Inhibitors to the Organisational Adoption of Gamification

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Abstract

This study looks at how organisations can use technology to engage, motivate, and reward staff by embedding game-like elements into business applications and processes through a phenomenon called *gamification.*

Gamification is an emerging phenomenon that has the potential to increase engagement, productivity and performance in organisations. It is the convergence of motivation theory, information systems, and the rise of digital communications systems. Gamification has been trending academically since 2010, and appears to support the human drivers of motivation and engagement through the appeal of both intrinsic and extrinsic rewards. Yet, while gamification appears to be a solution to the issues surrounding employee motivation, there is little documented evidence of successful enterprise integrations.

Gamification may be the modern elixir to all that ails organisations as they struggle to attract, nurture and retain talented employees. However, if this is the case, then why are gamified practises not widely adopted by companies?

Twelve participants were interviewed for this qualitative study. The first three participants work in software organisations that have first-hand experience with gamified product and process development. Next, a further nine participants were interviewed, three in the broadly-defined communications industry, three in finance, and one each in real estate, retail sales, and manufacturing. These participants were selected as potential users of gamification within an organisational context.

The grounded theory methodology is used to explore the inhibitors to gamification techniques in organisations. Data collection strategies included in-depth interviews and grounded theory methodology techniques are used for data analysis.

This study found the adoption of gamification in organisations is largely inhibited by the infancy of the gamification industry as the availability of gamified platforms, and the demand from organisations is relatively low. It is expected that gamification will become more mainstream in the future as an applied business practice.

Voluntariness is a critical factor within any managerial initiatives aimed at cultivating positive employee attitudes and experiences at work. The concept of employee consent includes mandatory fun events such as companywide social events as well as gamification systems.

The original contributions to knowledge of this thesis include two conceptual models. The first draws on an existing model for game design and proposes that employee engagement is an emergent property of an open gamification system. Emerging from the combination of mechanics and dynamics creating an aesthetic experience that meets the motivational needs of employees and thereby evokes an emotional commitment to the organisation and furthermore, it motivates employees to focus on shared organisational and individuals' goals. The second conceptual model draws on Hofstede's organisational culture dimensions framework and posits that there may be a specific cultural pattern for organisations best suited for effective gamification. This study finds organisations with cultures that are goal-oriented; externally driven; easy-going work discipline; local; open systems; and have an employee orientation, are more likely to find gamification is an appropriate fit for their organisation

In addition, this thesis distinguishes between gamification and organisational gamification and offers a unique definition for gamification implemented within organisations, which has been purposefully and strategically implemented.

Dedication

This work is dedicated to the memory of my father, whose courage inspires me.

In addition to teaching me how to change a tyre, and to smash my own spiders, you shared a lifetime of lessons. You taught me that hard work would get me everywhere, and if a task was worth doing, then I owe it to myself to do it to the best of my ability. This year has been tremendously difficult, but I am so proud of this work and because of that, I know you would be so proud of me too.

David George Waghorne

14 November 1932 to 27 June 2016

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Of course, this work would never have been possible without the support and love of my family – Alice, Harriet, Naomi and Katrina, thank you for your patience, and for asking how it was going.

To my darling Mum and sister Sharnee, thank you both, for telling me frequently how proud of me you are, and that Dad too would be proud.

Last, but most importantly, special thanks to my best friend and loving husband Graeme, who makes it possible every day for me to follow my dream.

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Work consists of whatever a body is obliged to do. Play consists of whatever a body is not obliged to do. – *Tom Sawyer* (Twain, 1876)

In every job that must be done, there is an element of fun. You find the fun, and – SNAP – the job's a game! – *Mary Poppins* (Sherman & Sherman, 1963)

Chapter One: Introduction

1.1 Background

Organisations face many challenges as they struggle to attract, nurture and retain talented employees. It becomes increasingly challenging for HR managers to balance the expectations of millennials with those of their organisations (Bisceglia, 2014), especially as the number of young people entering the workforce begins to exceed the number of older employees. Millennials are defined as people reaching adulthood around the year 2000 (Howe & Strauss, 2002). It is estimated millennials will make up 50 percent of the labour force by 2020 and that number is expected to rise to 75 percent by 2025 (Bisceglia, 2014).

Regardless of the age of employees, motivation continues to be a significant issue for organisations; financial incentives do not create employee loyalty, and people are not motivated by money (Woodruffe, 2006). In fact, studies have shown that using extrinsic rewards like money to motivate staff can lead to decreased performance at work (Deci, 1971; Deci & Ryan, 1985; Paharia, 2013). Millennials have a strong relationship with technology. One technologically driven strategy for employee motivation that appeals to tech-savvy millennials and yet, does not alienate older generations is **gamification** (Procopie, Bumbac, Giusca, & Vasilcovschi, 2015).

Gamification is the application of game-like elements in a non-gaming context (Deterding, Dixon, Khaled, & Nacke, 2011). However, organisational gamification goes beyond the application of badges, points, and leaderboards used in computer games. Although the use of the term *gamification* is relatively new, early studies into the use of digital-game elements in utilitarian software design contexts were conducted as early as the 1980s (Fitz-Walter, 2015). The word gamification has been appearing in academic articles since 2010, and more recently its use has gathered momentum in education, innovation, training and health (Hamari, Koivisto, & Sarsa, 2014) as academic researchers attempt to define, develop frameworks, and test gamification theories.

The key to effective organisational gamification is understanding what motivates people and using those motivating factors to change behaviour or to drive engagement (Sherman, 2011). Motivation theory has been studied for decades; Deci's seminal work on the relationship between human psychological needs and motivation theorised that humans have three inherent needs that motivate growth; these are competence, relatedness, and autonomy (Deci, 1975).

Studies show that gamification satisfies the deepest human desires for autonomy, social interaction and mastery (Deterding, 2014). Gamification practitioners agree process-driven tasks can be gamified to make them more engaging as humans are hard-wired to respond to intrinsic motivators such as autonomy, mastery, purpose, improvement, and social interaction (Paharia, 2013).

1.2 The purpose of this research

This study looks at how organisations can use technology to engage, motivate, and reward staff, by embedding game-like elements into business applications and processes through a technique called gamification. While there have been many studies undertaken on the use of gamification in the likes of health and education since 2010, there are few documented studies on its effect within for-profit organisations.

This study contributes to research in the area of organisational gamification. Current research shows gamification may be useful for creating engaged and loyal relationships between businesses, managers and employees, yet this begs the question: if gamification *is* the holy grail of employee engagement, why is the practice not more widely adopted? This research seeks to answer the following question:

What are the inhibitors to the organisational adoption of gamification?

This research is of an exploratory nature given gamification is an area in which little theory currently exists. This study uses grounded theory methodology to explore the inhibitors to gamification techniques in organisations. Data collection strategies included in-depth interviews and grounded theory methodology techniques were used for data analysis.

1.3 Thesis Outline

The remainder of this thesis is organised as follows:

Chapter Two reviews relevant literature from the study of gamification. It begins with a definition of gamification, followed by discussion on the various fields in which gamification research has been undertaken. Gamification mechanics and the MDA model of game design is discussed with regard to its relevance in organisational gamification. Theories of motivation and changing behaviours is discussed both from the perspective of seminal theory, and from a managerial perspective. Millennials are defined, and the impact of employee engagement in a technologically perceptive work environment is discussed. The chapter concludes with a discussion on contemporary issues in gamification.

Chapter Three discusses the research gap, and raises several questions this study endeavours to answer.

Chapter Four presents the research design used in this study. It begins by discussing research strategies, before justifying why a qualitative study was appropriate. It then compares strategies of inquiry, leading into discussion on the selection of grounded theory methodology. The chapter continues with discussions on the data collection approach and participant selection processes, before concluding with an explanation of the analysis process used.

Chapter Five discusses the significant findings of this study and relates these to extant literature on gamification. In particular, it discusses gamification through the lens of systems thinking before discussing the factors contributing to gamification adoption in organisations. A discussion on the findings relating to the use of gamification to support management theory focuses on gamification as a motivator for engaging millennials; psychological factors and cultural dimensions are also found to be important. This study discusses Hofstede's framework for organisational culture in the context of gamification and proposes an organisational framework conducive to the adoption of gamification. This study also redefines organisational gamification based on the emergent concept of purposeful gamification.

Chapter Six discusses conclusions and the contributions this study makes to gamification research. It outlines limitations of this study, and proposes several key areas for future research.

The extant literature is reviewed in the next chapter, Chapter Two.

Chapter Two: Literature Review

2.1 Introduction

The following review integrates literature from a range of sources on gamification and motivation into a discussion on the current state of the topic, emphasising the importance of engaging millennials in a post-modern organisation.

Issues discussed include the drivers of gamification, intrinsic and extrinsic motivation, the affordances of gamification, millennials in the workplace, and employee engagement. This enables the researcher to highlight research gaps as a basis for proposing future studies.

2.2 Defining Gamification

Long before gamification became part of the enterprise vernacular, employees were playing games at work as a way of reducing the drudgery of repetitive actions (Mollick & Rothbard, 2014). Traditionally, these games emerged from the employees themselves to reduce the tedium. An example cited in Mollick and Werbach (2014, p. 442) is employees "competing to exceed quota as much as possible in a single session".

In a 1979 study, Burawoy found employee-created games were valuable to workers in that they reduced boredom and the destructive effect of employee discontent. Games diverted the attention of dissatisfied workers toward spontaneous competitions between employees, leading to improved work experiences (Burawoy, 1979). Additionally, the practice of employees playing games had benefits for managers and probable financial incentives for workers, but the compelling driver behind the continuation of play, was the sense of competition with fellow workers (Mollick & Werbach, 2014). This in turn, has attracted the attention of managers (Reeves & Read, 2009) leading to the deliberate deployment of enterprise gamification (Mollick & Werbach, 2014).

The term *gamification* was first used in 2002 by British computer-gaming programmer Nick Pelling (Marczewski, 2013), to describe how his business designed game-like user-interfaces for commercial electronic devices such as mobile phones and vending machines (Pelling, 2011). Pelling (2011) suggested users would be more likely to adopt new technology if the device's interface appeared more game-like. In his own words, Pelling agrees his game-like devices and use of the word *gamification* was seven or eight years too early (Pelling, 2012). It was also six years prior to Terrill describing gameification [sic] as the biggest emerging topic at the 2008 Social Gaming Summit (Terrill, 2008). By 2009 the use of 'game tactics' as an element of creating customer loyalty was being lauded as a solution for marketers (Sturgeon, 2009).

The use of the term gamification has been used to describe several different concepts, and some academics consider the term misleading as it suggests the use of actual games, or even game theory in an organisational context, which is unrelated to gamification (Robson et al., 2015). Some marketers use gamification to describe the process of adding in-game advertising revenue models (Terlutter & Capella, 2013), whereas Boinodiris and Fingar (2014) label role playing and simulations of events conducted for the purpose of training or problem-solving techniques, as gamification. Ferrara (2013, p. 291) considers gamification is a generic term encompassing "everything from Farmville to LinkedIn's profile completeness bar", further stating gamification implies the elements of games such as points and rewards can be "strip-mined" and "tacked onto" non-gaming applications with the expectation that users will respond to the elements in the same way they would react to an enjoyable game (Ferrara, 2013). He further argues this exploitive behaviour shows a disregard for the value of the gaming experience, and implies games are "inherently frivolous" (p. 291).

Dale (2014) suggests two main forms of gamification exist: those which apply within organisations (enterprise gamification), and those which occur outside of an organisation (social gamification). Dale also states companies deploying gamification will do so for one of two reasons: either they want to improve customer loyalty; or they seek to improve employee engagement. Marketing material from gamification vendors such as *Bunchball* imply game mechanics implicitly motivate desired

behaviours: “gamified activities address and satisfy basic human desires, creating the addictive experiences that motivate users” (Bunchball, 2015, p. 4).

Gamification researchers emphasise the core purpose of gamification is not to make drudgery fun, or to turn work into a game as Mary Poppins would have us believe (Marczewski, 2015); but rather, the purpose of gamification is to apply game elements or game-thinking in order to improve motivation, engagement and the user experience (Deterding, 2014; Marczewski, 2015).

Proponents of gamification have focused on “making work fun” (Dale, 2014, p. 82), stating that by focusing on the enjoyable aspects of games such as challenges, play and even fun, and adding these elements into business processes, employees will be more motivated and engaged (Dale, 2014). Zichermann and Linder (2010) coined the term *funware* to describe the use of “games and gaming devices to influence customer behaviour and achieve expressed business objectives” (p. 3); further stating the act of winning and competition drives engagement. But Deterding (2010, p. 26) argues the use of the word *fun* is misleading as “games are not necessarily fun”, additionally, stating “playing video games is fun because it provides experiences of competence, self-efficacy, mastery” (p. 26). According to Rey (2014), the name *gamification* is a contradiction; playing games allows people the freedom to choose to participate, yet gamification is about controlling behaviour albeit through soft power or social control methods.

Roth, Schneckenberg, and Tsai (2015) purport the *game* aspect of gamification is important and distinct from the act of *play*; humans have an innate desire for gaming called the ludic drive. Games by definition require an element of rules and structure, with clearly defined processes, outcomes and agreement on the point at which the game is deemed finished (Roth et al., 2015). *Play* on the other hand allows more freedom of expression, with fewer rules and more voluntary actions. This distinction is important as ludic drive (desire for games) is a determinant of effective gamification relating to the process of creativity and innovation (Roth et al., 2015). The blending of game-like activity with interactive interfaces for software and technology systems is a trend toward a *ludic century* (Zimmermann, 2014), a term used to describe a society

where playfulness is built into not only games, but also work-flow and productivity software. McGonigal (2015), estimates more than one billion people globally play games for an hour or more every day, stressing the importance of building more *gameful* systems for work, self and leisure.

According to Zimmermann (2014), sharing stories, music, art and playing games helps define us as humans. Deterding et al. (2011) agree, stating computer-gaming contributes to the definition of culture in modern society. In much the same way as television, literature and film has influenced previous generations, game playing has influenced everyday society by combining interactive media with popular culture.

Video gaming has multiple benefits for players, including social, cognitive and emotional benefits, additionally, it helps players develop important skills such as accuracy, speed, and multi-tasking (McGonigal, 2012). More recently, McGonigal (2015) stated gamers are motivated by a clear purpose, develop skills and confidence to overcome obstacles and acquire mastery of tasks within the game environment, these are kkills that are desirable, and directly transferrable to the work place.

Ferrara (2013) states gamification lacks a recognised definition, but other academics disagree. Kim (2013) maintains a formal definition of the concept was made at the annual *Conference on Human Factors in Computing Systems* by Deterding, Dixon, Khaled and Nacke (2011), this definition has been adopted widely as the formal definition (Werbach, 2014). Deterding et al. (2011, p. 1), define gamification as "the use of game design elements in non-game contexts". An alternate definition is offered by Huotari and Hamari (2011, p. 3): "... where a core service is enhanced by a rules-based service system that provides feedback and interaction mechanisms to the user with an aim to facilitate and support the users' overall value creation".

Huotari and Hamari (2011) state gamification is experiential in nature and applies directly to service marketing, arguing any interactive system is a service. Therefore, gamification and the use of games is an extension of an organisation's business strategy and the definition should include any rules based and interactive system. Deterding et al., (2011) reject Huotari and Hamari's definition, stating it disregards

the social aspect of games and specifically excludes any applications where game mechanics "is the core service itself" (Deterding et al., 2011, p. 5).

For the purposes of this study, the following definition will be used to define gamification: ***the use of game design elements in non-game contexts***. (Deterding et al., 2011).

2.2.1 Drivers of Gamification

There is very little literature on the drivers of gamification, however, according to Robson et al. (2015) Three converging factors have contributed to the rise in interest in gamification. Firstly, an increased uptake of computer gaming for recreation spawning an entire computer gaming industry including researchers, theorists and game-designers developing and deconstructing games to evaluate engagement and critical success factors of games from a player experience perspective, and from a motivational affordances perspective (Deterding, 2010; Robson et al., 2015).

Secondly, the ubiquity of internet connectivity, mobile digital technologies, and social media means people have an expectation of constant and continuous social dialogue (Kietzmann et al., 2011; Robson et al., 2015). Thirdly, organisations are recognising the value of building stronger relationships with customers and employees, seeking opportunities to influence behaviour toward desirable outcomes (Duhigg, 2013; Robson et al., 2015).

2.2.2 Evolution of Gamification on the Gartner Hype Cycle

Gamification has been rising on *Google Trends* since September 2010 (Gartner, 2012) and first appeared on the *Gartner Hype Cycle for Emerging Technologies* in July 2011, at which time Gartner estimated over 50 percent of businesses managing innovation processes would gamify aspects of the business by 2015 (Zichermann, 2011). Gartner also predicted 40 percent of Global 1000 organisations would implement gamification to improve business operations; and furthermore, 80 percent of these implementations would fail due to poor design (Gartner, 2012).

The *Emerging Technology and Digital Marketing Hype Cycles* diagram (Figure 1) shows the progression of gamification on the Gartner Hype Cycle. Annual positions on

both the *Emerging Technologies* and *Digital Marketing* cycles have been combined on a single graph. Data has been plotted from 2011 until 2015 using data sourced from Chaffey (2015).

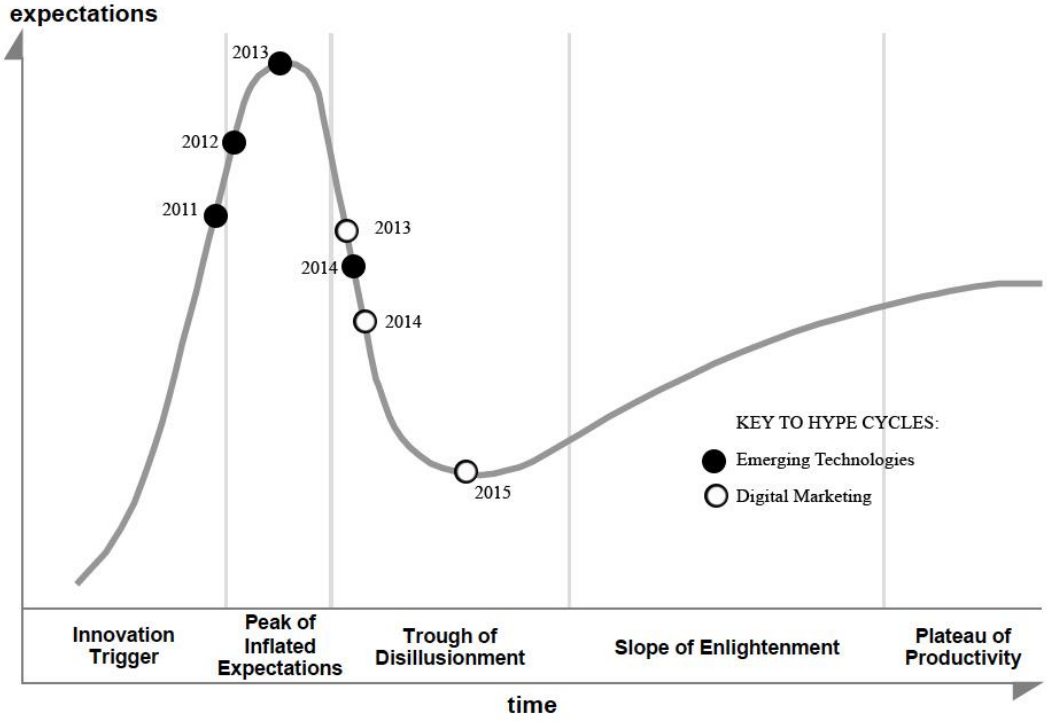


Figure 1: Emerging Technology and Digital Marketing Hype Cycles

The Hype Cycle is a tool developed by research company Gartner to graphically portray information about emerging software and technologies (Gartner, 2016).

Gamification was identified as an emerging technology by Gartner in 2011 (Chaffey, 2015), the innovation trigger was media interest and publicity related to gamification as a new concept (Gartner, 2016). In the 2012 and 2013 *Emerging Technology Hype Cycles* gamification was placed by Gartner in the peak of inflated expectations (Chaffey, 2015), the phase in which companies are beginning to experiment with the technology and reporting both failed and successful implementations (Gartner, 2016).

Also in 2013, gamification appeared on the *Gartner Hype Cycle for Digital Marketing* (Chaffey, 2015), but further along the cycle, slipping into the trough of disillusionment stage which Gartner describes as the phase where implementations

fail to deliver on expectations and technology developers make radical improvements in order to meet the expectations of consumers (Gartner, 2016).

By 2014, gamification appeared on both hype cycles in the trough of disillusionment, and was not included in the 2015 *Hype Cycle For Emerging Technologies* (Chaffey, 2015). However, on the 2015 *Hype Cycle For Digital Marketing*, Gartner placed gamification on the tail-end of the trough, heading toward the slope of enlightenment, the phase in which enterprises are beginning to experience benefits from the technology and its use is becoming accepted (Gartner, 2016). Additionally, Gartner predicted gamification would reach the plateau of productivity within two to five years (Chaffey, 2015), in this phase, a technology becomes mainstream and is adopted across a broad range of applications (Gartner, 2016).

It is interesting to note, gamification was removed from the *Hype Cycle For Emerging Technologies* in 2015 after appearing on the *Hype Cycle for Digital Marketing* in 2013 (Gartner, 2015). Yu-Kai Chou, a Lecturer of gamification at Stamford University, suggests this recategorisation of gamification from a technology to a technique for organisations to create engagement was appropriate. Further adding gamification is not a digital marketing trend, but sits within the realm of behavioural design trends as there are design implications for human resources, productivity and health care in addition to marketing implications (Chou, 2015).

2.3 Uses of Gamification

While the term gamification has been in use for less than a decade, the principles of rewarding desired behaviours has been practised by organisations for well over one hundred years. According to Ostashewski and Reid (2015), originating in the Middle Ages, physical badges were given for completing a pilgrimage, or as a mark of political allegiance. In 1896, Sperry and Hutcheson offered green stamps to retailers as a points-based loyalty program to drive increased sales (Prince, 2013); in another example, the Scout Movement has awarded merit badges since 1907.

Researchers consider gamification has applications in education, logistics, health, government, marketing, and business (for example: Deterding, 2012; Hamari &

Koivisto, 2015; Mollick & Werbach, 2014; Zichermann & Linder, 2010). This section will give a brief overview of several key areas in which gamification studies have been undertaken: gamification in education; gamification in business; and gamification in health. It is important to note, there is little literature on gamification in business to review at this point, however, it is included in this section because it is highly relevant.

2.3.1 Gamification in Education

One of the earliest research fields for gamification is education (Callan, Bauer, & Landers, 2015; Hamari & Koivisto, 2015). Attali and Arieli-Attali (2015, p. 57) propose gamification is a "disruptive force in education", based on the position that conventional learning activities are not innately interesting, and games are fun; therefore introducing game-like elements should make learning activities more attractive (McGonigal, 2012; Zichermann & Linder, 2010). A meta-study conducted by Hamari et al., (2014) found gamification in an educational context recognised positive relationships between the gamified implementation and improved engagement with the learning tasks, as well as increased motivation and enjoyment associated with the gamified learning task.

Early studies in gamified educational contexts indicated positive results, but researchers also noted that due to small sample sizes and short time-frames of studies, it was possible these findings may be impacted by the novelty of the implementation (Attali & Arieli-Attali, 2015; Callan et al., 2015; Deterding et al., 2011; Hamari, Koivisto, et al., 2014). One recent study found immediate feedback had a positive effect on performance and motivation (Attali & Arieli-Attali, 2015).

Domínguez et al. (2013) found the use of game mechanics such as badges had a positive effect on practical assignments and motivation for the assignments, but badges had a negative effect on written assignments and in-class activities. In contrast, Denny (2013) found badges impacted positively on both duration of student engagement with the gamified system and the quantity of contributions. In another study, Hakulinen, Auvinen, and Korhonen (2013) found different groups of students respond to the same mechanics in different ways, and additionally, the use of

achievement badges had the potential to change student study habits and increase motivation.

In the domain of education, *serious-games* immerse the learner in an authentic situation to give participants realistic learning experiences (Riemer, 2014). Realistic, virtual learning environments allow learners to repeat situations, using different approaches in order to determine the optimal solution (McGonigal, 2011; Wood & Reiners, 2015). This approach is supported by educational institutions, providing an authentic learning experience, which mirrors workplace experience (Wood & Reiners, 2015).

2.3.2 Gamification in Business

While research into organisational gamification is quite sparse, examples of game-like elements can frequently be observed in organisations; for example, loyalty cards for coffee or groceries (Armstrong, Ferrell, Collmus, & Landers, 2016), rewards programmes like air points and frequent flyer programs (Zichermann & Linder, 2010), or even tennis rankings (Dale, 2014). In addition, game elements can be found in many digital applications. One commonly referenced example is *Foursquare*, a location based mobile application which launched in 2009 and became the blueprint for future gamification designs through its use of points, badges and leaderboards (Fitz-Walter, 2015).

Several studies have been undertaken into consumer-facing gamification; both Terlutter and Capella (2013), and Bittner and Schipper (2014), found the inclusion of game elements in consumer advertising had positive effects on purchase intentions of gamified products. Additionally Bittner and Shipper found young consumers who identified as computer gamers had higher intentions to purchase gamified products than other participants.

In employee-facing implementations of gamification, global organisations such as IBM, Microsoft, Nike, Google, Deloitte and Disney embed elements of game design into business processes to increase employee engagement (Kim, 2016). Deloitte's *Maverick* training programme uses gamification principles to teach employees

problem-solving skills. It is used to enculturate employees and guide behaviour; *Maverick* encourages innovation and fosters engagement among employees (Kumar & Raghavendran, 2015). Additional benefits to Deloitte of the *Maverick* programme are a 50 percent reduction in training times, and increased engagement in training tasks (Dale, 2014).

In another example, researchers from IBM conducted an experiment in which points and levels-based rewards were added to *Beehive*, the company's knowledge sharing intranet. The purpose of this implementation was to reward employees for adding accurate data to the system, a tedious task that has significant value to the organisation. IBM researchers found awarding points and levels increased motivation to contribute to *Beehive*, and in addition, found the increased contributions also encouraged other employees to comment and interact with *Beehive* (Farzan, DiMicco, & Brownholtz, 2009; Mollick & Werbach, 2015).

In a follow-up study on the IMB *Beehive* system, Thom, Millen, and DiMicco (2012) found removing gamified elements from *Beehive* had a negative impact on user activity on the site, suggesting extrinsic rewards (in this case, points) did influence employees to contribute to the site more intensely. A business implication of this finding is that organisations should consider the ongoing negative effect of discontinuing a stale gamification system, suggesting an immediate transition to another game-like system would mitigate the issue, and gamification systems benefit from an evolutionary approach (Seaborn & Fels, 2015; Thom et al., 2012).

2.3.3 Gamification in Health

The commercial deployment of gamified health applications has intensified in recent years (Deterding et al., 2011; Hamari & Koivisto, 2015); but Whitson (2014) argues examples of smartphone health applications such as *Runkeeper, Fitocracy* and *Fitbit* are not influenced by playful design, but instead employ feedback mechanisms such as accumulated points, rankings, and leaderboards enabling users to identify routes to self-improvement. Whitson also states the reporting of metrics does not contribute to a gameful experience, but offers meaningful feedback for users, which can motivate behavioural change.

Although few studies of gamified health applications have been undertaken, early findings indicate that gamification may be effective in changing behaviour within disease management and it has the potential to improve health outcomes for patients. A pilot study conducted with adolescents diagnosed with Type 1 Diabetes, found there was a 50 percent increase in the frequency of daily medication adherence, and indicated incentivising behaviour through gamification may contribute to improved self-efficacy of disease management (Miller, Cafazzo, & Seto, 2014).

In another long-term study of a pervasive health game application, Xu et al. (2012) found the effectiveness of the gamified intervention reduced over time. This finding is consistent with previous studies and suggests sustainable player engagement and long-term behavioural change requires a shift in the approach to game-design. Specifically, design should be player-centric and allow players autonomy over user-defined activities. This finding is not specific to health gamification, and was reported consistently in other studies such as Deterding (2014); Fitz-Walter (2015); Fullerton (2014); Raftopoulos (2014); and Seaborn and Fels (2015).

The inclusion of a socially-connected support community is an essential engagement element in the design of gamified exercise applications (Hamari & Koivisto, 2013). Social networking leads to increased perceived benefits to users of the service; Hamari and Koivisto also found reciprocal feedback mechanisms positively influence users' attitude toward the service, and both social sharing and peer recognition strengthens commitment toward user's goals.

According to McCallum (2012), gamification is part of the future of healthcare; it enables both personalised and participatory health management. From the perspective of personalised health, gamification will provide a stream of user information back to health professionals, including their preferences, reaction times, behaviour, and interaction metrics. Data generated can be useful for diagnostics and treatment planning.

2.4 Mechanics of Gamification

Although no definitive list of gamification mechanics exists, the mechanics identified on Table 1 were compiled from extant literature. Many academic articles recognise four core gamification mechanics – points, badges, levels, and leaderboards (Attali & Arieli-Attali, 2015; Deterding, 2012; Hamari, Koivisto, et al., 2014; Robson et al., 2015). Game mechanics are the game-like elements of gamification, and in addition to the mechanisms listed above, include rules and functioning components of the game that make the activity challenging, fun or satisfying (Robson et al., 2015).

Table 1: Mechanics of Gamification found in Literature

Attali and Arieli-Attali (2015) Deterding (2012) Hamari, Koivisto, et al. (2014) Robson et al. (2015)	Zichermann and Linder (2010)	Dale (2014)	Paharia (2013)	Bunchball (2015)
• Points • Levels • Leaderboards • Badges	• Points • Levels • Leaderboards • Badges • Quests • Onboarding • Engagement loops	• Points • Achievements • Levels • Missions • Contests • Leaderboards • Notifications • Anti-gaming mechanics	• Fast Feedback • Transparency • Goals • Badges • Levelling up • Onboarding • Competition • Collaboration • Community • Points	• Points • Levels • Challenges • Trophies • Badges • Achievements • Virtual goods • Leaderboards • Competitions • Gifting

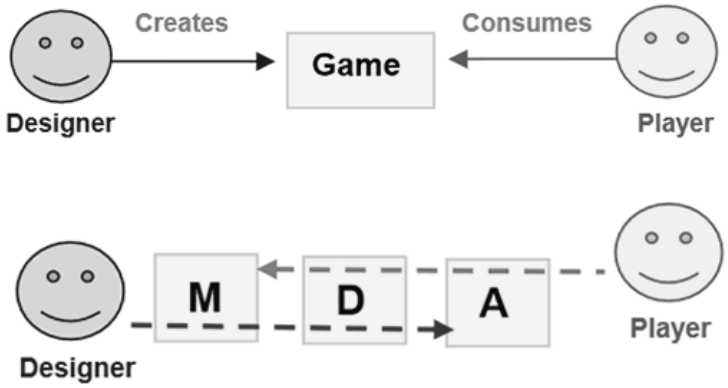
Note: This table was used to compile the list of gamification mechanics listed in Appendix D, additional elements identified during interviews with industry practitioners, were also added to the list in Appendix D

Zichermann and Linder (2010) propose there are seven primary game-elements at the core of gamification: points, levels, leaderboards, badges, quests, onboarding and engagement loops; Dale (2014) suggests achievements, contests, notifications and anti-gaming mechanics should also be included. Outside of academic literature, Paharia (2013) includes additional mechanics such as competition and collaboration, which academics would consider 'dynamics' on the MDA model of game design (Hunicke, LeBlanc, & Zubek, 2004). This model is discussed in Section 2.4.1.

