

Business Model Innovation and Challenges for Immersive SMEs

Report 2021

StoryFutures Business Innovation Team
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Foreword

Moving from willingness to experiment to sustainable revenue generation in the long-term is the next step for immersive SMEs in the UK

UK Small and Medium-sized Enterprises (SMEs) are at the cutting edge of the fusion of immersive technologies, such as Virtual Reality, Augmented Reality, Artificial Intelligence and haptics, and storytelling. Projects produced through the R&D and investment support from the Creative Industries Clusters programme exemplify these companies' creative excellence and desire. However, the sector is fledgling in its nature, and business owners face multiple challenges, ranging from tensions between creative expression and business needs, through rapidly-evolving hardware and software, all within an immature ecosystem.

Previous studies, such as *Limina Immersive and Digital Catapult's Immersive Content Formats and Audience of the Future's UK Creative Immersive Landscape 2020: business models in Transition* have demonstrated the ability and willingness of SMEs to experiment with how they create, deliver, and monetise value. Mapping the opportunities and challenges afforded by these new business models in practice, however, is a missing piece of the puzzle – but one that is addressed here.

This report stands out from previous works as its novel comparative analysis of in-depth interviews with immersive SMEs allows the authors to plot four 'pathways' that lead companies to both critical and financial success. The key message is that there is not one single business model that should be employed by all nor can founders and business leaders yet choose from options that guarantee commercial success and survival. Instead, there are different ways SMEs are solving the puzzle of combining their creative and technical know-how, resources, and market understanding to create value.

The Creative Immersive Sector represents one of the most dynamic interfaces between the worlds of content and technology. Just as happened to the first wave of SMEs that looked to combine internet, and later mobile, technologies with content, the structure of the sector will evolve significantly as major players engage and new technologies become available.

The Scouts, Navigators, Cartographers and Explorers identified here will need to evolve their business models to occupy quite different niches as that happens. Some will become the innovation drivers for large companies or pivotal players in supply chains. Many will not survive, but the business knowledge acquired and their legacy of innovation will seed the sector with the new businesses of the future.

The analysis concludes with highlighting several challenges, affecting both SMEs and the sector. It provides pointers to the ways in which policymakers can support the sector for it to grow as a whole, and for the UK SMEs to continue producing engrossing immersive experiences that they are known for. For the sake of the UK's Creative Industries, policymakers cannot wait or magically flick to the end to find the how this story resolves; this report's huge contribution is to reveal the plot as it is unfolding around us.

The report has been produced by the StoryFutures Business Innovation Team. Led by Royal Holloway, University of London, Storyfutures is part of the unprecedented Creative Industries Clusters Programme (CICP), the UK's first large scale programme in applied creative industries research and innovation, funded from the Industrial Strategy Challenge Fund and delivered through the Arts & Humanities Research Council (AHRC). StoryFutures places innovative storytelling at the heart of next generation immersive technologies and experiences, fuelling the growth of the sector and ensuring the UK is leading the way. The Business Innovation Team bring expertise related to digital innovation, business modelling and strategic thinking to the work of understanding and developing the 'business' of immersive. Their work, like that of the Clusters programme nationally is only at the beginning.

Professor Andrew Chitty

UKRI Challenge Director for the Audience of the Future and Creative Industries Clusters Challenge

About



This report was conducted by staff at StoryFutures, led by **Royal Holloway, University of London**. StoryFutures is part of the Arts and Humanities Research Council's (AHRC) unprecedented Creative Industries Clusters Programme (CICP). StoryFutures undertakes challenge-based research with partners in London and the 'Gateway Cluster' to deliver game-changing R&D projects that realise the potential of immersive technologies through innovation in story form and content.

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First and foremost, our gratitude goes to the SMEs who participated in this research, for both giving their time freely and in being candid in discussion. Acknowledgements are also extended to Olivia Hinkin, Kristina Glushkova, Iqra Bukhari, Claude Heathe, and Tom Holmes for their background work that made the report possible.

1. Executive Summary

This research into how business model innovation plays out in immersive practice was conducted as part of wider research within the StoryFutures Creative Industries Cluster. This report looks at the recent advances in immersive business model development as well as how these practices come together in new types of creative businesses.

