

## **Stop just making stuff! Listening, co-creation and sustainability in independent game development**

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### **Summary:**

The design, development, and distribution of digital games is undergoing constant and severe disruption. Changing methods of distribution, emerging trends and business models, and an increasingly saturated marketplace are forcing independent developers to re-evaluate and re-imagine internal processes and cultures.

As developers adapt by producing services in addition to self-contained products, the locus of value shifts from the product towards the act of user participation. Consequently the viability and development of projects is increasingly decided not by product differentiation but by listening to consumers, mapping their behavior, and co-creating unique and meaningful experiences. .

This paper suggests Hill's 'vulnerability paradox' exists for independent game developers. Disruption causes vulnerability, but this may be turned into strength by forcing developers to work closely with those they rely upon: their customers. Involving the customer in the design process may be criticized for leading to homogenous and mediocre products or services. However, this paper argues that involving the customer may enable more risks to be taken once initial value propositions are upheld.

**Keywords:** game design, game development, lean startup, co-creation, value, product, service, sustainability

## Introduction

The development of digital games by small independent studios is usually perceived as part of a new digital economy, an engine to help kick-start the United Kingdom's sluggish economic growth and provide increasing revenue, jobs, and other cultural and societal benefits. As such it is orthodoxically perceived as an agent of disruption, rather than its subject. This is understandable but partially erroneous.

While it is true digital games form part of the ongoing digital disruption of culture and society – changing the entertainment landscape by eroding the hegemony of film and television, challenging the artworld establishment, or disrupting established pedagogical practice with so-called 'serious games' – the reality is that digital game development in the United Kingdom is itself experiencing sustained disruption.

There are numerous factors causing this disruption, existing in stratified but interconnected layers from the societal to the individual. In order to give an overview of the contemporaneous industry environment it is useful to outline some major areas of disruption affecting independent game development: the global economic downturn since 2008, disruptive innovations in technology, and concurrent emerging business models requiring developers to rethink design and development practices.

This paper initially outlines the disruption that has affected UK independent game developers, particularly the advent of 'games as a service' (GaaS) business models that have shifted the locus of value from tangible products to the act of utilizing a service. It suggests these disruptions have resulted in a widespread sense of unease and vulnerability in many companies, before describing how this vulnerability might paradoxically be considered a strength and opportunity to experiment with design and development processes to create maximum value for both customer and developer. Finally it focuses on the *Par Tribus* project – a work in progress by respected independent game developer *Denki* – as an example of adopting an experimental approach to game design and development processes in an attempt to turn disruption into opportunity.

## The Economic Downturn

Few industries have remained unaffected by the global economic downturn of the past five years, and the UK game development sector is no exception. Between 2008 and 2012 the UK dropped three places, from third to sixth, in the league of game development by nation. Overtaken by Canada, South Korea and France (Stewart, 2012), employment levels shrunk by over ten percent as 197 studios closed between 2008 and 2011 (TIGA, 2012). In the five-year period since 2008 the sector's contribution to the UK GDP has diminished by nearly a quarter of a billion pounds.

The latest study by *The Independent Game Developers Association* (TIGA) suggests that the UK game development sector returned to growth in 2012, with a four percent rise in employment and an increase of £35 million in its contribution to the national GDP (TIGA, 2013b). However, the employment headcount remains below the pre-crash levels of 2008.

In addition the make-up of the sector has changed radically. Many studio closures over the past five years were larger developers with higher wage bills and development costs. These studios have mostly been replaced by a proliferation of smaller independent startups, but these employ fewer people and often have difficulty achieving long-term sustainability.

### **Disruptive Technologies**

The biggest disruption to the sector has perhaps come from innovations in technology, particularly the rapid growth of new delivery technologies. Ludologist Jesper Juul argues that the digital game sector is in the midst of a ‘casual revolution’. So-called ‘casual games’ are moving digital games towards mainstream acceptance by simultaneously acquiring a new audience – particularly females – and also reconnecting with an older audience previously alienated by ‘hardcore’ games during the 1990s. Often these casual game consumers do not self-identify as ‘gamers’. As Cook (2013) states, “many of these players never bought into the current gamer culture. It is common to see someone deep into *Candy Crush* and when you ask them if they are a gamer, they will deny it”. Juul identifies two key trends that have facilitated this change. The first is the advent of mimetic interfaces, such as initially used on the *Nintendo Wii* console then followed by *Microsoft Kinect* and *Sony PlayStation Move*. More importantly, he then identifies the trend toward “downloadable casual games, which are purchased online, can be played in short time bursts, and generally do not require an intimate knowledge of video game history in order to play” (Juul, 2010, p.62).

This growth in the digital distribution of digital games, particularly to non-console platforms such as smartphones and tablets, is a clear case of a ‘disruptive innovation’ caused by ‘disruptive technologies’. This occurs when a new and often imperfect technology provides a capability to a niche of consumers in the value chain. As the capability is refined and improves its services to customers, it moves up the value chain and becomes a threat to existing market leaders. Christensen (2012, Intro.) states, “Generally, disruptive technologies underperform established products in mainstream markets. But they have other features that a few fringe (and generally new) customers value. Products based on disruptive technologies are typically cheaper, simpler, smaller, and frequently, more convenient to use”. *Amazon.com* is often cited as a textbook example of disruptive innovation; it used a disruptive technology (the internet) to initially sell books, rather imperfectly, to a niche audience. This imperfection caused extant market leaders to dismiss it. However, within a few years *Amazon* had refined its offer and service, eventually disrupting the book-selling market to such a degree that existing market leaders (e.g. *Borders Books*) and many independents were forced out of business. In the early phase of online distribution for game content, or ‘downloadable content’ (DLC), the technology was often unreliable and hampered by slow internet connections. Consequently most major game publishers and attendant physical retailers ignored it. The resultant failure caused by a “delay in making a strategic commitment to enter the emerging market” (Christensen, 2012, Intro.) has been a major factor in many closures.

