the internal audit function identified the following **underlying objectives and risks** for the hospital:

(1) it is unacceptable for us as a hospital to overlook serious pain complaints and detect too late that a patient's medical condition is seriously deteriorating, with potentially fatal consequences for the patient;

(2) we want to have an overall picture of the pain levels experienced by our patients, in specific situations or in each department, and we want to know how that compares to other hospitals in our peer group.

These are therefore the two key priorities for hospital directors in the area of pain monitoring, regarding which the internal audit function will have to provide insight.

In the gamestorm, we then looked more closely at the obstacles that could have a disruptive influence on the actual behaviour in the hospital's day-to-day practice.

Nurses often feel that completing the pain card is an administrative task that distracts them from the core duty in their busy workload: providing patient care. The pain card is apparently not perceived as a tool for asking a patient in person about their current condition and wellbeing. In addition, the pain card is apparently not considered a sufficiently significant tool for monitoring whether a patient's medical condition is deteriorating.

Patients may face the obstacle that they don't want to burden nurses with even more work. At the same time, patients are often unsure how much pain is 'normal' in a specific situation, except if they can compare it to previous experiences. There may also be another, much more personal obstacle: the levels of pain reported by patients can be strongly affected by biases. One of these biases is the observation bias: pain thresholds and experienced pain levels can differ significantly between individuals: some people experience much more or much less intense pain than others. In addition, there may be a reporting bias: some patients don't want to be perceived as hypersensitive and therefore report pain levels far below what they actually experience (with the aforementioned risk that problems are detected far too late).

The next step in the gamestorm focused on the **people** playing a (key) role in this issue. Nurses are generally socially driven and focused on helping other people. So nurses are usually not motivated by competition, but by the appreciation and acknowledgement they receive for their contribution to the wellbeing of patients, and by the extent to which the department is able to ensure a good level of patient wellbeing. At the same time, as soon as a patient's treatment has proven to be effective, they are discharged and their place is taken by the next patient, so there is no feedback from former patients. Hospital patients are in a position where they depend on the care they receive; this is a dependent position in which patients have limited agency with respect to their treatment.

The **rewards** that could be incorporated into the game could be based on the aspects discussed above. Through gamification, patients could be enabled to personally score their pain. In addition, based on recent insights (Baillon, 2017), a game element could be added by asking patients to estimate what pain score others would report in the exact same circumstances. The application of gamification not only makes reporting pain scores more fun, but also helps to remove the related biases, enabling more accurate pain monitoring. As a result, impending incidents are identified earlier and a better overall picture is gained of the pain levels experienced by patients in the hospital (in specific departments and situations). The patients gain more agency with respect to their situation and are able to compare their pain scores to the pain scores previously reported by others in similar situations. Of course, patients will receive feedback and specific attention from the nursing staff if their pain scores suggest this is required.

The nurses are not only relieved of an administrative task, but also receive enriched information from patients who personally report their pain scores. This enables nurses to have quick and focused dialogues with patients about their pain scores, identify any particularities early on, and adjust their pain medication if necessary. The impact of the nurses' interventions can be determined through consecutive reported pain scores, as well as their effect on the wellbeing of the patients. In this way, nurses can be rewarded for adequately responding to patients' indications and for the impact of their interventions on the pain levels and wellbeing experienced by patients. This means that nurses are rewarded not so much for their compliance with administrative requirements, but for adequately performing healthcare interventions and providing good patient care. This aligns the rewards to the motivations of the nurses involved. To enable comparison between departments, a scoreboard can be used that shows how interventions are rated (by patients). Feedback by recently discharged patients helps to motivate nurses.

The data gathered in the regular processes through the approach outlined above can be used by the **internal audit function**. As such, this application of gamification provides a form of continuous auditing that enables the internal audit function to continuously identify deviations and anomalies that require attention. It also enables the internal auditors to pinpoint in which situations or departments the pain monitoring is performed less adequately, and to take specific action on this and report any cases where norms have been breached. Based on the information obtained, the internal auditors can provide the hospital's Executive Board insight as to whether the measured social norms for pain monitoring in specific situations/departments deviate from the social norm in the hospital as a whole, and to what extent the social norms deviate from the formal norms. In this way, the internal auditors can actively contribute to a targeted improvement of the pain relief in the hospital while at the same time providing comfort the hospital's Executive Board.