We seek to understand how innovation emerges from everyday practice, starting from the premises that: (a) Innovation is key in enabling SMEs to scale and grow; (b) R&D is the work required for innovation; and (c) business model thinking/innovation is the translation mechanism in achieving value. Our primary focus is on immersive content-creating SMEs – those pushing the boundaries of storytelling with emerging immersive technology. Most immersive companies are small, the significant majority having 10 or fewer employees, and many either being pre-revenue or having a turnover of £50,000 or less. They therefore face more risk, have to work with less resource, and face a continually evolving environment.

To explore our premise, we conducted in-depth interviews with 31 UK-based immersive SMEs representing different disciplines where immersive experiences are created, such as video games, video, theatre, software, hardware and location-based entertainment. We applied a novel analytical method, revealing four types of business models that allow companies to perform better than their peers, which we typify as Scouts, Navigators, Cartographers and Explorers later in the report. Our findings reveal that despite the maturing of technology, the immersive market is still in a state of flux, and this is problematic in relation to SMEs being able to scale and grow.

This situation is nuanced however, as we find that a given approach does not determine success. Further, the role of activities for that translation, such as R&D and co-creation, varies in relation to each of the business model types that we identify. Indeed, a key barrier to progress is the relatively consistent failure of some types to capitalise on the R&D and other activities that they undertake. The upshot is that many outcomes never translate more widely than the particular project that they were conceived within. Overcoming that barrier requires that immersive SMEs transition from doing things (e.g., R&D) in a reactive manner to doing them in a proactive manner.

On the flip side, it may also be the case that business model thinking needs to change in the context of the creative immersive industries to better understand what value is in the context of products and/or services that are highly experiential in nature. In combination, addressing both aspects may enable the UK to enhance productivity in a meaningful manner, making our immersive sector the envy of the world.

2. Key Findings

The work we have undertaken here results in 7 key findings:

1

A need to bind R&D and innovation more strongly

All SMEs in our sample do some form of R&D – most very informally, as part of paid projects, some more formally through partnership with universities. Most face a significant, yet largely invisible challenge in translating that R&D into innovation – while creative drive and/or technical expertise are prime motivators for our SMEs, they are not sufficient for success. The need here is in better understanding the pathways that translate R&D to viable innovations for particular audiences.

Business model understanding is the key to unlocking these pathways, but, in practice, that thinking remains poor, and primarily unconscious. Our analysis demonstrates that there is no ‘one path’ to business growth. However, clarity of thinking and forethought in relation to value proposition, the activities sufficient and necessary to deliver that value and the ways in which outcomes can be monetised is a big step forward.

2

A need to engage in R&D more effectively

If R&D is the ‘engine room’ of innovation, it is clear that many SMEs struggle to engage effectively with it – lack of time and money to do so being key barriers. For many, R&D happens on the fly, funded from and within client projects and, consequently, the learnings from that R&D are lost and/or not capitalised on. Further, and unsurprisingly in the context of poor business model understanding, these SMEs do not employ systematic practices for making the most of what results from their R&D efforts – readily acknowledging that they do not have the knowledge or infrastructure to capitalise on R&D. Last, there is a limited

awareness and, as a result, engagement with tax credits and funding opportunities intended to address such issues.

Education and training are key here and significant importance is thus placed on continuing to develop comprehensive R&D programs that provide SMEs with innovation support. There are also indications, however, that further efforts are required to help the pressed business owners: (1) Better engage with the tax credits and funding initiatives that exist; and (2) orient funding support more toward the Research aspect of R&D.

3

A necessary lack of ‘killer instinct’

The sector is better defined by collaboration than competition. Whilst innovativeness and risk taking are high in the sector, competitive aggression is low. Only a small number of companies displayed any form of competitive aggressiveness and even in those cases it exists in very subdued forms.

This lack of competition does not necessarily prevent growth and is likely a by-product of the nascent state of the market and underlying

technologies. To a degree, immersive is a world too complex for any single SME to master on its own. A collaborative attitude allows companies to learn from each other and share knowledge, the dynamics include experience exchange as well as joint projects. The cottage nature of the sector means that immersive companies subcontract work to each other drawing in new creatives from their industry of origin through networking and freelance contracts.