Digital distribution is also a serious threat to UK physical retailers. *Gamestation*, once the UK's second-largest specialist game retailer, closed in December 2012. The company that acquired it in 2007, *Game*, itself spent a period in administration before downsizing its operations. The retail game software market shrunk by twenty-nine percent in 2012, as long established retailers such as *HMV* and *Blockbuster* – already reeling from the disruption of music and film retailing by *iTunes*, *Amazon*, *Netflix* etc. – were increasingly affected by the rising digital distribution of games. While physical distribution in the UK suffered a massive decline, the digital distribution of game content grew by 7.7% (TIGA, 2013a).

This move toward downloadable games has been accelerated by the rise of mobile platforms, particularly smartphones and tablets. The launch of *Apple's iOS App Store* in 2008 – followed by *Android Market* (now *Google Play*) and others – has enabled the growing number of smartphone and tablet users to access game content easily and at relatively low cost. Of approximately 900,000 apps available on *iOS App Store* in May 2013, less than twenty percent are classified primarily as games, yet games accounted for approximately forty percent of total downloads and led growth across both main app stores during the first quarter of 2013 (App Annie, 2013).

This disruption to once preferred delivery channels has brought major changes for developers. Before the rapid growth in digital delivery, the economic system of the games industry was considered to consist of three parts: developers, publishers, and technologists. The publisher was at the heart of the industry and firmly in the driving seat, in a similar position to the record label in the music industry before *Napster* or *iTunes* (Kerr, 2006, p.46). However, innovations such as *App Stores* for mobile platforms, *Xbox Live* and *Valve's Steam* for consoles and PCs, and online social media services such as *Facebook* have democratized and increasingly streamlined the process of taking a game to market. As a result independent studios are increasingly self-publishing their games. In 2012 forty seven percent of UK developers were self-publishing, and this number seems likely to grow (TIGA, 2013a.). But there is a growing awareness that the marketplace is saturated with content; that it possibly favours larger and more established developers; that in reality *App Stores* many developers perceived as open spaces of opportunity are really the world's most competitive software market (Stevens, 2011). Even so, most independent developers still seem to agree with TIGA Chairman Jason Kingsley that self-publishing gives them more freedom to be creative with content and business models.

### **Freemium and Free-to-Play**

The increase in digital distribution and the rise of *Facebook* and other social networking services that provide game content has facilitated the development of new business models. The most discussed and debated are the closely related *Freemium* and *Free-to-Play* models. Their proliferation has caused considerable disruption to independent developers, and as a result been the subject of heated debate within the sector. They are alternatively viewed as either the saviors of the industry or the harbingers of its demise. In reality there is little certainty about the nature of either, but it is becoming increasingly clear that

developers need to understand how to expand their design and development repertoires to fully harness their possibilities.

*Freemium* is a portmanteau of ‘free’ and ‘premium’. It can be defined as “giving away for free a certain level or type of consumption while making money on premium consumption” (Niculescu and Wu, 2013, p.2). In contrast with the more conventional ‘charge-for-everything’ model, where a product or service is sold for a one-off cost up-front, *Freemium* provides a limited version free then charges to upgrade to the full or ‘pro’ version. The limitations may be in features, time, or product maturity. Game developers using *Freemium* often give away a ‘lite’ or ‘demo’ version limited to a few initial levels. The player then pays to continue playing by buying upgrade packs of more levels. Many *Freemium* games also monetize through in-app purchases where players can buy certain tools or skills to circumvent a difficult challenge (often criticized as *Pay-to-Win*), or buy collectable items that are particularly hard to find purely through gameplay. However, *Freemium* is not a new idea. The well-established concept of giving away quantity-limited samples employed by perfume and cosmetics companies is a *Freemium* model. But unlike perfume, there is no significant cost to giving away feature-limited digital games. Games “are digital goods with negligible marginal reproduction cost that can be provided in unlimited supply and can be “shipped” via relatively cheap online distribution channels” (Niculescu and Wu, 2013, p.2).

*Free-to-Play* is closely related to *Freemium* but usually considered to have one fundamental difference: a *Freemium* game will force payment on the user at some point, a *Free-to-Play* will not. The differences are hotly debated amongst game developers but the consensus suggests *Free-to-Play* games “allow you to download, play and grow in their worlds without any payment required at any point” (Hindman, 2011). However, to play or grow faster, or to reach the ‘end’ quicker (even though many of these games are fundamentally open-ended) the player must pay. Theoretically however, a *Free-to-Play* consumer can complete the whole game for free; it just takes longer.

## **Games as a Service**

*Freemium* and *Free-to-Play* represent – and to a degree obscure – a more fundamental shift from ‘game as a product’ towards ‘game as a service’ (GaaS), and this “is accelerating, driven by business factors and steady player acceptance” (Cook, 2013). This shift echoes wider changes to consumer culture in advanced capitalist economies where “the central theme...is the dematerialization of objects and commodities, indeed of the economy and ultimately of society as a whole” (Slater, 2003, p.193). By the early 1970s it had become increasingly clear that the Fordist system that had dominated production and consumption in these economies for most of the twentieth century was reaching its limits. Slater describes a contemporaneous realization that “costs and timescale of investment in Fordist production have become colossal, while the logic of high output and lower unit costs has been pushed to the point where vast quantities of goods have to be sold with decreasing margins” (Slater, 2003, p.189). Advanced economies witnessed substantial growth in the

service sector and considerable shrinkage in primary and secondary production. As a result a growing group of marketing scholars and professionals started to argue for a reframing of marketing practice, moving away from a product based perspective towards one based around the provision of services. They highlighted “a notable shift in the centre of economic gravity (in terms of value, volume and employment) from manufacturing to service industries” (Slater, 2003, p.193), arguing that “classical marketing axioms were based on the exchange of physical goods, which could not provide a sufficient understanding on services” (Huotari and Hamari, N.D.). These ideas gained traction through the 1980s, becoming established as a sub-discipline of marketing by the decade’s end. From the millennium onwards, mainstream marketing practice has become increasingly influenced by service marketing concepts.

