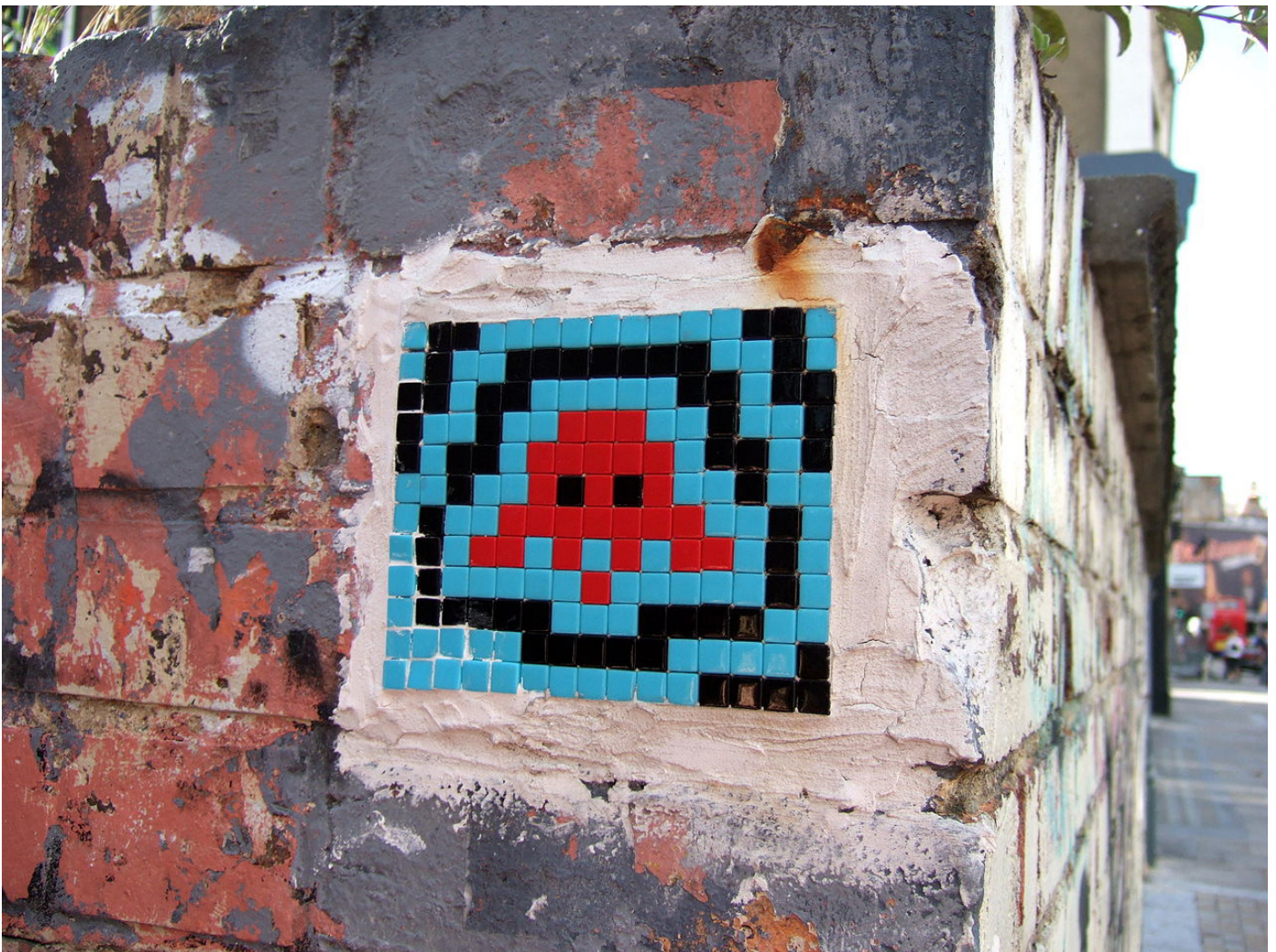# doteveryone

Space Invaders

Reclaiming the future through rebellious stories and diverse voices

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Space invader sprite in ceramic tiles, Shoreditch High Street, London, UK. Edward Betts. (Wikimedia, 2007)

Space Invaders: Reclaiming the future through rebellious stories and diverse voices.

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1. Abstract

The future is the ultimate public space, something we all have a stake in and seek to be part of. But it is also a fictional place – it doesn't yet exist, and nobody owns or profits from it.

Stories can act as a 'landgrab', and this discovery project is an experiment to imagine how harnessing the power of science fiction (SF) could inspire the tech sector to be more inclusive.

Between August and October 2017, we organised roundtables, held interviews and conducted extensive desk research into the influence of science fiction in the technology sector. We also sought to understand the role of stories in inspiring people to think differently, and why we have had so little diversity within the futures being imagined and created by the technology industry.

We explored how SF has examined these themes, and whether we can see opportunities for influencing current perceptions of the future for those that are making it. This led us to a proposal that focused on reaching those influencing and creating our future, and disrupting their views of it.

This is Space Invaders: an ever-expanding suite of projects that collectively help to catalyse change. It centres on invading established corridors of power – both intellectual and institutional – and enabling a collective of creative icons to 'invade' privileged spaces and insert radical new ideas that transform the notion of what the future could and should be.

"a tenet we need to begin championing is the inclusion of diverse inputs – divergent industries and trends, yes, but also divergent people crafting the futures we want to build. Let's have our futures reflect our whole population, not just those who have had the privileged to be there in the beginning" (Draudt, 2017).

By working with diverse partners and creating new collaborations, Space Invaders works to imagine alternative futures: how new ideas, people, and stories could help inspire us towards new possibilities that transcend the hegemony of existing corporate visions.