4

A limited ability to define ‘value’

There is a worrying lack of clarity within the sector about what constitutes competitive advantage. The significant majority of our SMEs fail to clearly define their value proposition which, as a result, limits their ability to exploit outcomes in a market context. Whilst creativity and working with or mastering new technology provide strong work motivations and are highly prized assets within the industry, they are not necessarily what cut it with consumers (B2B or B2C).

This aspect is particularly important in the context of challenges noted by our SMEs relating to the nascent nature of the both the market and technology and a notable lack of distribution channels. These challenges lead to limited consumer understanding of what immersive can offer, the costs of engaging in immersive and, thus, willingness to embrace immersive. Clear and differentiated value propositions are key to changing this consumer mindset.

5

Innovation and risk taking, but not as we know it

SMEs working in the creative application of immersive technologies are willing to take significant economic and personal risks to develop new products and services in immersive experiences. The vast majority of our sample noted that they had taken risks in personally financing product development or quitting paid employment to start their own business in the sector.

In such a culture of risk, the emphasis on innovation in product and service development is therefore unsurprisingly strong: Many respondents talked about the need to create technologically novel products

as both a necessary business ambition and a motivation for working in the sector. But their understanding of innovation was much wider than this, with many talking about innovation in terms of creativity and artistic reward. This, in turn, was tied to a proactive culture that sought to shape the market in terms of areas that are most creatively and socially rewarding.

We therefore find a culture of risk-taking allied to a belief in the innovation potential of this new medium that is not purely technological or financial but is inherently both creative and social.

6

Greater stability is required for growth

The pace of change was one of the issues underlying many of the ways interviewees talked about the challenges of growing their businesses. Dealing with the constant evolution of technology clearly hampered SMEs’ ability to develop stable workflows, with the technology fragmented, fast-changing and frequently expensive. This pace of change also led to a shortage of supply in the talent pool to undertake projects: Scaling up for large or new projects was difficult to do, hampering growth opportunities. Very few immersive businesses had a developed and/or managed capability to upscale or downscale easily in accordance with project demands.

As with other sectors in the creative industries, most SMEs also struggle to find a balance between paid work and unpaid work: Ongoing paid work made it difficult to find the time to do R&D or, that if you had the time, you didn’t have the money.

The transition from creative to business owner is thus a difficult and treacherous path: Scaling up from successful creative projects to a stable business less reliant on winning the next project requires significant support for creatives to develop key business management skills.

7

There is no 'silver bullet', but you may need to dodge one

Our study showed multiple pathways to growth. There is no one 'silver bullet' but we were able to identify four 'pillars' that help an SME to succeed in the immersive sphere: (1) Relying on the stability of their industry background to venture into the new immersive market; (2) leveraging engagement with their audience through co-creation practices and learning from that; (3) clearly monetising immersive expertise as well as the products themselves; and (4) leveraging their R&D activities in an effective and efficient way. These pillars provide something to build the business around, focusing the development of relevant activities and capabilities.

While there is no silver bullet, there is one approach to avoid as it is often associated with underperformance: Diluting company focus/efforts and trying to do everything at the same time. Time, expertise and financial resources are finite and at a premium, therefore growth requires a clear focus.

Consequently, SMEs that try to combine several types of R&D, co-creation practices and experimentation without setting up ways to profit from these novel approaches run the risk of stretching their resources too thin, leading to below-average performance. Combined with the aforementioned lack of clarity about value proposition, being 'unfocused' presents a very real risk for immersive SMEs in relation to sustainable growth.



3. Background

3.1 SMEs, Innovation and the Creative Industries

Small and Medium sized Enterprises (SMEs) are normally defined as any business with fewer than 250 employees. Government data indicates that there were 6.0 million SMEs in the UK in 2020, astonishingly representing over 99% of all businesses. Most SMEs (96%) employ fewer than 10 people but, in 2020, they employed over 16 million people in total, accounting for 61% of employment and 52% of the revenue generated by UK businesses (18,34). Unsurprisingly, SMEs are a lynchpin of the UK economy and form an important part of ongoing Government plans to increase the share of national GDP derived from exports.