The antecedent of GaaS is the ‘software as a service’ (SaaS) model, sometimes also called ‘software on-demand’. *Gartner Research* defines SaaS as:

Software that is owned, delivered and managed remotely by one or more providers. The provider delivers software based on one set of common code and data definitions that is consumed in a one-to-many model by all contracted customers at anytime on a pay-for-use basis or as a subscription based on use metrics. (N.D.)

The advent of SaaS was facilitated by the expansion of the internet and increases in bandwidth and capacity around the turn of the millennium. This caused product-centric practices in software development and distribution initial disruption. More recent advances in cloud computing have accelerated this disruption through growth to a point where global SaaS revenues are predicted to top \$22 billion by 2015 (Gartner, 2012).

Intangibility, a key difference between a product and a service, is clearly visible in both SaaS and GaaS models. Neither the software package nor the game can be touched because there is no physical object. Whereas previous logic dictated that value resided in a product, service logic states that as there is no physical object this is impossible. Instead it views the customer as co-producer, with value lying not in a thing but in the utilization of a service. Value is created only when a customer uses a service, and as a result there has been a shift from focusing on product features to co-creation and customer experience.

It can be argued that games have always focused on customer experience and created value through doing. Huotari and Hamari (N.D.) suggest “the player(s) is part of the co-production and of the value-creation [that] takes place each time the game is played or otherwise interacted with”. This is correct but should be qualified: a substantial amount of early twenty first century entertainment only provides value when it is interacted with. As we move away from consumption patterns relying on the ownership of tangible products or cultural artifacts towards the hiring of services, so the locus of value shifts. Films streamed on *Netflix* or songs streamed on *Spotify* need interaction to produce value, in a similar way to *Candy Crush Saga* or *Clash of Clans*. This interaction may be viewed as either more

functional – browsing or selecting – or more cognitive in nature than the opportunities digital games provide for ‘explicit interaction’ with designed choices and procedures (Salen and Zimmermann, 2003, p.548) but care should be taken not to reduce the idea of interaction to simply the pressing of a button.

However, the focus of this paper is not on how digital games are played but on how they are produced, consumed and marketed. And it is clear that prior to the disruption caused by GaaS, games were produced, sold and marketed primarily as tangible products not intangible services. As this changes so the locus of value in digital games is shifting to somewhere between consumption and creation, between the present and the future, partly as a result of play but also a result of engagement with communities through collaborative play or social networks.

This shift towards games as a service appears likely to continue, with some in the sector even claiming “every game is now a service” (Sivak, 2013). As this disruption occurs independent developers are being forced to expand and change design repertoires and implement new development processes to author potentially endless gaming services that generate revenue in fundamentally different way to self-contained products. Cook (2013) argues, “this new revenue stream places new constraints on game designs. Types of laboriously *handcrafted* content that was once feasible when your game was played 10 hours is no longer profitable if revenue trickles in over hundreds or thousands of hours of play”. As a result many developers are realizing that they must move closer to the customer, evolve a new repertoire of listening skills, and learn through experimentation.

### **The Vulnerability Paradox**

The disruptions outlined previously have created feelings of disorientation and vulnerability within the independent game development community. Articles have appeared on industry-focused sites such as *Gamasutra* with titles predicting *Indie Games Are Due For A Downward Correction*, or describing the *Top 5 Problems Faced By Indie Game Developers*. These make public the difficulties and uncertainties developers are experiencing, sometimes suggesting strategies for survival. Digital distribution, a saturated marketplace, and new GaaS business models are regularly cited as disrupters but there appears a general feeling that it is almost impossible to predict where the next disruption may come from.

The opportunities digital distribution brings to independent developers (self-publishing, direct route to market, low costs) has eventually been registered by larger developers; “the trend towards AAA games being digitally distributed isn’t going away: in fact, it should only be magnified in coming years” (Sorens, 2012). The democratization and simplification of routes to market has unsurprisingly led to saturation, and saturated marketplaces require skillful negotiation to achieve visibility of a developer’s offer. Many independent game developers are realizing the democratizing promise of social networking services as marketing tools is not always easy to harness. Despite a few high profile exceptions it requires both expertise and resources, and is often still a case of those with

the biggest budgets having the loudest voice. As most independent developers operate on limited resources, such realizations only increase the sense of vulnerability.

However, with a shift of perspective this vulnerability might be viewed more as opportunity than disadvantage. Hill identifies emerging marketing trends moving away from long established but antagonistic ‘command and control’ models towards collaborative and participatory marketing that acknowledges a loss of control on the marketer’s part and focuses on providing value to all (2013, p.142). These changes have caused marketers to experience a sense of vulnerability, similar to that concurrently experienced by independent game developers. Hill argues that this vulnerability can be turned on its head, stating “a sense of being vulnerable, which we all are whether we recognize it or not, increases the likelihood of being more vigilant, a greater sense of awareness beyond oneself, and being more prone for change” (2013, p.142). He calls this the ‘vulnerability paradox’. This paradox suggests that where there is vulnerability there is strength, and this strength not only manifests itself through increased vigilance, awareness and proneness for change but, perhaps most importantly, through increased empathy and consequently a greater openness to working with those upon which businesses rely: their customers.

The parallels with independent game development are clear. The disruptions outlined previously are causing more progressive game developers to work more closely with their customers, listening to their desires and measuring their behavior through qualitative feedback and quantitative metrics. Increasingly the customer is becoming a co-creator of their play experience. As Lee Schuneman, head of *Microsoft’s* experimental *Lift London* studio, stated, “Now it’s about conversations between developers and players and, more importantly, the players themselves” (BBC, 2013). *Lift London* is proof that even large developers are experimenting in response to sector disruption. Part incubator, part developer, *Lift* primarily focuses on cloud hosted GaaS content for tablets and smartphones rather than more traditional game products. Increasingly developers, big and small, are looking to turn vulnerability into strength by adopting new ideas and new development models to expand their repertoire, testing initial ideas and value propositions with intended customers through rapidly iterated initial experiments, then throughout the design and development process. These developers are adopting a customer-led mindset – where rules are set by the consumer (customer-centric) and not the maker (product-centric) – and this requires establishing a learning organization that uses the correct metrics to understand customer requirements and provide quality support and customer experience. It means listening to both quantitative and qualitative feedback before iterating or moving forward. It means accepting that marketing is not an option to be added on just before shipping but a core aspect of the design and development process that requires integration from the start.