2. Introduction

"There's actually a lot that's fucked in the way things fall quote-unquote naturally, and that's something to interrogate" Roundtable participant

The technology industry has a problem with diversity and inclusion (Lopez, 2017). There are already a plethora of initiatives in play to improve that: guidance for employers on how to hire, initiatives to alleviate workplace bias and define behaviours for best-practice, and an abundance of schemes aimed at bringing new and different kinds of people into the industry.

But, based on the continued low levels of diversity within the industry (McCandless et al, 2017), these things don't appear to be working – or at least, they're not working quickly enough, or at scale. They are all solutions that treat the symptoms, not the cause of the problem. How could science fiction (SF) serve women and other marginalised voices in the tech industry? Could different types of science fiction encourage a better balance in the technology industry? Can we imagine alternative utopias or dystopias that can surpass the usual tropes? And what kind of jeopardy and drama comes into play when we do so?

The Future Agender: Disrupting Tech empires

Science fiction often postulates what sort of futures we might be heading for and prepares us for the journey ahead: the dreaded storms and torrents, or the enticing beams of light along the way.

"The stories we tell are really important because that's what people design towards. The reason why I like why my team exists is getting everyone to agree on one story. If you get six engineers in one room and you attempt to clarify what they are doing they don't all agree. That's the problem of tech pushing innovation – people pin their own tail on their own donkey and the donkeys don't match." Interviewee

If men continue to dominate the technology industry would that automatically infer our future is 'male-coded'? Some diversity advocates predict a more consciously diverse future with better products and services that are designed by, and created for, a diverse range of people (Wallman, 2016). But currently how realistic is that prediction?

Importantly, even if everyone were able to successfully to smash the silicon ceiling and achieve equitable representation in these workplaces, can we genuinely assume that will result in a paradigm shift? If the patriarchal structures and value systems that have governed the technology industry for it's entire existence remain unchanged? Without different values and futures to strive for, why would we assume that increasing diversity would inherently lead to a fairer future?

Vintage SF anthologies (Vaughan, 2012; Wikimedia, 2015)

Stories have a role in creating positive change and there is a long history of literature influencing public views and ultimately political and societal shifts (Hutt, 2016). To influence change, we must facilitate new visions of the future that make new desirable kinds of technology possible. What would the mythology of technology look like if it was written by different people, driven by socially inclusive values? Science fiction is particularly good at asking bold questions that dare to challenge the status quo and imagine new audacious possibilities outside of existing frameworks.

"Whilst fiction cannot be as precise and practical as academic work, in academia you can become tied up and bound to a specific discourse. Literature can change boundaries in interesting ways." Interviewee

In its current incarnation "Silicon Valley, then, is no anomaly, but rather the most recent and most vivid manifestation of our dissatisfaction with our own humanity", laments Sarah Jones in New Republic (Jones, 2017). "Some of its most popular products—Facebook, Twitter, other social networking sites—can function like secularized congregations." The striking comparison that immediately springs to mind is that SF fandom can in of itself be rather cultish (Barnett, 2016; Auerbach, 2017). Thus, SF is not a flawless genre; it certainly can be prone to its blunders. Whilst SF is often praised for its panache in worldbuilding, the 'real' future is a fertile battleground for conquest.

"Part of the point of imagining alternative realities or future for many of us is to be part of or provoke a debate about whether it is desirable or not, leading ultimately to new policies, products and movements." - Interviewee

It's no secret that SF is used as an instrumental tool in the foresight industry (Hollinger, 2017) and yet that too is disproportionately male, argues Alida Draudt: "a tenet we need

to begin championing is the inclusion of diverse inputs—divergent industries and trends, yes, but also divergent people crafting the futures we want to build. Let's have our futures reflect our whole population, not just those who have had the privileged to be there in the beginning" (Draudt, 2017).

"Prediction is never a science, so when it comes to 'predicting the future', the creatives with a bent for the Dreaming Pole are commonly better at doing it. Their work lasts longer, it is more innately historical, and does better at commanding the attention of the following generations" - Bruce Sterling (Sterling, 2017)

3. Project parameters: The journey of sense making

We developed an open brief to discover possible solutions to a pool of inter-related questions. Part of the discovery process involved deciding on which cascade of questions we could reasonably manage to address in the given timeframe and resources.

The initial hypothesis we set out with was:

"Can new Science Fictions help create a female-coded space in the technology industry, so that the futures we create are fairer and more representative of more people?"

We quickly found that loaded terminology liked 'female-coded' proved to be exclusionary, rather than inclusive. Instead of continuing to tread what was transpiring to be somewhat of a minefield and go deeper into gender studies, we sought to recalibrate our perspective by exploring the issue in its broader diversity context. Diversity in all senses; perspective, opinion, background and thought.

What this project is trying to do?

- Harness science fiction as an instrumental tool to create new archetypes of the future.

- Thinking beyond the 'now' to facilitate the imagination of divergent alternative futures that disrupt the status quo of power in the tech sector.

- Making a compelling case for equity and inclusion by referencing the inadequate representation of women and intersectionality in the tech sector.

- Explore what mediums we can use within our reach to make a lasting impact on democratising the technology industry.

- Provoke new thinking, questions, solutions and future directions.

- Encourage fair and responsible technology through storytelling.

- Connect deeply into the consciousness of people.

- <u>What related things are interesting to us to explore further but we can't solve in this single project?</u>

- Redress the inherent imbalance in the technology industry.

- Explain the idiosyncratic leadership of tech empires (Wall, 2017) or why and how current digital platforms have reached dominance. What we can attempt to do is try to unpick what popular culture influences helped to inspire their success so that these factors can be replicated in such a way that enables more women and people from diverse backgrounds can hack into those spaces.

<u>What this project isn't attempting to do?</u>

- Be an exercise in speculative design: it's important for us to lift this initiative into mainstream spaces where the potential impacts will be more visible to the public and de facto influencers of change.

