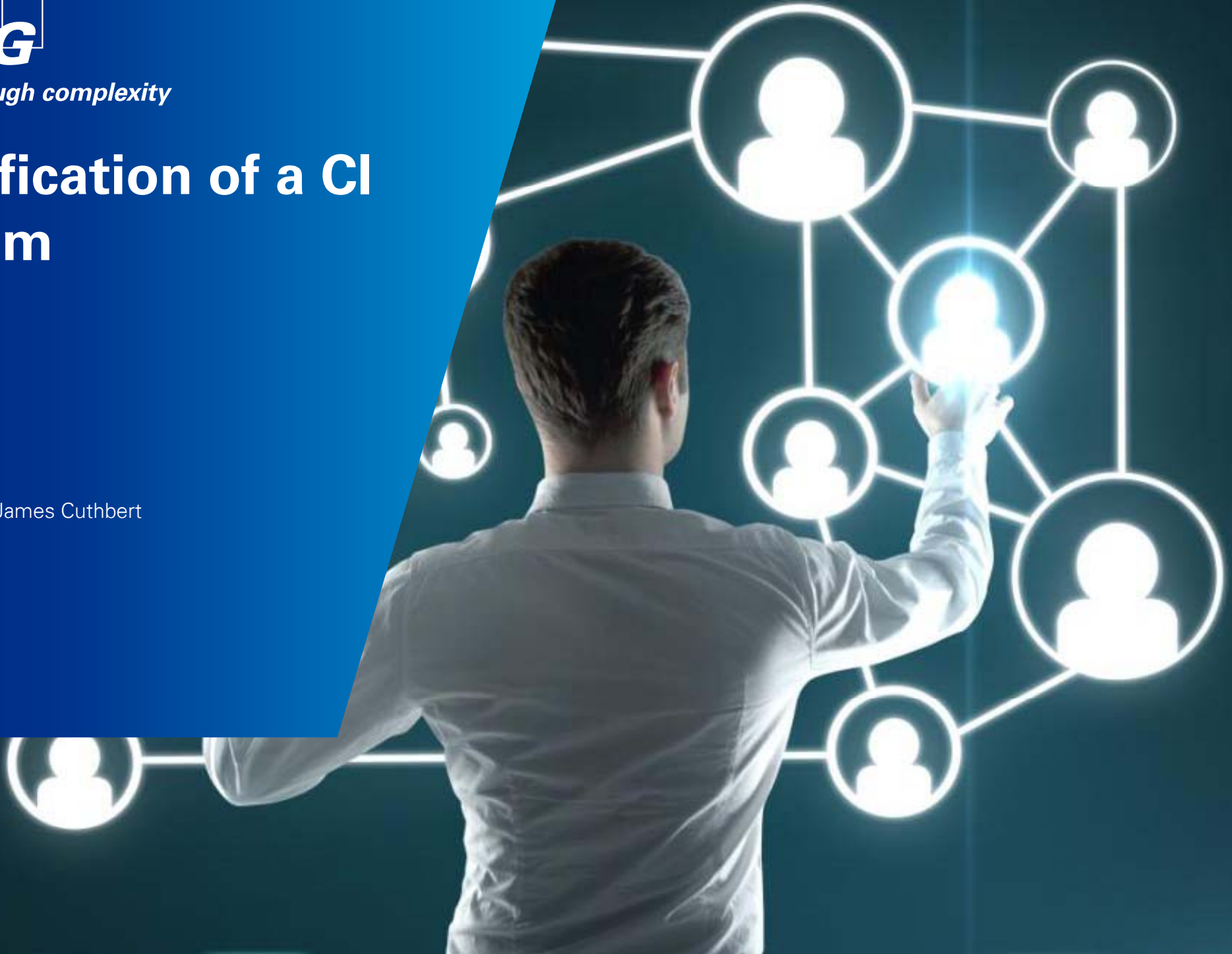




cutting through complexity

Gamification of a CI System

Assembled by James Cuthbert



The principles of gamification in CI systems

Background of gamification

What is gamification?

Gamification is the use of game elements and game design techniques in non-game contexts, with the objective of success in something other than the game; such as social impact or personal/business improvement.