### ***Par Tribus* – Game as Culturematic Case Study**

Over the past two years the authors have been involved in ongoing research into extant and emerging game design and development processes, focusing on a primary case study of *Denki Ltd.*, an independent game developer based in Dundee. An award-winning studio with a defined, established, and proven design process for efficiently creating ‘handcrafted’ game products, *Denki* has been somewhat insulated from disruption by ongoing contracts and the ability to develop quality products within short time-frames. However, more demanding client requirements caused by marketplace disruption, new business models, and the logic of sustaining a business have inevitably increased a sense of vulnerability within the company.

In an attempt to turn this vulnerability into strength, the company recently instigated what might be termed *Denki Skunk Works* – a relatively autonomous unit of two personnel removed from the majority of bureaucracy and tasked with working on advanced projects. The first of these projects – and this paper’s work-in-progress case study – is *Par Tribus*, a puzzle game pitched as ‘the thinking person’s *Match 3*’. The game adopts an experimental attitude in its design and development, constructing a ‘lean’ process that focuses on providing value to customers by validating the game proposition through listening and learning from them.

### ***Game Design as Cultural Experiment***

*Par Tribus* was internally pitched as a ‘culturematic’; a term coined by anthropologist Grant McCracken in the book of the same name. McCracken suggests the past decade has seen corporations trying to “manage innovation in a way it had never been managed before...turning innovation into a system” (2012, p.6). This attempt to encourage yet domesticate innovation has led to creative ideas and their creators becoming shackled by hierarchical bureaucracies. Paradoxically this has resulted in less innovation rather than more. Forty years on McCracken appears to agree with McLuhan that, “our time is a time for crossing barriers, for erasing old categories – for probing around” (1967, p.10), as he liberally employs McLuhan’s concept of the ‘probe’ throughout his book. McCracken views the culturematic as a designed cultural experiment to test and provoke the world by asking ‘What if...?’ questions. For example, the ‘What if we put seven people in a house in Brooklyn and turned on the cameras?’ question that resulted in *MTV’s The Real World* and the birth of reality television.

The *skunk works* team were enthused by this approach and started to envisage a cultural experiment utilizing game design. In the initial internal pitch to ‘green-light’ development of *Par Tribus* the team posed the question, ‘What if instead of making a game we made a culturematic?’ Using McCracken’s definition of culturematic as “a little machine for making culture...designed to do three things: test the world, discover meaning, and unleash value” (2012, p.3) to guide them, they then added a further four ‘What if...?’ questions to the pitch:

1) What if we made something selfishly narrow and esoteric?

Conducting research for another project the whole *Denki* team had been playing the hit Japanese game *Puzzle and Dragons* (*P&D*). The game has achieved substantial financial success, identified as a masterful example of coercive monetization (Shokrizade, 2013). Ostensibly a hybridization of ‘puzzle’ and ‘role-playing game’ (*RPG*) genres – a monster fighting *RPG* in the top of the screen and ‘Match 3’ puzzle game below – in reality the ‘Match 3’ mechanic is merely fuel for the *Free-to-Play RPG* game. While playing *P&D* Sean Taylor (Denki Product Shipping and Strategy) realized he enjoyed the ‘Match 3’ element far more than the game itself. This realization dovetailed with a desire to neatly organize simple yet compelling game mechanics into minimalist niche products, influenced by games such as *Dots*, *Hundreds* and *Letterpress*, and wanting to make genuine ‘short form, short session, long arc’ *postcore* games (Pincus, 2012).



**Figure 1:** Puzzle and Dragons (GungHo Online Entertainment, 2011).

These serendipitous events led on to the ‘What if we made something selfishly narrow and esoteric?’ question. McCracken believes serendipity is essential to culturematics, creating order out of accident and magic out of banality. He suggests “the history of science is filled with stories of investigators...engaged in one inquiry when some accident in the lab gave them a very different way to solve the problem” (McCracken, 2012, p.12). While exploring

the core game and proven monetization mechanics of *P&D* to inform a project aimed at the mass market, another set of ideas had been stumbled upon: why not make a cultural experiment that might provide value to a niche but potentially lucrative market?

2) What if we reframed the Freemium model?

The team envisages *Par Tribus* as similar in nature to *XBox* or *Playstation Network* trial products instead of a fully-fledged GaaS. This is because the game will be more feature-limited product than persistent, ever-evolving and theoretically endless service. The game will be free to download and play but the 'free' product may contain commercial breaks between play sessions. The player can decide whether to watch the advertising – which is intended to be relevant to player interests – or 'Go Pro' by paying a one-off charge to remove it. They can even 'Pay with an Ad', gaining one-off access to Pro content by viewing an advert, similar to the system featured in Swedish game *Ruzzle*. The team are thus seeking to reframe the *Freemium* model by presenting the player with a meaningful choice: whether to 'pay-to-play' or choose to watch commercial breaks, rather than forcing them down specific routes. This model could be seen as an experiment in hybridizing Free-to-Play and *Freemium*, as it incorporates elements of both without fully realizing either.

3) What if we targeted fertile ground?

In September 2013 *Apple* are updating the *iPhone* range and, perhaps more importantly, completely revamping the operating system for its smartphones and tablets with *iOS7*. This latest iteration of the mobile operating system features a complete redesign of the user interface under the stewardship of Jony Ive, *Apple's* Senior Vice President for Human Interface. Ive has discarded the skeuomorphic design of previous *iOS* iterations that seeks to emulate items in the real world in an effort to make them easily understood, often incorporating "embellishments such as bevels, embossing, drop shadows, gradients or artificial textures" (Cousins, 2013). Instead he has drawn on the more minimal 'flat design' trend that concentrates on simplicity and economy, embodying a somewhat modernist 'form follows function' ethos.