Hygiene in hospitals: the problem

The specific problem of hygiene in the healthcare sector is illustrated by VRE and MRSA bacteria, also known as 'hospital bacteria' because they can lead to the outbreak of epidemics in hospitals, which is the nightmare of many hospital directors. These bacteria, which are resistant to multiple commonly used antibiotics, usually don't cause serious illness in healthy people. But particularly in hospitals, where there is a combination of a concentration of vulnerable patients and a high concentration of antibiotics use, there is the risk of these bacteria causing life-threatening infections that are difficult to treat. MRSA bacteria are spread by skin contact. VRE bacteria live in the intestines and can be spread by contact with faeces or contaminated items, such as a door handle, keyboard, phone, remote control or toilet seat. The spread of these bacteria can be prevented by observing adequate hygiene practices. One important rule is that people should thoroughly wash their hands after every toilet visit. A small omission or lack of discipline in this respect can have major consequences for vulnerable patients and for the hospital as a whole. Therefore, many rules and guidelines in the healthcare sector focus on hygiene. It is one of the most important factors in healthcare: observing good hygiene practices in healthcare can save lives. Healthcare professionals are fully aware of this. But in spite of this, physicians and nurses pay too little attention to it, even in situations where good hygiene is vital.

Hygiene and handwashing: a second exercise with gamification

A gamestorm about hygiene in a hospital that we conducted with the internal audit function identified the following **underlying objectives and risks** for the hospital with respect to handwashing:

(1) we want to ensure that the staff members in our hospitals wash their hands after every toilet visit and call each other to account when people don't comply with this, so that the risk of infection with VRE bacteria is minimised;

(2) we want to be able to establish whether the hygiene rules for handwashing are complied with.

These are therefore the two key priorities for hospital directors in the area of hygiene and handwashing, regarding which the internal audit function will have to provide insight.

Clearly, the main obstacles to disciplined and thorough handwashing after every toilet visits are haste and the force of habit. The staff members are well aware of the major risks of an outbreak of VRE infection. But the small 'offences' are committed in the privacy of the wash areas and the consequences of the small offences are not directly noticeable. On the other hand, it troubles people to be 'caught' behaving unhygienically, particularly if such a deviation from the social norm is highlighted to colleagues. Our behaviour in these types of situations is influenced by 'friends' and 'feedback'. The power of this mechanism is illustrated by an intervention carried out in 2011 at the intensive care unit at the North Shores Hospital in Massachusetts, where cameras were installed next to all wash basins and alcohol gel dispensers. With the aid of the sensors and cameras, staff members in the area were monitored over a period of several months, with the cameras registering everything. A strict definition of handwashing was applied: all hospital staff were required to wash their hands before and after every patient treatment, which they had to do within ten minute of entering and leaving the room. The recorded video footage and sensor data were continuously sent in India, where low-wage workers checked whether physicians and nurses had washed their hands.

The interesting thing about this intervention was that no feedback was given in the first three-month period, but when feedback was given in the second period, this was done by showing the compliance scores of all individual staff members on screens. This led to an increase of compliance by no less than 80 percent compared to the first period. Contrary to what might have been expected, staff did not feel their privacy was violated, nor did people complain that they felt spied upon. Instead, people were positive about the programme, which boosted their team spirit and efforts to maintain a high score.

This resulted in the most extensive study into handwashing hygiene to date, in which 430,000 data points were recorded over a study period of more than two years by applying video auditing in combination with real-time feedback. While the results may not be very surprising or startling, they do show that the use of other interventions and techniques can achieve a lasting improvement of compliance on an aspect that is vital to patient safety. Gamification had become an accepted component of the social norm and the use of the mechanisms of 'feedback' and 'friends' had led to compliant behaviour. Compliant behaviour was further increased through competition between departments ('fun'), which ensured the effect was lasting.

Hygiene and mobile phone use: a third exercise with gamification

Today, focusing on handwashing no longer fully addresses the contamination risk, as these bacteria can be spread not only by not washing your hands after going to the toilet, but also through the use of mobile phones. Mobile phones are a major vector in the spread of bacteria and are used in a wide range of locations, from toilets to areas with the most critical hygiene risks. This creates a problem that is very similar to the use of mobile phones in cars. We will therefore explore an application of gamification that resembles the AutoModus app we looked at earlier, which aims to reduce unsafe phone use in cars.

A gamestorm about hygiene in a hospital that we conducted with the internal audit function identified the following **underlying objectives and risks** for the hospital with respect to handwashing:

(1) we want to ensure that the staff in our hospital use their mobile phones in a controlled manner, so that the risk of infection with VRE bacteria is minimised;

(2) we want to be able to establish whether the hygiene rules for mobile phone use are complied with.