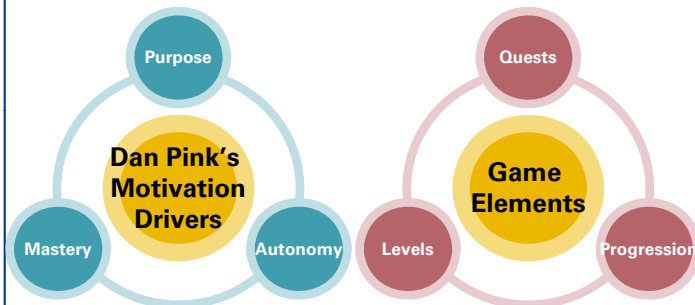
Who is using gamification and how are they using it?

Nike, Microsoft, SAP, Amex, Deloitte, Dell, Siemens, Samsung and many more companies use game elements for a number of purposes, learning from game design theory including the topics of psychology, marketing and economics.:

- **Externally** – marketing, sales and customer engagement
- **Internally** – HR, productivity enhancement and crowdsourcing
- **Behaviour change** – health and wellbeing, sustainability, personal finance

How can these principles be used in Lean?

Gamification can motivate people by putting them at the centre of the CI system, aligning them with a greater purpose. Giving 'players' a sense of autonomy and control, and facilitating flow and 'fun' through play is also in line with motivational theories.



The definition of a game as a formal system that engages players in structured conflict, resolving in an unequal outcome is an applicable analogy for a CI system.

Gamification principles

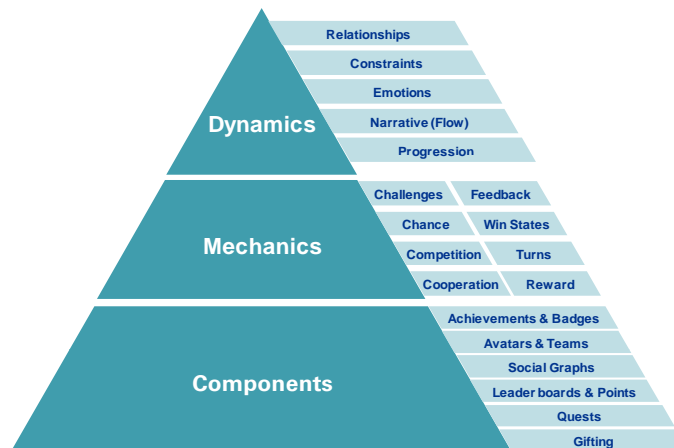
Game fun vs. CI fun

What activities are 'fun' and which are common with CI?

- Winning
- **Problem Solving**
- **Exploring**
- Chilling
- **Teamwork**
- Recognition
- **Triumphing**
- Collecting
- Surprise
- **Imagination**
- **Sharing**
- Role Playing
- **Customization**
- Goofing off

We can see that there are lots of aspects of CI that can be seen as opportunities for individuals to find enjoyment from, helping to ensure engagement and reinforce sustainable habits if developed appropriately, using the power of game mechanics within a business system.

Dimensions of gamification



Game elements are not the goal, the objective is greater than game success, such as encouraging brand loyalty or sales.

Real World Activity	Concept
Monthly Sales Competition	Challenges
Frequent Flyer program tiers	Levels
Weight Watchers group	Teams
Free Coffee after 10th cup	Rewards
AmEx Platinum Card	Badges

Application in CI

Using gamification principles to ensure engagement

To ensure that there is stakeholder adoption of any gamification of a CI approach, the system must include a **pre-lusory goal** (*wider objective*), **constitutive rules** (*obstacles that turn to go into the game*) and for the users to foster a **lusory attitude** (*voluntarily overcoming unnecessary obstacles because one cares about the game goal and rules*).

A CI system must be introduced with an appropriate strategy or direction, and game elements can also be applied to the structured rollout of a CI System.

Applying the 'player journey' to ensure sustainment

Game design considers phases of a game to ensure that players aren't 'lost' in the developing complexities of narrative, skills and challenges of a game. The same theory applies to developing people delivering CI within a LOS framework.