- Pander to essentialist depictions of gender or espouse polemic terminology, e.g. the meaning and role of 'female coded'.

- Smash the patriarchy.

4. Why Sci-fi? Project rationale and underpinning

"If you can tell the story of the future than perhaps you can have a better grip on shaping the future" Interviewee

4.1 Techno Futures

Since its inception, science fiction has been held as the bridge between imagination and innovation (Bassett et al, 2013). Science fiction didn't emerge from a vacuum – there were specific factors and conditions that have spurred its boom and sustained its development; the Enlightenment, Colonialism and Surrealism (Gribbin; Jones; Miéville, 2011) have been major factors that shaped Western SF as we now know it today. SF has evolved over time and continues to change as a genre, mutating and splintering into newer sub-genres such as cyberpunk and the 'New Weird'. In tandem, technology is rapidly expanding and is becoming a focal point for determining what kind of future lies ahead. For better or for worse, techno-futurism is supplying many of those future narratives. It paints pixelated pictures of what might be possible in a future centred on AI, mobile technology and biotechnology.

"When we start to think about tech as a thing unto itself that's when it becomes dangerous. It latches onto the dominant regime and becomes threatening." Interviewee

Technological determinism centred on instrumental material gains rather than intrinsic benefits to people is inherently problematic (Dotson, 2015). Technology is rapidly changing relationships; the way we live together and how we think about living together in the future. The way these new technologies are conceived needs deeper and more transparent probing if we are to avoid future fatalism.

"I don't think technology is the devil in any of these conversations. I think the assumptions that come behind the systems that build the technology are actually the problems." - Interviewee

This report embraces the wide spectrum of science fiction that could spur alternate visions of technological futures. Taking a broad view of SF to include any speculative narrative which pushes the horizon of our rational knowledge and imagines new settings, technologies and situations that evoke a sense of wonder and suspension of disbelief for the reader/spectator.

"Tech should not have to be a mandatory part of the future....we should still be masters of it so that that it can assist us, not the other way around." Interviewee

4.2 Understanding the potential power and influence of science fiction

Science fiction has had a cultural influence on some of the most critical technologies that have been created in the 20th and 21st centuries. Often cited examples include Star Trek on the engineers of the first mobile phone; Ronald Reagan's Star Wars programme; and William Gibson's concept of cyberspace in Neuromancer. Beyond these there are many stories and case studies of engineers and scientists referencing their early love of SF and desire to build some of the futures that they read and watch (Turney, 2013; Bassett et al, 2013).

But how much evidence is there for this link? Is the reality more in line with Jon Turney's research conclusions, commissioned by NESTA, on the influence of science fiction: "Most simply, SF is good at promoting cool stuff, lousy at slowing things down with awful warnings." (Turney, 2013)
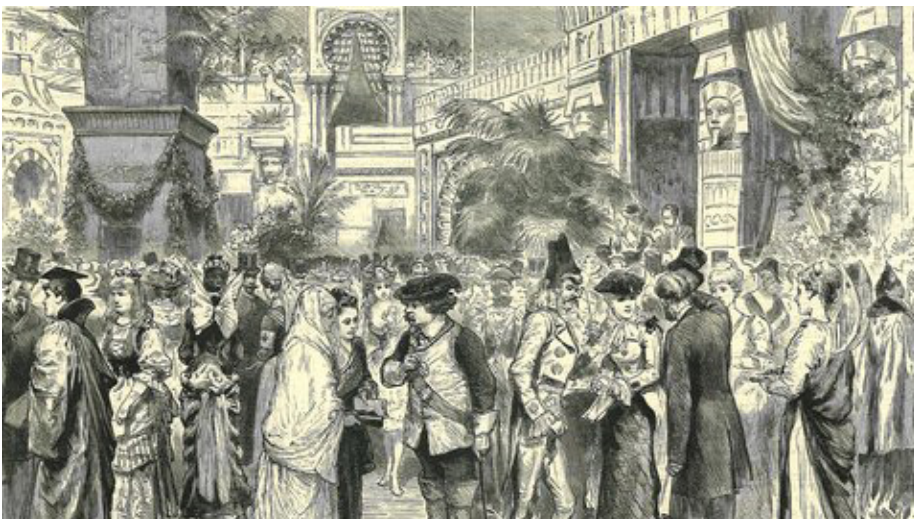
SF convention, at the Royal Albert Hall, 1851 (Smith, 2016)

As Turney sets out in his essay, it's tempting to look back at the development of technology and retrospectively place a narrative upon it, when in reality there was no such path during its creation. There is often the tendency to trace the histories of technology, see the books, films or television shows that pepper across this timeline and imagine an influence that perhaps was not really there.

Are we simply creating new myths about the creation of technologies that have shaped our world? It is a natural behaviour for people who love stories to use them in order to make sense of the often slow, grinding process of technological innovation. The reality is a multitude of dead-ends and failed ideas often forgotten in the light of that one transformative success. However there are instances we can point to where technological inspiration is made explicitly (even if the causal nature of it remains questionable) or where the linkage suggests a two-way influence.

The underpinning of this is the theory of Social Construction of Technology (SCOT), that we are not on a predestined march of technological development which will lead us to compounding discoveries and creations. Rather, societal factors actively shape and influence what we discover, understand and create (Bassett et al 2013). We do not develop technology in a vacuum. Whilst there are valid critiques of this theory as being somewhat reductive (Winner, 1993), it is useful in this context, and a necessary framework for the argument of SF as a cultural influence over the creation of technology.