Bunchball (2015) include mechanics such as trophies, gifting and virtual goods; these are interesting to note, as although they are relevant in the context of video games, for example, computer games often allow players to gift items to their social network as a mechanism for recruiting new players (Zichermann & Cunningham, 2011), their use in an organisational context may be less relevant.

2.4.1 The MDA Model

Hunicke et al. (2004) developed the Mechanics, Dynamics and Aesthetics (MDA) Model (shown in Figure 2) as a formal approach to understanding game design; it is frequently leveraged in gamification. A game's *mechanics* are the individual components, data and algorithms that form a system that guides player behaviour and actions. *Dynamics* describes the player behaviours as they interact with the system during play; and *aesthetics* describes the emotional responses experienced by the player as they interact with the system (Deterding et al., 2011; Hunicke et al., 2004; Ruhi, 2015).



Source: Hunicke et al. (2004)

Figure 2: The MDA Model

From a design perspective, game elements (*mechanics*) are the design choices made in order to elicit specific user behaviours (*dynamics*) as the user interacts with a games' functions and components. Dynamics lead to end user emotions and experiences (*aesthetics)*. From the player perspective, aesthetics describe the look, feel and mood

of the game, a tone which is reinforced by player interactions, which in turn are operational due to game mechanics (Hunicke et al., 2004). The MDA model advocates game designers consider both designer and player perspectives when developing a game-like system, and reflect how the game should be constructed in order to create the desired outcomes.

Game Mechanics

Mechanics are the rules, procedures and limitations of interaction imposed on the players within the structure of the game. Mechanics include the behaviours, resources and tools available to players as determined by the developer, they can include points, badges, leaderboards and challenges to name a few (Deterding, 2014; Ruhi, 2015). Additional examples of mechanics, were shown on Table 1: *Mechanics of Gamification found in Literature*.

Some gamification has been criticised by academics and game developers as mere pointsification, that is, simply adding points to tasks in order to influence behaviour of employees and labelling it gamification (Kim, 2016; Robertson, 2010; Seaborn *&* Fels, 2015). Robertson (2010, p. 1) also states,

> What we're currently terming gamification is in fact the process of taking *the thing that is least essential to games* and representing it as the core of the experience. Points and badges have no closer a relationship to games than they do to websites and fitness apps and loyalty cards. They're great tools for communicating progress and acknowledging effort, but neither points nor badges in any way constitute a game.

Game Dynamics

Dynamics work to construct aesthetic experiences for players (Hunicke et al., 2004), they describe the behaviour of the mechanics while the game is in play, dynamics are generated by player inputs, outputs and actions and represent an emergent state as a result of the interaction (Hunicke et al., 2004). For example, mechanics and player interactions may be designed to encourage competition, self-expression or fellowship (Bunchball, 2015; Hunicke et al., 2004; Ruhi, 2015).

Collaboration, features as a game mechanic on Table 1; however, in much the same way that Hunicke et al. (2004) consider *competition* is a dynamic, it could be argued that *collaboration* also emerges from the interaction of game elements and player behaviour, so it too should be considered a dynamic. Maican, Lixandroiu, and Constantin (2016) found a common cause of failed organisational gamification applications was introducing competitive dynamics in environments where collaboration was required.

Game Aesthetics

Aesthetics are the anticipated emotional experiences of players as they interact with the gamified system (Deterding et al., 2011; Hunicke et al., 2004). In an organisational gamification implementation, aesthetics are planned user-experience outcomes that meet business requirements, such as collaboration, motivation and engagement (Ruhi, 2015).

With a view to organisational gamification being distinct from game play, Robson et al. (2015) adapted the Hunicke et al. (2004) model to MDE – mechanics, dynamics and emotions, stating the term 'emotions' "better links to the engagement outcomes that businesses can attain from employees and customers" (p. 413). However, Ruhi (2015) suggests the MDE framework is only conceptual, and has not been empirically validated in the context of enterprise gamification. In an adaption of the Hunicke et al. (2004) MDA model for enterprise gamification, Ruhi (2015) found the model clarifies the links between technology, end-user motivations, and game-like elements that comprise effective enterprise gamification; and furthermore, strategic planning and a deliberated design process were critical elements of effective enterprise gamification.

2.5 Theories of Motivation

This study does not purport to be grounded in psychology, but in order to discuss motivation and organisational behaviour change, it is necessary to present seminal studies in these areas as a foundation for explaining how gamification fits within the framework. Motivation and the psychological drivers affecting human behaviour is

complex; researchers consider a multitude of motivational theories to explain how gamification can shape behaviour and motivation such as operant conditioning (Skinner, 1969) and self-determination theory (Ryan & Deci, 2000).

Researchers have been trying to answer the problem of employee motivation for decades; at the beginning of the twentieth-century, classical theorists Henri Fayol and Frederick Taylor redefined business management by systemising workflow management, mechanising production lines and implementing management commands, controls, and chains of communication (Fayol, 1949; Taylor, 1914). In addition, both Fayol and Taylor posited financial reimbursement was sufficient motivation for workers. The Hawthorne studies conducted during the 1920s found financial rewards and improved physical working conditions were less of a productivity incentive to workers than their need to feel socially connected and included in workplace decision-making (Mayo, 1949; O'Donnell, 2014).

Fun and games have long been used for motivating and engaging people, however in the last decade, designers have integrated game-like elements into non-game contexts in order to create more motivating and engaging experiences (Fitz-Walter, 2015). Through the use of computer gaming elements such as badges and leader boards in organisational contexts, Hamari (2015) and Robson et al. (2015) propose gamification as a means to change behaviours through manipulating intrinsic and extrinsic motivational drivers, stating the combination of rewards and emotions can be manipulated to encourage employees and customers to repeat desired behaviours thereby influencing desired outcomes.

2.5.1 Operant Conditioning – Changing Employee Behaviour

In an organisational context, gamification can be seen to change behaviour through a process called operant conditioning (Skinner, 1938); that is, a desired behaviour can be positively reinforced through adding rewards such as badges or points, which will encourage players to repeat the behaviour. Conversely, behaviour can be negatively reinforced through removing points earned, which will encourage players to avoid a certain behaviour (Callan et al., 2015; Kim & Werbach, 2016; Raftopoulos, 2014; Robson et al., 2015).

Robson et al. (2015) states the underlying premise of operant conditioning is behaviours which precede satisfying outcomes are more likely to be repeated or affect ongoing behaviour changes, whereas behaviours with unsatisfying outcomes are less likely to be sustained (Skinner, 1938). However, while operant conditioning is credited with strengthening desired behaviour, this increase cannot be generalised to other behaviours as only the target behaviour is increased (Callan et al., 2015); further research shows other behaviours may decrease in preference to the desired behaviour, which could lead to unpredictable or undesired outcomes. Furthermore, Callan et al. (2015) state directly relating rewards to the specific target behaviour is essential in order for players to understand which specific behaviour is desired.

2.5.2 Self-Determination Theory – Increasing Employee Motivation

Motivation, as defined by Ryan and Deci (1999, p. 54), is the "means to be moved to do something", further stating "a person who feels no impetus or inspiration to act is thus characterised as unmotivated, whereas someone who is energised or activated toward an end is considered motivated".

Gamification has the potential to increase employee motivation, but human motivation is a complex issue. In *Self-Determination Theory,* Ryan and Deci (1999) distinguish between three types of motivation: intrinsic motivation, extrinsic motivation and amotivation. *Intrinsic* motivation refers to doing something because it is fundamentally interesting or pleasurable such as the desire to seek novelty, or to explore and learn (Reeve, 2014). *Extrinsic* motivation, refers to doing something because it leads to a distinct consequence such as a reward which is separate from the activity itself (Reeve, 2014). *Amotivation* means the individual is neither intrinsically nor extrinsically motivated; the individual does not perceive associations between outcomes and their own actions (Vallerand et al., 1992). Individuals in an amotivated state will experience feelings of incompetence, and a lack of autonomy (Ryan *&* Deci, 2000).

Intrinsic Motivation

Humans are intrinsically motivated to undertake activities that satisfy three inherent psychological needs: *autonomy*, the experience of being the perceived origin or source of one's own behaviour; *competence*, a sense of efficacy when dealing with the social environment; and *relatedness*, the feeling of connection with others (Deterding, 2015; Ryan & Deci, 1999; Vallerand et al., 1992). Expanding the work of Deci and Ryan (1985; 2000), modern writings suggest organisations should implement a different approach to motivation. In *Drive: The surprising truth about what motivates us*, Dan Pink (2011) suggests three pillars for motivation: *Autonomy* – the desire to direct your own life; *Mastery* – the drive to continuously improve at something that matters; and *Purpose* – the drive to make a difference. In *Loyalty 3.0* Paharia (2013) combines both Pink (2011) and Deci and Ryan (1985) stating there are five intrinsic motivators: *Autonomy*, *Mastery*, and *Purpose*, and in addition, he adds *Social interaction*, which maps to *Relatedness* in Deci and Ryan (1985) – the need to connect with other people; and adds *Progress* – the desire to see results from both mastery and purpose (Paharia, 2013).

It has been argued that intrinsic motivators are more powerful than extrinsic motivators (Deci, 1975; Deci & Ryan, 1985; Drafke, 1998), studies show the application of extrinsic rewards such as, can lead to a decrease of performance for tasks previously enjoyed by the participant (Paharia, 2013). Additionally, according to Deci (1975), the removal of extrinsic rewards may also have a demotivating effect on intrinsic drives. This is also true in situations where the number of active participants in the gamified experiences is reduced as may happen when employees choose to discontinue participation. Hamari and Koivisto (2015) propose the ability of a respondent to choose whether to undertake a task has a direct impact on their attitude toward this task. Studies have shown that intrinsic motivation will decrease over time if extrinsic rewards are introduced for behaviours that an individual already found motivating (Ryan & Deci, 2000).

According to Sherman (2011), people find intrinsic motivation in meaningful work, that is, work with a purpose; they want to master something, to improve their skills, and get recognition for their efforts. Sherman also believes gamified implementations

that are aligned to organisational strategy have the potential to enhance the positive aspects of human nature in an organisational context (Sherman, 2011).

Extrinsic Motivation

Researchers such as Deterding et al. (2011), and Hamari and Koivisto (2013), propose that simply adding extrinsic rewards, like money, to a task and expecting positive outcomes is outdated. This view is supported by Woodruffe (2006), who states that while financial necessity is a key reason people work, it is no longer the definitive reason for employees choosing one organisation over another, nor is it the compelling reason people choose to stay with an organisation. Spencer (2013) reports knowledge workers are strongly motivated by the perception their contributions serve a useful purpose, and that their work output makes a difference.

Woodruffe (2006) states money, an extrinsic reward, is neither the motivator nor the cause of loyalty from the perspective of employees; Spencer (2013) agrees, additionally stating that in the case of knowledge workers, while money itself is not motivating, workers became demotivated if they perceived money to be unfairly distributed. Employees are further demotivated when policies and procedures are implemented unfairly within an organisation. (Spencer, 2013).

2.6 Employee Engagement

A commonly held notion by gamification practitioners is that adding game elements such as points, badges and leaderboards to any non-gaming context would spontaneously result in behaviour change and increased enjoyment (Bunchball, 2015; Fitz-Walter, 2015; Zichermann & Cunningham, 2011). As the use of gamification gathers momentum within the business community, organisations may be quick to assume that gamified implementations will motivate and engage employees, but this is not necessarily the case (Callan et al., 2015).

Few studies have been conducted to date on the impact of game elements on employee engagement; a meta-study suggested gamification could lead to positive outcomes such as increased motivation and engagement in a learning environment, but there was also the potential for adverse outcomes such as the effects of increased

competition (Hamari et al., 2014). The study also suggested gamification had a "positive effect on some users for a short time" (2014, p. 3028).

Several studies in gamified educational contexts showed positive engagement effects as a psychological outcome, but in most cases the effect was short-term (Cheong, Cheong, & Filippou, 2013; Dong et al., 2012; Downes-Le Guin, Baker, Mechling, & Ruylea, 2012; Fitz-Walter, 2015; Li, Grossman, & Fitzmaurice, 2012). In addition, Hamari et al., (2014) found increased engagement within gamified systems was dependent on elements such as the social environment or the motivational drivers of users.

According to Dale (2014), the implementation of gamification can encourage better employee engagement within the enterprise when the following conditions are met: firstly, the user is involved in the design and implementation of the intervention, this reduces the sense of being manipulated; and secondly, the gamified system is designed to help users achieve personal goals, rather than organisational goals.

While it is possible to gamify any process that impacts employees to improve engagement or the user experience (Callan et al., 2015), by understanding the target audience and recognising the behaviours they want to change, game developers can use design to align organisational goals with those of users, thereby leading to positive outcomes of increased engagement (Dale, 2014). This calls for a purposeful player-centric approach to gamification, and not simply 'applying' game elements to existing processes.

Simply relabelling key performance indicators as levels or experience points, and displaying them on a dashboard in order to increase engagement misses the point; it "merely deploys a novel technical system for a given purpose in a given institution, instead of taking into view and re-designing the larger socio-technical system itself" (Deterding, 2014 p. 307).

2.7 Gamification and the Millennial Generation

Millennials are defined by Howe and Strauss (2002) as people born between 1982 and 2002; they are the first generation of digital natives, a cohort of young people

who have never lived in a world without the internet, connectivity or cell phones. In the next decade, the number of millennials entering the workforce will increase dramatically. Bisceglia (2014) estimates that by 2020, millennials will make up approximately 50 percent of the workforce, increasing to 75 percent by 2025. The millennial cohort is unique from previous generations in a number of ways; according to Howe and Strauss (2002), they are a generation who desire instant feedback, recognition from their peers, are socially and technologically adept, and were raised in a world of computer gaming for entertainment and who see software as an extension of 'self'.

Millennials have a unique relationship with technology which redefines how they access and use knowledge; technologies such as Google, Wikipedia and Siri hold immediate answers to any questions, meaning the important skill for millennials, is knowing where to find an answer, not what that answer might be (Hershatter & Epstein, 2010).

Millennials have redefined communication in the workplace, they have an expectation of instant communication, of being connected constantly, and to use technology to solve problems instantly (Bisceglia, 2014). These are the main ingredients of successful gamification, which suggests the next ten years could see an even greater focus on gamification in the workplace (Hamari, 2013). Paharia (2013) agrees stating that millennials, as a generation who have been brought up playing computer games, are comfortable with the language and metaphors of mobile, online and social gaming. According to Bisceglia (2014) many organisations are challenged by this tech-savvy generation's expectation to have answers at hand and tendency to communicate in non-traditional ways. As millennials mature within organisations and move into managerial roles, the challenge of engagement becomes even more critical.

As millennials are completely immersed in a technology focussed world, they are frequently referred to as 'digital natives' (Hershatter & Epstein, 2010). Mäntymäki and Riemer (2014) consider the term a descriptive category for tech-savvy teenagers rather than a specific generation or exact group. Digital natives possess better

information and communications technology skills (Mäntymäki & Riemer, 2014), and Don Tapscott (2008), author of *Grown Up Digital,* reflects this generation may in fact be wired differently to any other previous demographic, with their seeming ability to multi-task effortlessly, high rate of response to visual stimulation and an ability to quickly filter information (Hershatter & Epstein, 2010; Tapscott, 2008).

Hershatter and Epstein (2010) say millennials have poor face-to-face communication skills and struggle to interpret non-verbal cues, setting them apart from digital immigrants – those who have adapted to new technologies, millennials don't think about adapting to technology, it is an innate knowing of interaction in a new tech world (Hershatter & Epstein, 2010).

According to Howe and Strauss (2002, p. 40), millennials are "Boomer-parented trophy kids", a generation with a sense of entitlement, and technology ingrained into their communication style. "As trophy kids who spent their childhood receiving gold stars and shiny medals just for showing up, Millennials were indoctrinated from their earliest moment to seek approval and affirmation" (Hershatter & Epstein, 2010, p. 217).

Employee engagement is a major issue for organisations; according to a 2014 Gallup survey, less than one-third of millennials employees in the United States are engaged in their work (Adkins, 2015). This means that over 70 percent of millennial employees are not actively involved in, enthusiastic about or committed to their work, or the company that hired them. Paharia (2013) suggests this costs the United States as much as US$350 billion in lost productivity every year. In addition to improved engagement, Hamari (2013) suggests gamification can be valuable for motivation, improved social status, and building loyalty within teams.

2.7.1 Gamification in a Multi-generational Workplace

While people might assume video games are only for a younger generation, there is growing acceptance amongst the gaming community that online gaming spans generations, with seniors in their sixties and seventies enjoying online games for entertainment (Gamespot, 2013). The rise of platforms for social gaming such as

Facebook have given rise to a new (older) generation of players. So while it may be assumed gamification is a poor fit for multi-generational workforces, Smith (2012) believes baby boomers are accustomed to applications of gamification, even if they are not aware of it, citing airline frequent flyer miles, credit card points, and loyalty programmes as examples. Baby boomers are familiar with the concept of '*earning points*' and '*levelling up*' two of the fundamental components of gamification (Smith, 2012).

The literature does not specifically address best practice for integrating gamification in a multi-generational workforce but there is evidence it is appropriate across a wide range of ages groups. Demographic differences were studied in a gamified fitness application *Fitocracy*; this study found no differences between age groups for the benefits of gamification, but gender differences did exist (Koivisto & Hamari, 2014).

2.8 Issues in Gamification

Gamification is touted as a solution to business problems, but it brings with it a plethora of human resource management problems (Kim, 2016). Bogost suggests *exploitationware* is a more appropriate term than gamification, as it more adequately characterises its proponents goals; that is, to sell more gamification consultancy services, thus exploiting organisations, who in turn exploit employees (Bogost, 2014). Further, Hamari, Huotari, and Tolvanen (2014, p. 149) consider gamification may be perceived as *exploitationware* since it could be regarded as a "cheap trick to entice people into activities they would not otherwise want to do".

In game design, *choice architecture* structures player decision options to influence outcomes and progress play (Deterding, 2014). Viewing gamification as exploitation limits the role of players in the implementation to freely make positive choices and assumes player decisions are structured against their best interests, (Deterding, 2014; Hamari et al., 2014). Additionally, the client business, not the gamification consultant, determines the purpose for which gamification is implemented and how the system design and element selection will affect user behaviour (Hamari et al., 2014).

Researchers such as Kim and Werbach (2016), Deterding (2014), and Hamari et al., (2014) agree while gamification is not intrinsically exploitive, the potential certainly exists and needs to be addressed (Kim & Werbach, 2016).

To date, little research has been undertaken around constructing an ethical framework for gamification in human resource management, but a new study undertaken by Kim (2016) concluded that there is no clear grounds for believing gamification of labour is wrongfully exploitive, further surmising the practice of gamification is not inherently ethically problematic, but acknowledging the potential for exploiting employees exists.

Four major areas of ethical concern were addressed in the study with the intention of developing a framework to guide industry practitioners and gamification designers throughout the implementation design process. These ethical considerations can be summarised by the following questions (Kim & Werbach, 2016): Does the implementation exploit or take unfair advantage of workers? Does the implementation manipulate workers or infringe any involved workers' autonomy? Does the implementation intentionally or unintentionally harms workers and other involved parties physically or psychologically? Moreover, does the implementation have a negative effect on the moral character of involved parties? (Kim & Werbach, 2016).

2.9 Chapter Summary

This review has intentionally not been an exhaustive discussion on extant literature surrounding gamification; as will be discussed in Chapter Four, this study uses Grounded Theory Methodology (GTM), and one of the tenets of grounded theory, is that literature is referenced to support emergent theory, and not exhaustively conducted prior to commencing the study (Urquhart, 2013). Glaser and Strauss propose this mitigates the issue of the researcher having preconceived ideas and forcing data into existing theory and allows the data to form the theory (Glaser & Strauss, 1967). This study was undertaken in partial fulfilment of the requirements for Master of Digital Business, and as such, the literature review formed part of the initial study proposal. This allowed the researcher to determine what previous studies

had been undertaken, and how a unique contribution to knowledge may be made. In order to follow the principles of GTM, this review simply orients the researcher in the field of inquiry.

Several significant findings in the literature review follow: The formal definition of gamification from Deterding et al. (2011) has been adopted for the remainder of this study: **the use of game design elements in non-game contexts**. Gamification is increasing in use; it is used effectively in education, commerce and health (Deterding, 2012; Hamari & Koivisto, 2015; Mollick & Werbach, 2014); its use indicates there may be positive applications for motivation and engagement.

There is no definitive list of gamification mechanics, but most researchers agree points, badges, leaderboards and levels are the most frequently used (Attali & Arieli-Attali, 2015; Deterding, 2012; Hamari, Koivisto, et al., 2014; Robson et al., 2015). The mechanics, dynamics and aesthetics (MDA) framework developed by Hunicke et al. (2004) is frequently leveraged by game designers to align desired outcomes with design of the gamified system (Deterding et al., 2011).

Intrinsic motivation and engagement are commonly cited as reasons to implement gamified systems, but, applying extrinsic rewards such as points, badges and money can have negative consequences on intrinsic motivation (Hamari & Koivisto, 2015).

Over the next decade, the number of millennials entering the workforce and assuming positions of management in organisations will increase dramatically (Bisceglia, 2014). Millennials are digital natives, and as such, have a unique relationship with technology. Hamari (2013) believes this relationship can be leveraged to increase motivation and engagement in organisations.

The next chapter will discuss the research gap identified in this literature review, and present questions that will be addressed by the remainder of this study.

Chapter Three: Research Gap and Questions

While gamification may be a solution to issues surrounding employee motivation, there is little documented evidence of successful enterprise integrations. Studies to date have mainly focused on health and education; as well as consumer-facing integrations including applications such as *Fitocracy* and *LinkedIn*, and customer-driven loyalty programmes like *Air Points* and *Fly-Buys* programmes.

Current literature shows the elements of gamification can be manipulated to change behavioural outcomes; it can also be used to engage with employees, and to develop deeper connections within an organisation. Gamification has the potential to increase employee motivation through both extrinsic and intrinsic rewards, and it satisfies the deepest human desires for autonomy, social interaction and mastery. Gamification appeals to the technologically savvy millennials and does not alienate older baby boomers. However, there is a perception that gamification is not widely adopted. So if gamification *is* the holy grail of employee engagement, why is the practice not more widely adopted? Based on the preliminary literature review presented in the previous chapter, this study will address the following research question:

What are the inhibitors to gamification adoption in an organisational context?

It is anticipated that there will be a number of factors contributing to an organisations' decision to adopt gamification principles. As discussed in the previous chapter, Ferrara (2013) considers gamification is an umbrella term for fun elements being tacked on to productivity platforms, Zimmermann (2014) agrees, suggesting blending game activities into productivity software will make work more engaging. This study will explore the construct of gamification in workplaces, and address the attitudes of managers toward gamification; and furthermore to understand which factors influence whether or not an organisation chooses gamification techniques to reward, motivate and engage employees.

In order to gain a deeper understanding of the issues surrounding the factors affecting the adoption of gamification technologies within companies, the sub-questions in Figure 3 will be used to shape the research strategy.

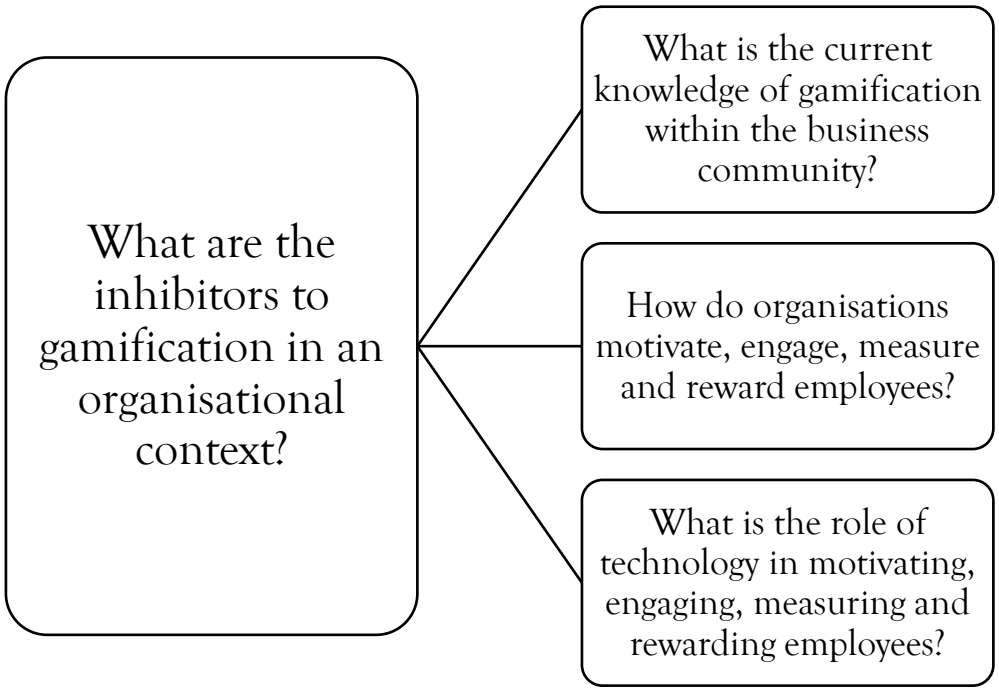


Figure 3: Research Questions

Q1 What is the current knowledge of gamification?

Current literature indicates that gamification is rising in popularity but has predominantly been studied within the domains of health and education (Bogost, 2014; Deterding et al., 2011; Hamari, Huotari, et al., 2014). As identified in the literature review, the use of the word *gamification* is relatively new, and therefore it could be reasoned that it may not be well-known amongst business people. Addressing this research question will help identify the current knowledge around the use of the word gamification by identifying what industry experts, business owners, managers and supervisors know about the nomenclature of gamification.

Q2 How do organisations motivate, engage, measure, and reward employees?

The purpose of this question is two-fold; firstly, the researcher seeks to understand if there is a difference between theoretical approaches to employee motivation, and practical applications. Secondly, to determine the extent to which gamification is an

extension of prior theories, and whether the principles are being applied within organisations under the umbrella of 'motivation' without being explicitly stated.

Q3 What is the role of technology in motivating, engaging, measuring, and rewarding employees?

This research question seeks to address how organisations are harnessing technology to attract, upskill, and retain talented employees. It will also help explain the extent that multi-generational workforces influence the use of technology in the workplace. This question seeks to address the role of technology within the organisation in relation to motivating, engaging and rewarding employees.

Chapter Four presents the research design, which will be used to address these questions.

Chapter Four: Methodology and Data Collection

4.1 Introduction

The fundamental goal of this study is to explore the phenomena of gamification in an organisational context. That is, to gain a deeper understanding of the factors inhibiting, or contributing to, the adoption of gamification technology within organisations to motivate, reward and engage employees. For this study to contribute to academic knowledge, the researcher must exhibit an understanding of the research process, and demonstrate an ability to align research outcomes with an appropriate research philosophy, approach and methodology.

This chapter discusses the methodology and data collection processes adopted for this research. Section 4.2 begins by briefly discussing ontological and epistemological assumptions and justifies which philosophy is the foundation for this research. Section 4.3 discusses the approach to research strategy and explains why qualitative research is appropriate for this study. Section 4.4 explains why grounded theory methodology was selected as a strategy of enquiry and briefly discusses other options considered. Section 4.5 covers data collection strategies and explains why in-depth interviews were selected as the primary source of data collection. The following Sections 4.6, 4.7 and 4.8 respectively, discuss how participants were selected for this study, the process of data collection and the approach to data analysis adopted.

4.2 Research Philosophy

As methodological choices in any research study are largely influenced by ontological and epistemological assumptions, it is important for a researcher to understand how they personally view the nature of their enquiry, and how they propose to approach their research problem before considering which methodology to adopt (Guba *&* Lincoln, 1994). Ontology is the philosophical study of the nature of reality (Guba *&* Lincoln, 1994; Jackson, 2013), and how "there may be different perceptions of what is known" (Jackson, 2013, p. 52), whereas epistemology is the study of the origin and acquisition of knowledge (Guba *&* Lincoln, 1994).

Creswell (2014) refers to the preliminary philosophical considerations as knowledge claims, stating researchers begin with basic ontological assumptions of the nature of reality, believing either that one reality exists – realism; or that multiple versions of reality can be determined relevant to context – relativism.

The author believes the factors contributing to the rate of adoption of gamification as a technology to motivate, reward and engage employees will vary across different organisations. It is likely one single truth does not exist, and that truth is relative. Multiple perspectives exist (Jackson, 2013), and will vary between organisations depending on the social context (Crotty, 1998). From a relative perspective, knowledge of the gamification phenomena can be co-constructed by the researcher and participants (Crotty, 1998). Creswell (2014) calls this co-construction of multiple versions of reality, the *Constructivism Worldview*.

Based on these underlying assumptions, it could be reasoned the *Constructivism Worldview* (Creswell, 2014) is most representative when seeking to gain a deeper understanding of the influences around a research problem, especially when no theoretical framework currently exists (Creswell, 2014). The researcher seeks to generate knowledge and meaning from observing the interactions of humans in a natural environment in order to generate understanding of how humans behave, their attitudes and perceptions toward an advancement in technology rather than test a theory.

This research is exploratory; its purpose is to provide a deeper understanding of phenomena relating to gamification in an organisational context. Outcomes of the study could be used to develop a model, which explains factors relating to behaviour within the social construct of an organisation (Creswell, 2014; Crotty, 1998; Jackson, 2013).

4.3 Research Strategies

This section discusses three strategic approaches to research design: quantitative, qualitative, and mixed-methods. An overview of each approach will be discussed

briefly, followed by a justification for choosing a qualitative design strategy for this study.

4.3.1 Quantitative Methods Designs

The common purpose of quantitative research is to test hypotheses or answer specific research questions; using statistical analysis techniques researchers can measure and test the interrelationships between variables in a population (Hopkins, 2000). Quantitative studies typically involve either empirical observations or experiments. Validity is determined through reliability and calibration of collection instruments (Creswell, 2014). The researcher is typically an uninvolved observer and the results are objective. Sample sizes are significantly larger than qualitative research and, ideally can be generalised to a broader population (Zikmund et al., 2014).

4.3.2 Qualitative Methods Designs

Qualitative methods designs allow researchers to use techniques of analysis which enable subjective interpretations of phenomena that are not based on numerical analysis, (Wood *&* Welch, 2010; Zikmund et al., 2014). Qualitative research is exploratory in nature; it allows researchers flexibility (Cohen, 1999) and takes place in a natural environment allowing the researcher to interact freely with the participant (Creswell, 2014). Qualitative data collection methods are varied, and can include interviews, observations, text, audio and images (Cohen, 1999; Creswell *&* Plano Clark, 2007; Robinson *&* Kerr, 2015). Analysis techniques focus on human interaction and interpretations (Creswell, 2014). Unlike quantitative methods, qualitative research allows reflexivity, and as such research questions may become refined through the process of interviewing and social exchange (Cohen, 1999; Robinson *&* Kerr, 2015).

The researcher takes a holistic approach, interpreting data contextually and in its entirety, seeking to create meaning through grouping and interpreting themes. The qualitative researcher is aware of their own "biography and how it shapes the study" (Creswell, 2003, p. 182) reflecting on the personal bias and experiences which become integral in the study itself.

4.3.3 Mixed Methods Designs

Mixed methodology research combines the paradigms and methodologies of other types of research, namely qualitative and quantitative, providing the researcher a more intuitive approach to addressing research questions (Creswell & Plano Clark, 2007). The mixed methodology approach assumes there are multiple issues that can be addressed practically (Teddlie & Tashakkori, 2009) through a combination of various data collection and analysis techniques, dependent on the nature of the research question, thereby aligning with the pragmatism paradigm (Teddlie & Tashakkori, 2009). Creswell (2014) states the use of both qualitative and quantitative approaches can give a useful way to communicate meaning, because together quantitative data can give statistical reliability and frequency counts, and qualitative data offers valid perceptions and interpretation.