Onboarding

- Guides
- Highlighting next tasks/steps
- Feedback
- Limited Options
- Limited Challenges
- Impossible to Fail

Scaffolding

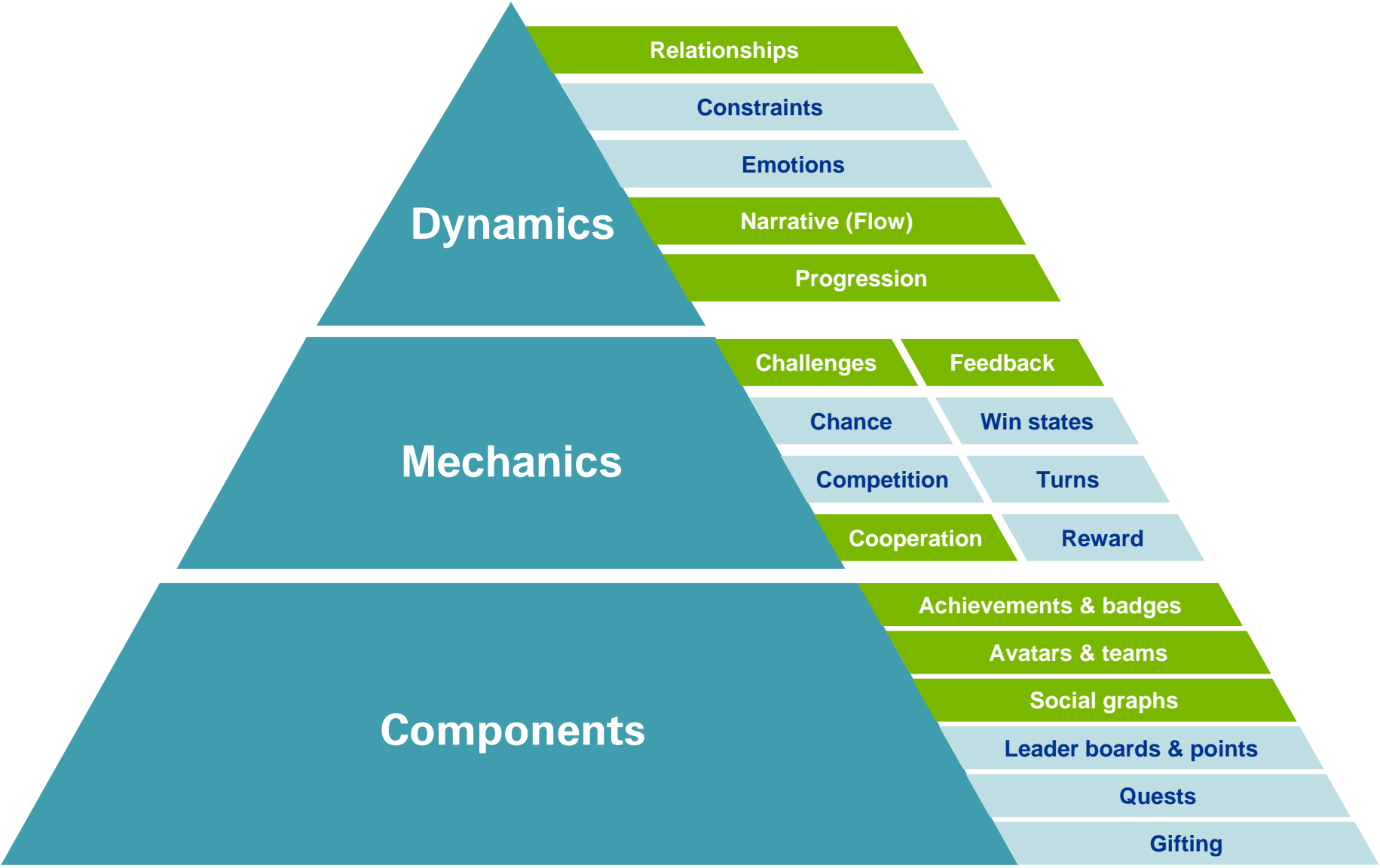
Pathway to Mastery

- Progression
- Completion
- Finite/Infinite Games

Game Elements in practice

Akin to Lean tools, the application of gamification elements should not be standardised for every encounter, but instead are the raw materials or tools to be used to build the appropriate solution.