Beyond overhauling the user interface *iOS7* also "introduces entirely new navigational and structural standards far beyond the extent of any previous UI changes" (Arment, 2013). Technology expert and developer Marco Arment argues these technical changes will make migrating existing mature or successful apps and games to *iOS7* difficult for developers, suggesting "even if they overcome the technical barriers, the resulting apps just won't look and feel right. They won't fool anyone" (2013). Interestingly Arment views this as an opportunity for developers to create brand new, native *iOS7* apps and games to enter what were mature markets on *iOS6*. *Denki Skunk Works* again realized that serendipitously the new minimal aesthetic of *iOS7* might not only facilitate a desire to make a minimalist and satisfying postcore game but additionally provide a rare opportunity for

*Denki* to target a fertile market as hundreds of thousands of new *iOS7* users started looking for native apps and games for their updated phones.

#### 4) What if we built a system to sustainably deliver and capture customer value?

Throughout its existence *Denki* has formulated and refined its design and development process to a point where the team can produce high-quality, handcrafted game products from inception to shipping in a matter of weeks. Much of this expertise and repertoire was honed while working on quick turn-around client projects for digital television and has been applied successfully to projects for other platforms, such as the award-winning *Quarrel*. However, due to the disruptions previously outlined, the company decided it wanted to experiment with new methodologies in a bid to ensure sustainability in the future. To do this without compromising the quality or predictability of existing projects, or the company ethos, it decided to instigate *Denki Skunk Works*.

The birth of a *Skunk Works* has created the opportunity for the company to implement a *Lean Startup* methodology as ‘first principles’ on a project, instead of an additive to its extant design and development process. Taylor has become increasingly interested in the *Lean Startup* methodology during the past twelve to eighteen months, and sought to integrate aspects into the extant *Denki* design and development process. However, as these projects were not fully ‘lean’ it had proven impossible to accurately evaluate the success of this integration.

The experimental nature of culturematics dictates that some experiments will fail. McCracken believes this is not a problem and that most importantly, we must learn from failure before readjusting the culturematic or producing more. This iterative and experimental mindset emphasizes validated learning and dovetails closely with the *Lean Startup* methodology. Therefore the *Skunk Works* team believes that *Par Tribus*, as a game culturematic, represents an ideal opportunity to develop a product using a lean process to sustainably deliver and capture customer value.

### **Lean Startup 101**

*Lean Startup* principles are based upon the ‘lean manufacturing’ processes first developed and implemented by *Toyota* between the late 1940s and mid-1970s. The system, originally called ‘Just in Time Production’, sought to eliminate the wastage of resources caused by the associated costs of carrying a large inventory by delivering ‘the right material, at the right time, at the right place, and in the exact amount’ (*Wikipedia, 2013*). This system consequently evolved into the *Toyota Production System (TPS)*.

*TPS* focused even more closely on the elimination of *waste* – identifying seven distinct types – while adding two other elements (overburden and inconsistency) it stated should be avoided as they contribute to waste and inefficiency. Among other elements the system advocates the importance of achieving ‘process flow’ to identify problems then learn through solving them, a ‘pull’ system to avoid overproduction, and a process of continuous

improvement. In addition to technical processes, *TPS* also encompasses a clearly defined management philosophy. It is often credited with being the engine behind *Toyota's* success in becoming one of the world's top three vehicle manufacturers.

'Lean' is generic term for production processes derived from *TPS* that considers the expenditure of resources for any goal other than the creation of value for the end customer to be wasteful. It defines value simply as something a customer would be willing to pay for. Between 2008–2011 technology entrepreneur Eric Reis, who had studied 'lean manufacturing' and the *TPS*, started a blog hoping "to find ways to eliminate the tremendous waste I saw all around me: start-ups that built products nobody wanted, new products pulled from the shelves, countless dreams unrealized" (Ries, 2011, p.6). As a result he created *The Lean Startup Method*, based on five core principles (see **Figure 2**).

Ries hypothesizes that start-ups require a new form of entrepreneurial management geared to a context of 'extreme uncertainty', defining anyone who works within a start-up as an entrepreneur. He argues that start-ups exist not only to serve customers, make money or things, but also to learn how to build a sustainable business through frequent experimentation. They also have scarce resources, particularly time, and consequently must eliminate waste by maximizing learning about their customers per unit of time. He calls this process 'validated learning' and it involves the start-up demonstrating empirically that it has discovered valuable truths about its prospects. This concept is sometimes misunderstood as asking customers what they want and then producing it. In reality it is about listening to customers, identifying the problems they might have, then presenting them with a solution.

To achieve the right solution for its customers a start-up must build a Minimum Viable Product (MVP) – a bare-bones prototype of their proposed ideas to solve a perceived problem. The MVP establishes a feedback loop enabling the start-up to implement and negotiate an iterative 'Build–Measure–Learn' cycle, consequently used to refine the proposition or fundamentally change it – know as a 'pivot'. The 'Build–Measure–Learn' loop must also be able to be accelerated to scale the business on-demand. Ultimately Ries regards "the fundamental activity of start-ups is to turn ideas into products, measure how customers respond, and then learn whether to pivot or persevere" (2011, p.8).