These are therefore the two key priorities for hospital directors in the area of hygiene and mobile phone use, regarding which the internal audit function will have to provide insight.

In the gamestorm, we then looked more closely at the **obstacles** that could have a disruptive influence on the actual behaviour in the hospital's day-to-day practice. People use their mobile phone when nobody is looking, purely out of habit, out of curiosity, or because of their need for social interaction, and then don't clean it due to time pressure.

The next step in the gamestorm focused on the **people** playing a (key) role in this issue. Perhaps they can be enticed to change their phone use through the mechanisms of fun, feedback and friends. Therefore, the application could take the form of a CleanModus with scores for each area in the hospital: using your mobile phone on the toilet costs you penalty points, cleaning it earns you bonus points, but using it in hygiene-sensitive areas costs you penalty points again. **Scores** are periodically presented and compared between staff members. An element of competition could be introduced between departments when it comes to how well each department scores on this type of hygienic behaviour compared to other departments. The recorded data will enable identifying in which situations staff members are inclined to commit mobile phone use 'offences'. Additional scores can be awarded to influence behaviour in these specific situations. The recorded data and the scores give the internal auditors a picture of the **social norm** prevailing in the organisation and where the weak spots are. Based on this information, the internal audit function can start a dialogue with the organisation about the extent to which the social norm is in line with the formal norms.

Results of gamestorms with internal auditors in hospitals

The above exercises are intended as illustrations of how gamification could be implemented as a tool for improving pain relief and hygiene in hospitals. In our gamestorms with internal auditors in hospitals, other applications of gamification were also discussed. This concerned issues such as wearing jewellery and non-compliance with clothing regulations. Examples of the application of gamification that were suggested were directors cutting off physicians' ties, calling each other to account for wearing earrings or watches, having cakes delivered to the department when compliance levels are high, or formulas along the lines of the reality game show 'The Mole'. Another area of application mentioned was information security. This specifically concerned the changeover from paper records to electronic records (electronic patient records). It was thought that gamification could make a useful contribution to successfully implementing this. This would involve starting with a traditional roll-out, so setting obligations and sanctions, but would then be followed by gamification: incentives to continue to demonstrate compliant behaviour.

8 Conclusions & debate

8.1 Overall conclusion

In this essay we focussed on the question whether the working method of the internal auditing function, aimed at achieving compliant behaviour among people in organisations, could be reinforced and enriched by adding game elements. Based on our exploration of the literature on the subject and an initial exercise that looked at the concrete application of gamification to internal auditing in the healthcare sector, we believe this is indeed the case. And we are not alone in this opinion. There is a growing awareness that gamification can make a contribution to internal auditing. This may at times involve minor interventions, such as those focusing on communicating with humour or on emotions in traffic. But game elements may also offer opportunities for internal auditors on a larger scale. The effectiveness of gamification is based on various psychological mechanisms. This reflects the core principle that human behaviour is not merely driven by rational cost-benefit considerations, but also by psychological mechanisms that are 'predictably irrational', but about which rational knowledge can be acquired. Therefore, what matters to people, including the subjects or clients of internal audits, is not only the content of the message, but also how and when the message is brought across. And this is precisely where gamification and the related game principles can be of added value. Three elements that frequently motivate people to start playing a 'game' and to keep playing it are fun, friends and feedback (Zicherman, 2012).

Gamification can help to draw people's attention to a message that would otherwise be generated subconsciously. Or to invite people to delve into a matter they would otherwise consider too boring. Or to help people persevere in situations where it's tempting to put things off. Gamification involves playfully enticing people into desired behaviour and motivating them to take action. This requires insight into people's behaviour and the underlying behavioural principles that drive people to do or not to do particular things. And it requires the ability to translate this into game types and principles that can be applied in policies.

At the same time, gamification raises a number of questions, which we explored in this essay:

- Can gamification help internal auditors with their core duties of (1) gathering information, (2) exercising judgment, (3) initiating improvement actions and (4) developing norms, and if so, how?
- What do we run up against when we put gamification into practice?
- Is gamification reconcilable to the seriousness of the internal audit function? How do the concepts of 'fun', 'feedback' and 'friends' fit in with the professional ethos of the internal audit profession?
- To what extent is gamification a useful addition to the toolkit of internal auditors, given the challenges the profession faces?