A mixed methods study may be primarily quantitative or qualitative focussed, with the other methodology combined during data analysis (Creswell, 2014; Teddlie & Tashakkori, 2009). Data collection and analysis need not be undertaken concurrently, one methodology may be undertaken, analysed and used as a platform to launch into the next phase, becoming either more specific or general in nature (Creswell, 2014).

4.3.4 Chosen Research Strategy

Table 2: *Qualitative, Quantitative, and Mixed Methods Approaches* contrasts the three research approaches discussed above. As previously stated, this study adopts the *Constructivism Worldview* (Creswell, 2014); that is, reality will be constructed by studying a complex issue within the context of an organisation. A qualitative approach will allow the researcher to explore ideas and interpret social interactions through asking open-ended questions of a smaller number of participants. The primary goal of this study is to explore the factors relating to the adoption of gamification within organisations.

Table 2: Qualitative, Quantitative, and Mixed Methods Approaches			
Typically	**Qualitative**	**Quantitative**	**Mixed Methods**
Use these knowledge claims	• Constructivist • Advocacy/ Participatory	• Postpositivist	• Pragmatic
Common purpose	• To interpret social interactions • Discover ideas • Exploratory research	• Test hypotheses or specific RQs • Look at cause and effect • Make predictions	• Addresses a wider perspective • Complex issues studied • Diverse data sources
Employ these strategies of enquiry	• Phenomenology • Grounded theory • Ethnography • Case study • Narrative	• Surveys • Experiments	• Sequential • Concurrent • Transformative
Groups studied	• Smaller and not randomly selected	• Larger and randomly selected	
Employ these methods	• Open-ended questions • Emerging approaches • Text or image data	• Closed-ended questions • Predetermined approaches • Numeric data	• Both open- and closed-ended questions • Emerging and predetermined approaches • Qualitative & quantitative data and analysis
Use these practices of research, as the researcher	• Subjective • Collects participant meanings • Focuses on a single concept or phenomenon • Brings personal values into the study • Studies the context or setting of participants • Validates the accuracy of findings • Makes interpretations of the data • Creates an agenda for change or reform • Collaborates with the participant	• Objective • Tests or verifies theories or explanations • Identifies variables to study • Relates variables in questions of hypothesis • Uses standards of validity and reliability • Observes and measures information numerically • Uses unbiased approaches • Employs statistical procedures	• Collects both qualitative and quantitative data • Develops a rationale for mixing • Integrates the data at different stages of enquiry • Presents visual pictures of the procedures in the study • Employs the practices of both qualitative and quantitative research
Results	• Particular or specialised findings that are less generalisable	• Generalisable findings that can be applied to other populations	• Findings may be specific and less generalisable; or generalisable and applied to other populations

Adapted from Creswell (2014); Creswell and Plano Clark (2007); Keele (2010); Steren (2010); Zikmund et al. (2014) (Ritchie, Lewis, Nicholls, & Ormston, 2013)

4.4 Strategies of Inquiry

This section is not intended to be an exhaustive discussion on the numerous strategies of inquiry frequently associated with qualitative research. The author acknowledges there are multiple additional strategies that may have been employed such as ethnomethodology, symbolic interactionism and critical theory (Ritchie et al., 2013). Instead, this section will discuss four common qualitative research approaches (phenomenology; ethnography; case studies; and grounded theory (Creswell, 2014; Zikmund et al., 2014)), before concluding why the grounded theory approach is appropriate for this study. These four were considered as they have been identified as being popular within social sciences research.

In addition to the four common qualitative research approaches discussed previously, Creswell (2014) includes *Narrative* as a fifth strategy of inquiry; Narrative has been disregarded from consideration, as the method requires the researcher to collect stories and experiences from participants based on their memories and perceptions; these narratives are blended with those from the researchers own perspective (Creswell, 2014; Trahar, 2013). These narratives are appropriate within a socially or culturally sensitive context (Trahar, 2013).

4.4.1 Phenomenology

Phenomenology is the study and interpretation of human participants as they experience and interact within the context of their world (Zikmund et al., 2014). Phenomenological study, like other qualitative approaches, requires the researcher to describe, relate, and interpret the human experiences of participants against their own personal experiences (Goulding, 2005). It is unique in that it studies the life experiences of individuals through the lens of human consciousness or self-awareness, and might be considered a philosophy as well as a method (Ardley, 2011).

Data collection may include observations, reflections and stories told by participants (Zikmund et al., 2014), the method is immersive, and may require the researcher to assimilate into the participants' environment over an extensive period of time (Zikmund et al., 2014).

Participants stories and texts are analysed for key themes (Ary et al., 2013; Zikmund et al., 2014) and relationships of meaning (Creswell, 2014) in order to make sense of complex or ambiguous situations (Zikmund et al., 2014).

This study focuses on the factors that influence the adoption of gamification within organisations. As such, it is not a study of the effect of gamification as an experience; therefore, phenomenology is not an appropriate approach for this research.

4.4.2 Ethnography

Ethnographic research is the study of a single culture, undertaken by observing participants; it relies on the observation of natural human behaviour over an extended period. Like many other qualitative methods, ethnography relies on the interpretation of the researcher (Zikmund et al., 2014). Data collection may include pure observations and participant interviews, data will take an unstructured form, and might include documents, reports, diaries and letters (Marshall & Rossman, 2014)

The nature of the proposed research is exploratory and seeks to gain insight into gamification from different perspectives. Due to the relatively short duration of this research and the requirement of the researcher to observe people in a variety of different organisations, ethnographic research is not an appropriate approach for this proposed study.

4.4.3 Case Studies

Case studies provide intensive examination of a small number of real-life situations which may offer a new perspective on existing theory, or when theory is underdeveloped (Eisenhardt, 1989) to the context the researcher is researching, using data collected from a variety of sources over a sustained period (Creswell, 2014). Case studies are a form of exploratory research (Collis & Hussey, 2003) and can be used to explain why social phenomena are occurring. There are several advantages to adopting a case study approach for academic study. Firstly, observations and data collection can be undertaken within the context of the observable phenomena, which can mitigate contrivance and artificiality. Secondly, how and why questions can be

asked to give the researcher a deeper understanding (Marshall & Rossman, 2014). Thirdly, case studies allow the researcher to study dynamic environments. Case study research can validate existing theories or to generate new theories.

The generalisability of case study research may be challenging due to the inherently small sample size and the specificity of the study (Creswell, 2014). Additionally, as gamification within organisations is an emerging field, specific examples of organisations implementing it may be difficult to identify within New Zealand; for this reason, case study research is not an appropriate approach for this research.

4.4.4 Grounded Theory

Glaser and Strauss (1967) developed grounded theory methodology (GTM) as a research approach which begins with no pre-conceived hypothesis or theory; the researcher adopts an investigative approach and uses constant comparative analysis techniques to develop a meaningful explanation from data collected (Glaser & Strauss, 1967; Zikmund et al., 2014). The key purpose of GTM is the generation of *theory* which is *grounded* in data: "theory that was derived from data, systematically gathered and analysed through the research process" (Glaser & Strauss, 1967, p. 12).

According to Creswell (2014), GTM may be more useful in emergent situations such as the impact of technologies on humans. The approach requires multiple stages of data collection and an iterative, systematic interpretation of the interrelationships between categories of information (Creswell, 2014; Strauss & Corbin, 1998).

Primarily, GTM uses qualitative data sources such as interviews, field observations and documented artefacts. Creswell (2014), and Strauss and Corbin (1998) suggest grounded theorists can also use quantitative data, thus re-categorising grounded theory as a mixed-methods approach.

There are numerous controversies and contradictions within grounded theory methodology. A key issue is concerned with whether the researcher can feasibly approach the research question with no pre-conceived hypothesis believing theory will emerge from the data (Glaser, 2014; Glaser & Strauss, 1967). Glaser and Strauss (1967) argue that having completed a literature review, the researcher has likely

already formed a personal attitude toward the current data and may conceivably have a favoured subconscious direction for the study. Goulding (2005) suggests Glaser and Strauss meant a literature review should be conducted as an overview prior to commencing field work, and reviewed iteratively throughout the data collection, analysis, and interpretation processes.

Generalisability describes the extent to which the findings of a study can be applied to different contexts, and as such, the generalisability of grounded theory research outcomes may be limited due to the inherently small sample size and the specificity of the study (Creswell, 2014). However, Urquhart (2013 p.61) states "we generalise to a *theory*, not a *population*"; in this study, participants were purposefully selected to represent the substantive area of study, which is gamification in organisations.

As the subject of gamification lacks an independent theoretical framework (it could, arguably fit within motivation theory), using the grounded theory approach will enable this study to contribute to academic knowledge of gamification and allow the researcher to develop suitable theoretical framework for further study. For this reason, GTM is an appropriate research method for this study.

4.4.5 Methodology Selected

While ethnography, grounded theory, phenomenology, and case studies are all commonly used methods within the scope of qualitative research, each methodology has a different purpose. According to Creswell (2014), researchers observing processes and activities may be inclined toward case study or grounded theory approaches; whereas researchers studying individuals may be drawn toward phenomenology; and researchers concerned with studying groups of people within the context of culture might find ethnography most appropriate (Creswell, 2014).

The goal of this study is not to test any existing hypothesis; it is exploratory research in an area in which little theory currently exists. The researcher seeks to explain the factors that contribute to the rate of adoption of gamification techniques in organisations, expecting a theory will emerge from the data collected. For this reason, GTM is considered the most appropriate methodology.

4.5 Which Grounded Theory Methodology Approach – Glaser or Strauss?

While there is a compelling case to use grounded theory methodology in this research, there are two distinct schools of thought to consider. There is a well-documented dispute between the authors of the seminal work: *The discovery of grounded theory: Strategies for qualitative research* (Glaser & Strauss, 1967). Since the original 1967 publication, Glaser and Strauss express divergent opinions on the practical coding processes (Urquhart, 2013). Strauss and Corbin (1998) suggest four distinct steps in the coding process – open, axial, selective and 'coding for process'; but Glaser (1992) uses three – open, selective and theoretical (Urquhart, 2013). According to Urquhart (2013), Glaser argues the Strauss and Corbin approach 'forces' data rather than allowing the theory to emerge from the data. The key differences are summarised in Table 3: *Grounded Theory Methodology*.

Glaser (2014) proposed that everything is data, and the process of analysis begins with the first collection of data. The researcher constantly compares data back and forth revisiting previous analysis as theoretical concepts emerge from the data. Both Glaser and Strauss agree coding is a critical step, but Glaser (2014) suggested 18 coding families, whereas Strauss and Corbin (1998) proposed a single coding paradigm to relate categories (Urquhart, 2012). Both Strauss and Glaser agree the theoretical memo, or researchers notations about data (Urquhart, 2012) are critical to developing emergent theory.

According to Urquhart (2012), Glaser takes a 'bottom-up' approach beginning with analysis of data on a word-by-word basis; and Strauss imposes preconceived categories on the data or a 'top-down' method. Glaser's coding paradigms can give researchers insight into the relationships between categories, but furthermore, Glaser gives researchers the flexibility to generate their own coding paradigm rather than "shoehorning the data into some preconceived analytical framework" (Urquhart, 2013, p. 26).

Table 3: Similarities and Differences between Glaser and Strauss & Corbin	
Glaser *and* Strauss – overview • GTM is "theory that was derived from data, systematically gathered and analysed through the research process" • Main focus is the generation of theory • Theory emerges by constant comparison; there is an iterative approach to data sampling, analysis and theory development • Data gradually evolve into a core of emerging theory • This core is a theoretical framework that further guides the collection of data • Important concepts in GTM are categories, codes and coding	
Glaser – overview • GTM is an inductive or emergent process, completed in stages • Three stages to coding: open, selective and theoretical • Analysis begins with the first data collected • Identify core variables early through open coding • Selectively code data in the context of core concepts • Data is constantly compared for indicators, concepts and categories for emergent theory • All is data, including interview and observational data as well as surveys and statistical analyses can be used, as well as data from other media, including fiction • Glaser proposed 18 coding paradigms to help relate categories • Can be qualitative and/or quantitative	Strauss and Corbin – overview • Neither inductive or deductive • Four stages to coding: open, axial, selective, and 'coding for proocess' • Prescriptive, develops categories – to some degree 'imposes categories on the data • The researcher begins with an area of study and allows the theory to emerge from the data • Uses mostly qualitative data such as transcripts and observations • Analysis starts with open-coding of data collected to identify key concepts • Axial coding connects concepts and groups them into categories • Stopping point is reached when new data does not change the emerging theory • Data collection, analysis and theory stand in close relation to one another • Fully qualitative

Compiled from Creswell (2014); Glaser (2014); Glaser and Strauss (1967); Goulding (2005); Strauss and Corbin (1998); Urquhart (2012); Urquhart (2013)

One key feature of GTM commonly expressed is the researcher ideally consults extant literature *after* building the initial theory. Urquhart (2013) states that Glaser and Strauss believed this would prevent the researcher from forcing the data into pre-conceived theories thereby increasing the likelihood of finding an original concept. Urquhart and Fernández (2013) address the myth that a researcher using grounded theory is a 'blank slate' who commences data collection without reviewing extant

literature. Glaser and Strauss (1967, p. 33) warn researchers against allowing a literature review to dictate "prior to the research, 'relevancies' in concepts and hypothesis", however, Urquhart (2013) considers it is possible to conduct a literature review prior to entering the field of study, providing the researcher does not allow this to influence the coding process. In this study, a literature review was conducted prior to data collection, this enabled the researcher to become familiar with the topic of gamification; it also guided the design of the study to make a unique contribution to literature.

Glaser's approach to GTM appears more flexible as it allows the data to guide the emerging theory, rather than imposing preconceived categories on the data as in Straus and Corbin; for this reason, the Glaserian approach will be adopted for this study. Section 4.9 will discuss how the researcher applied the Glaserian approach to the data analysis process, which leads to emergent theory.

4.6 Data Collection Strategies

4.6.1 Introduction

There are many qualitative data collection methods available to researchers. In GTM, common data collection techniques include semi-structured or unstructured interviews, as well as any type of participant interaction or observation (Lawrence & Tar, 2013). Creswell (2014) suggests publicly available and private documents and emails as well as audio-visual materials such as film, video, and software can be considered data, whereas Zikmund et al. (2014) includes conversations, collages, word-association and written interviews as additional methods.

Three methods of data collection were appropriate for this study: participant observation; focus group interviews; and in-depth interviews. Additional methods such as documented artefacts, visual, audio and digital media were eliminated from consideration, primarily because little research has been conducted specifically into the adoption of gamification by organisations so it was assumed documented evidence of organisational gamification would be difficult to identify and retrieve. (Laitinen, Kaunonen, & Astedt-Kurki, 2014)

4.6.2 Participant Observation

Participant observation method of data collection is the process of observing and recording the behaviour of participants as they interact with other people or objects in real-life situations (Laitinen et al., 2014; Zikmund et al., 2014). Observation as a data collection method can be useful to describe behaviour, and data collection can be undertaken by humans taking field notes of behaviour at the research site (Creswell, 2014); or by machines such as scanners in a supermarket (Hess, 2015; Zikmund et al., 2014).

Zikmund et al. (2014) suggests there are limitations of using observation as a data collection method: Observations are usually conducted over a short time-frame as it can be expensive to observe behaviours over an extensive time period, and; observation methods allow researcher to observe what is happening, but do not allow researchers to question why a behaviour is occurring (Zikmund et al., 2014).

4.6.3 Focus Group Interviews

Focus groups are small discussions of approximately 6-12 participants (Hess, 2015), in order to facilitate discussion and interaction, participants should be fairly homogenous (Acocella, 2011; Hess, 2015), that is, discussion should be between people who share similar interests and culture (Acocella, 2011); It does not mean participants must share similar perspectives. Discussion is led by a trained moderator, and groups will typically include an observer who records non-verbal information and behaviours exhibited by participants (Acocella, 2011).

Focus groups are an approach used in exploratory research aimed at gaining insight into a situation and can be useful for screening alternatives, providing feedback and for discovering new ideas. Focus groups are relatively inexpensive to run and offer flexibility (Stokes *&* Bergin, 2006; Zikmund et al., 2014). They can be conducted in a short data collection timeframe across a number of small groups, giving the researcher the advantage of multiple perspectives (Hess, 2015).

Due to the small sample sizes, findings from qualitative research cannot be inferred for the whole population (Zikmund et al., 2014).

4.6.4 In-Depth Interviews

In-depth interviews are a one-on-one discussion between the researcher and the participant, they allow the researcher the flexibility to ask probing questions and to follow a natural line of inquiry as information arises (Zikmund et al., 2014). In-depth interviews give considerable insight into participants' behaviour and their thoughts, Ritchie et al. (2013, p. 178) describe in-depth interviews as "conversation with a purpose". Unlike normal conversations, interviews have a defined objective, and both researcher and participant will have clearly defined roles (Ritchie et al., 2013). researchers will direct the conversation, frequently asking for elaboration (Ritchie et al., 2013; Zikmund et al., 2014). The researcher approaches the interview without trying to influence the respondent (Zikmund et al., 2014), they must become skilled at guiding the inquiry without trying to lead the outcome. Holstein and Gubrium (2011) see interviews as a collaboration between researcher and participant; not merely the collation of data from participants, but additionally, the co-creation of knowledge between participant and interviewer through interaction.

In-depth interviews can take a considerable amount of time and can be expensive (Ritchie et al., 2013) to conduct, and, according to Zikmund et al. (2014), may provide the same information as focus groups.

4.6.5 Chosen Data Collection Method

As shown in Table 4: *Common Grounded Theory Qualitative Methods*, there are advantages and limitations of participant observation, focus group interviews, and in-depth interviews as data collection methods.

Table 4: Common Grounded Theory Qualitative Methods		
Tool	**Key advantages**	**Key limitations**
Participant Observation	• Can be unobtrusive • Can yield actual behaviour patterns • Researcher has first-hand experience with participants • Useful for exploring topics that may be difficult to discuss • Unusual aspects can be noticed during observation	• Can be expensive and time-consuming • Researcher may be seen as intrusive • Gives no explanation of behaviour pattern • Private information may be observed the researcher cannot report
Focus Group Interviews	• Can be completed quickly • Gain multiple perspectives • Flexible • Inexpensive • Participants can provide historical information • The researcher can control the direction of questioning • Participant interaction can create a chain of new ideas • Less pressure on individual participants to contribute • Gives a breadth of information not evident from individual interviews	• Results do not generalise to a larger population • Difficult to use for sensitive topics • Provides 'indirect' information filtered through the lens of participant bias • Researchers presence may bias responses • People are not equally articulate and perceptive • Interview location may be an unnatural setting • Group interaction can produce a consensus view
In-depth Interviews	• Gain considerable insight from individual participant • Responses are anonymous, which may empower the participant to contribute more critical information • Respondents are not subject to group consensus of opinion • Good for understanding complex or unusual behaviours • Participants can provide historical information • The researcher can control the direction of questioning • Enables a higher degree of trust, thereby improving the quality of the data	• Results do not generalise to a larger population • Misses the advantages of interaction with other participants and snowballing of ideas • Expensive per interview • Provides 'indirect' information filtered through the lens of participant bias • Researchers presence may bias responses • People are not equally articulate and perceptive

Compiled from: Acocella (2011); Creswell (2014); Hess (2015); Holstein and Gubrium (2011); Lawrence and Tar (2013); Ritchie et al. (2013); Stokes and Bergin (2006); Zikmund et al. (2014)

Participant observation as a data collection method is unsuitable for this research, as its primary emphasis is explaining behaviours and social interactions of people (Laitinen et al., 2014). In this study, the researcher is seeking to understand why organisations choose to adopt or reject gamification within organisations, and not to observe the interactions of people as they are using the technology. In addition, as gamification is a relatively new phenomena, it is assumed there is very little gamification to observe at present.

Both focus groups and in-depth interviews allow the researcher to obtain multiple perspectives quickly, and to identify key motivations in participant behaviour (Stokes & Bergin, 2006). Participant interaction in focus groups can generate a cascade of additional responses, thereby providing a broader range of information and opinions (Hess, 2015; Stokes & Bergin, 2006). One disadvantage of focus groups is the group interaction can produce a consensus view, whereby participants agree "with the general view just to be polite" (Stokes & Bergin, 2006, p. 34).

In-depth interviews, on the other hand, allow researchers to gain considerable insight from participants in a one-on-one discussion. Researchers can develop a rapport with participants thereby generating a high degree of trust and eliciting better quality data (Webb, 2002).

Data collected in both focus groups and interviews may be influenced by participants' interpretation of the context. Sample sizes are generally smaller with these collection methods, and because of this, results may not be generalisable to a larger population.

The use of focus groups has been eliminated for this study. The researcher has assumed professional gamification practitioners will not wish to participate in group discussions where information the researcher seeks may be considered sensitive. Focus groups within organisations could be appropriate; however, investigation into identifying gamification practitioner organisations with between 6 and 12 participants highlighted the lack of expert organisations located in New Zealand.

The chosen research method is face-to-face in-depth interviews with a range of people within organisations. This will allow the researcher the flexibility of asking open-

ended questions in the participant's location and afford the participant a degree of privacy.

4.7 Participant Selection

The process of identifying participants who will enhance the researcher's understanding of the phenomena being studied is a fundamental phase in research design (Sargeant, 2012). Reybold et al. (2012, p. 700) suggests participant selection decisions are a "conscious and deliberate" judgement that shapes the direction of the study and directly impacts research design, as well as the interview style and analysis technique decisions. Patton (2015, p. 308) agrees, stating purposeful selection ensures participants "fit the purpose of the study, the resources available, the questions being asked, and the constraints being faced". Importantly, there is a strong relationship between participant selection choices and research outcomes, in that the conclusions from research are a 'construction' and not purely 'findings' (Reybold et al., 2012).

Sample size is critically important in quantitative studies; statistical significance, desired power analysis and effect size contribute to the sample size calculation (Cohen, 1999; Creswell, 2014). The sample needs to be large enough to ensure the results are statistically significant, and the effect measured by the experiment can be validated (Creswell, 2014). However, in qualitative studies like this, smaller numbers of participants are studied. Qualitative samples need to be large enough to ensure the majority of important perspectives are revealed. Sargeant (2012) agrees, further stating interviews or focus groups can be discontinued when no further new concepts emerge from the data; this end point is called *data saturation.*

According to Mason (2010), a single occurrence of data supports its inclusion in the analysis framework, there is no need to find multiple existences of this single phenomenon; Mason calls this the *point of diminishing return*, where more data does not necessarily result in more information.

Participants in this study will be purposefully selected to represent the substantive area of study (Creswell, 2003; Urquhart, 2013), which is gamification in organisations. Two criteria were used to select participants; as this study is bounded by time and resources, gamification industry participants were selected through publically accessible information, and business participants selected were accessible to the researcher through introductions from gamification industry practitioners. Participants were selected based on the researcher's judgement about assumed specific knowledge held by the participant. For example, the researcher initially sought participants currently working as gamification professionals; ideally, directly employed in the software development industry. The purpose of this was to ascertain the type of gamification work undertaken in New Zealand and facilitate introductions to organisations using gamification. Following industry practitioner interviews, the researcher conducted interviews with business owners, supervisors and employees working in organisations using employee-facing gamified implementations to motivate, reward, and engage staff.

4.8 Ethical Considerations

Studies such as this, involve gathering information from people, about people, and as such have the potential to uncover sensitive data (Punch, 2014; Urquhart, 2013). In order to mitigate harmful effects, a strict ethical process was developed and adhered to for this study.

Prior to any participant selection or data collection, an ethics application was submitted to the *University of Waikato Management School Ethics Committee* for approval. Participant information and consent forms were given to all participants prior to the interview; these forms are appended to this study, in appendices A and B in Chapter Eight.

Prior to each face-to-face interview, permission was sought to record the interview; and prior to the telephone interview, the participant information sheet was emailed to the participant. Permission to record the interview was requested; confidentiality and anonymity issues were discussed, as was the participants' right to withdraw from the research. As well as written consent, verbal (recorded) consent to conduct the

interview and use the data for research purposes and subsequent publication was sought prior to each interview beginning.

Issues such as anonymity, confidentiality and the participant's right to withdraw from the research were discussed before participants were asked to sign a consent form. In all cases, participants were given a withdrawal date by which to notify the researcher that they no longer wished to be included in the study, at which point recordings, transcripts and field notes would be destroyed. No participants in this study revoked their permission to be included. In this study, neither the participant, nor the organisation they work for are identified. Participants are recorded as P1 to P12, respectively, and the organisations are identified by generic industry only. Participants' information and interview transcripts are stored in a password-protected file that can only be accessed by the researcher.

4.9 Data Analysis

This section explains how this researcher applied the Glaserian approach to GTM as a process to analyse data. While Creswell (2003) outlines a generic process for analysing qualitative data, beginning with transcribing the interviews and writing up field notes and observations, it is important to recognise the iterative cycle of constant comparison between data collection and analysis (Fernández, 2004; Glaser, 2014; Urquhart, 2013). Researchers using GTM will begin data analysis as quickly after the interview as possible; this allows the researcher to make changes to subsequent interviews if necessary based on emergent concepts (Urquhart, 2013). Field notes in the case of this study include reflections of the interview, observations and interpretations of the respondent's behaviours for later analysis.

The study began with an understanding of the literature surrounding the field of gamification in an organisational context; this initial literature review is contained in Chapter Two and demonstrates *theoretical sensitivity* prior to 'entering the field' of study (Urquhart, 2013).

Interviews were recorded digitally and transcribed as text files, these transcripts were imported into NVIVO for the data analysis process, beginning with open coding.

Although Glaser and Strauss (1967) discussed that analysis commences concurrently with the first data collected, in this study open coding began after the first three interviews had been conducted and continued after each interview was transcribed; interviews were conducted over a period of three months.

4.9.1 Theoretical Sampling

Theoretical sampling is a central tenet of GTM and is essential to the development of theory that is *grounded* in data (Glaser, 1992). GTM is cyclical, Lehmann (2001) describes a rotation of theoretical sampling where the researcher concurrently collects and analyses individual texts from a substantive area in order to decide what data to collect next, and where to find this data.

As this process is repeated, themes, concepts and ideas begin to emerge that will contribute to developing categories of the emergent theory, thereby further directing what additional slices of data are needed to saturate core categories.

The researcher must have an idea where to sample from initially, but keep an open mind about where the sampling may lead as theory emerges from the data (Breckenridge & Jones, 2009). Pre-existing knowledge can guide the researcher in identifying a starting point for data collection. However, as discussed in Section 4.4, the researcher should not allow this knowledge to influence the formulation of the emerging theory.

4.9.2 Open Coding

During the open coding process, the raw data is analysed into as many codes as possible (Fernández, 2004) but without a predetermination of what those codes would be (Glaser, 1978). While there are several different approaches researchers can use, Fernández (2004) supports Glaser's (1978) approach of reading text line-by-line, endeavouring to determine the underlying concept in each block or paragraph in context. He advocates this may mitigate the issue of 'microanalysis' highlighted in Glaser and Strauss (1967) and lead naturally into the production of theoretical memos (Fernández, 2004).

The purpose of open coding is to identify incidents of themes and ideas within the text. In a process outlined in Lehmann (2001) each section of text is read, and key ideas are labelled with a descriptive name.

4.9.3 Selective Coding

During the selective coding process, open codes are organised into selective code groups (Urquhart, 2013). Urquhart also recommends, during the selective coding process, researchers begin recording the emergent concepts from open coding and considering how these ideas may be inter-related. Writing memos about the inter-relationships is known as theoretical memoing (Glaser, 1978). While it is described here as a linear process, the recording of memos occurs concurrently with data collection, and recurs through the iterations of constant comparison; essentially from the time the researcher enters the research field, through the extant literature review process and does not end until substantive theory is developed (Fernández, 2004; Lehmann, 2001).

4.9.4 Theoretical Coding

Several theoretical codes can emerge from the data, but after several iterations of coding and memoing, one is selected by the researcher as the core theoretical code for the study (Fernández, 2004), this focuses the rest of the study on a single theoretical theme.

Lehmann (2001) states theoretical coding establishes the relationships between primary categories, and Hernandez (2009) describes it as the "the relational model through which all substantive codes/categories are related to the core category". Glaser explains the researcher will develop theoretical codes when "sorting and integrating his memos" (Glaser, 1978, p.56). It is important to note, that while there is flexibility in using grounded theory, theoretical codes must remain grounded in data (Lehmann, 2001).

4.9.5 Extant Literature

Urquhart and Fernández (2013) suggest the researcher returns to extant literature once theoretical concepts emerge from the data, in order to develop the nascent

concepts further. Classical grounded theory, as described by Glaser states "all is data"(Glaser, 2007; Glaser & Strauss, 1967); alongside interviews, field notes, memos and other forms of documentation, extant literature is also data and therefore relevant texts need to be analysed and compared to emergent theoretical concepts in order to saturate categories (Glaser, 2007).

4.9.6 Theoretical Saturation

As workable categories in GTM are developed through constant comparison (Urquhart & Fernández, 2013), theoretical saturation occurs where no new information emerges from additional data (Fernández, 2004; Mason, 2010). Charmaz (2014, p. 404) explains a researcher can cease collecting data and conducting analysis when a "plausible story of what happened can be provided, along with sufficient justifying evidence".

4.10 Chapter Summary

Chapter Four has outlined the research methodology and data collection processes adopted for this research, it has shown that based on the ontological, epistemological and philosophical assumptions, a qualitative study was the most appropriate choice. It discussed why grounded theory methodology was selected as the strategy of enquiry. Several data collection strategies were discussed and this chapter highlighted why in-depth interviews were selected as the primary source of data collection. Participant selection is an important consideration in all research studies, and Section 4.7 justified the purposeful participant selection process undertaken in this study. Section 4.8 outlined the ethical considerations and process undertaken; and Section 4.9 discussed how the Glaserian approach to grounded theory data collection and analysis would be implemented.

The next chapter discusses the findings of this study.

Chapter Five: Findings and Discussion

This chapter presents and discusses the findings of this study. Section 5.1 will outline the structure of the findings chapter, beginning with the data analysis process, as previously described in Section 4.9. Section 5.2 gives an overview of the study and the participants. It describes their industry, the size of their organisation and their roles within their organisations. In addition, the participant's experience with both technology and gamification in the workplace is outlined. The incidents, and nature of any game-like implementation identified within the participants' organisations is discussed in Section 5.3, this is followed by a simple framework for categorising participants based on their organisations use of game-like elements.

As the interview texts, field notes and observations were analysed and compared, six key dimensions of gamification emerged from the study. Figure 4: *Incidents of Codes in Transcripts,* shows these six dimensions. Emergent findings in this study will be discussed in descending order, based on the number of incidents in each dimension. Each dimension will be discussed in a separate section.