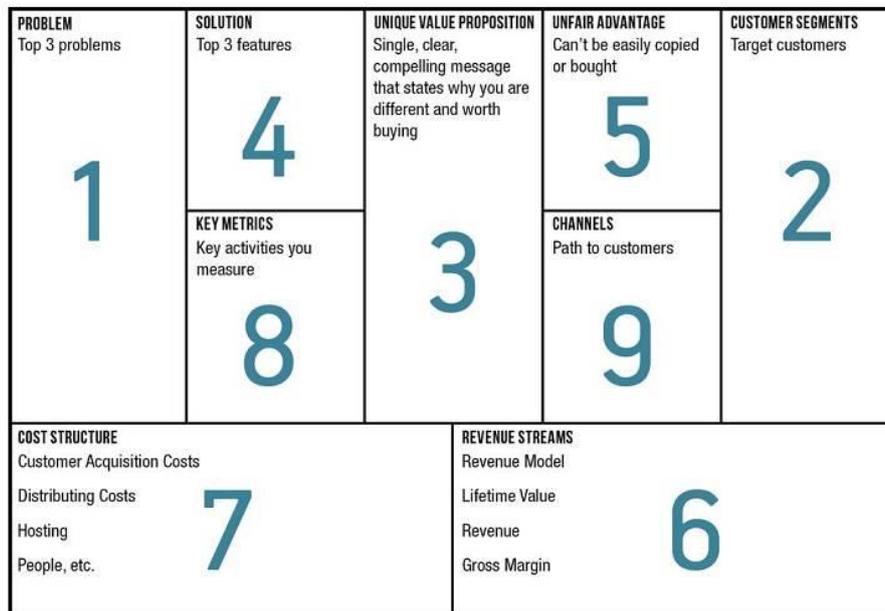
<b>1</b>	<b>Entrepreneurs are Everywhere</b>
	You don't have to work in a garage to be in a startup. The concept of entrepreneurship includes anyone who works within my definition of a start-up: a human institution designed to create new products and devices under conditions of extreme uncertainty. That means entrepreneurs are everywhere and the Lean Startup approach can work in any size company, even a very large enterprise, in any sector of industry.
<b>2</b>	<b>Entrepreneurship is Management</b>
	A startup is an institution, not just a product, and so it requires a new kind of management specifically geared to its context of extreme uncertainty. In fact, as I will argue later, I believe 'entrepreneur' should be considered a job title in all modern companies that depend on innovation for their future growth.
<b>3</b>	<b>Validated Learning</b>
	Startups exist not just to make stuff, make money, or even serve customers. They exist to <i>learn</i> how to build a sustainable business. This learning can be validated scientifically by running frequent experiments that allow entrepreneurs to test each element of their vision.
<b>4</b>	<b>Build-Measure-Learn</b>
	The fundamental activity of a startup is to turn ideas into products, measure how customers respond, and learn whether to pivot or persevere. All successful startup processes should be geared to accelerate that feedback loop.
<b>5</b>	<b>Innovation Accounting</b>
	To improve entrepreneurial outcomes and hold innovators accountable, we need to focus on the boring stuff: how to measure progress, how to set up milestones, and how to prioritize work. This requires a new kind of accounting for startups – and the people who hold them accountable.

**Figure 2:** The Lean Startup Method

### ***Lean Game Development***

Taking the ideas of *Lean Startup* as the starting point the *Denki Skunk Works* team has developed an initial lean process for game design and development that aims to sustainably

deliver and capture customer value. This process starts not with an extensive business plan or the ‘traditional’ Game Design Document (GDD) but with a *Lean Canvas*.



Lean Canvas is adapted from The Business Model Canvas (<http://www.businessmodelgeneration.com>) and is licensed under the Creative Commons Attribution-Share Alike 3.0 Un-ported License.

**Figure 3:** Lean Canvas template with number guide for completion

### Initial Lean Canvas

The initial *Lean Canvas* acts as both a vision statement and a variety of untested assumptions. According to Ash Maurya, a leading author and expert on lean processes, in comparison to a business plan this one page diagram is “fast, concise, and portable” (2012, p.6). Maurya also argues that utilizing a *Lean Canvas* enables a startup to identify a list of possible customers for its proposition, describing it as “the perfect format for brainstorming possible business models, prioritizing where to start, and tracking ongoing learning” (2012, p.22). It is worth noting that lean distinguishes customers from users by stating, “a customer is someone who pays for your product. A user does not” (Maurya, 2012, p.24). In lean game development as practiced at *Denki*, the *Lean Canvas* replaces a GDD or any other initial documentation.

Maurya proposes a numbered running order (and a time limit of fifteen minutes) for sketching out an initial *Lean Canvas*. First he suggests simultaneously addressing sections one and two, making educated assumptions regarding what problems may exist and who might have them. Then moving to who or what currently offers solutions to these problems, identifying existing alternatives at the bottom of section one before surmising who might be the ‘early adopters’ of the product or service. The Unique Value Proposition, defined as ‘why you are different and worth getting attention’ (Maurya, 2012, p.29) is outlined next, including a ‘High-level Concept’ to quickly communicate the idea. From here the

entrepreneur can then fill in the remaining sections, ending with the key metrics that will measure success and the channels that will take the proposition to the customer.

The *Lean Canvas* for *Par Tribus* follows Maurya’s model, aiming to document then systematically test and refine its business model through customer validation. The current iteration of the canvas contains the initial vision for the project with attendant assumptions, all currently unproven. The team have identified possible customer problems in the Problem section, then suggested viable Customer Segments before proposing the game’s UVP: ‘The thinking person’s *Match 3*’. It could be argued that consumers of digital game content may not have a problem per se; like many customers of creative or entertainment content they might more accurately be described as possessing desires. Although this difference in lexicon may highlight a conceptual disconnect when adapting lean processes to content creation, these desires could well, to the customer, appear to be problems worth solving.