In *Sciencepunk: The Influence of Informed Science Fiction on Virtual Reality Research* (Bailenson et al, 2007) the authors argue that in the areas of Virtual Reality technology it's possible to "demonstrate that the research agendas chosen by scientists... as well as the specific hypotheses tested... are either implicitly or explicitly shaped by earlier works of science fiction". In 2010, Axon's (formerly Taser) long-time vice president Steve Tuttle "proudly predicted" in an interview with GQ, that with their real-time face recognition technology "every cop will be RoboCop." The enduring influence of this film over Axon has also been analysed in greater detail (Kofman, 2017). This is also an interesting example of ideas being 're-tooled' against their creators intentions: a dystopian warning taken and turned into reality, sold as positive progress (Bassett et al, 2013).

But besides the influencing of technologists, SF has also been used as a tool to frame public expectations of technology and our collective future (Bassett et al 2013). Most famously, *Minority Report* (2002) film consultant John Underkoffler worked up the cinematic depiction as if it were an actual prototype, and had pre-existing prototypes for the kinds of interfaces used in the film as part of his work at MIT "creating 'pre-product placements' for technologies that do not yet exist" (Turney, 2013).

Consumers of science fiction, in both formal and informal fan networks also play a role in distributing and giving power to science fiction as a foreteller of our future (Bassett et al, 2013).

"Influence is thus complex, indirect, partial, though powerful, and challenging to quantify – or rather quantification can never tell the whole story. Cyberspace links may be tracked or searched (e.g. on

Google); such efforts point to influence but do not get at the nature of Neuromancer's influence, or the nature of cyberspace's real force as a fictional construct." (Bassett et al 2013)

Many other writers have articulated a clear link between science fiction and the technological creations of the 20th century. For instance, documenting the influence of the rocket ships of early 20th Century science fiction on NASA hardware of the 50s and 60s (Disch, 1998).

It is unclear if there is a quantifiable link between these technological developments (and many others [Turney, 2013]) and specific works of science fiction. Researcher George Voss discusses the idea 'summoning' of technology into the world and the alchemy of SF affecting change in the real world and vice versa (Bassett et al, 2013). But, as Australian Science fiction author Damien Broderick states, many do believe SF can influence technology, simply because "anything can influence anything" (Turney, 2013).

"I don't read SF or watch much of it but I do like stories about the future. I can use familiar SF props as reference points, e.g. communication devices. That gives you the ability to have something to anchor to and design towards." Interviewee

4.3 Where are we now?

To look around the literary landscape of modern SF, it's obvious to see that while as a genre it may generally be "lousy at slowing things down with awful warnings", that's not for a lack of trying. Dystopian futures influenced by the march of technology dominate the mainstream, from Charlie Brooker's *Black Mirror*, the explosion of YA fiction such as the *Hunger Games* to the recent works of Margaret Atwood including the *MaddAddam* trilogy.

The thrust of much of this dystopia is a presumption our society will be destroyed by technology, leading us to revert to systems of innate cruelty, a violent patriarchy and corporate ownership of people. Our inescapable vulnerability to become victims of exploitation, inequality and violence. The physicality of difference; gender, race, etc., leveraged against us.

But even in worlds not intended to be dystopia, we see technology and the expansion of our world creating new frontiers where the same reversion happens. Neither utopia or dystopia, the future is a version of 'now, but in space' or 'like now, but with better computers'.

"I don't think there is such a thing as Utopia. I think aiming for one is a really bad idea. There's an assumption that tech means contemporary or emergent technology. It can also mean bricks, sidewalks and lights. It's just the design of new stuff which doesn't necessarily lead to utopia. Utopias always leave people behind.

Technology has a role to help make progress for some people and how that affects the rest of the people is what we should think about." Interviewee

Current popular science fiction such as James S. A. Corey's *The Expanse* books (and Netflix series), or Becky Chambers' *The Long Way to a Small, Angry Planet* provide a diverse range of characters and explore issues of colonialism, racism, gender and sexuality, but their worlds are still an extrapolation of now - power is in the same hands, our relationship with each other, society at large and the power between individuals, corporations and governments remains unchallenged. Of course SF writers *have* historically created positive alternative views of our future, such as Kim Stanley Robinson in his *Mars* trilogy, but these have not been part of popular science fiction in recent years.

Chrisjen Avasarala played by Shohreh Aghdashloo in The Expanse (Netflix 2015)

Chris Robichaud, an ethicist at Harvard suggests the cultural preoccupation with dystopias is a symptom of a desire to understand and tackle issues that concern us: "We can't look at dystopias as merely some bad slippery slope argument," says Robichaud. "Rather, they challenge us: What are the values in this dystopia, and what do they say about our values right now?" (Locke, 2017)

Rather than simply relying on dystopias to examine what's happening now, we want to create positive futures that are just as assertive as dystopias are at challenging the status quo. By building more inclusive and humane futures, we want to show that radically good is as effective a mirror as radically bad.

Cory Doctorow articulates the importance of understanding that the technology we create is not predestination. It is the values, the ethics and the people we put around that technology that matter most: "Railroading time didn't just give us railroads: It gave us robber barons who built huge corporate "trusts" that stole from the masses to enrich the few. It gave us forced laborers, kidnapped or tricked out of China or shipped from slave plantations, to do the back-breaking work of laying the tracks. Railroads may have been inevitable, given steel and tracks and land and engines. Slave labor was not inevitable. It

was a choice." (Doctorow, 2017). Once again we're struggling to align the concepts of Social Construction of Technology with technological determinism.

4.4 Why a fairer future is better?

The governing hypotheses of this project are that science fiction is a powerful, influencing cultural artefact and that inclusive systems and societies create benefits for everyone.

"Because if you don't have a society - whether it's across individuals, across groups, across genders, across generations, across national borders - that's equal, you can't do these things, you can't have an inclusive future," Round table participant

The Spirit Level: Why Equality is Better for Everyone, by Kate Pickett and Richard Wilkinson details statistical evidence covering eleven different health and social problems: physical health, mental health, drug abuse, education, imprisonment, obesity, social mobility, trust and community life, violence, teenage pregnancies, and child well-being. In all of these areas, evidence shows that outcomes are significantly worse in rich countries that are less equal (Pickett; Wilkinson, 2010).