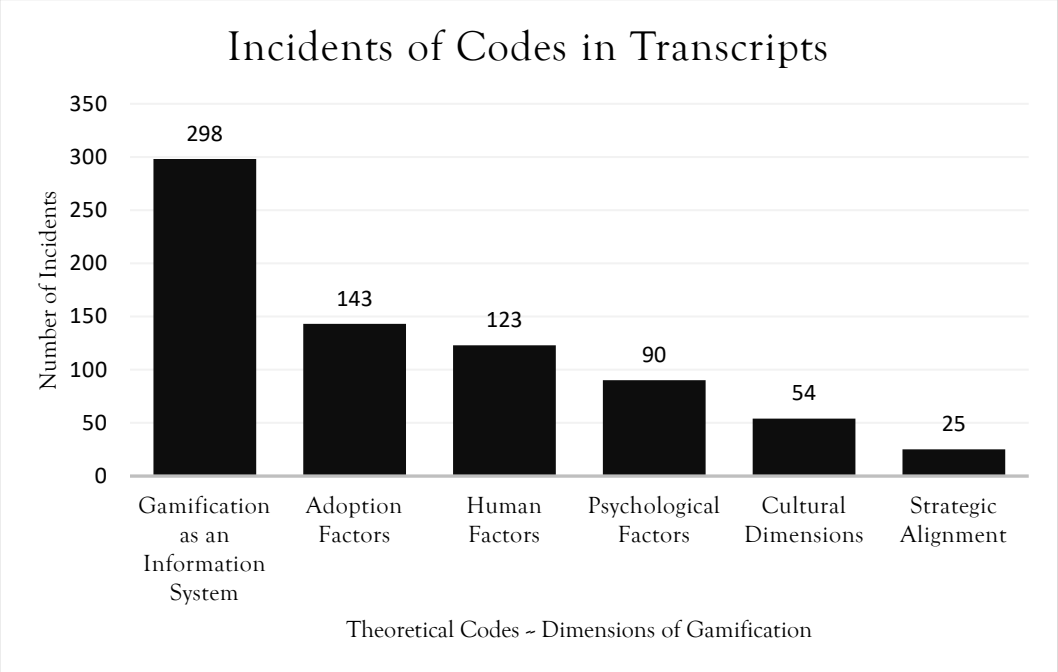


Figure 4: Incidents of Codes in Transcripts

- Section 5.4 Gamification as an Information System
- Section 5.5 Adoption Factors
- Section 5.6 Human Factors
- Section 5.7 Psychological Factors
- Section 5.8 Cultural Dimensions
- Section 5.9 Strategic Alignment

Section 5.10 will summarise the significant findings of this study, and lead into areas for additional research.

5.1 Summary of the Coding Process

Although the data analysis process was discussed in Section 4.9, the specific number of incidents, concepts, categories and emergent theories found in this study was not previously recorded. As shown in Figure 5: *Open-coding Hierarchy,* the study initially identified 733 distinct incidents, and through an iterative process of constant comparison and analysis, six theoretical dimensions emerged.

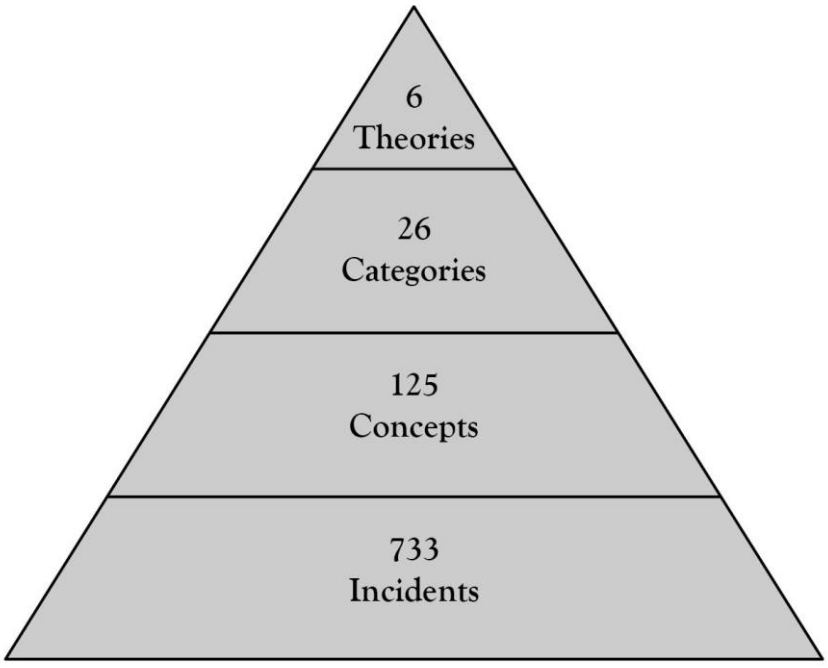


Figure 5: Open-coding Hierarchy

5.1.1 Open Coding – Findings

In the twelve transcribed texts analysed for this study, 733 separate incidents were initially identified during the open coding process. These 733 incidents were initially grouped into 125 open codes. A sample of the actual open coding process used is outlined in Appendix E.

5.1.2 Selective Coding – Findings

During the selective coding process, natural connections between some of the codes became obvious. For example, while concepts such as 'intrinsic motivation' and 'demotivation' were initially labelled separately, the data implied a relationship between the concepts. By continuously comparing these emerging concepts, back and forth between interviews, they were selectively coded into 26 concepts containing similar and inter-connected ideas. The original round of 125 open codes and the subsequent 26 selective coding analysis is recorded in Appendix F.

5.1.3 Theoretical Coding – Findings

In the third round of coding in this study, the 26 selective codes were once again compared against each other and alongside the original transcripts. When looking at the relationships between the categories, six core themes kept recurring:

- Gamification as an Information System – systems thinking
- Adoption Factors – what holds the organisation back, or contributes to adoption?
- Human Factors – managing people
- Psychological Factors – motivating people
- Cultural Dimensions – the organisation dynamic
- Strategic Dimensions – core, fundamental alignment of vision and strategy

As previously shown in Figure 4: *Incidents of Codes in Transcripts*, these six dimensions are listed in descending order, and will be comprehensively discussed in this chapter.

5.2 Participant Profiles

Initially, the researcher intended to interview gamification industry participants, and leverage these interviews to gain access to organisations using gamified systems, this proved more difficult than expected. During the first three interviews, it became apparent, that the gamification industry in New Zealand was in fact a game and web development industry, focused on creating interactive learning experiences. To protect the anonymity of participants, specific examples cannot be given, but the nature of the gamification work being undertaken were primarily virtual-world training simulations; consumer facing gamified mobile applications; and interactive browser-based loyalty programmes. None of this work was essentially employee-focused, although one participant did discuss consultancy and customisation of an international platform for use in a large organisation. As is expected in grounded theory methodology, this emergent finding changed the nature of the questions asked, and the researcher began to consider the question "are organisations using gamification, and if so, how?"

5.2.1 Participant Selection

Twelve participants were *purposefully selected* for this study (Creswell, 2003) using two criteria. Firstly, as this study is bounded by time and resources, gamification industry participants were approached following an internet search of publically accessible information, and the first business participant was accessible to the researcher through a business networking group. Subsequent participant selection followed introductions from other participants. Secondly, participants were selected based on the researcher's judgement about assumed specific knowledge held by the participant; for example, the first three participants were gamification professionals and were directly employed in the software development industry. The industry interviews were conducted first, in order to provide the researcher with knowledge of the gamification industry and to facilitate introductions to organisations who might be using gamification.

Following the interviews with gamification professionals, interviews with business owners, supervisors and staff were conducted, these interviews were intended to focus

on organisations using employee-facing gamified implementations to motivate, reward and engage staff. Identifying these organisations initially proved difficult, as much of the gamification developed in New Zealand centres around consumers. In the end, nine participants agreed to be interviewed; their roles ranged from senior management to support staff, and included human resource managers, sales staff, support and administrative staff.

Table 5: *Participant Profiles*, describes each of the participants, the participants are identified in the sequence they were interviewed beginning with P1, and ending with P12. Following the table is a brief explanation of the symbols used to describe participant attributes.

Table 5: Participant Profiles

	PARTICIPANT CHARACTERISTICS						ROLE			
	GENDER	DIGITAL ERA	INDUSTRY	MANAGEMENT STATUS	GAME DESIGN ELEMENTS	STRATEGIC INFLUENCE	DEVELOPER	HR	SALES	SUPPORT STAFF
P1	MALE	IMMIGRANT	SOFTWARE	SENIOR		✽	✓			
P2	MALE	NATIVE	SOFTWARE	NONE	★		✓✓			
P3	FEMALE	NATIVE	SOFTWARE	MIDDLE	★	✓		✓✓		
P4	FEMALE	IMMIGRANT	COMMUNICATION	SENIOR	★	✓			✓✓	
P5	MALE	NATIVE	COMMUNICATION	MIDDLE	★	✓	✓✓			✓
P6	FEMALE	IMMIGRANT	COMMUNICATION	SENIOR		✓		✓✓		
P7	FEMALE	IMMIGRANT	FINANCE	MIDDLE	★				✓✓	
P8	FEMALE	NATIVE	FINANCE	NONE	★					✓✓
P9	FEMALE	NATIVE	MANUFACTURING	NONE	★				✓	✓✓
P10	MALE	NATIVE	RETAIL	SENIOR	★	✽		✓		
P11	FEMALE	IMMIGRANT	REAL ESTATE	NONE	★				✓✓	
P12	MALE	IMMIGRANT	FINANCE	SENIOR	★	✽		✓	✓	

★ Game design elements were identified within the organisations
✽ Indicates the participant was the business owner
✓ Indicates the participant had strategic influence in the organisation
✓✓ In the last four columns indicates the participant's primary role
✓ Indicates the participant's secondary role

For the purposes of further explaining the table: **Digital natives**/millennials are defined in the literature as persons born since 1982 (Hershatter & Epstein, 2010), they are tech-savvy and completely immersed in a technology focussed world. **Digital immigrants** are a more mature population who have adopted technology, they have likely been in the workforce prior to 1995 (Hershatter & Epstein, 2010). This distinction is made not in order to conduct quantitative analysis on data collected, but in order to demonstrate a cross section of digital experiences amongst interview participants.

The **industry** descriptor aligns with industry types identified by Statistics New Zealand (2016), in some cases these have been modified to protect the identity of the participants and their organisations, such modifications were simply to make the label more generic.

Management status indicates a level of authority within the organisation; this classification is based on the researcher's interpretation and knowledge of both the participant, and the organisation obtained during and prior to the interview.

Five participants were male, and seven participants were female, this was not a deliberate attempt to balance gender, but is offered as a descriptor for labelling participants.

5.2.2 Size of Organisations in this Study

According to figures released in October 2016, just over 70 percent of enterprises in New Zealand have zero employees (Statistics New Zealand, 2016). These figures are summarised in Table 6: *NZ Enterprise Size by Employee Count 2016*. In addition, 19 percent of New Zealand organisations employ 1 – 5 people, and a further 4 percent of New Zealand enterprises employ 6 – 9 people, so in total, almost 94 percent of New Zealand businesses hire fewer than 10 employees (Statistics New Zealand, 2016). The number of employees reflects a headcount of all wage and salary earners, it excludes business owner-operators, sole traders and partnerships where PAYE tax is not withheld from income (Inland Revenue Department, 2016).

Table 6: NZ Enterprise Size by Employee Count 2016

0	1–5	6–9	10–19	20–49	50–99	100+	Total
362,856	98,748	21,153	17,187	9,780	2,979	2,346	515,046
70.45%	19.17%	4.11%	3.34%	1.90%	0.58%	0.46%	100.00%
93.75% employ fewer than 10 people			Compiled from NZ Statistics Data, 2016				

It was initially considered that the small scale of businesses was a local issue, and may make the findings of this study more relevant in New Zealand than the rest of the world. However, research of international census data has found the size of New Zealand businesses is relatively consistent with other countries. For example, in the United States, 95.98 percent of businesses employ fewer than 10 people (US Census Bureau, 2014), and in the United Kingdom, 95.42 percent employ fewer than 10 people (National Statistics UK, 2013). The question of the impact of this is discussed in Section 5.5 – Adoption Factors.

Figure 6: *Number of Employees within the Host Organisation*, shows the size of the organisations that employ the research participants for this study. It is interesting to note, nine participants work for businesses employing ten or more people, which accounts for only 6 percent of employers (Statistics New Zealand, 2016). No owner-operator businesses were interviewed, as with zero employees, it was reasoned they did not employ game-like technologies to motivate or reward employees.

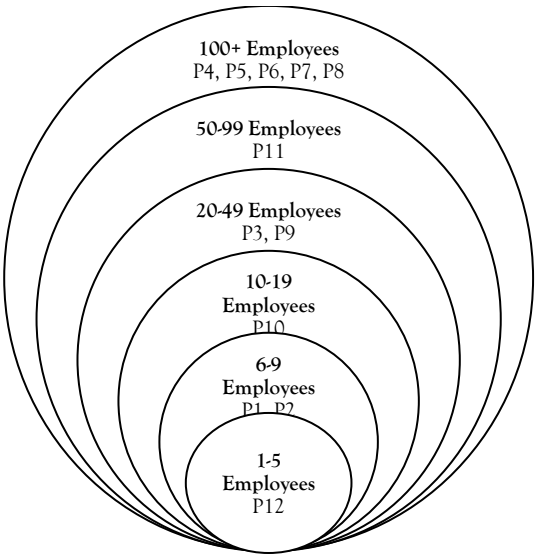


Figure 6: Number of Employees within the Host Organisation

5.3 Incidents of Gamification Identified in this Study

5.3.1 Participants Defining Gamification

A question asked of all participants was "if I used the word ***gamification***, what do you immediately think of?" The purpose of asking this question was to determine the level of knowledge surrounding the use of the word gamification, and then to explore the possibility that game-like elements may be used in organisations, but labelled differently.

Participants P1, P2, and P3 are experienced in the gamification, gaming and software development industries, they offered the following definitions, which are similar to those found in the literature and discussed in Section 2.2:

> *"Applying game mechanics and game thinking to something which is not a game for the purposes of either engaging your users or your customers [...], I think that's often what gamification is about – incentivising a behaviour." (P1, business owner, industry practitioner)*

> *"It's using psychological principles and game style approach to get behaviour that you want from people or from a group or from a situation." (P2, developer, industry practitioner)*

> *"Gamification to me is about drawing inspiration from games, particularly around motivation and addictive qualities [...] and how they can actually be used in the workplace or you know, through social engineering outside of games." ..... (P3, HR, industry practitioner)*

These definitions demonstrate that industry practitioners are familiar with the term *gamification,* and use it in the same context as academics. It was also interesting to note, that the industry practitioners P1 and P2 would also use the word *gamification* to discuss the use of game-like elements in non-game contexts with their business clients who are working outside the software industry. However, P3 made the following statement:

> *"I probably wouldn't have used gamification in that [context], I guess to me that would be more like HR language, but gamification would be more like our industry language for it. I think it would depend on the audience" (P3, HR, industry practitioner)*

In addition, P1 also used the term "*applied digital behavioural psychology*" to describe gamification. The original context of the quote appears below, it explains the gamification concept, and may be a useful definition to consider:

> *"A definition I use for it is – applied digital behavioural psychology. [...] The seminal moment in history I think to is Farmville. Okay, so it's a game, therefore it had consumer popularity, it had sixty-million monthly average users. It had big data analytics, where we measured everything that moved, and they just applied a whole bunch of well-known 1960s and 1970s behavioural psychology around incentives and variable reward ratios and the like. For the first time in history, we had a big enough sample and measured everything that moved and figured out that it made a difference to the bottom line. So in this case, it was* ***applied*** *– in a game situation; it was* ***digital*** *– and we measured it; and –* ***behavioural psychology****." (P1, business owner, industry practitioner (emphasis added))*

Several of the participants working in organisations were also familiar with the word gamification prior to the interviews taking place. When initially making contact with potential participants, the topic of this study was given as 'how are organisations using technology to motivate, reward and engage employees?' The study was presented in this way to mitigate the possibility that participants would search the word gamification prior to the interview. Participant P6, had heard the word gamification as she has a family member who works as a game designer; P6 offered this definition:

> *"What I thought gamification meant was when you use some of the things that belong in the gaming world to potentially use it as a communication technique, maybe in a commercial environment, but potentially you could also use it for training and induction as well" (P6, HR, communications industry)*

Another participant, P10, owns a light manufacturing and retail business where competitive advantage is achieved through lean manufacturing processes; he had a clear idea of what gamification meant and described gamification as a tool to manage productivity, as demonstrated in the following excerpt:

> *"It's basically turning your shop into a game. It's turning your productivity… into what I'm doing now for example, no one wants to be last, that is human nature and all I'm doing is playing on that human nature." (P10, business owner, retail industry)*

Two participants working in separate organisations in the same industry were unfamiliar with the word gamification, but attempted to describe what it might mean. It is interesting to note both participants were concerned about the ability of co-workers to manipulate the system, i.e. *gaming*, in order to cheat and this was raised as part of their definition, these extracts are below:

> *"People using technology to work the system to get a result they want […], I don't see it as a good thing, gamification." (P7, sales, finance industry)*

> *"I've only heard about recently and I've only heard about a couple of times where people are basically manipulating sales results and tracking them digitally but doing it in such a way they are working [gaming] the system." (P8, support staff, finance industry)*

Another participant unfamiliar with the terminology initially expressed some anxiety around what the word *gamification* meant and negative perceptions emerged during the interviews. Participant P4 works in sales and describes herself as both highly competitive and a high achiever; she initially described a feeling of panic around her ability to remain competitive in an increasingly digital world:

> *"When you're talking about gaming, my initial reaction was: Shit, I'm not good at that! Young ones might be, but then when they start to lose, it's a different story!" (P4, sales, communications industry)*

Apart from the definitions previously discussed, participants P4, P9, P11 and P12 had not heard of gamification and did not attempt to explain what the term might

mean. In these cases, a definition of gamification was discussed with each participant to ensure each had a similar understanding.

This study has found that the use of the term *gamification* is not entrenched within organisations. Industry practitioners may use it to describe the process of using game-like elements in non-game contexts, but the term is not widely adopted in the business community. The literature explains that gamification is emerging as a trend, so it is likely that the use of the word may increase over time as the practice becomes more widespread.

5.3.2 Does Gamification Have To Be Digital?

Participants were also asked if they thought their organisation used any elements of gamification, the responses to this question will be discussed in this sub-section. In Chapter Two, gamification was defined as *the use of game design elements in non-game contexts* (Deterding et al., 2011); it was also argued that organisations have been incorporating game-like elements into loyalty programmes such as S&H Green Stamps (Prince, 2013) and awarding merit badges to reward specific behaviours in organisations such as the Scout Association (2016) for over one hundred years. However, Burke (2014) considers that one significant difference between these programmes and gamification is the use of digital technologies, stating (2014, p. 6) that "gamification is a method to *digitally engage* rather than personally engage …". However, in this study both analogue and digital instances of game-like design were identified.

This study has identified 25 unique elements of gamification within the participants' organisations. Some of these elements also appear on Table 1: *Mechanics of Gamification found in Literature*, and others have been identified from discussions with participants and through the analysis of transcribed interviews. These game-like elements may have been observed in either digital or analogue form. A deeper analysis and discussion of these elements will occur in Sections 5.3.4 through to 5.3.7, but the summarised list appears below:

1. Achievement recognition
2. Achievement rituals

3. Awards
4. Badges
5. Bonuses
6. Certificates
7. Challenges
8. Collaboration rewards
9. Competitions
10. Easter eggs
11. Feedback loops
12. Gifting
13. Incentive programmes
14. Leaderboards
15. Levelling up
16. Milestones
17. Points
18. Prizes
19. Progress bars
20. Quests
21. Rewards
22. Role-playing characters
23. Teams, tribes and guilds
24. Tokens
25. Trophies

By applying the definition of gamification and comparing game design elements identified in this study to the MDA model previously discussed in Section 2.4, this study has found that organisational gamification is *the use of both analogue and/or digital game elements in a non-gaming context.* However, one significant additional finding that will be discussed in Section 5.9 is the role of *purposefulness* in defining gamification.

5.3.3 Categorising Organisational Gamification

This study found participants' organisations fell into one of four categories as shown in Figure 7: *Gamification Implementations Identifiable in Host Organisations*, ranging from **minimal identifiable implementations** (Participants P1, P4, P5, P6, P9 and P12), to some **analogue** or completely off-line systems (P11). Evidence of both **analogue and digital** (hybrid) game design elements were identified for participants P2 and P3; and fully integrated **digital** systems with identifiable game design mechanics were evident in the businesses employing P7, P8 and P10.

Figure 7: Gamification Implementations Identifiable in Host Organisations

Figure 7 does not represent a process, but shows separate categories; although organisations may move from one category to another, the likelihood is they will move left to right. Each of the four categories will be discussed separately; following each discussion is a list of inhibitors identified through observation, field notes and analysis of transcripts to indicate the barriers to organisations affecting their transition from one category to the next. These categories progress from minimal gamification to analogue; then from analogue to analogue/digital (hybrid); and from hybrid to pure digital. These inhibitors are summarised at the end of this section, and discussed in Section 5.5 – Adoption Factors.

5.3.4 Category 1: Minimal Identifiable Gamification

Participants were asked if they considered their organisation used any elements of gamification, P1 and P6, both software developers, said *no,* and participants P4, P5, P9 and P12 were *unsure.*

Table 7: *Minimal Elements of Gamification Observed in Organisation* summarises the game design elements observed in the participants' organisations. There was evidence of normal business reporting, sales targets and performance reviews, and in several cases, performance tracking was observed using digital dashboards and online visualisation tools. The first two columns compare the participants' perception of whether their organisation used gamification, to the researchers' observation; in several cases minor gamification was observed. The third column indicates whether the observed gamification system was digital, analogue, or a combination of both.

The final two columns separate the use of business applications and reporting tools from elements of gamification discussed with the participants.

Table 7: Minimal Elements of Gamification Observed in Organisation

	Gamification self-identified within organisation	Elements of gamification observed in organisation	Digital/ Analogue system	Business applications, and reporting tools	Specific gamification elements mentioned
P1	NO	NO	Not relevant	• Trello • Slack • Fitbit • Asana	• PlayStation vs Xbox tribes – social interaction
P4	UNSURE	MINOR	Analogue	• KPIs • CRM • Bonuses /Commission	• Achievement rituals • Incentive programmes • Inter-office challenges • Rewards
P5	UNSURE	MINOR	Analogue	• Targets • Dashboards • KPIs	• Achievement rituals • Awards • Leaderboards
P6	NO	NO	Not relevant	• Reporting tools • Performance review • Intranet	• Incentive programmes
P9	UNSURE	MINOR	Analogue	• Sales targets	• Achievement rituals • Leaderboards
P12	UNSURE	MINOR	Analogue	• Sales targets • Whiteboard • KPIs (industry) • Commission	• Bonuses • Gifts • Incentive programmes • Rewards

During the interviews, elements of minor gamification were observed in P4, P5, P9 and P12's organisations. In P4, P5 and P9 these were primarily in the form of *achievement rituals* an element of gamification emerging from interviews with industry practitioners: P1, P2 and P3. Achievement rituals in these organisations typically involved performing an action to celebrate closing a significant sale; ritualised play at work was identified by Mollick and Rothbard (2014) as useful in creating employee engagement.

In addition, minor gamification was observed in the organisation of P12, this was centred on their use of a rewards-based incentive programme; this has not been labelled gamification, as it appears to be the remuneration structure for the sales team only. Incentive programmes were also in use in the organisations of P4 and P9, and in these cases, the programmes were linked to collaborative team behaviours, which were identified as gamification elements in Section 2.4.

In all cases in this category where game-like elements were identified, the occurrence was analogue; achievement rituals, awards, rewards, gifts and bonuses were calculated manually and physically awarded (although it is acknowledged spreadsheets were used to record data, there was no digital automation of this process).

5.3.5 Category 2: Analogue Only Systems Identified

In this category, analogue use of game design elements were identified. Initially, participant P11 was *unsure* if elements of gamification were used in the organisation, however, during the interview, several game-like elements were observed, of particular note are the instances of awards, badges, trophies and leaderboards. Again, in this category, the occurrence of gamification was analogue; awards, badges, and trophies were calculated manually and physically awarded.

There was evidence of normal business reporting, sales targets and performance reviews, and performance tracking using leaderboards was observed, but these were recorded on a whiteboard and erased monthly. Table 8: *Analogue Elements of Gamification Observed in Organisation* summarises the identified gamification elements.

Table 8: Analogue Elements of Gamification Observed in Organisation

	Gamification self-identified within organisation	**Elements of gamification observed in organisation**	**Digital/ Analogue system**	**Business applications, and reporting tools**	**Specific gamification elements mentioned**
P11	UNSURE	YES	Analogue	• Performance measurement	• Achievement recognition • Awards • Badges • Certificates • Competitions • Leaderboards • Trophies

The use of certificates in this organisation was significant, as they represent achievement (Marczewski, 2015), and increased status amongst peers, Zichermann and Cunningham (2011, p. 91) state "status drives much of our actions, and it forms a critical part of how we understand ourselves in context and relation to others". Members of this organisation were highly driven to achieve, and the certificates are awarded to the top ten sales people each quarter. In addition, the top five sales members were profiled in the news media each quarter and physical badges are awarded for reaching specific milestones such as attaining sales to a value of one million dollars.

5.3.6 **Category 3: Analogue and Digital (Hybrid) Systems**

In this category, hybrid systems of gamification containing both analogue and digital elements were identified in the organisations. Both P2 and P3 discuss a combination of both digital and analogue mechanics, but neither organisation has a single cohesive system.

Analogue game-like elements detected in both organisations included achievement rituals – a specific behaviour or ritual performed to celebrate success, this is demonstrated in the following extract:

> *"We have this conch; whenever any big sales closed… it's actually a big sea shell… people blow on it" (P2, developer, industry practitioner)*

Additional analogue gamification included progress mechanics; challenges; badges, physical rewards and awards. In the case of P3, physical awards are distributed at regular staff meetings:

> *"At every company meeting there is […] an opportunity to give out the [Company name] Award which […] celebrated someone doing something different or amazing… and there is also the Duck Award which is celebrating an unfortunate*

situation, [...] but looking at the lighter side and moving on from that." (P3, HR, industry practitioner)

Table 9: *Analogue and Digital (Hybrid) Elements of Gamification Observed,* summarises the identified gamification elements.

Table 9: Analogue & Digital (Hybrid) Elements of Gamification Observed

	Gamification self-identified within organisation	**Elements of gamification observed in organisation**	**Digital/ Analogue system**	**Business applications, and reporting tools**	**Specific gamification elements mentioned**
P2	YES	YES	Analogue & Digital	• Slack • Fitbit • Campfire • Hip Chat	• Achievement rituals • Awards • Gifting • Milestones • Rewards • Tokens
P3	YES	YES	Analogue & Digital	• Slack • Yammer • Trello • Fitbit • Digital dashboards • Progress bars • KPIs	• Achievement rituals • Awards • Badges • Easter eggs • Feedback loops • Incentive programmes • Leaderboards • Levelling up • Prizes • Quests • Role-playing characters • Social team challenges • Trophies

Observations of the use of digital gamified mechanics centred on the use of progress bars and digital dashboards to measure performance and return results visually. In the case of P3's organisation, there were hybrid activities undertaken that involved both elements of analogue and digital gamification. Performance measurement data is collected, collated, and presented to employees as digital progress bars, however, the strategy execution metrics are presented by analogue means. This is demonstrated in the following extracts:

"The teams have dashboards which pulls not just individual data but the team data and that's presented on the wall." (P3, Industry practitioner)

"We collect data and then we have team dashboards which are pretty limited but on paper we measure in terms of strategy execution." (P3, Industry practitioner)

Participants P2 and P3 also demonstrate a playful culture within the organisations through the implementation of role playing games for improved communication; the creation of social teams for recreational gaming; prizes, awards; feedback loops; and incentives. There was a distinct social culture theme observed in the organisations of both P2 and P3, giving rise to the question: what is the role of organisational culture in the implementation of the gamified systems? Moreover, does having an element of playfulness improve employees' engagement with the system? Culture is discussed in-depth in Section 5.8 – Cultural Dimensions.

5.3.7 Category 4: Digital Gamification Implementations

What makes this category unique is that in the cases of participants P7, P8 and P10, significant digital game design mechanics were identified, with few offline examples discussed. Initially, both P7 and P8 were unsure if their organisations used gamification, but a significant number of game-like elements were observed in both organisations including points, badges, levels and leaderboards, the four core gamification mechanics identified by Attali and Arieli-Attali (2015); Deterding (2012); Hamari, Koivisto, et al. (2014); and Robson et al. (2015); and discussed in Chapter Two (see Table 1, Section 2.4). Table 10 summarises the identified gamification elements in the organisations of P7, P8 and P10.

With both P7 and P8, the digital system was highly sophisticated; points and badges were awarded electronically for achieving KPIs, and specific behaviours were rewarded digitally. In the case of P7, this was for collaborative behaviour and contributing to team goals, and for P8, specific behaviours such as sharing digital content were rewards.

Table 10: Digital Elements of Gamification Observed in Organisation

	Gamification self-identified within organisation	Elements of gamification observed in organisation	Digital/ Analogue system	Business applications, and reporting tools	Specific gamification elements mentioned
P7	UNSURE	MAJOR	Digital	• Customer satisfaction surveys • Management reviews • Engagement surveys • Digital dashboard • Sales tracking reports	• Achievement recognition • Achievement rituals • Badges (quarterly) • Collaboration • Competitions • Incentive programmes • Leaderboards • Points • Social networking • Tribes • Trophies
P8	UNSURE	MAJOR	Digital	• Customer engagement surveys • KPIs • Staff surveys • Performance reviews	• Achievement rituals • Awards • Badges • Gifting • Incentive programs • Leaderboards • Levelling up • Points • Prizes • Progress bars • Rankings • Social networking • Teams, tribes, guilds
P10	YES	YES	Digital	• Measuring profitability • KPIs • Performance measurement	• Achievement recognition • Bonuses • Leaderboards • Progress bars • Rewards

The use of digital gamification was less sophisticated in P10's organisation, but this system had been recently implemented and was still being developed, observed examples of game-like elements included leaderboards, progress bars and recognition for achievement visible to the entire team.

Two participants work in separate organisations in the same industry; both organisations have sophisticated digital gamification implementations. It is

interesting to note both participants were concerned about the ability of co-workers to manipulate the system in order to cheat and this was raised as part of their definition, these extracts are below:

> *"People using technology to work the system to get a result they want [...], I don't see it as a good thing, gamification." (P7, sales, finance industry)*

> *"I've only heard about recently and I've only heard about a couple of times where people are basically manipulating sales results and tracking them digitally but doing it in such a way they are working [gaming] the system." (P8, support staff, finance industry)*

Section 5.3 has presented the incidents of gamification identified within participants' organisations. Burke (2014) suggests that gamification requires the use of digital technologies, but this study found that both analogue and digital game design elements can be included in a gamified system. Participants' organisations were categorised into four categories: minimal or no gamification; analogue gamification, hybrid gamification, and digital gamification.

This section also identified 25 game design elements observed in the organisations of participants, some of these had previously been identified within academic literature.

5.4 Gamification as an Information System

In the twelve transcribed interviews analysed for this study, 733 incidents were initially identified during the open coding process; of these, 298 were eventually coded into a dimension of gamification categorised as *Gamification as an Information System*. Significant findings within that category will be discussed in this section. Primarily, incidents and codes in this category, related to the use of technology in gamification, in addition to the interaction of mechanics and game-design.

Chapter Two contains the literature review undertaken prior to beginning this study; however, during data analysis, the concept of gamification within the framework of systems thinking emerged, previously overlooked literature relating to systems thinking has been reviewed and is included in Section 5.4.1

5.4.1 **Extant Literature – Systems Thinking**

Systems thinking is an holistic management approach to problem solving that examines the interrelationships between components of a system within the context of the system as a whole (Minati & Pessa, 2007).

According to some researchers, gamification is a set of tools that can be *applied* externally, such as customer facing solutions; internally *applied* to employees; or as a set of tools *applied* to change certain behaviours (Salcu & Acatrinei, 2013; Werbach & Hunter, 2012). This assertion infers gamification can be 'added' to business to solve practical problems in real-world situations, but in reality, those solutions need to be considered from a much wider perspective beyond simply applying a few mechanics. Werbach (2014, p. 268) considers "gamification is the process of making activities more *game like*", he also states "gamification operates as an *applied practice* in business". In this context, Werbach (2014) is referring to the use of gamification in a real world context, not simply adding points, badges and leaderboards to existing processes.