In examining how to boost UK productivity, a joint report argued that (18):

- The role of innovation in boosting SME productivity growth was relatively unexplored, despite the fact that there was strong evidence of its impact. Innovation is important as there is: (a) A positive association between innovation and company performance across all sectors; (b) businesses that innovate are more likely to survive; and (c) businesses that innovate are more likely to develop external relationships and gain access to external knowledge.
- The limited engagement by SMEs in innovation can be partly explained by a low ambition for growth amongst SMEs. Data in this respect suggests that the problem for the UK is not one of starting companies but, rather, one of growing them. This matters to the UK (as it typically tends to measure itself), as research suggests that there is a positive relationship between growth ambition and productivity growth.

Academic literature has long established Research and Development (R&D) of new products and processes as a key pathway to innovation, achieved via the generation of new knowledge that is new to the firm, industry, market, or the world. Here we take the view that R&D is the creative and/or technical work that is required for innovation, but the role of the innovation itself is to create business via the application of products, services and experiences that either better meet existing market needs or address currently unarticulated market needs. Thus, investing in R&D may be necessary, but is not sufficient for innovation.

The creative industries represent a fast-growing part of the UK economy and are generally perceived to be innovative by nature. Pre-Covid figures showed strong growth, the sector generating over £100 billion to the economy in Gross Value-Added (GVA) terms and employing over 2 million people, of which circa 33% were self-employed (9). In 2017 the Bazalgette Review (4) positioned the creative industries as of central importance to the UK's future success, but made several points of note including that: (a) Innovation was not well-recognised, requiring more investment in R&D across the sector; (b) work was required to recognise and appropriate remuneration of Intellectual Property (IP); (c) SME access to finance was an issue compared to other sectors; and (d) an attraction strategy was required to ensure an adequate and ongoing talent pipeline. The review paved the way for a sector deal and, as one manifestation of that, the Creative Industries Cluster Programme (CICP) – an £80 million investment focused around nine clusters (of which StoryFutures is one) and a new Policy and Evidence Centre (PEC). At its heart the CICP seeks to drive innovation and skills by bringing creative companies together with world-class universities to create innovative products and experiences.

Interestingly, however, there is a relative paucity of empirical work examining innovation in the creative industries – particularly in the UK and with a focus on immersive – and there are indicators that innovation in the creative industries is not quite of the same nature as other industries (35). First, innovation in the creative sense is focused on incremental improvement and experiment rather than a linear process – it is rarely completely 'new' and is very often contextualised and localised in nature. Second,

innovation is a process and by-product of creative production and often relates more to achieving artistic and/or social goals and less to explicit contribution to the wider economy. One conclusion here is that current policy and academic research related to the creative industries does not catch the nuances of what innovation is in that sphere – particularly in that it cannot be measured via typical data such as R&D expenditure and patents. Indeed, this ‘creative aspirations first, profit second’ perspective is echoed in recent industrial research (12).



3.2 The Immersive Market

The Bazalgette Review (4) noted the increasing importance of blending the creative and technological in both skills and business models in the creative sector. Unsurprisingly, in immersive, there tends to be a market focus on the underlying enabling technology – typically framed in terms of Augmented Reality (AR), Virtual Reality (VR), Mixed Reality (MR) and eXtended Reality (XR). Immersive, however, is not simply a technological phenomenon – it includes cognitive, cultural, organisational and social elements in addition (21). Even from the technological perspective there is a merging of the core technologies above with others such as Artificial Intelligence (AI), 5G, haptics, LIDAR scanning, volumetric capture and more as immersive evolves. From the human perspective, however, immersive entertainment is an interesting melting pot of creatives and entrepreneurs rooted in design, music, publishing, architecture, film and video, crafts, visual arts, fashion, TV and radio, advertising, literature, computer games and the performing arts.

This brings the technology into contact with the social culture and practice of creative production alongside the norms, desires and expectations of the industrial and consumer audiences that may wish to engage with immersive experiences. The value of immersive lies in its ability to deeply involve such audiences in a meaningful way, engaging a number of senses in doing so. Immersive is determined by neither, but emerges from the space where technology meets social and cultural norms and practices – offering the potential to redefine both in doing so. We therefore move on from thinking in terms of immersive technology per se to define things in terms of immersive experience:

An immersive experience is one that, through a combination of creative and technological means, deeply engages an audience in a mixed, augmented or virtual reality environment in a meaningful way.