A number of other studies have continued to add additional details to this picture. From Thomas Piketty's exploration of how greater economic equality drives increased overall national prosperity (Piketty, Goldhammer, 2014), to research showing adolescents who attend schools and live in countries where socio economic differences are smaller are at lower risk of being bullied (Due et al, 2009).

There is also strong evidence that more inclusive and diverse teams of people produce better results. A meta study by the Harvard Business Review (Rock et al, 2016) covering a range of papers looking at diversity in businesses highlighted that:
- A 2009 analysis of 506 companies found that firms with more racial or gender diversity had more sales revenue, more customers, and greater profits.
- A 2015 McKinsey report on 366 public companies found that those in the top quartile for ethnic and racial diversity in management were 35% more likely to have financial returns above their industry mean.

Beyond the bottom line, business thinker John Kao has long been an influential advocate for the importance of diversity in driving creativity and innovation, and even coined Kao's Law: that the power of creativity rises exponentially with the diversity and divergence of the group (Kao, 1996).

4.5 Space and time

"I find SF appealing because it allows slippages between spaces.... readers can slipstream sideways..." Interviewee

'Space Invaders' is a project that aims to subvert physical spaces with diverse voices and perspectives. Science fiction has long had a way of exploring the kinds of space we

use every day in unique ways. Unbound from our current limits of architecture, town planning, or even our assumed meanings of what space and place mean.

In much of the dystopian SF literature, the built environment are places where we enact and manifest values and systems of inequality, social segregation, and persecution. Filmmakers such as Neill Blomkamp in *District 9* (2009) and *Elysium* (2013) explored ideas of places of segregation, both from the perspective of wealth and race. SF is also often quick to be an illustrative warning of 'utopias' which are inherently exclusionary.

In Irrational's 2007 game *Bioshock*, an underwater city (Rapture) built to house the intellectual, economic and cultural elite of the day, proclaims in a banner over its entrance: "No gods or kings, only man". But in exploring this space (beyond that gender coded sentiment), the environmental storytelling gives us a glimpse into a history of a place corrupted by elitism, racism, and greed.

It's argued that spaces designed to produce exceptionalism, progress and innovation often make narrow judgements about who is exceptional and what progress looks like. As the antagonist Andrew Ryan argues "To build a city at the bottom of the sea! Insanity. But where else could we be free from the clutching hand of the Parasites?" (Irrational Games, 2007)

Entrance to Rapture in *Bioshock* (Irrational, 2007)

Mike Davis has explored the lost futures of Los Angeles and the influence of SF in the creation of it's current incarnation. He explores the idea that planners have, in the continued weaponization of space and the expansion of gated communities and quasi-public spaces, attempted to create utopias amongst the messy spaces of cities. 'Off-world' communities not unlike Blomkamp's *Elysium*. Yet in our fiction, and seemingly most commonly in our reality, these are spaces of wealth, privilege, with rules set by a private agenda (Davis, 1990; Davis & Monk 2007).

The role of public space is well studied: Who has access to it and what it means for democracy, citizenship and society. Perhaps one of the most well-known ideas to have defined this debate is Henri Lefebvre's Right to the City: that everyone has the liberty to access the city, to shape and be shaped by it, to create its future (Lefebvre, 1968).

This idea has been so pervasive, that in recent years, academics have begun to explore the idea of an informational Right to the City and the 'urbanisation of information'. In their 2017 paper Joe Shaw and Mark Graham contest Google's power as the gatekeeper of information, both in the literal spatial information of maps, but also in terms of the public 'space' of the internet (Shaw; Graham, 2017). It's argued that society has fetishized the power of technology, and consumerized space in the quest for advertising revenues. In this form of reproduction of power, we need to ask - who is in charge?

Our futures are being created and decided in spaces where certain kinds of people are allowed and are comfortable. From the beanbag strewn meeting rooms of Google at Kings Cross, to the green leather of the House of Commons or the brutalist concrete of the South Bank Centre.

As Nirmal Puwar explores in *Space Invaders: Race, Gender and Bodies Out of Place*, these are places created and coded in a way that are mono-cultured and often lacking in diversity of people or thought. The impact of which extends to all those that use the space and the kind of work and thinking that happens there (Puwar, 2004).

4.6 Imagine a co-op where different futures are created and shared

Of course, not all science fiction paints an exclusively bleak portrait of our future society or potential alternatives. In his latest novel, *Walkaway,* Cory Doctorow imagines a post-scarcity society where advances in 3D printing, fabrication and recycling means that almost anything can be created from recycled materials.

There is a huge amount of hope and positivity in his creation of the 'walkaways' a loose knit network community in which everything is open, there is no hierarchy and no requirement to trade labour for the necessities of existence. Here people share knowledge and ideas for how things could work, be governed and improved. A flat structure where no single view is dominant or has inherent value. Ideas are iterated, people share ownership and co-operate for the benefit of all.

Kim Stanley-Robinson has also created detailed and accessible new futures in a number of his novels. In his Mars trilogy he details a colonisation and terraforming of Mars that develops a society built on shared ownership of land, the provision of necessary services such as healthcare outside market forces, and a governance system that prioritises ecology and humanity above all else (Robinson, 1997).

At it's best Science fiction "produces spaces in which the imagination is liberated, challenged, and stimulated. In suggesting new objects and new practices, SF helps to produce new forms of desire or demand as well as re-articulating and giving innovative form to established ones." (Bassett et al, 2013)

The future is the ultimate public space; something we all have a stake in and seek to be part of. But it is also a fictional place; it doesn't exist yet. So let's co-create it. Stories can act as a 'landgrab'. Collectively, we could imagine what alternative futures might be like; how new ideas, people, and stories could help inspire us towards new possibilities that transcend the hegemony of existing corporate visions.