8.2 How can gamification help internal auditors with their core duties?

Gamification and information gathering

Our analysis shows that gamification can be useful for internal auditors when it comes to gathering relevant information. Gathering information is a key part of the internal auditor's duties and traditionally takes the form of conducting interviews, studying documents about processes and procedures and sampling paper files or data files. We observed that increasingly, the actual risks organisations run are hidden in small day-to-day habits and ways of doing things. Based on our literature study and the exercises we conducted in the healthcare sector, we conclude that gamification can play a role in information gathering because it can, for example, entice people to detect and report anomalies. In addition, gamification can contribute to the sharing of information and performances among colleagues in a digital form, creating a valuable source of information that could support forms of continuous monitoring and continuous auditing and generate early warning signals.

Gamification and judgment

Based on our literature study and the exercises we conducted, we conclude that gamification offers internal auditors starting points for improving the process of making judgments in certain situations, including by better utilising the analytical capabilities of staff members in the organisation or fellow internal auditors. A key prerequisite for this is that gamification is implemented in a way that ensures that the internal auditor continues to be able to bear the responsibility for exercising judgment.

Gamification and the learning organisation

We conclude that gamification can also be useful for internal auditors when it comes to implementing the improvements and innovations deemed necessary on the basis of the information gathered and judgments made. In practice, quite often it costs lots of energy and time before an organisation actually implements the internal auditor's recommendations for improvements. The application of the game principles of gamification can create a context in which managers and staff members enjoy improving their control of risks and enhancing their skills in this field. Embedding a lasting improvement of the behaviour in the organisation is more likely to succeed when it is driven by the intrinsic incentives of gamification than when the changes are only initiated because people were told to do it by the internal auditor.

Gamification and developing norms

Our literature study and exercises with the application of gamification in the healthcare sector show that gamification can make a contribution to the development of norms. In particular, gamification provides insight into the influence of social norms on behaviour, while the behaviour provides insight into the social norms prevailing in an organisation. Obviously, the internal audit function is free to determine in consultation with its client what standards of review it applies, and is not under any obligation to follow the current standards of socially acceptable behaviour. But the application of gamification will at least help to make discussable any discrepancy that may exist between the social standard in the organisation and the standard of review applied by the internal auditor.

8.3 What do we run up against when we put gamification into practice?

Caution required regarding copying solutions

Given the many examples of gamification available, one might be inclined to simply copy an example and apply it in the business-critical context in which internal auditors operate. But this is a major pitfall, because what has proven to be successful in one context will not necessarily work in another. So it should be assumed out of hand that the application of gamification to reduce the safety risks caused by the use of mobile phones in cars will also be suitable for reducing the hygiene risks caused by the use of mobile phones in a hospital.

An ill-conceived game design may even elicit the opposite of the behaviour the intervention aimed to encourage. Therefore, utilising gamification in an organisation requires a careful, but at the same time welcoming, approach. A good starting point generally used in game design is the 'gamestorm'.

The internal auditor as a participant in the organisation's playing field

In the context of internal auditing, gamification will focus on improving the way in which people in (and outside of) the organisation in their day-to-day work deal with specific risks that could be damaging to the organisation. The key aim is to ensure that participants are enticed into demonstrating the desired behaviour because it's enjoyable and challenging, not because they have been told to do it by the internal audit function. So the game is not there for the internal audit function. Rather, gamification can be part of the playing field in which information is gathered about risks, insight and assurance can be provided on risks, improvement actions can be achieved, and the norms within the organisation can be developed. In short: gamification is not the exclusive instrument of the internal audit function, used only to implement the current working method by means of a new, playful technique. Instead, gamification is part of an organisation in which behaviour and active learning are core components of the way in which risks are identified and controlled, and in which the internal audit function can fulfil its role in an effective manner.

8.4 Is gamification reconcilable to the seriousness of the internal audit function?

At first look, the playful elements of 'fun', 'friends' and 'feedback' in gamification appear to be at odds with the seriousness of the internal audit function. But upon closer analysis, we see that the very seriousness of the internal auditor function creates room for the application of gamification to focus on people's risk behaviour.

Internal auditing and fun

The concept of 'fun' is not readily used in the internal audit profession; at first look, it seems at odds with the professional seriousness of the internal auditor. But at the same time, it cannot be right for internal auditors to do their work purely out of a sense of duty; that would actually have an adverse impact on their professional seriousness. In fact, their commitment to fulfilling their professional responsibilities goes hand in hand with the intrinsic motivation (the enjoyment or satisfaction) they get out of doing their job. Similarly, internal auditors expect to encounter the same professional drive among the people in the organisation they assess. Internal auditors may enjoy analysing information, looking for a needle in a haystack or creating

a well-crafted message, or they may get their work enjoyment out of the appreciation they receive from the recipients of their services, or the visible improvements brought about by their recommendations. And just like other people in the organisation, internal auditors enjoy getting better at things that interest and motivate them. We believe that gamification offers internal auditors interesting starting points for utilising the intrinsic incentives created by the enjoyment people in an organisation get out of doing their job.