Senge et al. (2007) states that systems thinking is useful as a conceptual tool for gamification because it focuses on the interdependencies between dynamic components, those that change over time, rather than on the detail of isolated

mechanics themselves. In the social sciences, an open system is dynamic; the transformation of inputs to outputs is constantly impacted by feedback loops between both internal and external environments (Chick & Dow, 2005; von Bertalanffy, 1968).

The use of gamification technologies in organisations exists within a larger, complex social-system of human interaction (Easterbrook, 2014). These social systems affect our dependence on technology and limit the autonomous behaviour of individuals as they interact with the system responding to feedback that reinforces or balances system behaviour (Easterbrook, 2014).

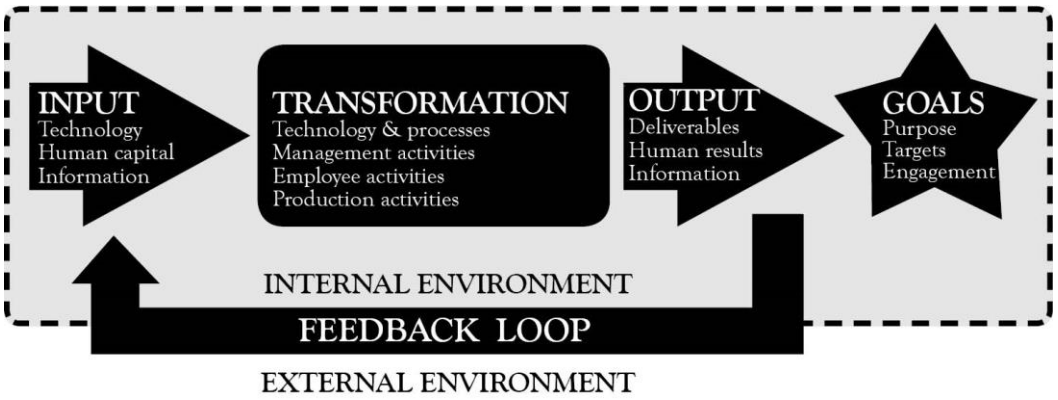
Deterding (2014) states gamification design patterns may resemble other social domains that existed prior to gamification, such as goal setting and feedback. Whitson (2014) argues the increased acceptance by players of gamified systems is not influenced by playful design, but rather from the feedback loops within games, stating the movement toward the increased adoption of devices such as Fitbit and Apple watch is driven by the real-time feedback and not from the elements of playful design incorporated into the applications. Stating the feedback loops intrinsically motivate users to make behavioural changes. Whitson (2014) further states the concept of fun is irrelevant in gamification; the important element is giving users feedback on how to improve.

5.4.2 Defining Gamification as a System

This study has found gamification is essentially a system; according to Ackoff (1999), a system is "a collection of parts that interact with one another to function as a *whole*, [...] a system is *not* the sum of its parts – it is the product of their *interactions*" (Minati & Pessa, 2007, p. 7). If we consider Ackoff's definition, then it becomes easier to see how gamification is a system rather than an *application*. An open system interacts with its external environment, and in the context of gamification, the gamified system interacts with the wider organisational system to which it belongs.

As shown in Figure 8: *Gamification Systems Design*, gamification requires *inputs* such as technology (e.g. hardware and software), it requires human interaction, and the flow of information. *Transformation* occurs as employees interact with the system as it

is integrated into workflow processes, activities and communication. *Outputs* of an open system will include deliverables (e.g. products, services and outcomes), human results, and the flow of information.



Adapted from Hardball5 (2016)

Figure 8: Gamification Systems Diagram

Feedback within a gamified system comes from both the internal and external environments. In an organisational context, the internal environment would comprise personalised feedback for each employee, based on their own interactions with the system, for example, game mechanics and dynamics would reinforce desired behaviours, causing the employee to repeat or avoid repeating a specific behaviour, dependant on the preferred outcome. External feedback comprises feedback from other employees such as positive or negative experiences affecting another individuals own experience; for example, a negative attitude from other employees may discourage an individual from interacting with the system. Positive feedback loops enhance or amplify desired outcomes, and negative feedback loops indicate a problem that should be corrected (von Bertalanffy, 1968).

In the following extract, one gamification industry participant discussed the need to understand gamification within a wider organisational system:

> *"[There are] all sorts of structures around the psychology of how you design a game system to make it motivating. [...] it is systems design and incentive design and behaviour design, and behaviour economics. That's not well understood and its*

purposefully obfuscated, hidden, it's the implicit part of [gamification] design." (P1, business owner, industry practitioner)

Several participants in this study discussed the importance of feedback loops as being important to employee-facing gamification implementations; this is demonstrated in the following excerpts:

"The important element is that there is an interactive system, because even a board game has an interactive system, and it's got to have a feedback loop." ... (P1, business owner, industry participant)

"Now it's real-time, feedback every day and I can see the comparison with other franchises. Now there are [number of franchises] of us [...] and I can see where we are ranked, so there is simply a ranking thing in national form of each business." (P12, business owner, finance industry)

Feedback loops are a critical mechanic in gamification, giving players information of their current position and signposting next steps (Zichermann & Cunningham, 2011).

5.4.3 Unintended Consequences

The *law of unintended consequences* (Merton, 1936) is often discussed as a concept within systems dynamics; it is used to describe an implementation in a complex system producing unanticipated results. In regard to gamification, technologies may produce consequences which are unpredictable; Deterding (2014) warns against adding a game-like veneer to organisational engagement programmes; an unintended consequence of this approach may well be employees resist using the new system and become resentful toward management for the shallow implementation.

As shown in the following excerpt from industry practitioner P1, organisations need to align gamification with organisational strategy, an emergent concept which is discussed in-depth in Section 5.9

"... you don't want to [implement gamification] purely for its own sake because in fact there can be unintended consequences of that, you still want to align it to

other softer corporate outcomes like corporate values, teamwork, and the like that can't always be communicated through the metrics." (P1, industry participant)

Possible causes of unintended consequences include the unpredictability of humans interacting with complex systems, in addition to parts of the system responding to changes in the internal or external environment via feedback loops (Robertson, 2010).

5.4.4 Emergent Phenomenon – Engagement

Employee engagement was a recurrent theme in this study; it became apparent when interviewing participants the word 'engagement' had multiple interpretations depending on the participant's role in the organisation. For some participants, the word *engagement* seemed interchangeable with *collaboration* or the concept of teamwork, as demonstrated in this example:

"Thinking about the system, I guess the engagement comes from all of us using it, you know, together? I think technology is a great enabler of engagement, for me personally in my role, it's huge" (P8, support staff, finance industry)

In other cases, participants expressed their sense of engagement came from feeling valued by the organisation:

"I mean, you take money from an employer, you do the job they ask. If they don't listen at all, then I would leave. But they do listen I've never felt un-listened to, well I mean, I feel acknowledged and that's important for engagement." (P4, sales, communications industry)

"Engagement for me is about feeling that the company values me as a person, and they make me think that they are aware of what's going on in our lives, but I like to keep my private life private.... I share work stuff, and I'm Facebook friends with my immediate team and that... But not the bosses – I don't really want them watching everything now do I?" (P9, sales/support, manufacturing industry)

The sentiment of engagement in the workplace also appeared to be reflective of an organisations' culture:

> *"To me employee engagement is huge, if your employees are happy, they will perform well. Happy workplace… productive people. Wanting to come to work, wanting to achieve, wanting to do what is asked of them. But make it a great environment and everybody wins" (P8, support staff, finance industry)*

The literature defines employee engagement as an "emotional commitment the employee has to the organisation and its goals" (Kruse, 2012, p. 1). A common theme amongst academic definitions is the idea that employee engagement serves an organisational purpose, it implies involvement, enthusiasm, passion and commitment from employees; it is desirable to organisations and contains both attitudinal and behavioural components (Macey & Schneider, 2008).

Engagement as an Emergent Property of a Gamified System

As previously discussed, gamification should be considered a system, that is, a set of elements and rules configured to create a dynamic experience in which players can interact (Fullerton, 2014). The concept of emergent behaviour is an observed phenomenon within systems dynamics; systems may exhibit behaviours that cannot be attributed to a single, identifiable cause, but rather arise from the interaction of those elements within the entire system (Easterbrook, 2014; Minati & Pessa, 2007).

Following a comprehensive literature review and the findings of this study, Figure 9: *Engagement as an Emergent Property of a Gamification System*, is offered as a model to explain how engagement can be considered an emergent property of a gamified system. One dictum of systems thinking is that a system is not the sum of its parts – it is the product of their interactions (Ackoff, 1999; Minati & Pessa, 2007).

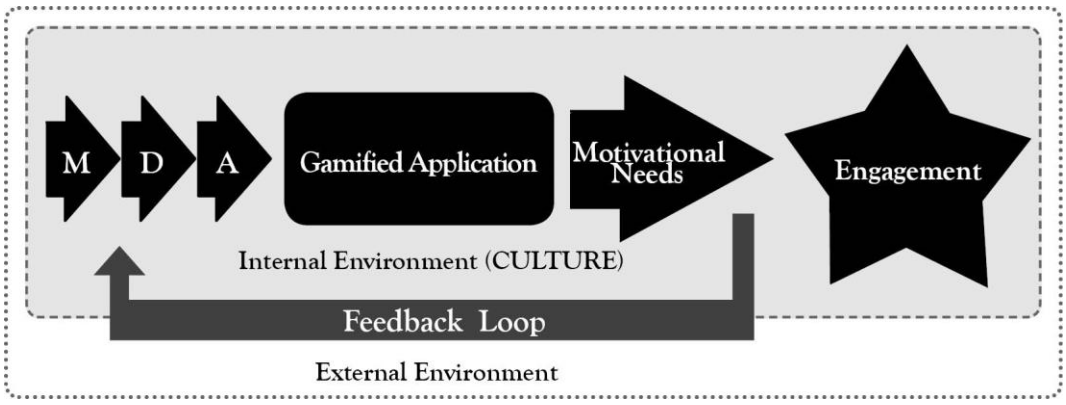


Figure 9: Engagement as an Emergent Property of a Gamification System

An example from Checkland (1999, p. 50) is "the parts of a bicycle, in a sack, are simply an aggregate. When assembled in the particular structure we call 'a bicycle', that entity has vehicular potential, which is an emergent property of the whole". Using Checkland's example it could rationally be reasoned that when the mechanics, dynamics and aesthetics of gamification are assembled in the structure we call organisational gamification, that entity has the potential to engage employees, which is an emergent property of the gamified system.

This model draws on the MDA framework (Hunicke et al., 2004) which was discussed in Section 2.4. **Mechanics (M)** are the rules, procedures and boundaries imposed on players within the structure of a game. Mechanics include the elements, resources and tools available to players, they include points, badges, leaderboards and quests to name a few (Deterding, 2014; Ruhi, 2015). **Dynamics (D)** describe the behaviour of the mechanics while the game is in play, they are generated by player inputs, outputs and actions as a result of the interaction (Hunicke et al., 2004). For example, the mechanics and player interactions may be designed to encourage competition, self-expression or fellowship (Bunchball, 2015; Hunicke et al., 2004; Ruhi, 2015). **Aesthetics (A)** are the anticipated experiences of players as they interact with the system (Deterding et al., 2011; Hunicke et al., 2004). In an organisational gamification implementation, aesthetics are desired user-experiences such as collaboration and competition (Ruhi, 2015).

The **gamified application** is the combination of MDA components chosen to create a gamified environment that meets the **motivational needs** of the players, by aligning intrinsic and extrinsic rewards to desired outcomes. Employees who consent to participating in a gamified application are more amenable toward the system (this concept will be explored in Section 5.6.1). In addition to voluntariness, employees need to perceive the reward structures are fairly distributed, the concept of fairness was initially discussed in Section 2.5; communication between management and employees as to the purpose and goals of the system is one way to mitigate employee resistance and expressions of manipulation, these factors will be discussed in Section

5.5.2. The players' experience of the gamified application occurs within the context of the system and the organisational **culture** (culture will be discussed in Section 5.8).

Feedback loops are a critical factor in gamification systems; feedback allows the system to adjust performance to meet desired outcomes; the players' own experiences as they interact with the gamified system are impacted internally by organisational culture, and within the wider organisational system to which the gamified system belongs (the external environment). As with any system, positive and negative feedback can effectively amplify desired behavioural outcomes.

Engagement is an emergent property of a gamified system designed to meet the motivational needs of the individuals playing. It emerges from the combination of mechanics and dynamics creating an aesthetic experience that evokes an emotional commitment to the organisation, and motivates employees to focus on shared organisational and individuals' goals.

5.5 Adoption Factors

From the twelve transcribed interviews analysed in this study, 733 incidents were identified during the open coding process; of these, 143 were eventually coded into a dimension of gamification categorised as *Adoption Factors*. There are two groups of findings relating to adoption factors: Section 5.5.1 discusses the factors identified by participants as reasons their organisations may not use game-like elements in the organisation, or the issues limiting their progression from analogue to digital implementations. Section 5.5.2 discusses employee exploitation, an issue initially raised in Section 2.8

5.5.1 Barriers to Adoption

In Section 5.3, participants' organisations were categorised into four levels of gamification as shown in Figure 10: *Categories of Gamification*, those with no identifiable gamification; organisations where analogue only gamification systems were identified; hybrid gamification systems using both analogue and digital mechanics were identified; and organisations with digital gamification.

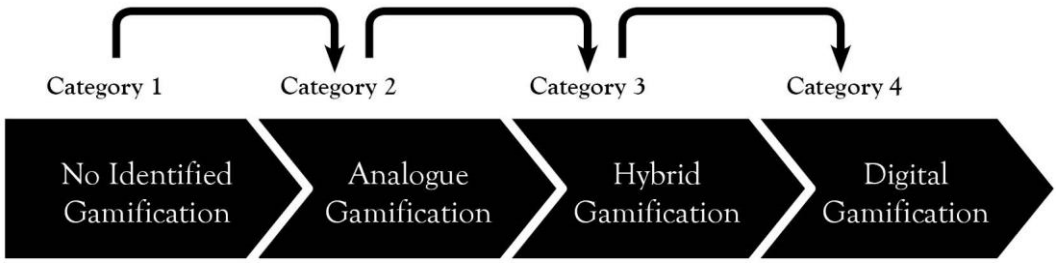


Figure 10: Categories of Gamification

This section discusses the factors identified by participants that affect an organisations decision to adopt gamification, and the issues raised that prevent them from progressing from one category to the next. In most cases, toward the end of the interview, the researcher asked participants what they considered the barriers to gamification adoption for organisations might be. In addition to information shared during the earlier part of the interview, this question allowed participants to reflect and offer their own opinion. It is acknowledged that in some cases, the participant

was offering an opinion not necessarily based on their own organisation. For this reason, the summarised barriers listed in Table 11: *Barriers to Adoption of Gamification*, do not necessarily relate to the assigned category for each participant.

Table 11: Barriers to Adoption of Gamification

MINIMAL GAMIFICATION	ANALOGUE GAMIFICATION	HYBRID GAMIFICATION
1. Budgetary constraints (P1) 2. Employees work remotely (P4, P5) 3. Gamification lacks authenticity (P12) 4. Little productivity measurement in general (P4, P9) 5. Low priority (P4) 6. Management style is dictatorial (P12) 7. Multiple locations (P4, P5) 8. No out of the box solution (P1) 9. Not aware of products (P9, P12) 10. Organisational immaturity (P5) 11. Silo approach to company structure (P9) 12. Team is not cohesive, people just do their own work (P9) 13. Total number of employees is low (P12) 14. Undergoing huge re-structuring (P4)	15. Age of decision makers (P4) 16. Competitive environment (P4, P11) 17. High levels of customisation required (P1) 18. Lacks buy in from senior management (P1, P5, P11) 19. No team benefit perceived (P4, P9, P11) 9. Not aware of products (P9, P12) 11. Silo approach to company structure (P9)	17. High levels of customisation required (P1, P2, P3) 18. Lacks buy in from senior management (P1, P5, P11) 8. No out of the box solution that is all encompassing (P1) 20. No strategic mandate to do it (P6, P9) 11. Silo approach to company structure (P2, P9)

The inhibitors identified from the interactions with participants have been grouped into significant categories, as shown on Table 12: *Categorisation of Inhibitors*, these inhibitors will be discussed in this section.

Table 12: Categorisation of Inhibitors	
Inhibitors relating to organisational dynamic	2, 5, 7, 10, 11, 12, 13, 14
Inhibitors relating to management style	4, 6, 16, 19, 20
Inhibitors relating to gamification products	1, 8, 9, 17
Inhibitors relating to authenticity of gamification	3
Inhibitors relating to age of decision makers	15, 18

Inhibitors Relating to Organisational Dynamic

The study found there were significant inhibitors to the adoption of gamification relating to the organisational dynamic construct; examples of this finding include temporary issues such as the organisation was undergoing restructuring (P4); or the organisation had a silo-approach to company structure (P9) and people were focused on their own work, and did not work together as a team (P9). One participant (P5) described the organisation as being *immature*, and made the following statement:

> *"[COMPANY] is a very immature organisation, [...], we are not doing things in an innovative or sexy way. We haven't got the basics right..."*
> *(P6, HR, communications industry)*

Organisational Size as a Barrier:

There was a general perception from participants P2, P3 and P12 that the size of the organisation was a barrier to the adoption of gamification. There was a perception gamification was uncommon in New Zealand, and it was more likely to be implemented overseas where organisations were perceived to be much larger. As shown in the following excerpts:

> *"New Zealand's quite small and I think... I don't know... but we are kind of self-starters and we've got an innovative mind-set already I think." (P2, developer, software industry)*

> *"Gamification works [...] in countries like America whereas New Zealand is very small and people do broader roles, there's kind of like more specialisation" (P3, HR, software industry)*

"We are too small for this sort of thing. [...] We are a very small firm, people are ranked, self-ranked. [...] A lot of those things would work better, in a bigger organisation." (P12, business owner, finance industry)

Contrary to the perception of participants in this study, typical New Zealand businesses are similar in size to businesses in other parts of the world, specifically, the United States and the United Kingdom (National Statistics UK, 2013; Statistics New Zealand, 2016; US Census Bureau, 2014). As shown in Table 13: *Enterprise Size by Employee Count Comparison NZ, US and UK*, almost 94 percent of New Zealand businesses employ fewer than 10 people, this is comparable to almost 96 percent in the US and over 95 percent in the UK.

Table 13: Enterprise Size by Employee Count Comparison NZ, US and UK

NZ Enterprise Size by Employee Count 2016

0	1–5	6–9	10–19	20–49	50–99	100+	Total
362,856	98,748	21,153	17,187	9,780	2,979	2,346	515,046
70.45%	19.17%	4.11%	3.34%	1.90%	0.58%	0.46%	100.00%
93.75% employ fewer than 10 people			Compiled from Statistics New Zealand (2016)				

US Enterprise Size by Employee Count 2014

0	1–4	5–9	10–19	20–99	100–499	500+	Total
23,836,938	3,543,991	992,716	593,641	494,170	83,423	18,219	29,563,098
80.63%	11.99%	3.36%	2.01%	1.67%	0.28%	0.06%	100%
95.98% employ fewer than 10 people			Compiled from US Census Bureau (2014)				

UK Enterprise Size by Employee Count 2013

0	1–9	10–49	50–249	250+	Total
3,684,740	986,890	186,745	30,685	6,595	4,895,655
75.27%	20.16%	3.81%	0.63%	0.13%	100.00%
95.42% employ fewer than 10 People			Compiled from National Statistics UK (2013)		

It is interesting to note, while the size of New Zealand businesses is comparable, the total number of businesses in New Zealand is low. This was raised as an issue by participant P1, when he mentioned an inhibitor to adoption of gamification was a lack of "*budget and scale*" suggesting the sheer volume of businesses in countries like the US and UK might be more attractive markets to gamification developers.

Multiple Sites, and Remote Employees as a Barrier:

Participants P4 and P5 expressed that with employees working across multiple and separate locations and in some cases remotely from other team members (P4), that gamification would not be suitable for their organisation. Remote employees and small teams of people were identified as a barrier by several participants. One company with over 1,200 employees was undergoing radical restructuring, as several units that had previously operated independently were being brought together under a single unified brand umbrella. Participant P6 discussed the issues of working with remote teams:

> *"We have around 1,200 employees [...] the bulk of our employees, about 800 of them are in Auckland, [...] then we have got regional offices in Wellington and Christchurch as well as satellites in [...] 22 physical locations, some of them [the team sizes] are very small when you get out into the regions". (P6, HR, communications industry)*

A recent study (Moradian, Nasir, Lyons, Leung, & Sim, 2014) designed to compare how gamification impacts collaborative problem solving with small teams of either three co-located or three distant individuals, indicated those teams working under the gamified conditions did on average, generate a greater number of ideas, and a higher number of good ideas than the control teams. This was not statistically significant, but the study indicated a positive perception of brainstorming and convergence activities under gamified conditions. This example indicates that while participants in this study may feel their organisations are dispersed and contain few members; gamification can yield increased productivity and lead to better collaboration.

Inhibitors Relating to Management Approach

This study found there were significant inhibitors to the adoption of gamification relating to the approach of management within the organisation. Participant P3 commented that generally there was little performance measured in New Zealand; this is demonstrated in the following excerpt:

"In New Zealand you [will] find we don't measure performance very much compared to others either" (P3, HR, software industry)

This study found multiple examples of productivity and performance measurement including within P3's organisation; these were demonstrated on Tables 7, 8, 9 and 10: *Elements of Gamification Observed in Organisation*, in Section 5.3

Management Style as a Barrier:

Another barrier identified through field notes and observations was, in the case of participants P4, P9 and P11, their organisations did not have a strategic mandate to implement gamification, and they believed their managers would not perceive a benefit for the team in implementing gamification. In addition, management style did appear to be a factor; specifically, P12 made the following statement, leading the researcher to determine the organisation may not consider employee engagement important:

"My leadership style is about fear... fear that I'll just sack the bastards" (P12, business owner, finance industry)

The context of this comment is interesting, as although it was said flippantly, the researcher observed the statement held at least a partial truth and portrayed the inherent culture of the organisation. The role of organisational culture is discussed in Section 5.8 – Cultural Dimensions.

Organisational Environment as a Barrier:

An interesting finding is gamification has the potential to create an internal environment of competitiveness and inter-staff rivalry, which may be at odds with the goals of an organisation seeking to encourage collaboration between team members. One participant in a gamified organisation (P8) discussed the competitive nature within the organisation between distinct teams, each of which assumed separate and non-conflicting roles:

"I have got two business units [details removed], that work with a great big wall between them. They should be meeting! They sit next to each other [...] they should be talking". (P8, support staff, finance industry)

A participant in a sales role suggested internal competitiveness was an inhibitor to increased adoption; P11's organisation used several game-like elements such as physical awards, badges, trophies and leaderboards to reward and motivate staff, but she did not feel the use of increased technology would drive collaboration:

> *"Our culture is very competitive, there is no sharing of information and it's weird, obviously you're part of the big [company name] family, and you're reasonably close with most of your branch, your colleagues but you're all still really competitive and you compete within that team". (P11, sales, real estate industry)*

However, another participant explained her organisation was trying to focus on working collaboratively and believed gamification might be a good fit to bring her organisation together:

> *"The company had numbers of direct teams and a culture of competitiveness that was encouraged – shark eat shark – but we're now going through a process of identifying where clients have multiple contact points within the company and deciding, who is best to look after them. And that's really positive for me because I don't enjoy shark eat shark because you're just pitting your efforts against your own people. (P4, Sales, communications industry)*

A recent study found common causes for failed gamification implementations in business included "introducing competition (e.g. leaderboards) in an environment where collaboration, creativity or learning was necessary" (Maican et al., 2016). Competition occurs when employees are actively compared to one another openly (Khaled, 2014), however, in some cases this might not be consistent with the culture of the organisation (Thom et al., 2012). Vegt, Visch, de Ridder, and Vermeeren (2015) state conflicts, hidden agendas and group dynamics can be problematic for teamwork within organisations as individuals seek to subvert team outcomes in favour of their own agenda. A state, they agree can be mitigated through gamification.

Theoretically, the triad of game elements – points, badges and leaderboards – in a gamified platform can lead to increased competition, but Wood and Reiners (2015) caution it can also create a surge of negative, unintended consequences if the implementation appeared to disadvantage some players. The perception of fairness

is a key pre-condition for driving competitiveness in order to motivate for improved performance (Vegt et al., 2015); highlighting the challenge for organisations to align defined outcomes such as increased cooperative behaviour with game mechanics.

Age of Decision Maker as a Barrier:

There was a perception amongst participants that typically, decision makers would be older and more conservative; it was presumed (by some participants) senior managers today would have a traditional perspective, and therefore they might be disinterested in implementing gamification. It was observed that participants such as P2, expected the number of gamification implementations would increase over time as millennials advanced into positions of senior management:

> *"The other challenge you have is a whole new workforce who are really happy with some of these techniques, but the people who make decisions aren't the newer workforce so I think you will see more of this as younger people are getting up into more positions of leadership." (P2, developer, software industry)*

A participant in an HR role felt that gamification would be a good fit for the organisation, particularly as there was a high number of millennials (as defined in Section 2.7) working in a creative and innovative organisational structure:

> *"It's got a lot of elements potentially that would be appealing to our type of organisation. We have quite a young workforce who would find that quite fun, and gamification is fun." (P6, HR, communications industry)*

It was interesting to observe that P6's organisation had a high number of young, tech-savvy personnel and the fewest barriers to adoption, yet they actually had one of the lowest levels of gamification elements in evidence:

> *"It's an incredible organisation because it's got all these people, it's a healthy business yet it's had no human resources, [...] it's been run like a small company. We have made a heap of changes already, but it's still at the beginning of that journey... it's a start up for me. It is kind of cool, it's like a start-up in a fast moving industry" (P6, HR, communications industry)*

Paradoxically, one of the oldest and most traditional businesses actually demonstrated the highest degree of gamification; a financial organisation that is over 100 years old. They could be considered a very old-fashioned business model, yet they had a fully implemented interactive system with game elements such as points, badges, leaderboards, incentives, digital challenges, missions, and an internal social network. There were arbitrary kudos badges that served no purpose other than to build a sense of community and collaboration between team members. Participant P8 discussed the implementation of gamification with her organisation:

> *"I understand why they are adopting some of those gamification principles to help people get results, [Company Name] has been around a long time, a lot of the staff [Company Name] gets today have not, they are of the younger generation and [gamification] is what motivates and drives them" (P8, support staff, finance industry)*

What is interesting with the extreme examples of P6 and P8, is both organisations have some similarities: both are large employers – each organisation has more than 1000 employees in total; both organisations have multiple sites – more than 20 separate locations; and both organisations have international ownership with parent companies being listed on international stock exchanges. While both organisations are amongst the largest employers in New Zealand, their management styles are polar opposites.

Inhibitors Relating to Gamification Products

This study found issues such as a lack of awareness of gamification products (P9, P12), and the perception that there were no out of the box solutions (P1); in addition, enterprise versions of gamification products required high levels of customisation (P1), and there was a perception that gamification was relatively expensive to implement (P3, P6).

In the following extract participant P1, an industry practitioner, offered the following reasons that organisations might not adopt gamification:

"Yes, there's a lack of understanding, yes there's a lack of budget and scale, because at the moment it's just custom implementations, so sure some productised solutions would help [...] I know there's a few niche products out there, but I don't think any of them have gained market [traction]" (P1, business owner, industry practitioner)

Budgetary Considerations as a Barrier:

Several participants (P1, P3, P6) indicated budgetary considerations were a barrier to organisations adopting gamification, signifying a perception that enterprise versions of gamified platforms were relatively expensive. Participant P1 had first-hand experience with gamification platforms through customising software for end-users. In addition, re-seller opportunities had been investigated several years earlier, citing the high-cost licensing agreements with vendors meant few New Zealand based businesses would justify the expense:

"What's interesting is the first generation of productised gamification solutions that came out, [...] were expensive enterprise offers" (P1, Industry practitioner)

Another participant working in an HR role (P6), suggested organisations such as banks would likely have a budget to accommodate this type of expenditure. It was interesting to note, P6's organisation employs over 1,200 staff in New Zealand alone, and is an organisation with significant international ownership, suggesting that budget and scale may be less of an issue for a business this size, than one employing twelve staff, such as the organisation of P10 who has implemented a completely digital gamification platform.

"If I think about organisations [...] looking for really innovative ways to engage [...], my friends in human resources who work in banks have been through a hundred different things and they can afford to do it." (P6, HR, Communications industry)

It is worth considering that the issue of organisations adopting gamification may in fact be an issue of prioritisation rather than an issue of budget, as this excerpt from P3 suggests:

"They have had no additional budget for it, because… there's never any additional budget for training, there's never any additional budget for induction." (P3, HR, software industry)

Customisation Issues as a Barrier:

Like many software applications, the technical approach to gamification implementation is divergent depending on the IT needs and ability of the organisation. Most businesses outsource gamification platforms (Kim, 2016), and in the US the industry is growing exponentially, platform providers such as Badgeville customise and integrate their platform into organisations enterprise resource planning or customer relationship management systems (Badgeville, 2016). This extract from the interview with business owner and software developer P1, highlights the issue of custom-developed digital gamification:

"So with those organisations that have paper-based KPIs and tools, the cost of turning it into a software system can be expensive because it's often a custom-process, so therefore custom software has to be written." (P1, Industry practitioner)

One consideration for organisations where budget is an inhibiting factor to gamification adoption is an open-source platform. A recent study was undertaken to determine to what extent elements of social games elements could be integrated into a web-based platform using open-source or freemium gamification plugins (Maican et al., 2016). Researchers found there were some limitations to the system due to their lack of programming capabilities, but the system architecture was achievable on zero budget, although Maican et al. (2016) suggest making funds available for plugin development would allow more customisation and a better end user experience. In addition to deployment costs such as design, platform development and maintenance, Salcu and Acatrinei (2013) remind organisations to budget for prizes and rewards.

Inhibitors Relating to Authenticity of Gamification

This study found that some business owners consider the concept of gamification to be an inauthentic business contrivance. One business-owner participant (P12) insisted gamification was a label for software that added nothing new to business, echoing Bogost's (2011, p. 1) claim that "gamification is bullshit". When asked how

he would label the practice of using game-technology to motivate, reward and engage staff he replied:

> *"I call this, things that you can and may do within a sales organisation. Putting a title on it is intellectual wanking… I hope you're still recording!… because that is what actually is… it is marketing bullshit, of course it is… do you know what else it is? It's for middle managers. Same as all that other crap… It is intellectual wanking… it's just crap. I would suggest that in all reality this is dreamt up, by somebody who decides they need something to sell. I've got fifty-bucks that says you can go in as a consultant to a government department […] and say 'I'm going to help you motivate your staff… I've got this new method… because your staff are of this era, they've been gamers and this is terminology they will relate to, because they don't relate to you do they Old-Man-Fifty?' I could sell that easy!"*
> *(P12, business owner, finance industry)*

This response highlights that while gamification researchers and industry practitioners are debating framework and ethics, small-business owners are not necessarily buying into what they consider to be hype. Rey (2014) believes the hype around gamification is driven by those with a vested interest – the software developers and gamification providers – not game designers, or computer-human interaction researchers.

Some researchers argue that while gamification has the potential to both help and harm people, it offers organisations increased opportunity to exploit workers for capital gain – a modern form of coercion motivated by profit (Bogost, 2011; Kim, 2016; Rey, 2014) that additionally serves to divert workers from the realisation the task they are undertaking is unsatisfying (Rey, 2014).