5. Methodology - The collective thought experiment

We conducted a collective thought experiment to gauge whether science fiction can help create a fairer future. Two roundtable groups were brought together consisting of selected creative entrepreneurs, thinkers, designers and technologists who could each add diverse and interesting perspectives to this conversation. This was an opportunity to engage potential allies and partners right from start of the project, to help shape the direction of this initiative led by Doteveryone.

DAY 1: 5th September 2017, 10am – 1pm. 9 attendees ranging from economists, creative writers, producers and academics.

The first roundtable was an open-ended discussion that focussed on addressing the question of what kinds of future shifts we would like to see in relation to diversity? How do we bring in multiple perspectives and what perspectives are important? What are some of the challenges and opportunities in the way we perceive the future and how can we ensure social justice and inclusion at its core? What is the desired impact and feasible change we want to see? We invited participants to bring an artefact that represented a vision of the future they find inspiring.
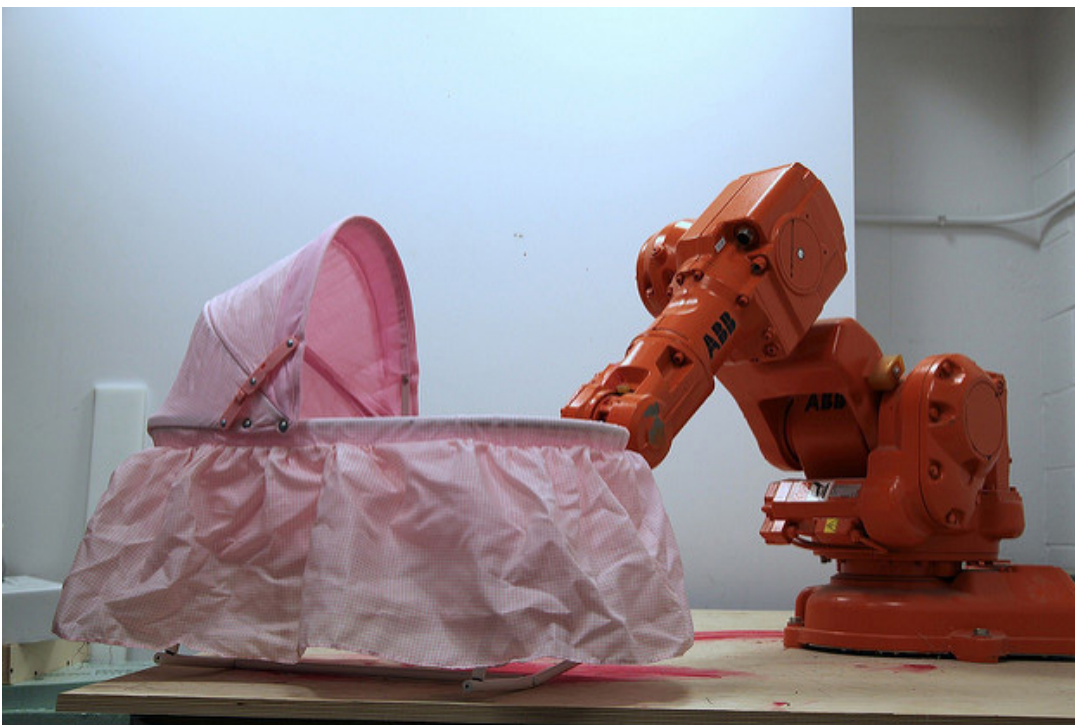
Optimisation of Parenthood, Part II - Addie Wagenknecht

We also discussed what scales of change we should be aiming for: should we think big and try to tackle the axioms that drive technology or aim for lower hanging fruit?

DAY 2: 6th September 2017, 2 - 5pm. 7 attendees including film, festival and media directors, brand managers and UX designers.

How can we attain better futures? The second roundtable was a brainstorm workshop exploring how and where we might want to create change, focusing on possible formats, artists and platforms. What would be an interesting audience to aim at? What projects can we learn from? Which writers, artists and makers should we commission?

Participants were invited to bring an example of a fictitious future that has impacted on change in the real world; for example cell phones inspired by Star Trek communicators, Jules Verne's Nautilus inspiring the submarine or how Steinbeck's The Grapes Wrath inspired a national lobby advocating for government intervention to alleviate poverty during the great depression.

We explored the kinds of science fiction and creative interventions we could make and discussed some of the potential successes and pitfalls when using fiction to change the way we perceive the future. In addition to this work, we also conducted a number of 1:1 interviews with a range of expert witnesses.

Identifying what works

We analysed a wide range of examples to help establish and test the matrix we would use to measure success and provide the selection criteria for shortlisting new proposals. Some of these examples were worked up into pen portraits to get an overview of their successes and gauge what common features are most effective. Next, we brainstormed rough ideas, including wildcards, obvious mediums, different audiences, etc. None of these were satisfactory in the first instance and there was much toing and froing. Through a series of collegiate team discussions and a highly iterative thinking and writing process, a much more tangible and robust concept was conceived to form the embryo of the initiative we are calling 'Space Invaders'.

6. Theory of Change

6.1 A workable solution for a wicked problem: Untangling the hairball

Doteveryone wants to make effective, deep interventions that will promote real change through leveraging the role that stories can have in creating change. The arts can play a powerful role in achieving cultural and systemic change (Golden, 2009) but the question as to whether 'Can Science Fiction change the technology industry?', is a wicked problem (Houghton, 2013).

A wicked problem is a social or cultural problem that is difficult or impossible to solve because they are difficult to define, have incomplete, contradictory, and changing requirements that are often difficult to recognize, involve a large number of the people and opinions, carry a large economic burden, and/or, the nature of the problem interconnects with other problems (Kennisland, 2014).