Gamification elements that apply to CI



The psychology of gamification in CI systems

Motivation in gamification

What drives the success of gamification?

Gamification is heavily reliant on motivational physiology. Therefore useful for helping ensure buy in, increased engagement and sustainability of they system.

Motivation is complicated – for example people are motivated to play sport for a number of reasons, including teamwork, progression/mastery of skill, challenges, and even trophies.

For the same reason gamification won't work for every company's CI system in the same way, it must be applied in line with the existing behaviours and culture of the company.

The two main approaches to motivation are **behaviourism** and **cognitivism**. Behaviourism centres around external action and what people **do**, cognitivism considers what people **think**.

Mechanics of behaviourism

Behaviourism design effects are testable but are limited in insight, influencing behaviour though stimulus is known as **classical conditioning**, and the more sophisticated use of a stimulus and consequence is known as **operant conditioning**.

These consequences can be positive or negative reinforcements, and is more useful for gamification to help players learn the right game 'behaviours', reinforcement relies on reward or 'punishment' being there.

Human behaviours such as loss aversion, over justification, confirmation bias (see what you are looking for) and the power of defaults (opt in/opt out defaults) are observable human traits. In gamification, we use observation, feedback loops and reinforcement in our designs to understand and influence 'players'.

Using behaviourism in gamification

Behaviourism in gamification.

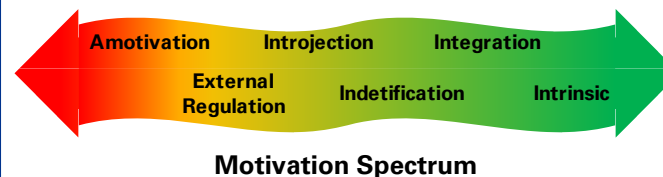
1. **Observation** - Test your behavioural hypotheses based on what people do and amend framework/ confirmation routines accordingly.

2. **Feedback loops** – Players immediate see a response from an action, this confirmation or rapid feedback aligns with the concept of coaching and the use of small quantifiable goals in change programmes.

3. **Reinforcement** – Players are conditioned through consequences such as visualisation of outcomes though dashboards and KPIs, or appointment mechanics, which are another cross over between gamification and lean. The need to 'check in' in games mirrors the Monitor / Check steps in DMAIC / PDCA cycles. Rewards are also a consequence, such as bonuses linked to performance. Many game components use rewards including feedback, challenges, resource acquisition and win states.

Self-determination theory

People are not universally motivated by rewards and the motivation spectrum is quite varied, from **amotivation** (indifference to the activity) through to **intrinsic** (finding the task rewarding in of itself), in the middle there are several types of extrinsic motivation, ranging from **external regulation** (have to/told to do it), **introjection** (don't want to do it, but might get status from the task), **identification** (taken motivator and made it their own by seeing the importance in wider personal goals), **integration** (complete internal alignment with personal goals and the wider goal). It is widely understood that if extrinsic motivation is over used, focus can shift onto reward achievement, lowering actual levels of any intrinsic motivation (referred to as over-justification).



Rewards and consequences

Reward structures

Gamification in a business system must balance rewards with 'naturally occurring' motivation of interesting tasks, the reward type will also has an impact on motivation, with tangible rewards potentially causing over-justification effects and performance contingent rewards potentially de-motivating, reward structures must consider:

- What the reward is and what is being rewarded.
- What the options or choices are (e.g. master different skills or progress through different routes)
- Category of reward, (e.g. tangible/intangible, status, money, emotional rewards).
- Is the reward expected or unexpected (see schedules)
- What the reward is contingent on (e.g. get no matter what, performance related, completion related, or attendance/engagement related).

There is a lot of complexity to consider in in reward design, the right reward must be chosen for the player's behaviours to effectively motivate them, but there must also be a meaningful and valuable experience for the wider purpose of the game.