In *Gamification is Bullshit,* Bogost (2011) declares gamification is the practice of marketers and consultants capitalising on the increasing popularity of computer gaming. More specifically, "gamification is *marketing bullshit*, invented by consultants as a means to capture the wild, coveted beast that is videogames and to domesticate it for use in the grey, hopeless wasteland of big business, where bullshit already reigns anyway" (Bogost, 2011, p. 1).

5.5.2 Issues Raised: Employee Exploitation and Manipulation

This study found several issues relating to organisations using gamification and technology to monitor employee performance. Employee exploitation was a serious issue found in the literature and previously discussed in Section 2.8, this study did not record explicit statements regarding employee exploitation. However, several participants felt their organisations' gamified system was used to control employee performance, as evidenced in the following excerpts:

> *"It's a structure, it is a visual prompt if you like, to me it is used as a tool to either berate or reward, [...] I'm feeling a little bit negative today" (P7, sales, finance industry)*

> *"I think it is a big stick culture. I think it is a selfish culture. Selfish from their perspective, they have only got eyes for themselves and the bottom line" (P8, sales support, finance industry)*

> *"We can use it there to monitor performance. It's a bit Big Brother-ish" (P12, business owner, finance industry)*

The above excerpts were from participants working in the finance industry, but in different organisations. Both P7 and P8 work in financial institutions with significant implementations of digital gamification, P12's organisation is not gamified, but there is extensive performance measurement software in use. These participants all expressed the concern that the organisation was controlling their behaviour and led to feeling of being manipulated. In addition to this, other participants discussed how gamification may lead people to feel manipulated by their employer:

> *"Where I see gamification [...] it almost is quite manipulative in terms of you're trying to get the employee to go here and so you're going to motivate them in all these different ways to do that, I guess we do it in business anyway but if you look at it from the abstract it just feels manipulative." (P2, developer, software industry)*

> *"I think if you said, 'hey, we're going to create this... we are going to make your job just like a game', I think it would be seen as really manipulative."..... (P9, sales/support, manufacturing industry)*

On the other hand, another participant in a software-development organisation with some gamification felt the implementation was motivating in the sense it kept employees goal focused:

> *"It doesn't feel so manipulative [...] because it's like 'this is the goal', and everyone's clear what the goal is, and the goal isn't to create more widgets, the goal is client satisfaction." (P3, HR, software industry)*

According to Rey (2014), workers often show acceptance of exploitation and manipulation controls provided they are socially included in the workplace. This is evidenced in both P7 and P8's organisations, where there are strong elements of social interaction built into the systems (initially discussed in Section 5.3.7 and previously shown in Table 10: *Digital Elements of Gamification Observed in Organisation*).

Marketing material from vendors such as Bunchball imply game mechanics implicitly motivate desired behaviours: "gamified activities address and satisfy basic human desires, creating the addictive experiences that motivate users" (Bunchball, 2015, p. 5). Gamification mechanics commonly include social feedback and interactions and are therefore less focussed on strong-arming reluctant workers, and more on creating engaged workers (Rey, 2014). Raftopoulos (2014) makes an interesting observation that the convincing argument from gamification vendors infers employees are incapable of self-motivation, therefore management must administer external stimuli to improve employee performance, without considering systemic issues impacting performance in the first place.

In a recent study, Kim and Werbach (2016), argue detractors such as Bogost (2014) and Rey (2014) make claims of exploitation based on broad generalisations of ethical issues from specific cases, therefore the claim of exploitation cannot be justified. However, in reality, gamification is open to ethical issues, particularly if implemented for the purpose of manipulating employee behaviour (Raftopoulos, 2014).

5.6 Human Factors

In the twelve transcribed interviews analysed for this study, 733 incidents were initially identified during the open coding process; of these, 123 were eventually coded into a dimension of gamification categorised as *Human Factors*. Three key findings within that category will be discussed in this sub-section: the role of consent, voluntariness and mandatory fun in gamification; managing millennials in the workplace; and employee training in a virtual environment.

5.6.1 Consent, Voluntariness and Mandatory Fun in Gamification

This study has found that when employees feel they have a consented to participating in a *game*, they have a more positive attitude toward it than when they have not consented. Concepts of voluntariness and mandatory fun were discussed by several participants in this study as this excerpt from the interview with a gamification industry practitioner demonstrates the difference between games and imposed gamification:

> *"Gamification is... you're actually not making a game, because a game is voluntary, a game has a win and lose state, and a game has rules. Gamification is, on the other hand, often not voluntary. As soon as a large drill sergeant stands behind you with a stick and says 'we must have fun', it is not." (P1, Industry practitioner)*

In addition, the organisations of two participants employed in the finance industry, exhibited a significant number of game design elements in their digital information systems. Some of these elements were mandatory mechanics such as points, leaderboards, staff competitions, and experience badges; these were embedded within the performance management reporting systems. While the organisations had dimensions of gamification, it is not clear from discussions with participants whether or not this was their intended purpose. One participant demonstrated a negative attitude toward the compulsory mechanics and felt the system was used to manipulate employees, two examples from P7 are shown in these extracts:

> *"There is certainly a big carrot… at the end it's a reward for performance. We definitely have a reward at the end for every task we do… there is a reward or a consequence" (P7, sales, finance industry)*

> *"…to me it [performance measurement software] is used as a tool to either berate or reward, […] I'm feeling a little bit negative today" (P7, sales, finance industry)*

As well as the compulsory mechanics, there were aspects of the system, which allowed employees to choose whether to participate. In P7's organisation, there was a social community used to leverage social interaction between employees. This aspect of the system was quite new, and voluntary, but P7 was resisting its use:

> *"You can use it is much or as little as you like. Here we are pretty anti – just because it is something new and something we don't have time for" (P7, sales, finance industry)*

Participant P8 welcomed the use of a social network in her organisation and had wholly embraced its use. Again, this part of the system was voluntary, but was designed to align with the strategic vision for the organisation, which was (partially) to foster a sense of caring for the community. Employees were able to earn badges and points for interacting with the system, and additionally could bestow arbitrary 'kudos' badges upon co-workers:

> *"We can also award a badge to somebody else for being pretty awesome or whatever you like. I love your red shoes today, great, high five. The badges have been designed in a way that they align with our strategic values, however there is no governance about how or why you can give them." (P8, support staff, finance industry)*

An alternate definition of gamification is offered by Mollick and Rothbard (2014, p. 7) based on Deterding et al. (2011): "employer-imposed game in a work environment where the goals of the game are designed to reinforce the goals and purpose of the employer". This definition differentiates employee-created games, which allow individuals to exercise their free will and agree to participate (Burawoy, 1979), from organisational gamification, which is imposed by management as a form of control

over workers. In the case of P7 where mandatory gamification is imposed, employees are not necessarily consenting to the game. The notion of consent is considered the "degree to which employees actively cooperate with management initiatives designed to make work more productive or engaging" (Mollick & Rothbard, 2014, p. 3).

Voluntariness is an important distinction between games and gamified-business applications, Huizinga (1970) defines playing games as an engaging voluntary activity embedded in a rules-based structure within social boundaries. A concept echoed by Huotari and Hamari (2016), who state that voluntariness is a defining element of gameful experiences.

Mandatory fun is a critical concept discussed in that applies, not only to games, but also to other management initiatives aimed at cultivating positive employee attitudes and experiences at work, such as social events and company parties. Central to the concept of mandatory fun is the disparity between an individual's choice to participate, and an organisations right to impose and control the employees' experience. Mollick and Rothbard (2014) found there was an increased positive affect from gamification when employees had consented to the game, and a decreased positive affect when employees had not consented to the game.

5.6.2 Managing Millennials in the Workplace

Millennials were defined in Section 2.7 as people born between 1982 and 2002 (Howe & Strauss, 2002). According to literature, millennials actively seek feedback because it reassures them they are progressing, gaining the experience points to 'level up' (Hershatter & Epstein, 2010). Section 5.5 discussed the age of decision makers as an inhibitor to the adoption of gamification, but this study also found gamification could be used effectively within organisations to interact with millennials.

Participant P6 has an HR role within a large organisation, she considered gamification would be useful as a mechanism to facilitate employee onboarding; that is the tools, programs and procedures used by an organisation to socialise new employees (Klein, Polin, & Leigh Sutton, 2015). This is demonstrated in the following excerpt:

"During an induction there is an online element, also, for onboarding, something like that works really well… when you have a very creative and visual workforce – you know, a non-corporate workforce." (P6, HR, communications industry)

Contributing to the difficulties in managing millennials is the impact of software and technology. According to Andreessen (2011, p. 1), software is quite literally, "eating the world"; technology is radically transforming business practices, industries and business models in a revolution driven by ubiquitous connectivity and easy to use applications that allow people to communicate across time and space seamlessly. All participants in this study were asked the question: What is your opinion of the importance of technology in future workplaces? The following excerpts demonstrate participants consider that technology is transforming the face of business:

"Technology is transformative, it actually radically changes the business processes, and just compare the use of email and cloud computing in our workplaces to what we did ten, twenty years ago" (P1, business owner, software industry)

"Well, I don't think there's a choice on whether it's going to have a role in the workplace or not, people are going to start bringing in the technology they adopt and use at home or with their peers, they'll bring this to the organisation whether we want this or not. So they question is how are they going to use it?" (P5, developer, communications industry)

"When it comes to technology, we are ahead of everyone else in our industry, ahead of all the banks, ahead of all the finance companies. We have a system that is very fast and easy to use, and we digitally even signup contracts now, this is a paperless office is pretty much – we have evolved into that which is great" (P12, business owner, finance industry)

For millennials, technology is almost part of their genetic makeup. Bisceglia (2014) agrees, stating the use of technology is almost indistinguishable from the person "it is ingrained in their communication and in the way they work (para.12)", further adding a millennial has high expectations their employer will provide a digital working environment which will "support their natural use of technology (para.12)". This study has found that millennials thoroughly embrace the use of technology in

their workplaces, and anticipate an enormous uptake in further technological enhancements both at work and socially:

> *"I think it's essential, so… it's always replacing the people part of a process to begin with but it's really good because you can automate things that are trivial or frustrating or require a lot of accuracy, it's very useful in that regard. Enabling it so there's more communication avenues available if you use technology you can reach people over vaster distances as well. Not only just a replacement for some processes but it enables things that were not possible before" (P2, developer, software industry – millennial)*

> *"I think it plays huge part, when you look at the role of society the way it's progressing and how important technology is even a way to have a face-to-face between two people in the same office or helping to make geographic teams to work together its huge. Not just on the way of communication but in our day-to-day life" (P8, support staff, finance industry – millennial)*

In a world where technology is radically reshaping the world; the cost of data transmission and storage is essential zero; jobs are being outsourced and people can work from anywhere in the world (Friedman, 2005). Disruptive technologies such as Skype for internet phone calls, or collaboration tools like Slack, change the way teams communicate:

> *"We also have informal functional teams where there's no reporting lines or anything. All our designers are on Slack, and they can all participate in terms of reviews and critiques […] Slack's probably the more informal one, but we use Yammer for internal sharing […] Slack now also goes through our email, we have like a #banter tag and all sorts of random stuff goes through that." (P3, HR, software industry – millennial)*

In this study, the use of technology in the workplace was natural amongst digital natives; there were many examples of the use of many collaborative platforms including some that have inbuilt game-like features such as Easter eggs (undocumented features hidden in software as an inside joke) built into productivity tools:

"The teams have dashboards which pulls not just individual data but the team data and that's presented on the wall and it's mixed with [...] so they have like Easter eggs... like [...] random photos of people and that kind of stuff and like hidden weird things" (P3, HR, software industry)

While much of the organisational gamification implemented to date has focused on employee engagement (Seaborn & Fels, 2015), Digital gamification provides a viable mechanism providing HR practitioners an innovative tool to identify, attract, and retain talent (Lowman, 2016, p. 678), especially as the business community "[warms] up to gamification as more gamer friendly millennials enter the workforce and the benefits of gaming are better understood".

Gamified onboarding techniques are appropriate for use with millennial employees. According to studies conducted in 2011, millennials reported a 'game-like metaphor' applied to every aspect of their life (Shore, 2011). This study also found millennials see the workplace as a *multiplayer game* with rules to be hacked by successfully navigating exploitable loopholes and negotiating experience points to advance levels. Shore also states "virtual addiction to constant feedback is a quintessential millennial trait, as they love to know where they stand on the figurative leaderboard of life" (Shore, 2011, p. 2).

5.6.3 Gamification and Training in a Virtual Environment

Millennials perceive gamification can be useful for knowledge acquisition and upskilling in the workplace. Furthermore, the addition of game elements could help increase creativity, innovation and competitiveness (Procopie et al., 2015). In addition, organisational training in an authentic virtual learning environment could be a beneficial way to safely train and upskill employees.

As a gamification consultant, P1 is frequently involved in games, gamification and software design; he discussed the use of 3D visualisation tools in both training and product development as a realistic training environment:

"Onboarding and induction is the other area. There has been some use of 3D visualisation, so 3D graphics technology pioneered by the games industry, but

being used for planning and training and product design" (P1, industry practitioner)

In addition, P3 indicated her organisation had developed training software aimed at creating a virtual environment to train, test and measure employee improvement in critical scenarios where making a mistake in real life could result in loss of life of staff and members of the public, as demonstrated in the following remark:

"We developed software for a company called [name removed], which is [industry] training, it measures how good of a [role] someone is, [...] it basically collects data and sends it back, it's around how many potential hazards did you see in the [environment] and that kind of stuff. There's a whole lot of gamification in that" (P3, HR, software industry)

A study by Wood, Teräs, and Reiners (2013) found the authenticity of learning tasks in realistic situations can greatly enhance the learning environment for adult learners. The method of training in a virtual environment can be compared to organisational onboarding, as the principles are the same. Game elements such as 'rewind' and 'ghost image' can have a positive influence on learning as they allow employees to try different approaches to recognised problems without fear of failure. If an employee makes a mistake, they can simply rewind the game and attempt a different approach. Ghost images replay the failed attempt which could be overlaid with an ideal outcome to demonstrate how the problem could have been solved, they serve as a learning tool (Wood et al., 2013). This issue was highlighted in discussions with participant P2, who discussed players being accidentally 'killed-off', was a problem in some gamified employee training:

"We were developing a gamification system at [company name], and one of the techniques I thought was really useful [...]so the great thing about gamification or games is that they started out very open ended sometimes ridiculously hard – you know, you had one life; if you did something bad, you died completely. And now we've got this checkpoint system with little compasses to describe which direction you're going" (P2, developer, industry participant)

Another example from P1 highlights how one organisation uses 3-D virtual reality environments as a learning tool, to rehearse regular procedures that cannot be repeated frequently in business, as training opportunities are prohibitively expensive:

> *"[Name removed] would take down their kilns to clean them out, but every hour this kiln was offline would be like a hundred thousand dollars an hour, so speeding up that process, and so they could rehearse it in 3D and then also use that 3D rehearsal for the team to talk about what was going on and uncover tacit undocumented knowledge" (P1, industry practitioner)*

Save points and *multiple lives* prevent users from unnecessarily repeating understood steps; and *time and space control* constricts time within a game to allow the player to progress a task that in the real world might be time-delayed such as transportation of goods (Wood et al., 2013). Gamifying learning experiences offers significant benefits to an organisation; gamification can increase retention rates to 75 percent when used as a form of active learning; moreover gamification encourages calculated risk-taking, and cooperative goal attainment, behaviours which are beneficial to organisations (Lowman, 2016).

5.7 Psychological Factors

Twelve in-depth interviews were undertaken in this study, these interviews were transcribed and analysed; 733 incidents were initially identified during the open coding process and 90 of these were eventually coded into a dimension of gamification categorised as *Psychological Factors.* Findings in this dimension relate to motivation and changing employee behaviour, two significant theories previously identified in the literature. Findings also relate to instances of compulsive behaviour and gaming the system as identified within organisations with digital gamification.

5.7.1 Changing Employee Behaviour and Employee Motivation

Gamification can be seen as a means of shaping actions without conscious, rational consideration; two theories frequently referred to in gamification studies are: *Operant Conditioning*, which applies to changing behaviour (Skinner, 1938; Skinner, 1969); and *Self-Determination Theory (SDT),* which is useful to understanding how to motivate people (Ryan *&* Deci, 2000). These theories were initially discussed in Section 2.5.

There were several instances identified in this study where gamification could be used to change specific behaviours. The following examples demonstrate that participants acknowledge gamification could be a useful means to shape employee behaviour. It was interesting to note the following example highlights an organisation-centric approach, rather than a player-centric approach as suggested by Callan et al. (2015), Dale (2014) and Deterding (2014) in Sections 2.3 and 2.7:

> *"If you want to change behaviours, you put more influence on the behaviours you want by making it really clear [skills deficit identified] so it needs to come up as the next objective of your mission in the game, right?" (P2, developer, software industry)*

In another organisation, the participant identified a specific business problem that could be addressed by incorporating gamification techniques; however, this had not been implemented at the time of the interview. The issue discussed in the following extract relates to resolving an issue with managers ignoring critical information being

sent to them via the company email system; P6 considered that gamification could be used to encourage people managers to engage with time-sensitive information:

> *"We send [our people managers] quite a lot of information and they never read it, and then they get very annoyed at us because they want to know information… and we already sent it nine times and they have not read it! […] We have a very creative workforce, they are innovative people who are visual and so using something like elements of gamification would work well." (P6, HR, communications industry)*

In addition to gamification being instrumental in changing employee behaviour, motivation was a strong theme discussed by several participants in this study. It could be assumed that managers are centrally concerned with motivating staff to undertake the effort and persistence to accomplish tasks, however, this study found that employers have an expectation that employees should be self-motivated. Several participants commented that people might consider staff motivation was a managerial role, but the following examples demonstrate that, the onus of responsibility is pushed back to the employee:

> *"I think they would like to believe they do motivate staff to do well but my personal opinion is that they don't know how to… they actually don't. I don't think [the organisation] does try to motivate people, I think that they consider motivation should come from within" (P8, support staff, finance industry)*

> *"Motivation comes from within, you don't motivate people, that's 1970s because I've been studying this since the 70s so, it comes from within like I say… My guys are saying to themselves 'I want to do this so I can show [Name] that I've done that', that's what it's about" (P12, business owner, finance industry)*

The gamified system used in P10's organisation is essentially a utilitarian information system, that is, one whose function is primarily to increase productivity and efficiency; however, users experience some hedonic pleasures from the system, which leads to intrinsic motivation. In the following example, P10 is discussing the behavioural changes the gamified system is causing with one employee in particular:

> *"She went from talking and pissing around to, actually, I'm being measured and I don't want to look rubbish on this report. And she loves throwing that report back to me and saying look at me boss. Look at me today boss. Look at me today boss" (P10, business owner, retail industry)*

Several participants discussed what motivates them as employees or managers to take action and complete tasks at work. In the following example, a participant in the finance industry emphasised that she is intrinsically motivated to create strong customer relationships, which would ultimately lead to repeat business, stating that extrinsic rewards such as bonuses were unimportant:

> *"The rewards... that does not [motivate me], that is just a personal thing, some people like their name in lights, it's not something that I strive for. [...] I've had an amazing year but that is not why I do it. It is about hearing the customer and that is what motivates me... having those good relationships with customers and having good customer satisfaction surveys" (P7, sales, finance industry)*

In contrast, extrinsic rewards such as leaderboard rankings can be demotivating to employees experiencing decreased competence, as described in self-determination theory (Ryan & Deci, 2000). An example of demotivation follows in this excerpt from an interview with a finance industry participant:

> *"Some people are definitely very, very driven to be on top of that leaderboard, but likewise I know get some people feel pretty stink or a bit embarrassed because of their position on that leaderboard" (P8, support staff, finance industry)*

Another participant (P10) discussed the impact a gamified implementation was having in his business; the software was operational for approximately one month prior to the interview. In this particular implementation, employees receive real-time feedback on their performance, they have individual productivity targets but the system is transparent so each employee can see her own performance, and compare herself to others. This is a rewards based system, where employees receive extrinsic rewards such as prizes for improved performance relative to other employees; the system also intrinsically rewards employees as they experience a perception of

improved status, resulting from exceeding self-imposed goals. In this case, the highest perceived value for employees was peer recognition and approval from management:

> *"I have had one staff member in particular that I thought I was going to have to performance manage out of the business, that was what I had decided was going to be the only solution, she has had the most incredible gains from it. She's the personality type that reacts to making it a game, that it increases her productivity instantly." (P10, business owner, retail industry)*

In the following example, P10 is reflecting on the increased motivation displayed by one particular employee; intrinsically motivated by her desire to win the game:

> *"For her it is all about status… she's getting the most beneficial gains from the system because she just loves lording over the fact that she's faster than the previous person" (P10, business owner, retail industry)*

In another organisation P8 discusses being driven to collect badges – extrinsic rewards, given for completing specific tasks in the system, however, in this case, the participant is intrinsically motivated to collect the badges for the sense of personal satisfaction she will experience when the goal is achieved, as the following example demonstrates:

> *"I am 70 percent toward my bronze badge, I'm 50 percent towards my silver, and I'm 45 percent toward my gold badge, and the platinum is yet to be released… personal satisfaction […] I do want to get there" (P8, support staff, finance industry)*

Triangulating from seminal research on game classification (Caillois, 1958; 2001), and from *Self-Determination Theory* (Deci, 1975; Deci & Ryan, 1985; Ryan & Deci, 1999, 2000), Hamari, Koivisto, et al. (2014) suggested, in a meta-study of current literature, that external forces such as tangible rewards weaken the effects of intrinsic motivation (Deci, 1971); extrapolating that the use of externally mediated rewards in a gamified system would have detrimental effect on intrinsic motivation.

Although P10 initially recorded a marked improvement in the motivation of one particular employee following the implementation of a gamified information system,

literature suggests the initial effect may be impacted by the novelty of the new system; studies also indicate the benefits of gamification will decline with use (Koivisto & Hamari, 2014).

5.7.2 Compulsive Behaviours and 'Gaming the System'

A significant issue raised by several participants is the potential for addictive or compulsive behaviours from players, as well as the potential for gamification to be designed deliberately to promote compulsive behaviour, thereby raising ethical concerns of exploitation and manipulation. The following extracts from participants in the software industry highlight this potential:

> *"Gamification to me is about drawing inspiration from games particularly around motivation and addictive qualities which make people carry on with games [...] or through social engineering outside of games" (P3, HR, software industry)*

> *"There's dashboards you can think of as a gamification concept which is metrics that a company is interested in, and then the other part is mobile games making addictive games for people (P2, developer, software industry)*

According to Kim and Werbach (2016), organisations designing and implementing gamification have an ethical responsibility to ensure systems do not deliberately or negligently encourage compulsive behaviour, and in addition, if players demonstrate such behaviour, the system should be modified to mitigate further risk.

This study found participants expected other employees to find ways to cheat, and that the perception of fair play would be balanced by modifications to the system. Gamification creates opportunities for unintended behaviours; manifesting in this study as people cheating or gaming the system. Research found that when other players or employees cheat or game the system, it can be very demotivating to employees who follow the rules (Werbach & Hunter, 2012).

The following excerpts come from interviews with participants working within gamified environments:

"And the other thing about gamification is, when you've got these rewards and things, [...] it's a really muddy line, do you make it financially rewarding? They suggest you shouldn't really do that too much because you're going to encourage people gaming the system." (P2, developer, software industry)

"We get a lot of gaming the system, and you get into things like integrity at that point [...] The rankings come out every week but they are taking it back to monthly [...] because they are finding behaviours they are not liking. Instead of bringing it out every week, the behaviours may change if they don't bring it out every week" (P7, sales, finance industry)

"People are basically manipulating sales results and tracking them digitally but doing it in such a way they are working [gaming] the system" (P8, support staff, finance industry)

Shore (2011, p. 3) states millennials find ways to "hack the system, or find chat-codes [...] to the next level", further stating that this behaviour may be reflective of a millennial's hyper-connectivity and resourcefulness at problem-solving rather than an explicit attempt to game the system.

Robson et al. (2015, p. 416) consider the mechanics of a game can lead to the emergence of negative dynamics such as cheating, which is essentially a design issue; stating, "the challenge for designers is to anticipate the types of dynamics that can emerge and to develop the mechanics of the experience appropriately". The emergence of cheating behaviour was also addressed in a recent study by (Procopie et al., 2015) who stated users could try to cheat the system to achieve their goals, thus affecting the efficiency of the gamified process.

Recent studies found the people joining an established gamified environment might feel disadvantaged, which could lead to cheating. (Frith, 2012; Seaborn & Fels, 2015). Fullerton (2014, p. 155) agrees, stating "A game is fair if it gives all players an equal opportunity to achieve the game goals. If one player has an unfair advantage over another, and that advantage is built into the system, the others will feel cheated and lose interest in the system".

5.8 Cultural Dimensions

In total, 12 transcribed interviews were analysed for this study, 733 incidents were initially identified during the open coding process; of these, 54 were eventually coded into a dimension of gamification categorised as *Cultural Dimensions.* Key findings relating to organisational culture are discussed in this section: This study posits that an organisations' culture is an important factor in organisational gamification, and key characteristics were similar in organisations with a positive view toward gamification. In addition, this study uses Hofstede's model of Organisational Culture to corroborate these findings.

A useful definition of organisational culture comes from Sathe (1985, p. 255): it is the "general pattern of mindsets, beliefs and values that members of the organisation share in common, and which shape the behaviours, practices and other artefacts of the organisation which are easily observable". Using this definition as a basis to guide findings in this study, a key theme emerged from the data: there appears to be a relationship between organisational culture and adoption of gamification.

All participants described their organisations as being customer-centric; phrases such as *customer-satisfaction*; *customer relationships*; and *customer value*, were used commonly. This is not surprising, as meeting the needs of customers would be a reasonable expectation from any business. It was interesting however, that several organisations emphasised valuing employees during the interviews; in these cases, expressions such as increasing *employee engagement*, *identifying talent* and *freedom within boundaries* were mentioned by participants.

Organisations demonstrating employee values, also mentioned behaviours and practices that reflected a positive social environment. Examples of this include rituals such as teams celebrating the success of individuals; or recognising an unsuccessful outcome by bestowing an *Ignoble Award* acknowledging an unfortunate situation. In addition, organisations demonstrating positive employee values emphasised collaborative practices and rewarded social interaction. Several organisations had purchased or subsidised Fitbit health trackers for staff in order to promote healthier lifestyles demonstrating commitment to employee well-being.

Organisations that had adopted, or were attracted to the concept of gamification exhibited similar attributes: They operate in innovative, creative industries, where the talent of individuals is recognised and rewarded. They are technologically savvy; a strong use of digital technology was observed within the organisation, with many different applications in evidence including software for communication, collaboration and project management. In addition social networking systems, digital performance measurement tools and feedback mechanisms were observed. The participants described a relaxed organisational hierarchy – rather than a silo-approach to organisational structure; hierarchies were flat, with less formalised reporting relationships. Teams were small, and engaged with each other; in general, roles were cross-functional and employees were empowered to make decisions autonomously. Participants used words like 'learning, fun, engagement, innovation and visionary' when talking about employees.

It was interesting to note, P6 described the organisation as "immature" and said it was like a "blank sheet of paper" explaining implementing a gamified system would be relatively simple, as they were flexible and could write their own rules:

> *"[COMPANY] is a very immature organisation, [...], we are not doing things in an innovative or sexy way. We haven't got the basics right, but saying that, the advantage is when you're starting with a blank sheet of paper it allows us to go to [...] an end state, we miss out all of the boring bits that no one wants to do" (P6, HR, communications industry)*

Figure 11: *2x2 Matrix – Attitude toward Gamification x Gamified Instance*, shows a simple categorisation of participants firstly by whether or not there were gamification elements observed within the organisation, and secondly, by the observed attitude of the participant toward the use of gamification in an organisation. This attitude is the researchers' perception and is based on the participant's responses to various questions during the interview as well as analysis of twelve transcripts for theme and language relative to organisational culture.

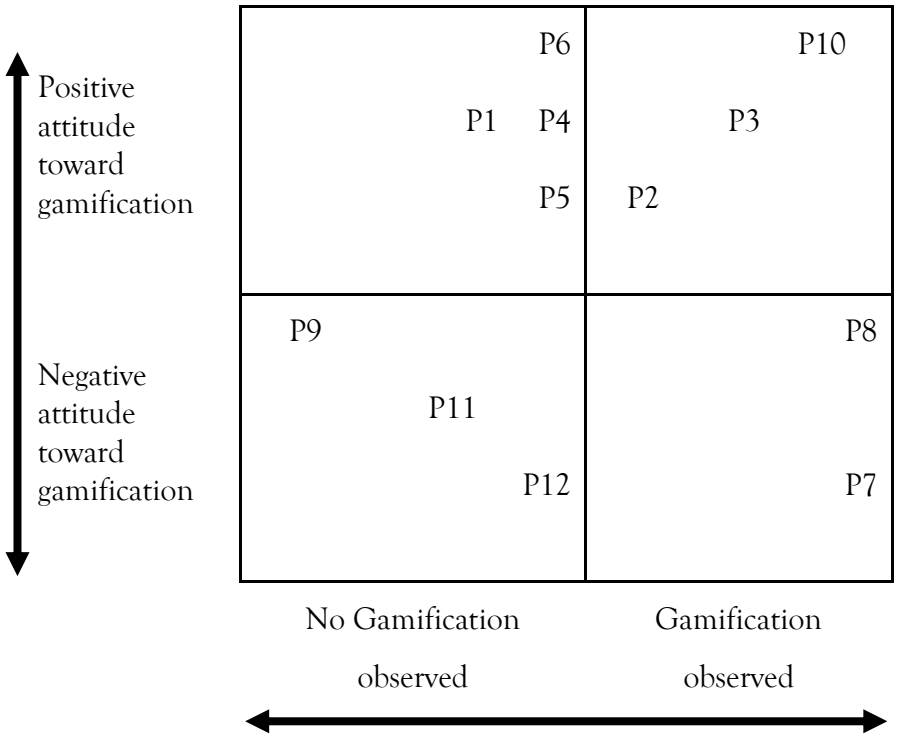


Figure 11: 2x2 Matrix – Attitude toward Gamification x Gamified Instance

There were four participants in non-gamified organisations, P1, P4, P5 and P6 who had a positive opinion toward gamification; they could see its value to an organisation even though it was not being used within their current organisation. In particular, P6 commented during the interview that gamification would be an excellent fit for their business:

> *"If you had a spectrum of organisations, we will probably be right at the end [willing to adopt gamification]. It wouldn't take that much really. There are not too many barriers to it really. We would not have much to give up. It's got a lot of elements potentially that would be appealing to our type of organisation." (P6, HR, communications industry)*

Several organisations in this study had identifiable game design elements embedded into their digital systems, however, not all uses of gamification observed could be described as having a positive impact on employee attitude. In the cases of P7 and P8, both participants had a negative attitude toward gamification and felt the tools were being used manipulate their performance, overall P8 was more balanced in her expression of the culture, with both positive and negative aspects discussed. The

following is an excerpt from P7, it is the response to a question about how she would label the software they use since gamification was unfamiliar terminology:

> *"it's a structure, it is a visual prompt if you like, to me it is used as a tool to either berate or reward, with a cop-out it the end when you get to the people piece." (P7, sales, finance industry)*

It was interesting to observe, that participants with a positive attitude toward the use of gamification in organisations (category A in Fig. 11) also used positive language such as 'learning, fun, engagement, innovation and visionary' to describe the culture of their organisation. Conversely, participants with a negative attitude toward the use of gamification in organisations (category B in Fig. 11) also used negative language like 'big stick, selfish, berate, manipulation, gaming the system' to describe the culture of their organisation. This suggests there may be a link between organisational culture, and a perception of the use of organisational gamification. A summary of descriptive language used by participants to describe the culture of their organisation (see Table 14) follows:

Table 14: Participant Responses to Culture Questions

Category A Language used to describe the culture	**Category B** Language used to describe the culture
• Innovative • Learning • People just love working here • Fun • Visionary • Internal champion • It's the spirit, we want to encourage people to be innovative • Entrepreneurial • It's an incredible organisation • It's like a start-up in a fast moving industry • Our people are really talented • People have this incredible DNA around love, love of the company, love of the brand • such a creative organisation • we are very playful • When you are motivated that culture is giving them that sense of purpose	• Used as a tool to berate • Harassment and bullying • We get a lot of gaming the system • Culture is very competitive, there is no sharing of information • I think it is a big stick culture. I think it is a selfish culture • It just feels manipulative • leadership style is about fear • it's a bit Big Brother-ish • We cover our arses, that's the culture we work with • it is a very good way of pitting people against each other • Here we are pretty anti • This is just a control and feedback system

Studies into games and culture have found there is a strong connection between the two concepts, suggesting play and games reflect culture, and that culture is communicated through both games and play (Caillois, 1958; 2001; Huizinga, 1970; Khaled, 2014). In *Gamification and Culture*, Khaled (2014) states there are many similarities between games and culture, games and cultures are bound by implicit and explicit rule that guide acceptable behaviours and conduct as people interact with each other and the game or workplace environment. People consider the importance of artefacts, rituals and traditions in games and cultures. In addition, games and cultures implore users to achieve goals that are worthy of pursuit, by moral, or ignoble means (Caillois, 1958; 2001; Hofstede, 1993; Huizinga, 1970; Khaled, 2014).