<p><b>Problem</b></p> <p>I like the match three puzzle mechanic of <i>Puzzle &amp; Dragons</i> more than I like the game itself</p> <p>Match three games feel too gimmicky and disposable, lacking style or strategic depth</p> <p>iOS 7 lacks games which feel like they're tailor-made</p> <p><b>Existing Alternatives</b></p> <p><i>Dots</i> <i>Hundreds</i> <i>Ruzzle</i> <i>Letterpress</i></p>	<p><b>Solution</b></p> <p>Free the match three mechanic, make it an engaging game in its own right</p> <p>Neatly wrap it up in a stylish, minimalist product</p> <p>Build it exclusively for, and to exploit the features of, iOS 7</p> <p><b>Key Metrics</b></p> <p>Paid Conversion Rate =&gt; 10% (Lifetime)</p> <p>Game +1 =&gt; 90% (Lifetime)</p> <p>Session +1 =&gt; 80% (Lifetime)</p>	<p><b>Unique Value Proposition</b></p> <p>The thinking person's match three</p> <p><b>High-Level Concept</b></p> <p><i>Puzzle</i> (sans) <i>Dragons</i> x <i>Dots</i></p>	<p><b>Unfair Advantage</b></p> <p>Core mechanic is proven</p> <p>iOS 7 is "fertile ground" yet not many have permission to focus on it exclusively</p> <p>Denki has the repertoire to execute high-quality, rapid product development</p> <p><b>Channels</b></p> <p>Inbound Marketing and network effects (e.g. 'Making of' blog)</p> <p>Xpromo through existing Denki social channels and media connections</p> <p>Early Adopter channels (e.g. <i>Killscreen</i>)</p> <p>Apple App Store editorial team</p>	<p><b>Customer Segments</b></p> <p>iOS 7 users looking for 'digital chocolate'</p> <p>iOS 7 users looking for thoughtful, satisfying, short form entertainment</p> <p><b>Early Adopters</b></p> <p>Postcore gamers</p> <p>Players of peer 'hipster' games</p> <p>iOS 7 power users</p>
<p><b>Cost Structure</b></p> <p>£7,000 per man month in Problem/Solution team running costs</p>		<p><b>Revenue Streams</b></p> <p>£2.99 one-off 'Pro' purchase per customer</p> <p>£29,000 gross (1,000 'Pro' customers @ £2.99 per purchase)</p> <p>£500 per month in non-paying user ad revenue (recurring)</p>		

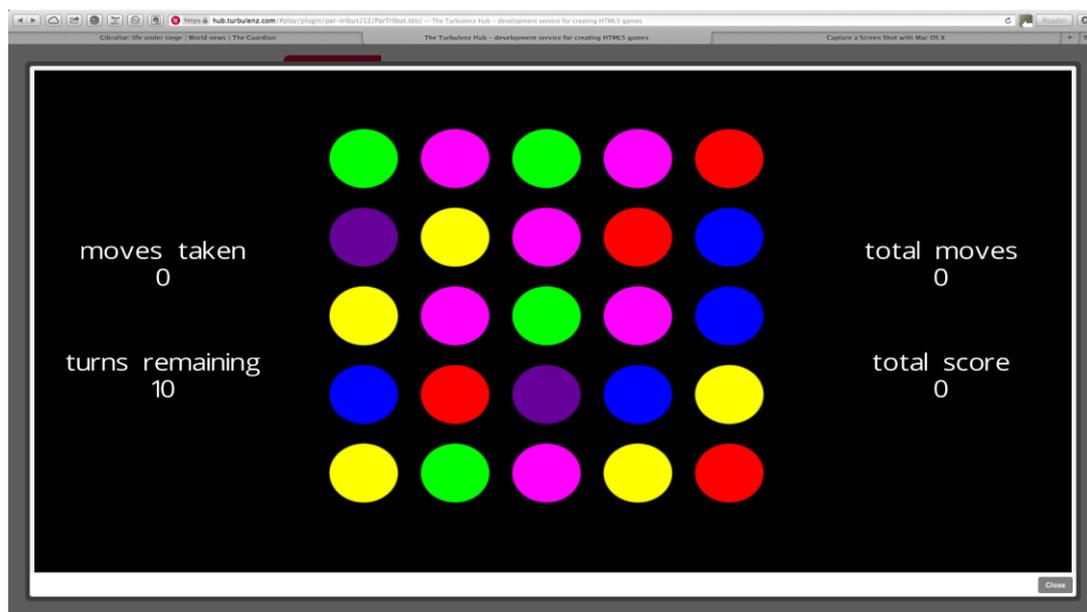
**Figure 4:** *Par Tribus* Initial Lean Canvas

The team identified key metrics for *Par Tribus*. Currently identified as the most important, or ‘one metric that matters’, is that ten percent or over will become paying customers over their playing lifetime. However, the iterative, learning nature of lean processes means another metric may supersede this in the future. By creating a Lean Canvas for game development the *Skunk Works* team are attempting to correctly identify these desires and create a roadmap on order to eventually test how well their concept connects with their target segment, thus eliminating waste caused through building too much, too soon.

**Internal MVP**

To augment the *Lean Canvas* the team created an initial MVP build of *Par Tribus* for internal distribution within *Denki*. This build attempts to prove that the ‘core play’ at the heart of the

game has the correct ‘feel’. In *Denki* terms games have the correct ‘feel’ when they are “substantial, they aren’t sloppy, the controls feel responsive, and you feel in control. But it also makes you feel good, so there’s some emotional resonance going on there” (Penn, 2009). The internal MVP is used to elicit qualitative feedback from the whole *Denki* team in terms of verbal and written feedback, plus some quantitative data regarding and engagement.



**Figure 5:** *Par Tribus* Internal MVP Screenshot (Denki, 2013).

## Roadmap

*Par Tribus* is still in its infancy, testing assumptions by running experiments with the internal MVP. Therefore it is almost impossible to identify any concrete information that could be termed, and therefore used, as validation. However, there is an initial roadmap for determining whether the team have correctly identified a problem worth solving before they invest the resources to build the assumed solution – this is finding the ‘Problem/Solution Fit’ as outlined by Maurya (2012, p.8).

The team’s goal for the Problem/Solution fit stage is to determine three things:

- i) Is *Par Tribus* something the identified customers want (must-have)?
- ii) Is *Par Tribus* something they will pay for (viable)?
- iii) Can *Par Tribus* be built in a sustainable, scalable way (flexible)?