If performance contingent rewards are based on the goal performance, rewards are de-motivating whereas reward as a recognition of the individual's performance, reward motivates. For CI, the ultimate reward must be for the individuals contribution on improving the system.

Reward schedules

Reward schedules have an implication on psychological reactions. Continuous reward isn't useful in gamification and fixed reward patterns can be predicted. Variable rewards are often the most interesting and effective as humans tend to like surprises.

(**Continuous** - reward every time, **Fixed ratio** - reward every X time, **Fixed interval** - reward every X period , **Variable** – random)

Design framework for gamification in CI systems

Design Think and Gamification Framework

Design thinking principles are harmonious with lean thinking and gamification theory. Those principles are to empathise, visualise, co-create and iterate:

- 1. Human-centric** – Design thinking focuses on the human using the process/product/service when design takes place
- 2. Purposeful** – The ‘so what’ of the design, there must always be an objective to design to.
- 3. Balance analytics and creativity** – the design process considers both effectiveness and experience delivered by the solution.
- 4. Iterative – (PDCA/play test)** – Design thinking theory seeks to fine tune or improve any solution using feedback from ‘customers’ or users.

Gamification framework for CI system creation

There are 5 steps in the process to create a CI system using a gamification framework, these steps are listed below.

- 1. Check business objectives** – Ensure business objectives are understood and are designed as the wider goal of the system.
- 2. Clarify desired behaviours** – Make decisions around behaviours to drive (e.g inductive or deductive thinking encouraged).
- 3. Cast players** – Understand player types in the system, their behaviours and motivational drivers.
- 4. Create activity loops** – Design engagement loops and understand goals for progression loops.
- 5. Choose tools** – Decide which gamification tools to employ in the CI system.

1. Business objectives

Three steps to check business objectives for the CI system.

1. List and rank objectives proposed by designers
2. Eliminate those not aligned to CTQ / value add activities for the ‘customers’ (VoC).
3. Justify objectives with business through strategic alignment (VoB).

5. Tools

Select gamification tools to use within CI system.



2. Behaviours

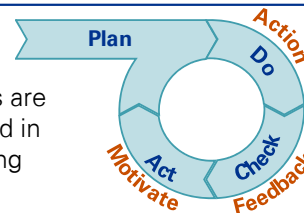
System behaviours are selected, considering the emphasis on ‘ways of working’ desired in the system.

Doing	Feeling
Marketing and economics	Game design and cognitive psychology
Incentives	Experiences
Satisfying needs	Fun
Game elements (inductive)	Game thinking (deductive)
Status	Meaning
PBLs	Puzzles
Rewards	Progression
Making users do things	Making players awesome

4. Activity loops

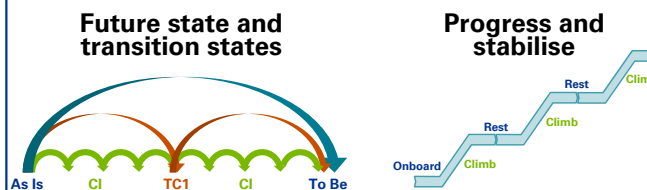
Engagement loops

Gamified “Motivate, Action, Feedback” engagement loops are created, which are constructed in line with lean thinking regarding PDCA cycles.



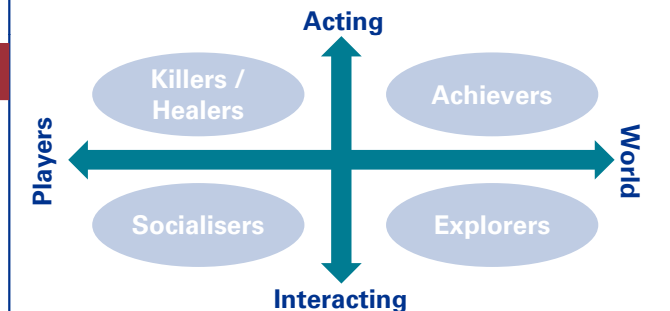
Progression loops

Progression loops in gamified systems follow the lean concepts of improving and stabilising a system, as well as using a series of transition states.