Huizinga (1970) suggests that games are played within a *Magic Circle* – a constructed space where, for the duration of the game, real world rules are suspended and the rules of the game take precedence. This however, points to a significant difference between games and gamification: by definition gamification occurs in non-game contexts such as a real-world organisational environment (Khaled, 2014). The rules artefacts and rituals of a game belong within the *Magic Circle* of the game, but in an instance of gamification, the rules, rituals, behaviours and artefacts flow both ways – blurring the line between gamification and culture (Khaled, 2014).

Schein (2010, p. 3) considers the culture of an organisation is constructed from the values, rules and accepted norms individual members of a social construct follow, stating it is the "foundation of the social order that we live in and of the rules we abide by". The role of culture within the framework of an organisation has been studied at length in the past four decades, by a number of researchers including Schein (2010), Søndergaard (1994) and Hofstede (1993) among others.

5.8.1 **Applying Hofstede's Dimensions of Organisational Culture**

Hofstede defined culture as the "collective programming of the mind which distinguishes the members of one group or category from people of another" (Hofstede, 1993, p. 5). His early work focused on the influence of societal values on national culture; his seminal work on cultural dimensions has been cited by many scholars. But Hofstede's cultural dimensions are not necessarily relevant for studies

on organisational culture (Hofstede & Hofstede, 2001), later research focused on business practices and identified six dimensions of organisational culture (Hofstede, 2016). These dimensions are summarised in Table 15: *Summary of Hofstede's Dimensions of Organisational Culture*, and discussed, with relevance to this study, following the table:

Table 15: Summary of Hofstede's Dimensions of Organisational Culture	
Dimension 1: Means-oriented vs. goal-oriented	In a very means-oriented culture, people identify with the process of work, emphasising the importance of *how* work has to be carried out. In a very goal-oriented culture, employees focus on *what* work needs to be carried out – concentrating on specific internal goals or results by whatever means are necessary, sometimes at additional risk.
Dimension 2: Internally driven vs. externally driven	In a very internally driven organisation employees perceive their work is distinctly separate from the needs of the customer. Ethics and honesty are imperatives. In a very externally driven organisation, the focus is meeting the customer needs, and the emphasis on results outweighs the emphasis on ethics.
Dimension 3: Easy going discipline vs. Strict discipline	In a very easy going culture employees can expect loose internal structure, a lack of predictability, and low levels of control and discipline. In a very strict work discipline culture, employees can expect a focus on efficiency and higher levels of control. People working in a strict work discipline culture are very cost-conscious, punctual and serious.
Dimension 4: Local vs. professional	In an organisation with a local culture employees identify with their direct supervisor or with their work group, there may be strong normative social influence. In a professional culture, employees identify with their profession or with the nature of their work.
Dimension 5: Open system vs. closed system	In an open system organisation, there is open accessibility to both insiders and outsiders, and people within the organisation are accepting of newcomers. In a closed system, newcomers are expected to prove themselves before being accepted and there is limited accessibility for unknown people to interact with others.
Dimension 6: Employee-oriented vs. work-oriented	This dimension of culture is related to the overall management philosophy of an organisation. Organisations with an employee-oriented culture take co-responsibility for the welfare of their employees. Organisations with a work-oriented culture emphasise task performance over employee welfare.

Compiled from Hofstede (2016)

Hofstede's publications on organisational culture (2001; 2016) provide a useful framework for describing the culture of organisations where the adoption of gamification may be deemed a good fit. Figure 12: *Cultural Dimensions of the Gamified Organisation*, shows Hofstede's organisational culture dimensions as a framework for gamification appropriateness. Following this diagram is an explanation of each of Hofstede's dimensions; this study has found that organisational culture could be a determining factor in effective gamification implementations; it also found that key characteristics were similar in organisations with a positive attitude toward gamification.

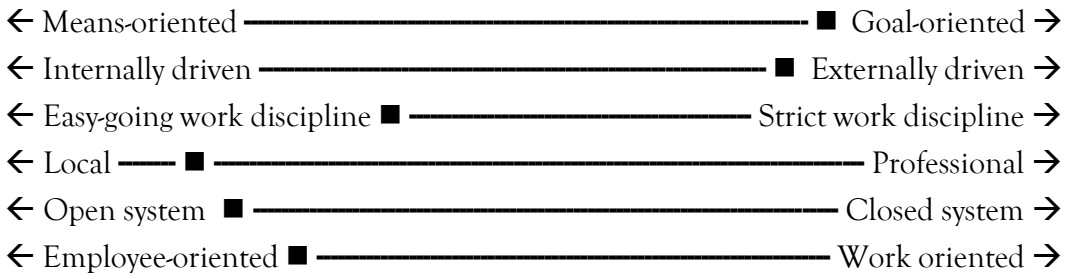


Figure 12: Cultural Dimensions of the Gamified Organisation

This study uses Hofstede's model of organisational culture to corroborate these findings; each dimension is discussed in the following sections as it relates to this particular study.

Dimension 1: Means-Oriented Vs. Goal-Oriented

There was little evidence of means-oriented culture observed during the interactions with participants, although P7 discussed the work environment in terms of *traditional reporting* structures. Participants in goal-oriented cultures discussed autonomy within their roles, the freedom to make their own decisions about how work should be conducted, an example of this follows:

> *"We are implementing this cascade of company goals down so that everyone… and […] I love his terminology has the 'freedom within boundaries'." (P4, sales, communications industry)*

There may be grounds to investigate further whether goal-oriented cultures that encourage employees to focus on *what* work needs to be conducted (Hofstede, 2016) are more likely to successfully adopt gamification within an organisation.

Dimension 2: Internally Driven Vs. Externally Driven

There was little evidence of organisations having an internally driven culture in this study, in which Hofstede (2016) describes as employees prioritising organisational needs before those of the customer. It could be argued that in the cases of P7, P8 and P12, three organisations that operate within the finance industry, there may be a bias toward internally driven product development, as the organisations are legally directed to create financial services that meet strict legal guidelines, which are developed to protect the interests of the financial institutions. The same could not be said of the manner in which those products are sold to customers, as all financial institutions studied have a high degree of customer service and demonstrated multiple instances of externally driven or customer focused culture, as the following excerpt demonstrates:

> *"One of our strategies is to put the customer first, but this means that you have got to understand your customer, and the things that surround your customer." (P7, sales, finance industry)*

Further study is needed to determine if there is a relationship between successful gamification adoption and the dimension of internal versus externally driven organisational culture.

Dimension 3: Easy Going Work Discipline Vs. Strict Work Discipline

There does appear to be a relationship between the work discipline culture, and a positive attitude toward gamification. Organisations such as those of P1, P2, P3, P4, P5, P6, and P10 had an observed flat hierarchical structure, with loose and fluid reporting. Teams were dynamic and collaborative at the organisations of P1, P3, P6 and P10, where management appeared to have a hands-off approach. In particular, P10 discussed his management style was to facilitate an outcome, but allow people the autonomy to choose their own path to achieve it. This excerpt comes from a

discussion where P10 is explaining how he managed a particular situation where an employee's output was too low. What is being measured in the following excerpt is how long it takes (in minutes) to complete $100 productivity:

> *"So, I said, you need to stop trying and just stop, look around you, learn what other people are doing [...] and learn what you can do faster. I don't really care what it is you do, as long as that number goes from 40 [minutes per $100], and I would like to see an immediate improvement from 30 to 32 [minutes per $100] just so I know that you are going in the right direction." (P10, business owner, retail industry)*

In a culture with a stricter work discipline, employees worked within more rigid boundaries, reporting was authoritarian (Hofstede, 2016). In the following excerpt, P12 was responding to a question about how his organisation motivated staff; it is an interesting comment as although it was said in a jesting manner, the researcher observed the statement held at least a partial truth. The organisation in the following example operates in the finance industry, where legal compliance underpins many work activities, and the work environment is highly controlled:

> *"We are driven by numbers and gross. We have daily meetings to talk about how they're tracking towards targets sometimes they are more formal than others. My leadership style is about fear... fear that I'll just sack the bastards. No apologies... that's me. That's part of it, I'm sure but part of my leadership style is they don't want to let me down." (P12, business owner, finance industry)*

In the example above, P12 is demonstrating a rigid and highly controlled work culture, it is also interesting to note, P12 also demonstrated a negative attitude toward gamification, he passed several negative comments including calling gamification both "*intellectual wanking*" and "*marketing bullshit*", the context of these comments is discussed in Section 5.5.1 – Inhibitors relating to the authenticity of gamification.

Dimension 4: Local Vs. Professional

In this study, there is evidence of participants demonstrating local culture in their organisation. Multiple participants: P4, P5, P6, P7, P8 and P10, discussed being part

of small teams, emphasis was placed on the words '*my team*' in these cases, focusing on their own localised cluster. It is interesting to note that all these participants besides P10, work in organisations that employ more than 1,000 people (namely P4, P5, P6, P7 and P8), but identify their work team is the few people they interact with daily.

Participants P1, P2, and P3 tended toward a more professional culture dimension, discussing their roles within the organisation, but also within the context of the gamification and software industry

> *"I think the industry is stuck in an innovation trap, they are stuck in their ways despite the fact that many learning and development people say they would rather make games, because they can see they are more pedagogically effective" … ….. (P1, industry practitioner)*

Dimension 5: Open System Vs. Closed System

In this study, the researcher found a high level of accessibility within the organisations of participants. In all cases, information flowed freely and several times the interviewer chose to guide dialogue away from commercially sensitive information. Participants in the finance industry were more reticent about accessibility to other members of the organisation. In one instance, the researcher was seeking to an introduction to a more senior manager within the organisation, to confirm an emerging concept, and the original participant asked that the researcher not identify her as having been interviewed, the second interview did not proceed.

Although Hofstede (2016) discusses a continuum of open and closed organisations, this study found participants were more open, and degrees of openness were exhibited, but no specific 'closed' organisations were interviewed (as defined by Hofstede). As the researcher has merely interpreted Hofstede, and not actually applied his assessment tools to the participants' organisations, it is difficult to posit with confidence that gamification works best in open organisations, but initial findings indicate this could be the case, and further study should be conducted to determine the weight of the finding.

Dimension 6: Employee-Oriented Vs. Work-Oriented

This study found organisations with a strong employee-oriented culture were more receptive to gamification than organisations with a strong work-oriented culture. This was evidenced throughout the interviews, in particular, P10's organisation exhibited a number of gamified instances such as technologically-driven employee competitions for productivity, rewards, and leaderboards. There was also a high management commitment to employee welfare and building a positive work environment was a management goal, as demonstrated in this excerpt:

> *"... if you build a positive culture in your organisation then you have everything. You have a whole group of people willing to learn, willing to help each other, willing to support each other, they are willing to accept, and willing to change and to adapt" (P10, business owner, retail industry)*

Participant P2 discussed that it was not possible to change an organisation's culture by adding gamification, but that gamification could be useful to enhance an employee-oriented culture:

> *"All these things [the adoption of gamified systems] are hugely tied to culture, so if you've got a culture of 'work is work' and it can't be fun, then this is not going to solve that, it's not going to introduce anything else that's not already there" (P2, developer, software industry)*

This study posits those organisations that have cultures that are goal-oriented; externally driven; easy-going work discipline; local; open systems; and have an employee orientation, are more likely to find gamification is an appropriate fit for their organisation. This concept certainly warrants further investigation, which is beyond the scope of this particular study

5.9 Strategic Alignment

In the twelve transcribed interviews analysed for this study, 733 incidents were initially identified during the open coding process; of these, 25 were eventually coded into a dimension of gamification categorised as *Strategic Alignment*. There are two key findings with this study concerning strategy; firstly, this investigation has found that implementing gamification without strategic purpose wastes resources. Secondly, the managerial decision to implement gamification needs to be purposeful – there needs to be strategic intent to use game mechanics, dynamics and aesthetics for a specific business purpose in order to qualify the implementation as 'gamification'. Without this strategic intent, the implementation is probably not an example of gamification, and may be an example of dynamic performance measurement and reporting tools. Both these findings will be discussed further in this section.

A perception of each participant's strategic influence was indicated in Table 5 (Section 5.2); this was based on discussion with the participant and knowledge of their role within the organisation, as well as their perceived ability to influence strategic direction across the entire organisation. Participants P3, P4, P5 and P6 were observed to have some strategic influence within their organisations, and participants P1, P10 and P12 are the business owners, so their personal strategic influence is significant. Strategic influence is defined as the ability to shape the way business is run in order to improve shareholder value, and influence organisational direction (Lukas, Whitwell, *&* Doyle, 2005).

5.9.1 The Role of Strategy in Gamification

Gamification is not a ready-made solution; it is a series of tools, technologies and methods that can be leveraged by business to reward, motivate and engage staff. However, as this excerpt from an interview with a gamification industry practitioner shows there is a perception that gamification can be applied externally to any process or business application as a solution to known problems:

> *"The problem with it, the 'ification' of it, it makes it look like a thing that can be applied out of the box to something else, so that's the pro and the con of it [...], but really it's more complicated than that." (P1, Industry practitioner)*

Several participants communicated the importance of having a compelling strategy and valid business case before adopting gamification. Participant P1 identified it was critical that the addition gaming elements align with business objectives. Callan et al. (2015) agree, stating that without strategic alignment, gaming elements may be ineffective or not make sense to employees. In addition, P6 considers organisations should have a very clear strategic focus before implementing gamification:

> *"People need to be clear about where it fits and have a vision of how it might play out. From a strategic outcomes focus I would be thinking about things like, motivating employees, and getting the right information to my employees is very important." (P6, HR, communications industry)*

Like other business initiatives, an investment in gamification needs careful deliberation, it is necessary to be cognisant of the organisation's purpose and vision and to determine how gamification aligns with the organisation's values, strategy, goals, and objectives. Participant P1 advises organisations considering gamification to develop a strong business case for its use, with clear objectives, metrics, and anticipated outcomes:

> *"If there's a business case for gamification, a business case often looks like... improving your conversion rate by ten to twenty percent, [for example] or making your customers go from one-and-a-half repeat visits to four to six repeat visits per month." (P1, Industry practitioner)*

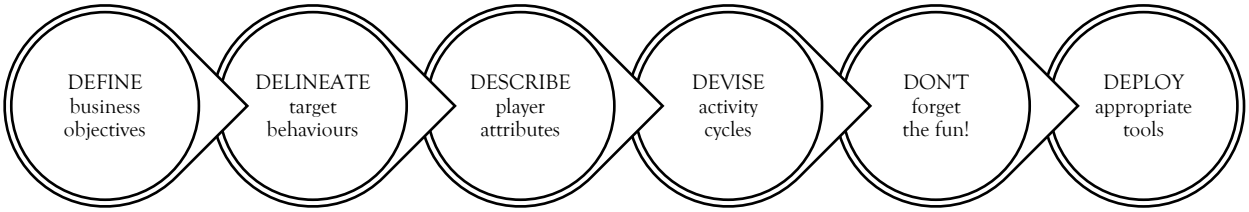
Furthermore, P1 considers it is important to acknowledge business metrics frequently focus on reporting key performance indicators, but gamification can also be aligned with softer corporate outcomes such as corporate values and teamwork, that cannot always be communicated through metrics, as shown in the following example:

"Sometimes gamification strategy means inventing new forms of KPI [that] go beyond metrics, and sometimes it is a mechanic that is arbitrary to the functional KPIs." (P1, Industry practitioner)

Little extant literature exists on the topic of strategic alignment between organisation use and gamification implementation, but Armstrong et al. (2016) caution there must be a compelling business case to implement gamification, otherwise resources will be squandered. They add, gamification may be a useful tool to assist organisations to meet objectives, but like other business applications, it should not be implemented solely because it is available.

5.9.2 Gamification Implementation Frameworks

In *For the Win*, Werbach and Hunter (2012) offer a gamification design framework, which describes how organisations can map gamification techniques with identified business issues. This framework is shown in Figure 13: *Gamified System Design Implementation Framework*, and is discussed fully in this sub-section.



Adapted from Werbach and Hunter (2012)

Figure 13: Gamified System Design Framework

Define Business Objectives: Werbach and Hunter (2012) state it is critical that managers have a complete understanding of the organisation's goals, specifically the performance goals and expected organisational outcomes for the gamified system. This was discussed in Section 5.9.1 by both P1 and P6.

Delineate Target Behaviours: According to Werbach and Hunter (2012), this means identifying the specific behaviours desired of the players to meet the business objectives. This behaviour is fundamental to gamification design, in that the system should be designed to further encourage this behaviour (van den Boer, 2013). In

addition, delineating target behaviour defines how player behaviour will be rewarded; it also explains how success metrics will be determined (Kapros & Kipp, 2016).

Describe Player Attributes: It is important for organisations implementing gamification to have an in-depth understanding of the users of the system; it is necessary to know what will intrinsically motivate players and what extrinsic motivators and rewards will be effective (Werbach & Hunter, 2012).

Many studies have been undertaken into understanding player behaviour and segmenting gamers by play-style attributes (Hamari & Tuunanen, 2014). One useful heuristic to understanding differing player attributes is Bartle's player archetypes; Bartle describes four primary player styles of game-play that can be useful in gamification system design: achievers, explorers, socialisers and killers (Bartle, 1996). *Achievers* regard levelling up and earning points as their main goal, and all is ultimately subservient to this. *Explorers* seek new game content and to learn new ways to play. *Socialisers* want to interact with other players and share their experiences. *Killers* regard eliminating rivals is critical to their game strategy (Bartle, 1996; Werbach & Hunter, 2012). The concept of designing a system to meet the needs of different player types and personas was addressed by P1 in the following extract:

> *"Well fun means different things to different people, so for example, you'd apply Bartle's different player types? All of a sudden it starts the conversation to be – what type of fun is appropriate to my target audience in this circumstance?" (P1, industry practitioner)*

Bartle's player attributes are directly transferrable to gamification, and to understanding behaviour and intrinsic motivation amongst employees, while the labels may not be appropriate in business, the generic player archetypes can be useful for segmenting employees. Hamari and Tuunanen (2014) maintain Bartle's player types should be viewed as axes, rather than dichotomous categories, further stating people have multiple motivations, and may appear simultaneously in more than one category to varying degrees.

Devise Activity Cycles: Following player analysis, Werbach and Hunter (2012) describe a process of refining engagement loops for each player type, to take different motivations into account. Player archetypes describe different strategies of game play, games are not played in a linear fashion. Gamification systems benefit from a *spiral of motivation* leading to player action, which evokes a response to the player in a feedback loop, in turn provoking to player to repeat the action or to continue interacting with the system (Huber & Röpke, 2015; Werbach & Hunter, 2012). As users of the gamified system become more familiar with the gamified system, it should evolve in both complexity and by introducing new challenges; this assists player 'stickiness', a term used to describe the concept of engaging users in the game experience in order to maintain interest, resulting in an increased user return rate.

Werbach and Hunter (2012, p. 94) state "games always have a beginning, and sometimes have an end". The concept of gamification having an 'end-state' was raised by both P1 and P3, both of the industry practitioner participants:

> *"Gamification is… you're actually not making a game, because a game is voluntary, a game has a win and lose state, and a game has rules." (P1 – Industry practitioner)*

> *"With games, they seem to go to an ending, and we didn't want people to end up with a career ending." (P3 – Industry practitioner)*

During the interview, P3 raised the game end-state, as a reason gamification was not being used in their career-guidance processes. This comment was interesting because at the time of the interview, it seemed an innocuous statement; however, as the literature has been explored further, it is an obstacle easily overcome through a rigid gamification design process.

Don't Forget the Fun: As discussed in Section 2.2, the use of the word *fun* is somewhat misleading in organisational gamification; Participant P1 commented several times the word *fun* is misleading, especially in a business context, as fun is a subjective term, meaning different things to different people:

> *"Fun is absolutely misleading, inaccurate, unhelpful word to use…" (P1, Industry practitioner)*

> *"Fun means different things to different people, so for example – what type of fun is appropriate to my target audience in this circumstance?" (P1, Industry practitioner)*

Although Werbach and Hunter (2012) use the word *fun*, in reality there are many different dimensions to fun that are applicable to gamification, people play games for reasons such as the challenge of overcoming a difficult obstacle; casual enjoyment of the experience; the opportunity to adopt a different persona or experience; and, enjoyment of the social experience (Lazzaro, 2004). Werbach and Hunter (2012, p. 98) suggest gamification designers ask "would players participate in your system voluntarily?" as a measure for how engaging the system is to users, further suggesting gamification design is an iterative process of building, testing and refining.

Deploy the Appropriate Tools: in Werbach and Hunter's gamification design framework, the final stage is selecting the appropriate gamification mechanics, and coding them into the system (Huber & Röpke, 2015; Werbach & Hunter, 2012). Huber and Röpke (2015) link the deployment of appropriate tools to the mechanics, dynamics and aesthetics (MDA) framework by Hunicke et al. (2004).

The MDA framework was originally discussed in Section 2.4; **Mechanics** are the game elements, rules, context and types of interactions bound within the gamified situation, they are common to all players and remain constant each time a player takes an action (Robson et al., 2015). **Dynamics** refers to the in-game behaviours that emerge as users interact with the system, in gamification, mechanics may be selected to support dynamic behaviours such as cooperation or competition. Dynamics can lead to unintended consequences such as negative behaviours like cheating (Robson et al., 2015). **Aesthetics** are the anticipated emotional experiences of the players as they interact with the gamified system (Deterding et al., 2011; Hunicke et al., 2004).

In this sub-section, the importance of linking gamification strategy with player needs has been discussed, alongside a framework for designing effective gamification interventions.

5.9.3 **Purposeful Gamification**

The second significant finding relating to strategy is that in the majority of cases organisations deploying observable gamified elements are doing so inadvertently; that is, they have not implemented a purposeful gamification strategy.

Game design elements identified within participants' organisations are summarised in Table 16: *Identified Gamification Elements in Participants' Organisations*.

Table 16: Identified Gamification Elements in Participants' Organisations

	Gamification self-identified within organisation	**Elements of gamification observed in organisation**	**Digital/ Analogue system**	**Business applications, and reporting tools**	**Specific gamification elements mentioned**	**Gamification Intent**
P1	NO	NO	Not relevant	• Trello • Slack • Fitbit • Asana	• PlayStation vs Xbox tribes – social interaction	Not applicable
P2	YES	YES	Digital	• Slack • Fitbit • Campfire • Hip Chat	• Achievement rituals • Awards • Gifting • Milestones • Rewards • Tokens	Inadvertent
P3	YES	YES	Digital	• Slack • Yammer • Trello • Fitbit • Digital dashboards • Progress bars • KPIs	• Achievement rituals • Awards • Badges • Easter eggs • Feedback loops • Incentive programmes • Leaderboards • Levelling up • Prizes • Quests • Role-playing characters • Social team challenges • Trophies	Purposeful
P4	UNSURE	MINOR	Analogue	• KPIs • CRM • Bonuses /Commission	• Achievement rituals • Incentive programmes • Inter-office challenges • Rewards	Inadvertent
P5	UNSURE	MINOR	Analogue	• Targets • Dashboards • KPIs	• Achievement rituals • Awards • Leaderboards	Inadvertent
P6	NO	NO	Not relevant	• Reporting tools • Performance review • Intranet	• Incentive programmes	Not applicable

P7	UNSURE	MAJOR	Digital	• Customer satisfaction surveys • Management reviews • Engagement surveys • Digital dashboard • Sales tracking reports	• Achievement recognition • Achievement rituals • Badges (quarterly) • Collaboration rewards • Competitions • Incentive programmes • Leaderboards • Points • Social networking • Tribes • Trophies	Inadvertent
P8	UNSURE	MAJOR	Digital	• Customer engagement surveys • KPIs • Staff surveys • Performance reviews	• Achievement rituals • Awards • Badges • Gifting • Incentive programmes • Leaderboards • Levelling up • Points • Prizes • Progress bars • Rankings • Social networking • Teams, tribes and guilds	Inadvertent
P9	UNSURE	NO	Analogue	• Sales targets	• Achievement rituals • Leaderboards	Not applicable
P10	YES	YES	Digital	• Measuring profitability • KPIs • Performance measurement	• Achievement recognition • Bonuses • Leaderboards • Progress bars & graphs • Rewards	Purposeful
P11	UNSURE	YES	Analogue	• Performance measurement	• Achievement recognition • Awards • Badges • Certificates • Competitions • Leaderboards • Trophies	Inadvertent
P12	UNSURE	MINOR	Analogue	• Sales targets • Whiteboard • KPIs (industry) • Commission	• Bonuses • Gifts • Incentive programmes • Rewards	Inadvertent

The first column identifies the participant; and the second column shows whether participants self-identified gamification elements within their organisations. In column three, the researcher recorded whether gamification elements were observed or discussed during the interview; column four identifies whether any identified game elements were digital – using technology, or analogue – using offline tools. Columns five and six categorised the discussion of game elements into business

reporting applications, or a form of gamification implementation. The seventh column is a determination by the researcher as to whether the inclusion of gamified elements within the structures of the organisation is an intentional, purposeful gamification strategy, or whether the identified game design elements are merely an inadvertent listing of components which may be considered gamification in a different context. This categorisation is discussed following the table.

All participants were asked whether they considered their organisation used gamification techniques or applications with regard to staff. In the case of the three industry participants, P1 said there was no gamification used in his organisation, but P2 and P3 both discussed some elements of gamification; neither P2 nor P3 identified a distinct gamification strategy or game-like information system. The three industry participants acknowledged some software applications used by their organisations for collaboration and project management included elements of gamification, examples given included Slack, Trello and Asana. In addition, all three organisations had purchased or subsidised Fitbit health trackers for employees, and maintained social competitions between employee teams and individuals.

Following the question about whether participants could suggest any game design elements in their organisations, participants were shown a list of game like elements (appendix D). This list of gamification prompts was initially compiled from the literature, as discussed in Section 2.4; additions to the list were made following the interviews with industry practitioners, P1, P2 and P3.

In addition to the industry practitioners, participants P6 and P10 knew what gamification was prior to the interview. Both participants were clear about whether they considered their organisations used elements of gamification: P6 did not consider gamification strategies were used within the organisation, and P10 considered a high use of gamification was included in managing people and processes.

Other participants, P4, P5, P7, P8, P9, P11 and P12, were initially unsure whether gamification was used in their business, but participants P7, P8, and P11 identified several game design elements used in employee facing activities from the list in appendix D. In the case of P4, P5, P6, P9 and P12, the organisations used digital

dashboards and performance measurement tools, but these systems lacked game-like structures as defined in Section 2.4: *Mechanics of Gamification*.

The participants' organisations have been categorised by the researcher's perception of the organisations strategic intent to deploy game design strategy in an employee-facing application. There are three categories of organisational gamification: Not applicable; inadvertent; and purposeful.

The classifications are subject to interpretation, but several factors were considered when categorising the organisations. The extent of each participant's strategic influence within the organisation in relation to his or her role was considered and compared to the interview transcript and field notes, identifying themes of strategy in relation to game elements discussed.

Participant P9 was a member of support staff, with no management status, and little opportunity to influence strategic direction for the business, she talked little about the use of game elements in the organisation, and no game design was identified in the organisation, therefore P9's organisation was categorised as *not relevant*.

Participant P10 was the business owner; he identified several key game elements within the organisation and discussed the choices made to implement a game-like strategy. In this instance, P10's organisation would be categorised as *purposeful* gamification; likewise, P3 had strategic influence in the organisation; she listed fourteen game-like elements within the business, and discussed gamification as an organisational strategy. P3's organisation was categorised as *purposeful* gamification.

In five cases, (P2, P4, P5, P11 and P12) the participants identified several game elements, but discussion of these was not linked to organisational game-strategy themes. Participants P4 and P11 identified analogue instances of game elements in the organisations. In these five cases, the organisation was categorised as using *inadvertent* gamification. In the cases of P7 and P8, more than ten game elements were identified by the participants in their organisations, in addition to significant use of digital reporting tools including digital dashboards and visualisation tools. These participants have also both been categorised as *inadvertent* gamification as in each case,

no clear evidence exists that the organisations have a clear gamification strategy. It is conceivable that by interviewing additional senior managers from the organisations that P7 and P8 may be re-categorised.

The classification of each participant's organisation is shown in Figure 14: *2x2 Matrix –Purposeful Gamification Analogue/Digital*, this simple matrix shows whether identified game design elements were digital or analogue, and also whether the organisation demonstrated a strategic intention to include game design strategy in employee-facing applications.

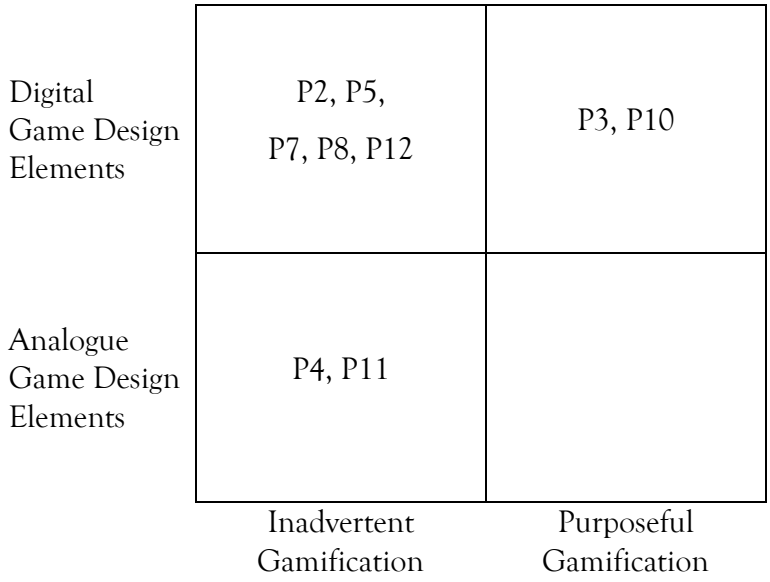


Figure 14: 2x2 Matrix – Purposeful Gamification Analogue/Digital

Participants P1, P6 and P9 do not appear on Table 14, as no elements of game design were identified within the organisations' systems; participants P7 and P8 are categorised as *inadvertent* gamification on the basis that no clear evidence exists they should be categorised as *purposeful*.