Internal auditing and feedback

In the internal audit profession, the concept of 'feedback' usually takes the form of formal reports issued at regular intervals that focus on risks and deficiencies. Recipients do not always experience this feedback as an incentive encouraging them to step up and achieve concrete goals. It may cost lots of valuable time and energy to push people in an organisation to take steps in the desired direction. And sometimes they only take those steps because they have been told to do so by the internal auditor. We believe that gamification offers internal auditors interesting starting points for giving feedback in a form that is better aligned to the intrinsic motivations of those involved.

Internal auditing and friends

The concept of 'friends' has a problematic significance in the internal audit profession, as internal auditors usually maintain a degree of professional distance. However, an organisation is unquestionably a social network of which managers and internal auditors are a part and in which competition, empathy and social norms may play a role. For example, recent research (Verbraak & Nuijten, 2017) shows that internal auditors' messages are sometimes more effective when they also address the behaviour of fellow managers (peers). We believe that gamification offers internal auditors interesting starting points for utilising the intrinsic incentives people get from being able to compare themselves to others in the organisation, with some people being inclined to conform to the behaviour of their colleagues, while others are eager to compete.

Gamification and the credibility of internal auditors

'Credibility' is a core principle in the internal audit profession and has traditionally been the function's *raison d'être*. This abstract principle is the basis for many concrete professional principles that internal auditors have to put into practice, such as 'independence', 'impartiality' and 'due professional care'. Internal auditors must take into consideration that their behaviour should not, neither in fact nor in appearance, compromise the credibility of the audit profession. Because of this tradition, auditors are used to carefully weighing up their statements and the interventions they carry out. So carefully weighing up if it would be appropriate to add gamification to the internal auditor's repertoire, and if so, in what way, fits in with the profession's tradition. If gamification is perceived as manipulation and a lack of transparency, this could compromise the credibility of the internal audit function. By contrast, when gamification helps staff members to voluntarily and eagerly make a contribution to the organisation's risk control and its objectives, this contributes to the credibility and relevance of the internal audit function. We believe that gamification offers the internal audit profession interesting starting points for reinforcing its credibility in situations where the behavioural component is a dominant factor in the risks the organisation is exposed to. In addition, applying gamification creates the responsibility to this in a careful and transparent way, so as to mitigate its adverse side effects.

Gamification and the seriousness of the internal audit function

Our analysis shows that Executive Boards and Supervisory Boards have prioritised issues of behaviour and information technology, which makes these issues key points for attention for the internal audit function. It is essential that the day-to-day activities in the organisation are closely monitored, as small human errors can have a major impact on the organisation. Gamification is applied to matters of life and death, such as road safety and medical issues, so the argument that the matters addressed by internal auditors are too serious for gamification is unconvincing. Gamification requires a careful design that challenges the parties involved – those in the organisation and, where possible, those outside of it – to make a constructive contribution to achieving the organisational objectives. In this way, gamification can help to bridge the gap created by the information inequality between the internal and external organisation stakeholders. Our analysis suggests that the very seriousness of the internal auditor function creates room for innovative tools like gamification.

8.5 To what extent is gamification a useful addition to the toolkit of internal auditors?

Today, the internal audit profession faces great challenges, as the Executive Board and the Supervisory Board or Board of Trustees increasingly seek comfort that the risks in the organisation's operational management are adequately controlled and the risk of unwelcome incidents is minimised. But the internal audit profession also faces major challenges because of the changing nature of risks. Increasingly, risks are not captured by fixed organisational structures and procedures, but hidden in the day-to-day behavioural patterns of staff members in the organisation. This all goes well, until it goes wrong; and when it goes wrong, it really goes wrong. Gamification enables specifically measuring and readjusting such behavioural patterns. We therefore believe that gamification is an important addition to the toolkit of internal auditors.

Gamification invites internal auditors to introduce a more personal perspective, which leaves room for a bit more humour, excitement and playful interaction. This involves a stronger focus on behavioural principles and intentions and understanding that minor adjustments can sometimes have a very big impact. In this essay, we have elaborated a number of ideas that offer internal auditors starting points for similar explorations in their own professional practice. Looking at issues from this alternative perspective may also lead to new ideas for interventions that extend beyond the classical repertoire of the internal auditor.

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