There is no silver bullet to cure a wicked problem. Instead of banking on a single grand gesture to accelerate change, what we can do is to harness a more distributed and staggered approach to create gradual and incremental change that is more sustainable (Snowden, 2013). As Chris Cancialosi argues, big change comprises of many small victories over time. "Think of any truly transformational change in society that has sustained the test of time, and I will show you a series of seemingly small steps that built upon each other toward the final outcome; events that very often inspired others to create little victories of their own. Those instances challenge the underlying beliefs and assumptions that people hold to be true about the current state." (Cancialosi, 2017).

6.2 New perspectives, new futures

"I really feel like at the moment there is an open space, but there's so many battles still to be fought, and it's really exciting to be thinking about how we can blow those open. And to be radical and inclusive." Roundtable participant

A conundrum is always an opportunity. Psychology research shows that solving difficult problems requires seeing things differently so let's attempt to reframe the problem; we need to realistically weigh up what kind of change we want to see versus the change Doteveryone is able to affect. There are a multitude of potential creative projects we could seek to deliver, but these would most likely be transient, benign and not worth doing in isolation as they risk having little effect for the effort required. By combining bits of possible solutions that won't work in isolation we can come up with a single more potent and repeatable method that can accumulate more effectively over the long term (Snowden, 2016).

What is worth doing is to amplify a conglomerate of ideas which can co-exist and effervesce under stable canopy that becomes the tentacular of a clear, compelling and cohesive message. We want to instil potential 'Space Invader' supporters and audiences with a sense of wonder, hope and excitement for the future; to have faith in the potential for technology to transform our lives for the better and take action accordingly to help make this happen. We aim to create a momentum of interest that becomes a force to be reckoned with in of itself.

"But in this process of delivering more intelligibility, in opening up this discussion to more people, we also close down the opportunity for them to create those scenarios in the first place. Put another way, when highly skilled labour - designers, artists etc- own the means of production, it is harder for wider group to be any more than consumers. So how do we manage this tension? Do we do the hard work to make the imaginary of a technology explicit, opening it up for others or do we share this workload, potentially leading to a less communicative product, but one that reflects more perspectives? Can we do both?" Interviewee

Our theory of change is as follows:
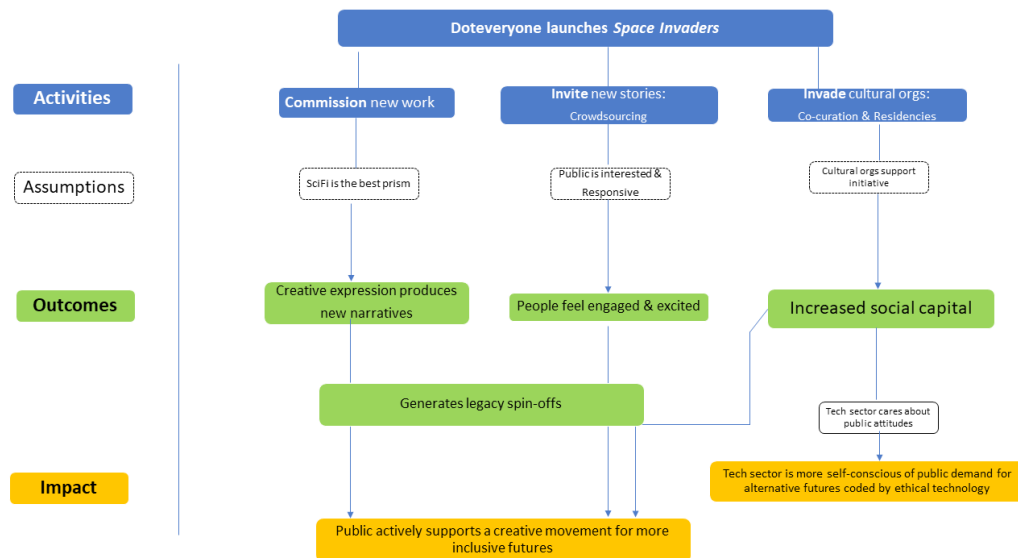
The overall programme of Space Invaders will encompass three key elements as illustrated in the Theory of Change model: Invading cultural orgs (co-curation & residencies), Inviting new stories (crowdsourcing) and Commissioning new work. We want people to be pro-actively rather than passively, hence we propose integrating the ethos of 'citizen science' in this concept proposal. As the late anthropologist Margaret Mead infamously said: "Never doubt that a small of committed people can change the world. Indeed, it's the only thing that can."

7. Space Invaders

7.1 Concept outline

Imagine a future created by rebels; those not from the mainstream, those ready to not only challenge the status quo but also be instigators of change. We all hope for a better future. As Margaret Atwood astutely notes in the Handmaid's Tale "Better never means better for everyone... It always means worse, for some."

'Space Invaders' will hand over the reins of imagination to unexpected voices-to those for whom the 'probable' future might be worse. Twisting existing narratives that take us in more universally preferable and inclusive directions, invading established corridors of power – both intellectual and institutional - enabling a collective of creative iconoclasts to 'invade' privileged spaces and insert radical new ideas that transform the notion of what the future could and should be.

This concept is centred on curating emergent futures – moving iteratively between the now and the future horizon to create a constellation of work across a future timeline that might interact between them in unpredictable ways.

Space Invaders offers an umbrella for a series of ever-expanding partnerships – each creating their own events – taking on the task of bringing radical alternative futures to

their audiences. 'Space Invaders' is a lightning rod to spark a constellation of events that collectively co-creates alternate technological futures that will expand all of our imaginations.

A key question at the heart of 'Space Invaders' is: "What happens if you bring new, unexpected, diverse voices to the fore and let them radically redesign the stories of the future we think we know."