A key theme recurring in this study raises several questions: If the structures and mechanics are in place, but not the intent to use gamification as a strategy, is it still gamification? What is the role of purposefulness in the definition? To what extent does organisational intent determine whether a system is gamified, or merely a visual representation of performance?

The definition of gamification by Deterding et al. (2011, p. 1) is currently the most cited academic definition; the authors define gamification as "the use of game design elements in non-game contexts". As discussed in Section 2.4, game design elements include mechanics, dynamics and aesthetics. By further definition, Deterding et al. (2011) also state any business application can be considered gamified if a designer adds game elements to it, such as badges, leaderboards or progress bars. One issue with the current definition is that any business software system could be considered gamified if any element that may also be found in games can also be found in the system.

Take for example *Slack*, an application developed for team communication and collaboration. In the MDA framework developed by Hunicke et al. (2004), aesthetics are defined as the emotional responses evoked in the player that influence their experience. *Slack* has been designed to evoke a sense of enjoyment in users, but gamification professionals such as Chou (2016) and Kim (2015), state while *Slack* can be fun to use, it is game-thinking, and not gamification. *Slack* does not include points, badges or leaderboards, the typical trappings of gamification, but it does use onboarding and challenges to invite amplified usage. *Slack* includes a high-degree of customisation which Kim (2015), states appears game-like but the essence of the experience is the journey toward mastery, as users develop skills and unlock new challenges, further strengthening the argument against *Slack* being an example of gamification.

This assertion by Chou and Kim is at odds with academic definitions, such as Deterding et al. (2011), and leads the discussion back to the question of the role of purposefulness in gamification adoption. This study asserts that gamification is not simply the use of game elements in non-gaming contexts and provides an alternate definition:

> **Organisational gamification is the purposeful selection of game strategy and the inclusion of game mechanics, dynamics and aesthetics to engage, reward and motivate employees.**

Using this definition, this study proposes that of the twelve participants interviewed, only two organisations – those of P3 and P10 – can be defined as using organisational gamification. Both organisations made a strategic decision to include game-like mechanics to engage, reward and motivate employees. In all other cases discussed, the organisations were not using gamification in any form, or it was used for measuring performance or a tool for visualisation of reporting.

5.10 Chapter Summary

Twelve participants were interviewed for this study; three participants work in software organisations and have first-hand experience with gamified product and process development. Following these interviews, a further nine participants were interviewed, three in the broadly-defined communications industry, three in finance, and one each in real estate, retail sales, and manufacturing. The roles of participants included business owners, software developers, human resource managers, sales people and support staff.

Participants had various degrees of game design implementations in their businesses: two participants had no identifiable gamification; and another four had minimal game design elements observed in their organisations. One participant's organisation used analogue only gamification, this was observed as off-line only game-like elements; two participants had both analogue and digital elements observed, this category was labelled hybrid gamification; the final category containing three participants employed pure digital forms of gamification.

5.10.1 Inhibitors to Gamification

The purpose of this study was to explore the inhibitors to gamification adoption in an organisational context. This study has found the use of gamification is inhibited by four key types of barriers: (1) barriers relating to the organisational dynamic including organisations structure, size and physical locations relative to the employee base. (2) Barriers relating to the management style and organisational environment, the age of decision makers was also discussed, with participants considering that gamification would likely increase as people comfortable with games achieved higher status within the organisations. (3) There appeared to be a lack of gamified product, and a lack of awareness of product including issues regarding the cost of software and customisation. (4) The final identified type of barrier relates to the authenticity of gamification as a solution, with one participant arguing that gamification was an unnecessary contrivance that added nothing new to business.

5.10.2 Additional Findings

This study found employees are more amenable to using a gamified system when they have agreed to participate; employee consent is not always an option in employer-imposed gamified systems. Central to the concept of mandatory fun is the disparity between an individual's choice to participate, and an organisations right to impose and control the employees' experience.

Gamification is a natural fit with the millennial generation, whose lifestyles evolve around technology and innovative ways to use it. Technology is radically changing business processes, and millennials expect their employers will provide a digital working technology that will support their natural use of technology (Bisceglia, 2014). Technology is transformative, and gamification has a place within training and learning in virtual environments, by presenting low risk opportunities to upskill staff.

It has been argued that gamification offers opportunities for organisations to motivate employees, however, this study found there is a clear lack of applied motivation in organisations, and that organisations and employees have an expectation that motivation comes from within, and cannot be constructed from points, badges and leaderboards. Studies have shown that extrinsic rewards will decrease intrinsic motivation (Deci & Ryan, 1985; Deterding, 2014). In addition, Deterding (2014) warns against adding a game-like veneer to organisational engagement programmes; an unintended consequence of this approach may well be employees resist using the new system and become resentful toward management for the shallow implementation.

This study also found that participants in gamified organisations expected other employees to find ways to cheat the system, research found that when other players or employees cheat or game the system, it can be very demotivating to employees who follow the rules (Werbach & Hunter, 2012).

In addition to answering the main research question, this study has identified several other significant findings that add to the literature of organisational gamification, and warrant consideration for future research.

Engagement is an Emergent Property of a Gamification System

Gamification is an open system of interdependent elements such as mechanics and dynamics, working together to function as a whole and evoking emotional responses from players. As a system, gamification needs to be considered in context of the wider organisational system to which it belongs; adding, modifying or removing part of the gamified system could have unintended consequences, caused by the unpredictability of humans as they interact with the system.

The concept of emergent behaviour is an observed phenomenon within systems dynamics, and this study found that employee engagement is an emergent property of well-considered gamification systems. Figure 9: *Engagement as an Emergent Property of a Gamification System*, draws on both the MDA framework from Hunicke et al. (2004) and the gamification system model from Section 5.4.

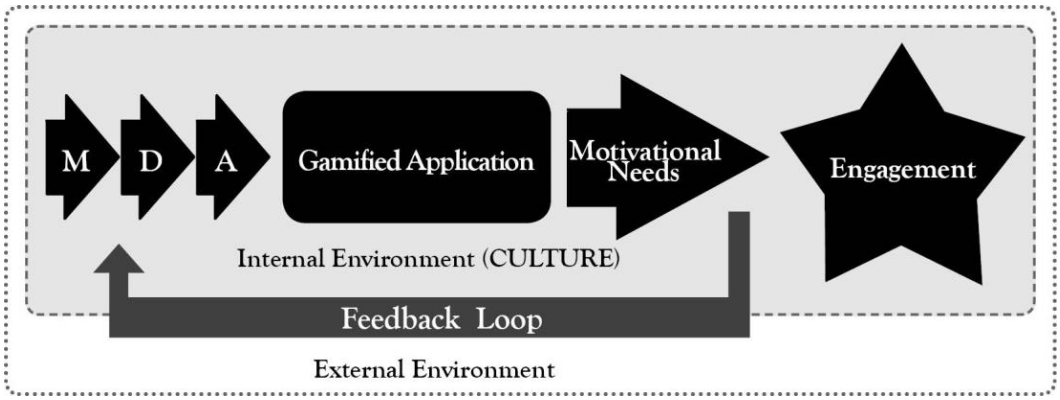


Figure 9: Engagement as an Emergent Property of a Gamification System

The conceptual model is proposed to support this theory, the model describes how the mechanics, dynamics and aesthetics of gamification can be assembled in the structure we call organisational gamification, and that entity has the potential to engage employees, which is an emergent property of the gamified system.

Describing the Ideal Culture for Organisational Gamification

There is a relationship between organisational culture and adoption of gamification; Hofstede's model of *Organisational Cultural Dimensions* offers a useful framework for determining the organisational structure ideally suited to effective gamification. This

study proposes a conceptual model of the ideal gamified organisational culture. This model was discussed in Section 5.8

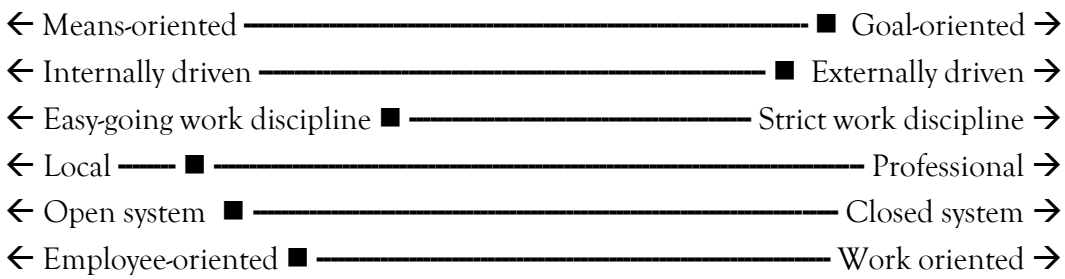


Figure 12: Cultural Dimensions of the Gamified Organisation

Using Hofstede's *Organisational Culture* dimensions, this study proposes an organisation where gamification would be a good fit culturally meets the following dimensions: the organisation is goal-oriented; externally driven; has an easy-going work discipline; operates with a local focus; is an open-system organisation; and has a strong employee orientation.

This model is conceptual, and future research is required to validate these findings, however, this was outside the scope of this particular study.

Purposeful Gamification

This study found that implementing gamification without strategic purpose wastes resources; organisations need to have the strategic intent to use game mechanics, dynamics and aesthetics for a specific business purpose in order to qualify the implementation as *gamification*. Without strategic intent, the implementation is simply a dynamic performance measurement and reporting tool.

This study also found that many of the participants' organisations in this study were inadvertently deploying observable game-like elements in the organisation, and for this reason, the instances should be categorised as *inadvertent gamification*; in this study, only two purposefully gamified organisations were identified.

Conclusions, limitations and directions for future study will be discussed in the next chapter.

Chapter Six: Conclusions, Limitations and Future Research

6.1 Conclusions

The central research question in this study is 'what are the inhibitors to gamification in an organisational context?' As previously discussed in Section 5.10, four groups of inhibitors were discussed. These included barriers relating to the organisational dynamic, management style barriers, there were significant barriers due to lack of productised offerings, and the perception of gamification as an unnecessary contrivance.

These inhibitors are inter-related, and it is possible to link them to a key concept identified in Chapter Two; the gamification industry is immature, gamification is an emerging trend, that first appeared on the *Gartner Hype Cycle for Emerging Technologies* in July 2011 (Zichermann, 2011). Discussing an emergent trend in 2011, and expecting it will have achieved full market acceptance within the space of six years is perhaps naïve on the part of this researcher. Much of the literature reviewed in this study is relatively new and most studies have taken place in the past two years. It is still early days for gamification in the real world. Opportunities for researchers to study gamification within an organisational context will increase as the practice of gamification becomes more commonplace in business.

One of the research questions asked: what is the current knowledge of gamification within the business community? An academic definition of gamification was given in section 2.2, and the perception the word may be misleading was discussed. Section 5.3.1 discussed participants' understandings of gamification and concluded that the use of the term gamification is not well known in the business community. Again, this is a reflection of the immaturity of the gamification industry, and the term may increase over time as the practice becomes more widespread in business. As there is a general agreement between some academics that the use of the word gamification may be misleading, and the practice is not yet widely adopted in a business context,

a study into whether a more marketable name for the practice of using game design elements in an organisational context may be appropriate.

This research also asked how do organisations motivate, engage, measure and reward employees; and what is the role of technology in that? Organisations use a wide range of business applications, reporting tools, feedback mechanisms and game design elements to motivate, engage, measure, and reward employees. Not all these tools and elements are digital, this study found significant use of analogue and digital tools for these purposes. Significant findings are discussed in sections 5.3.4 to 5.3.7, however, this study concludes that there is a distinct difference between business applications and gamification, even when game design elements are incorporated into the business applications.

In addition, this study posits that purposefulness and strategic intent are important factors in the classification of organisational gamification. This was previously discussed in Section 5.9. This study concludes that unless an organisation has the strategic intent to deploy game design elements to engage, motivate, and reward employees, then the use of elements such as points, badges and leaderboards should be categorised as digital reporting tools.

This study also distinguishes between gamification, and organisational gamification, offering a unique definition for gamification implemented within organisations:

> **Organisational gamification is the purposeful selection of game strategy and the inclusion of game mechanics, dynamics and aesthetics to engage, reward and motivate employees.**

In addition to answering the research questions, this study also identified unexpected emergent findings. Two conceptual models emerged in this study, the implications and directions for further study.

Using Hofstede's dimensions of Organisational Culture as a basis, the model of *Cultural Dimensions of the Gamified Organisation* (Fig. 12) posits those organisations with cultures that are goal-oriented; externally driven; easy-going work discipline; local; open systems; and have an employee orientation, are more likely to find gamification is an appropriate fit for their organisation. Future study into the organisational culture of organisations with employee-facing gamification would be beneficial to corroborate this concept.

The model of *Engagement as an Emergent Property of a Gamification System* (Fig. 9), describes how the mechanics, dynamics and aesthetics of gamification can be assembled in the structure we call organisational gamification, and that entity has the potential to engage employees, which is an emergent property of the gamified system. Further exploration into the phenomena of engagement emerging from a gamified system would be useful in order to validate the model.

6.2 Limitations

This experience has been a steep learning curve, with regard to both the field of inquiry, and the practical application of using grounded theory methodology.

6.2.1 Application of Grounded Theory Methodology

GTM was selected as an appropriate method for this study, as the purpose of the study was not to test an existing hypothesis; rather its purpose was to explore factors relating to the organisational adoption of gamification. GTM is useful in emergent situations, such as the impacts of technologies on humans. This study endeavours to use the Glaserian approach to GTM, but the researcher acknowledges, data collection and analysis is not classical GT described by Glaser or Strauss, rather practically applying Urquhart's suggestion that the Glaserian approach allows researchers to generate their own paradigm.

6.2.2 Role of Extant Literature

The classical approach to GTM suggests the researcher approach the field of study with an open mind, limiting exposure to extant literature. In this case, the researcher

conducted a literature review prior to commencing the study in order to understand the nature of gamification, and to determine where the research gaps may be. It was also necessary to gain an understanding of theories relevant to the topics, in this case these included theories on motivation; management; game design; and changing organisational behaviour. In addition, the researchers' programme of study required an extensive and immersive review of literature before the methodology was selected.

6.2.3 Unexpected Emergent Findings

The research gap identified prior to beginning data collection suggested the study should focus on the inhibitors to gamification adoption in an organisational context. However, GTM allows theory to emerge from the data, and what emerged in this study is not a list of inhibitors to gamification, but the concept that gamification is a dynamic system of interrelated elements that can work together to create engagement; that organisations with effective gamification have similar characteristics and can be mapped using Hofstede's Organisational Culture model; and that several organisations using gamified mechanics lack the strategic mandate to justify labelling the intervention as gamification.

6.2.4 Data Collection Limitations

As a qualitative research study, the findings in this study are interpretations of data collected from human participants in a variety of settings, and as such, these findings may be subject to alternate findings not considered by the researcher.

Data was collected during in-depth interviews; it is acknowledged that some participants may be less articulate or insightful that others. As with all research, this study is impacted by the research philosophies and life experiences of the researcher, therefore some bias will likely be represented in the findings. To mitigate this bias, the researcher has attempted to triangulate findings where possible and has recorded that models offered are conceptual only and additional research is required to validate these findings.

While every effort was made to spend as much time as possible collecting data, the parameters of this study are bounded by time and resources. As such, purposive sampling procedures was used, thereby decreasing the generalisability of the study.

6.3 Future Research

To validate the model of *Cultural Dimensions of the Gamified Organisation* (Fig. 12), further study could be undertaken. Through comparing examples of organisations both with and without employee-facing gamification implemented, and evaluate the cultural dimensions of each organisation against Hofstede's dimensions of organisational culture framework. This would make it possible to determine if the businesses with gamification have similar characteristics. It is also important to measure the success of the interventions against the outcomes achieved by both the organisation and the individuals.

The purpose of this study was not to measure employee engagement, however, an experimental case study in an organisation implementing gamification would be useful to validate the model of *Engagement as an Emergent Property of a Gamification System* (Fig. 9). Ideally, such a study would commence prior to the implementation of gamification, and measure engagement before gamification, and again, following a gamification implementation. A longitudinal study would mitigate the likelihood of findings being impacted by novelty.

6.4 Final Remarks

Organisational gamification is still very much in its infancy in both industry and research. As it becomes more commonly practiced, it is important to investigate the effectiveness of the approach.

Organisations continue to face many challenges as they struggle to attract, retain, motivate and reward employees in a hyper-connected digital world. This thesis contributes to knowledge by offering conceptual models to aid in determining organisational gamification best practice.

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8.1 Appendix A – Participant information sheet

Participant Information Sheet

Waikato Management School
Te Raupapa

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

Research Purpose:

This research is about how organisations use technology to measure performance and motivate and reward employees.

The information sheet for research participants:

Thank you for participating in this interview. This interview will be used by a University of Waikato student for the purposes of completing a Master of Electronics thesis. A final copy of the thesis will be submitted to the University of Waikato Research Commons and will be available for academic purposes. It may also be used for subsequent journal articles and presentations.

The research will be undertaken by:

Researcher:	Dannie Jefferies	dlj1@students.waikato.ac.nz	Phone 021 458 712
Supervisors:	Stuart Dillon	stuart@waikato.ac.nz	Phone 07 838 4234
	Karyn Rastrick	karyn@waikato.ac.nz	Phone 07 838 4207

You will be asked to participate in a face-to-face interview, it is expected the interview will take approximately 45 minutes. You will be asked at the start of the interview for your consent to be interviewed, and for the findings to be published.

Interviews will be electronically recorded, these voice recordings will be transcribed and identifying information will be removed from the transcript. Confidentiality is assured, no person besides the research team will be able to identify individual respondents. Original recordings will be deleted following the research process.

Direct quotations and summarised findings may be included in the thesis report and additionally in articles, lectures, and other presentations. Your personal details will remain confidential and you will not be identifiable from the published findings.

Your participation in this research project is completely voluntary. You may choose not to answer any individual question, and the interview process can end any time you choose.

If you choose to withdraw from the research following this interview, you may do so by emailing the researcher dlj1@students.waikato.ac.nz, any data collected including the interview recording and transcript will be destroyed. You should notify the researcher by 31 October 2016 if you no longer want your interview to be included in the research project.

8.2 Appendix B – Participant consent form

Participant Consent Form

Waikato Management School
Te Raupapa

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

The Inhibitors to Gamification Adoption in Organisations

I have read the information sheet for participants for this study and have had the details of the study explained to me. My questions about the study have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I also understand that I am free to withdraw from the study, or to decline to answer any particular questions in the study. I agree to provide information to the researchers under the conditions of confidentiality set out on the information she et.

I also understand that if I wish to withdraw from this study I may do so by emailing the researcher dlj1@students.waikato.ac.nz by 31 July 2016, in which case any data collected including the interview recording and transcript will be destroyed.

I agree to participate in this study under the conditions set out in the information sheet form.

Signed: _____

Name: _____

Date: _____

The research will be undertaken by:

Researcher:	Dannie Jefferies	dlj1@students.waikato.ac.nz	Phone 021 458 712
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8.3 Appendix C – Interview questions

This research is about how organisations use technology in empowering employees, this will include attracting, training, retaining and rewarding staff.

1. Some people think the use of technology is very important for future workplaces, what is your opinion of the importance of technology?
2. Can you give me examples of the types of software or devices you use here (at this organisation)?
3. If I used the word ***gamification***, what do you immediately think of?
   (At this point, I will give a definition and explanation to ensure participants and researcher has a similar understanding of the topic)
4. What if any, elements of ***gamification*** do you believe are used at this organisation?
   (List of gamification elements & prompts: See appendix D)
5. Can you tell me about how this organisation **measures** employee performance? What is the role of technology in that?
6. Can you tell me about how this organisation **rewards** employee performance? What is the role of technology in that?
7. What does employee **engagement** mean to you? What is the role of technology in that?
8. Can you give me an example of how this organisation **motivates** employees? What is the role of technology in that?
9. How do you think (this organisation) could benefit from the implementation of a gamified platform?
10. What do you think the barriers to adoption might be from your perspective?

8.4 Appendix D – Gamification Element Prompts

- Points
- Badges
- Rewards
- Ranking
- Leader boards
- Incentive programmes
- Feedback loops
- Teams/Guilds/Tribes/Alliances
- Inter-office challenges/games
- Quests / narrative adventures
- Collaboration
- Trophies
- Achievements
- Gifts
- Progress bars
- Achievement rituals
- Prizes
- Role playing
- Serious games

8.5 Appendix E – Details of the open coding process

Transcript Extract: The following example transcript extract is used to demonstrate the coding procedure used in this study. Example paragraph:

> Of course with the hedonic stuff you don't want to do [it] just purely for its own sake because in fact there can be unintended consequences of that… you still want to align it to other softer corporate outcomes like corporate values, teamwork, and the like… that can't always be communicated through the metrics. So it is things like if these are our corporate values, what's the behaviour that expresses that corporate value that you could be rewarded for demonstrating. Because it may not necessarily be directly expressed as a metric. Being open and friendly is a corporate value, but isn't always expressed in a functional metric, so maybe we have to invent another game that measures that. Or innovation and coming up with new ideas – the act of expressing ideas doesn't get measured but then, did it lead to a new process that did get measured? So that's aligned with company values is one area we talked about and another is just different team roles, kind of like personality personas… is someone a details person, or is someone a creative person? And then the other area was technical specialisations, so would you in the project management software, earn a badge that said you were the excellent debugger, or you have some particular expertise in [NAME OF SOFTWARE APPLICATION REMOVED]. And so, that then being in the system would make it easy for people to call on you? Badges are a form of self-identification, which is both rewarding to a person, and then useful to communicate who you are to the world, but can you communicate who you are to the rest of the team more than just on your functional attributes.

The purpose of open coding is to identify incidents of themes and ideas within the text. Each section of text is read, and key ideas are identified with a descriptive name also called a 'code'. In the transcribed texts analysed for this study, 733 incidents were recorded across 125 identified codes. This process was done using NVIVO software, but the manual process is demonstrated in the sample below:

> Of course with the hedonic stuff you don't want to do [it] just purely for its own sake (1) because in fact there can be unintended consequences (2) of that… you still want to align it to other softer corporate outcomes (3) like corporate values (4), teamwork (5), and the like… that can't always be communicated through the metrics (6). So it is things like if these are our corporate values (7), what's the behaviour that expresses that corporate value that you could be rewarded for demonstrating (8). Because it may not necessarily be directly expressed as a metric (9). Being open and friendly is a corporate value (10), but isn't always expressed in a functional metric (11), so maybe we have to invent another game that measures that (12). Or innovation

> and coming up with new ideas (13) – the act of expressing ideas doesn't get measured but then, did it lead to a new process (14) that did get measured? So that's aligned with company values (15) is one area we talked about and another is just different team roles (16), kind of like personality personas (17) ... is someone a details person, or is someone a creative person (18)? And then the other area was technical specialisations (19), so would you in the project management software, earn a badge (21) that said you were the excellent debugger (22), or you have some particular expertise in [Software] (23) [NAME OF SOFTWARE APPLICATION REMOVED]. And so, that then being in the system (24) would make it easy for people to call on you? Badges (25) are a form of self-identification (26) which is both rewarding (27) to a person, and then useful to communicate who you are to the world (28), but can you communicate who you are to the rest of the team more than just on your functional attributes (29).

The codes from the example text are numbered, and listed below.

1. Intrinsic motivation
2. Negative aspects
3. Soft indicators
4. Organisational values
5. Working together
6. Measuring performance
7. Organisational values
8. Positive behaviour changes
9. Measuring performance
10. Workplace culture
11. Measuring performance
12. Measuring performance
13. Innovation and ideation
14. Change business process
15. Align values and strategy
16. Team roles
17. Persona
18. Personality traits
19. Technology usage
20. Software usage
21. Badges
22. Software expertise
23. Badges
24. Computer systems
25. Badges
26. Self-expression
27. Motivation
28. Self-image
29. Recognising talent

In the next step, the open codes are grouped into related categories or concepts (selective code). These concepts are listed below; the original node numbers are shown in brackets.

A. Motivation (1,27)
B. Negative aspects (2)
C. Strategic alignment (3,15)
D. Organisational values (4,7,10)
E. Teams and Tribes (5,16)
F. Measuring performance (6,9,11,12)
G. Human Resources (8,29)
H. Business Process (13,14,19,20,22,24)
I. Psychology (17,18,26,28)
J. Mechanics of gamification (21,23,25)

The third, and final, stage of open coding is theoretical coding, this process is iterative and in this case, the selective codes (shown as A – J) were once again compared against each other and alongside the original transcripts. When looking at the relationships between the categories, several core themes kept recurring

I. **CULTURAL DIMENSIONS** (4,7,10)
II. **HUMAN FACTORS** (1,5,8,16,27,29)
III. **INFORMATION SYSTEMS** (2,13,14,19,20,21,22,23,24,25)
IV. **PSYCHOLOGICAL FACTOR** (6,9,11,12,17,18,26,28)
V. **STRATEGIC ALIGNMENT** (3,15)

8.6 Appendix F – Final codes to concepts tables

ADOPTION FACTORS (A)	53
Agreeable to gamification 4	4
Barriers to adoption 12	19
Budget 13	5
Expensive 35	1
Inexpertly implement 54	1
Innovation 55	9
Organisations likely to adopt 73	1
Reason not to adopt 89	7
Transparency 114	5

BEHAVIOUR CHANGE (B)	20
Change business processes 17	6
Changing behaviours 18	14

BENEFITS OF GAMIFICATION (C)	44
Accountability 2	6
Collaboration 2141	11
Communication 22	10
Competition 23	11
Forecasting 40	1
Teamwork 106	5

CONSIDERATIONS (D)	2
Assigning Tasks 7	1
Risk 95	1

DIGITAL NATIVES (E)	12
Generation of workforce 49	11
Traditional organisations 112	1

DRIVERS (F)	2
Rise of cloud computing 94	2

ETHICS (G)	7
Privacy 82	2
Voluntary 121	5

GAME DESIGN (H)	23
Game culture 43	3
Game design 44	10
Games have rules 45	1
Gamification is a process 47	4
Use of gamification 117	2
User experience 118	2
We all play games 122	1

GAMIFICATION DEFINITION (I)	20
Gamification definition 46	12
Gamification is not new 125	7
Terminology 108	1

GAMIFICATION IS A PROCESS (J)	16
Design process 30	1
Process 84	4
Soft indicators 100	6
System 103	4
Unintended consequences 116	1

GAMIFIED PRODUCTS (K)	15
Computer games 24	4
Farmville 37	1
Fitbit 39	3
Gamification products 48	7

HUMAN RESOURCES (L)	49
Employee retention 33	2
HR 51	11
Identifying talent 52	14
On-boarding 70	2
Relationships 91	4
Remuneration 92	12
Training 113	4

MANAGEMENT THEORY (M)	3
Maslow 63	1
Theory 109	2

MANDATES (N)	17
Engagement 34	15
Internal champion 57	2

MARKET/CUSTOMER SERVICE (O)	18
Client satisfaction 19	2
CRM 25	8
Customer loyalty 27	5
Marketing 62	3

MEASURING PERFORMANCE (P)	59
KPIs 59	14
Measuring performance 64	16
Performance measurement 75	22
Performance review 76	7

MECHANICS (Q)	129
Achievement 3	4
Awards 10	6
Badges 11	12
Celebrate success 14	5
Ceremony 15	1
Challenge 16	4
Dashboards 28	7
Feedback loop 38	18
Incentives 53	14
Leader board 60	5
Mechanic 65	1
PBL 74	7
Points 81	2
Prizes/gifts 83	2
Progress 85	3
Ranking 88	8
Recruitment 90	1
Rewards 93	12
Symbolism 102	1
Teams and Tribes 105	9

Tracking 111	4
Trophies 115	3
MOTIVATION (R)	59
Autonomy 9	5
Demotivation 29	12
Extrinsic 36	7
Intrinsic motivation 58	15
Motivation 66	20
NEGATIVE ASPECTS (S)	35
Anxiety - fear of failure 6	4
Manipulation 61	5
Negative aspects 67	25
Punish 87	1
ORGANISATIONAL CULTURE (T)	29
Culture 26	21
DNA 32	1
Organisational immaturity 71	4
Tall poppy syndrome 104	1
Visionary 120	2
ORGANISATIONAL VALUES (U)	9
Organisational learning 72	3
Values 119	6
PLAYFUL (V)	16
Fun - negative 41	3
Fun 42	4
Novelty 68	1
Play 80	5
Role playing 96	2
Serious games 98	1
PSYCHOLOGY (W)	23
Attitude 8	6
Cognition 20	5
Persona 77	2
Personality type 78	6
Psychology 86	2
Self-expression 97	2
SOCIAL CONSTRUCTION (X)	8
Social construction 99	8
STRATEGY (Y)	23
A business case for gamification 1	1
Goals 50	7
Objectives 69	7
Strategy 101	8
TECHNOLOGY (Z)	43
Analytics 5	9
Digital 31	1
Interactive 56	2
Persuasive technology 79	4
Technology is transformative 107	14
Technology issues 124	2
Too many tools 110	2
Whiteboard 123	9
	733

Description of what these tables represent

Second round of open coding	**Third round of open coding**
ADOPTION FACTORS (A)	ADOPTION FACTORS
BEHAVIOUR CHANGE (B)	ADOPTION FACTORS
BENEFITS OF GAMIFICATION (C)	ADOPTION FACTORS
CONSIDERATIONS (D)	STRATEGIC ALIGNMENT
DIGITAL NATIVES (E)	HUMAN FACTORS
DRIVERS (F)	ADOPTION FACTORS
ETHICS (G)	ADOPTION FACTORS
GAME DESIGN (H)	INFORMATION SYSTEM
GAMIFICATION DEFINITION (I)	INFORMATION SYSTEM
GAMIFICATION IS A PROCESS (J)	INFORMATION SYSTEM
GAMIFIED PRODUCTS (K)	INFORMATION SYSTEM
HUMAN RESOURCES (L)	HUMAN FACTORS
MANAGEMENT THEORY (M)	HUMAN FACTORS
MANDATES (N)	INFORMATION SYSTEM
MARKETING CUSTOMER SERVICE (O)	ADOPTION FACTORS
MEASURING PERFORMANCE (P)	HUMAN FACTORS
MECHANICS (Q)	INFORMATION SYSTEM
MOTIVATION (R)	PSYCHOLOGICAL FACTORS
NEGATIVE ASPECTS (S)	INFORMATION SYSTEM
ORGANISATIONAL CULTURE (T)	CULTURAL DIMENSIONS
ORGANISATIONAL VALUES (U)	CULTURAL DIMENSIONS
PLAYFUL (V)	CULTURAL DIMENSIONS
PSYCHOLOGY (W)	PSYCHOLOGICAL FACTORS
SOCIAL CONSTRUCTION (X)	PSYCHOLOGICAL FACTORS
STRATEGY (Y)	STRATEGIC ALIGNMENT
TECHNOLOGY (Z)	INFORMATION SYSTEM

Third round of open coding, showing the initial 125 nodes

I. **ADOPTION FACTORS** (2,4,6,12,13,17,18,19,21,22,23,25,27,35,40,54,55,61, 62,67,73,82,87,89,94,106,114,121)
II. **CULTURAL DIMENSIONS** (26,32,41,42,68,71,72,80,96,98,104,119,120)
III. **HUMAN FACTORS** (33,49,51,52,59,63,64,70,75,76,91,92,109,112,113)
IV. **INFORMATION SYSTEM** (3,5,10,11,14,15,16,24,28,30,31,24,37,38,39,43,44, 45,46,47,48,53,56,57,60,65,74,79,81,83,84,85,88,90,93,100,102,103,105,107, 108,110,111,115,116,117,118, 122, 123,124,125)
V. **PSYCHOLOGICAL FACTORS** (8,9,20,29,36,58,66,77,78,86,97,99)
VI. **STRATEGIC ALIGNMENT** (1,7,50,69,95,101)