3. Players

Player types can be broken into four main groups depending on their emphasis on acting or interacting, and if their focus is on the ‘world’ (system) or on ‘players’ (people). The motivational needs of each type should be understood in the system when designing routines.



Assessing businesses for use of gamification

Design Think and Gamification Framework

Design thinking principles are harmonious with lean thinking and gamification theory. Those principles are to empathise, visualise, co-create and iterate:

1. **Meaningful Choices** – are your target activities relating to CI sufficiently interesting?
2. **Structure** – can the desired behaviours be modelled through algorithms? (is there enough structure in the environment for structured CI?)
3. **Motivation** – Where would you derive value from encouraging behaviour?
4. **Potential Conflict** – Can the CI framework avoid tension with other motivational structures?

Meaningful Choice

Gamification is a tool for motivation and can be linked to social good or self development as well as direct productivity within a business.

Games produce positive energy, sociability, they make us more focused and engaged on tasks. Target activities can be for direct and indirect business purposes, or for a wider social goal, the important element of applying gamification in a business in obtaining consent

Consent

Play-bour – when Play meets labour

Games are defined as being voluntary activities, this avoids the problem of demotivation or rejection due to a company imposing “mandatory fun” through a gamified system. Consent in gamification is needed to avoid this issue and to ensure engagement. This means players must:

- Understand the rules
- Thinks the game is fair
- Pay attention to the game

Direct Applications in an Enterprise

Intranet Engagement – Develop and build employee contributions to improve the quality of discussion regarding problems and queries through comments, responses and SME identification. *(Gamified example – SAP Marketplace encourages solution building)*

Productivity enhancement - Encourage employees to do their core job better. This requires a balanced scorecard and consideration of KPIs to ensure that user behaviours are not driven to ‘game’ the system. For example the use of service speed, customer satisfaction and other achievements. Danger of ‘electronic whip’ effect. *(Gamified example – Target Checkout System)*

Efficiency enhancement – Use games to see the efficiency impact on a system, focusing around improvement of the either core or non core elements. For example ‘The email game’ - incentives and encourages users to deal with emails more efficiently. *(Gamified example – Seriosity’s Attent system – creating a virtual currency to send and receive email, driving different behaviours around sending email).*

Knowledge Management – Use gamification to build a the network around the skills and knowledge of users and keep track of developments. *(Gamified example – Deloitte – WhoWhatWhere internal KM site).*

Human Resources – There are many process to use gamification with in HR, including hiring, onboarding, acculturation, training and expenses *(Gamified example – Google uses a virtual economy around expense limits, with employees encouraged to spend efficiently by banking or donating unspent allowances).*

Innovation – Use of gamification for CI *(Gamified example – Department of Work and Pension’s ‘Idea street’ – an idea stockmarket to buy, sell and build ideas).*

Serious game – Using games for training and education *(Gamified example – Siemens’ Plantville game which simulate running a manufacturing plant).*

Indirect applications in an Enterprise

The first type of indirect application focuses around ‘in role’ future skills of individuals and personal development.

Culture Building – e.g. Zappo’s FaceGame at logon to develop team awareness.

Skill development - e.g. LiveOps’ virtual call centre. which benefits employees and company through training.

Information – Direct feedback to employees on the quality of their work to improve and promote themselves.

The second type of indirect application focuses on ‘citizenship behaviours’ in the domain of employee’s current core skills, for example, Microsoft have a language game for employees to validate messages within Windows operating system. Employees choose to take part as their role as a good citizen, with problem solving in this environment working as it is based on an equal platform for all users.

Games motivate based on business goals traditionally have ‘traditional’ rewards - effectively a compensation for doing work – comprising of Pay, Bonuses, Stock options, Praise, Promotion and Responsibility. Self determination theory states that people want to be part of something bigger than themselves - this is inherently relatedness with ‘social good’ goals. Gamification activates the motivation to do what people know is ‘doing good’. These games build on Corporate citizenship behaviours:

- Altruism - users do things to be good to other people
- Conscientiousness – users work hard due to pride
- Civic virtue – users do their part in a larger community
- Courtesy & sportsmanship – users want to be fair to each other

Note - Enterprise Gamification needs to have a balanced platform so not to demotivate groups.