Our Mission: Reclaiming the future through rebellious stories and diverse voices.

- Invade, hack and recode the future.

- Levering spaces open to reveal new narrative pathways towards more diverse futures.

- Hacking spaces to create new narratives for a fairer future.

- Offering a creative license to collectively reimagine our narratives, spaces, and futures.

- Reclaiming liminal spaces between the physical and imaginary realms to make our future fairer.

- Invading spaces to imagineer alternate futures.

7.2 Rationale

We know from running roundtable discussions that there is a promising appetite for further collaboration. In order to mobilise and enable sustainable change it would be prudent to cultivate a critical mass of like-minded stakeholders across the cultural sector in a way that motivates them to become invested in achieving the fundamental change that we at Doteveryone wish to see in the world. Hence, in swashbuckling SF spirit we seek to be bold and ambitious in venturing to explore a suite of new creative possibilities.

We envisage an ever-expanding suite of projects that collectively would help to ignite the change mission forward. Working with diverse partners, creating new collaborations inspired by the Space Invader ethos, will create a tessellation of pathways that might produce new fractals of their own and later collide and merge in surprising and unexpected ways. Space Invaders can be taken up and expanded upon by new partners and create off-shoots that will percolate across the zeitgeist.

The multi-pronged partnership approach offers us a sling to carry a multitude of arrows that coalesce towards an ever-moving target, as technology rapidly progresses and the stakes for a fairer future increases.

"It's in everyone's interest to make a change. So, I'd like to see whatever change that we bring about, that it becomes an inclusive one to change, and sort of less focus on the outside and more focus on our thinking" Interviewee

7.3 Partners

The shape of the different projects in the Space Invaders constellation would be dependent on the range and type of partners. The tone of the project will be set by the casting of the creatives who work with the partners. It is important that the people brought together on each project are cast to be diverse, represent intersectionality and differing life experiences and points of views. This applies to the project on all levels; from initiators, creators, partners, creative teams, representatives. Space Invaders will become politically more powerful and better artistically if the projects spring directly from partners and makers that stretch and challenge each other in productive ways.

7.4 Intended beneficiaries

A strong vision needs dynamic tension with multiple hooks to latch onto. The kinds of 'hooks' that might excite and motivate different people to take part will vary tremendously. Rather than labour over the prospective audience segmentation at this stage we take it for granted that there are horses for courses and have good faith in potential cultural partners to decide which breadth of audiences they can tap into collectively.

By means of vicarious association, we are ultimately seeking to influence the powers that be in the tech sector: the positive buzz surrounding the work would trickle across the tech sector through word of mouth. The combination of programmes/brochures, highlights footage and visitor testimonials would become influential artefacts to gift to stakeholders in bite-size chunks.

Benefits

- The multi-pronged approach of the umbrella-style concept 'Space Invaders' means we can be strategic rather than tactical; we would focus on placing the necessary cogs into the required gearing mechanism and setting it in motion.

- Access to a much wider range of different audiences which would be hard to reach single-handedly.

- Presents an ongoing opportunity that could spawn further possibilities without a definitive end point.

- A dispersed and staggered presence that reverberates across multiple channels.

- Enables the iterative production of a distinctive programme of work that grows and evolves a legacy over time.

7.5 Our Approach

Collaborative ethos: Doteveryone is the driving force and facilitator of new connections and is the instigator rather than the delivery partner. Requires a joined-up networking approach that aligns with Doteveryone's core values by continually forming new partnerships and nurturing existing ones.

Working in synchrony: To be delivered over a specific time frame working in collaboration with a diverse range of cultural and venue partners.

Combined force: Champion an ethos that embeds solidarity and community spirit in the making and consumption of this initiative. Each festival component feeds into the wider initiative. Power is generated though the sum of the parts.

Hive-Mind: Gather investment capital to start a partnership collective that then grow – giving agency to cultural orgs to leverage their own tools and resources to support the mission.

Experimental Co-curation: Using an agile mindset, 'Space Invaders' will be an incubator to breed innovative ideas, formats and audience experiences. The potential permutations for programming would proactively tune into current and emerging issues so that the content stays relevant and on the pulse. (i.e. part internal and guest curation alongside commissioned work).

Hybrid Layers: Like Russian Dolls, it becomes the vehicle to carry a multitude of perspectives alongside a range of artforms. A fluid format allows scope to accommodate key features commissioned alongside a suite of autonomous satellite/fringe events. Mutually beneficial appropriation of content can be generated and disseminated by latching onto existing formats.

Champions collaboration and creative autonomy: Rather than inserting temporary plug ins, we will encourage partners to use their own agency to deliver and be self-sustaining whilst we monitor their collective efforts and cumulative impacts, avoiding a top-down, prescriptive models that create dependencies.

From good to great: Opportunity to gradually build and demonstrate successes at a smaller scale, then pace the expansion.

7.6 Conclusions and Next Steps

Our exploration of the cultural power and influence of science fiction has had in many of the technological developments since the 20th century, reveals a compelling but complex picture. If concrete examples of causality are not always clear-cut, there is a story of inspiration, influence and a relationship that has been often reciprocal. Science fiction has shaped our lives in numerous ways and will continue to do so.

This discovery project has managed to develop a distinguished community of interest around the project who are energised and interested to become part of future stages. The next phase of the project would be a combination of concept refinement and the creation of partnerships.

We propose to a two-pronged development process:

1) Creating Collision: work with and expand the community build around the discovery process to identify a series of compelling content. Bringing together experts with expertise in radically different futures with a diverse group of creators with an interest in the future and each of a unique perspective to possible futures.

2) Subversion: work with a series of partners to develop a series of formats in partnership that are originated and inspired by The Space Invader mission and are unique through the unlikely first-time collaboration between two or more partners.

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