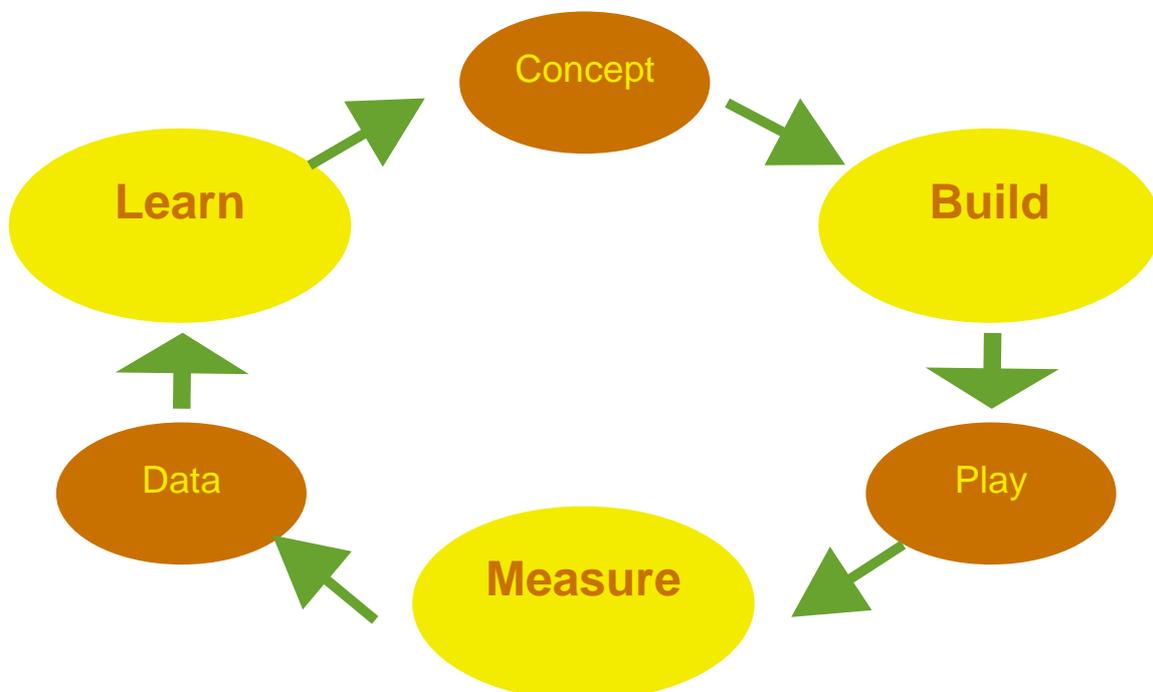
In order to answer these questions the team will become a learning organization by implementing a ‘Build-Measure-Learn’ feedback loop (see Figure 7). This loop will measure the Product/Solution Fit by deploying a combination of qualitative and quantitative data gathering techniques.



**Figure 6:** The Three Stages of a Startup (adapted from Maurya, 2012).

**Qualitative:**

- i) Run acquisition tests that target the identified early adopter segments
- ii) Build a full release MVP that allows observation of early adopters interacting with the game
- iii) Run interviews to validate (or invalidate) Problem and Customer assumptions
- iv) Run interviews to validate (or invalidate) Solution, Customer and Pricing/Revenue assumptions.



**Figure 7:** Build–Measure–Learn Loop for Lean Game Development (adapted from Maurya, 2012).

### **Quantitative:**

- i) Build a full release MVP that utilizes one key metric, or Key Performance Indicator (KPI), to measure how early adopters interact with the game, i.e:

**KPI: Session+1 => 80% @ 10 users** (eight out of ten early adopters will play more than one unique session of the MVP unsupervised, in their own time, on their own device).

By listening to potential customers then learning through data collection, the team can validate whether early adopters are choosing to play *Par Tribus* over other games and entertainment media available to them. If they receive validation they will continue developing the solution as is. If not they will iterate, or possibly pivot, the solution in an attempt to achieve a better 'fit' before moving forwards.

### **Conclusion**

As this paper has argued, independent game developers in the UK are experiencing substantial disruption to their sector. This is causing unease amongst many but some progressive studios are attempting to achieve sustainable commercial success through conducting experiments to expand their design and development repertoire. *Denki* are a clear example of this experimental and progressive approach. To do this without negatively impacting on the company's other work, reputation and team structure, it has followed the *Skunks Works* model initially developed by *Lockheed* to insulate the core business from the experimental team and vice versa.

The *Par Tribus* project demonstrates an experimental attempt to build an organization that can minimize risk and waste by listening and learning from its customers. Too often game developers embark on making the game they always wanted to make, expending months or even years of resources, only to discover on completion that nobody wants to buy it. *Denki* is attempting to make games in a smarter, leaner way; validating concepts with potential customers before embarking on a full development of a prototype. By listening to its potential customers the developer can involve them in the creation process, ultimately creating value for both parties by delivering a product or service the customer actually wants with a minimum of waste, in a sustainable and scalable way.

This approach might be criticized as 'playing it safe' by asking customers what they want, thus potentially negating creativity or innovation. But to do this would be to misunderstand both the ethos and process, and possibly the nature, of creativity. In *Where Good Ideas Come From* Steven Johnson argues, "we are often better served by connecting ideas that we are by protecting them" (2010, p.22). The adoption of a Lean Startup process can enable the *Skunk Works* team to sustainably explore a culturematic proposition by

connecting the nascent concept with its potential customers, interpreting and acting on the learning that emerges. This minimizes the wastage of precious resources.

Creating a cultural experiment like *Par Tribus* is by nature risky, and much detailed in this paper remains unproven. It should be noted that neither authors of this paper advocate lean content creation for digital games as a 'one-size fits all' panacea for all ills. As the project progresses, applying a Lean Startup methodology to game development is presenting some challenges and conceptual disconnects that the team must learn to overcome. The project is still in its infancy, yet to produce any definitive answers regarding its viability. However, this new design and development process appears to be enabling the team to de-risk the experiment as much as possible. The team is not asking customers to tell them what to make; they are seeking feedback on a creative solution to a perceived problem or desire in a bid to deliver something valuable to both *Denki* and their customers to market. In doing so, they have stopped just making stuff, and are instead learning to listen.

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