It is this nexus of technology and social practices that is perhaps both the blessing and curse for immersive SMEs, and the road to facilitate immersive experience has been a bumpy one: They have had to straddle that nexus in various ways, innovate in the context of a continuously changing hardware and software landscape and address cultural concerns around adoption, such as trust and providing the necessary quality of experience, while doing so. Further, most immersive companies walking this road are small – 73% having 10 or fewer employees and more than 30% either being pre-revenue or having a turnover of £50,000 or less (5) – presenting them with more risk, and less resource, in the face of a changing and uncertain environment.

The short-term financial impact of Covid-19 is clear and has been seen in terms of manufacturing slowdown, supply-chain issues and challenges to the innovation cycle – due to the difficulties of collaboration, recruitment and access to finance for example (6,8,20). That said, market predictions are optimistic in that hardware and service provider markets are expected to return to normal

(pre-pandemic) levels in 2 to 5 years (20); and, longer-term, forecasts remain bullish, with worldwide GDP forecasts for 2030 predicted by some to be £985 billion for AR and £406 billion for VR (27). Immersive is also predicted to move beyond its initial scope of 'entertainment' as it is starting to be seen as 'ready for business' (1,14,16,27), with key use cases proposed as product and service development, healthcare, development and training, process improvements and retail and

consumer experiences (27). There are also 'immersive positives' arising out of Covid-19 lockdowns in observations that people have sought to stay entertained, connected and healthy during the crisis (20), with both businesses and consumers exploring remote capability offerings and collaborative technologies (6) alongside cultural exploitation of remote technologies to enable live performance.

3.3 The Nuances of Business Models – The Pathway from R&D to Innovation

To deal with the challenges above, United Kingdom Research and Innovation (UKRI), via the Audience of the Future (AoTF) programme, has invested circa £40 million in projects related to the development of new immersive technologies, production innovations and audience and human-centred design understanding; alongside demonstrator programmes, an investment accelerator and skills training (via the StoryFutures Academy). Reports have also been commissioned examining immersive content formats for new audiences (25) and, more recently business models in the immersive sector (12).

The former report concluded on two key factors. First, that a more focused understanding of the target audience is fundamental to the success of future immersive productions. Second, that success might be better qualified as more comprehensive reach and engagement with niche audiences (that are both interested in the work and significant enough to be commercially viable) rather than large-scale mainstream breakthroughs. The latter report provides an overview of the immersive landscape and analyses immersive business models arising from creative practice. In doing so, that work provides: (a) A framework within which to understand business models; and (b) an associated set of tools that help companies to develop business models and/or enhance their thinking in relation to them. Wherever possible, we follow the general approaches in the Audience of the Future report for consistency of understanding within the community and, in that respect, it should be seen as a pre-cursor and/or companion to the work we report on here.

As shown in Figure 1, in its simplest form a business model may be thought of as an 'organisational blueprint' capturing the way a company creates, delivers and captures value. Though there are variations on the theme, at its core the purpose of business modelling is to understand and clarify (12):

- **What** the company does that differentiates them (value proposition)
- **For whom** they offer the unique differentiation (audience understanding/markets)
- **How** they establish the differentiation in practice (work activities and processes)
- **Who** they work with to support the differentiation (supply/distribution network)
- **How** much value is captured and whether they are generating profits from the differentiation (financials)

It is a fact that explicit business model thinking is not prevalent amongst immersive SMEs and this is increasingly seen as problematic by policymakers keen to encourage and grow the sector. Broadly, this is because business models are seen to be critical to ongoing organisational performance as some models outperform others (2,3,15,22,23) and as a potential 'unit of innovation' (23,24). The mutuality of business models with other aspects of organisation is rooted in a view that superior technology and products, excellent people, strong governance and leadership etc., in-and-of-themselves, are unlikely to produce sustainable profitability if not properly adapted to the competitive environment (15,19). Conversely, however, a business model is, in-and-of-itself, insufficient to assure competitive advantage if it can be easily copied or imitated by competitors or new market entrants (15,19).

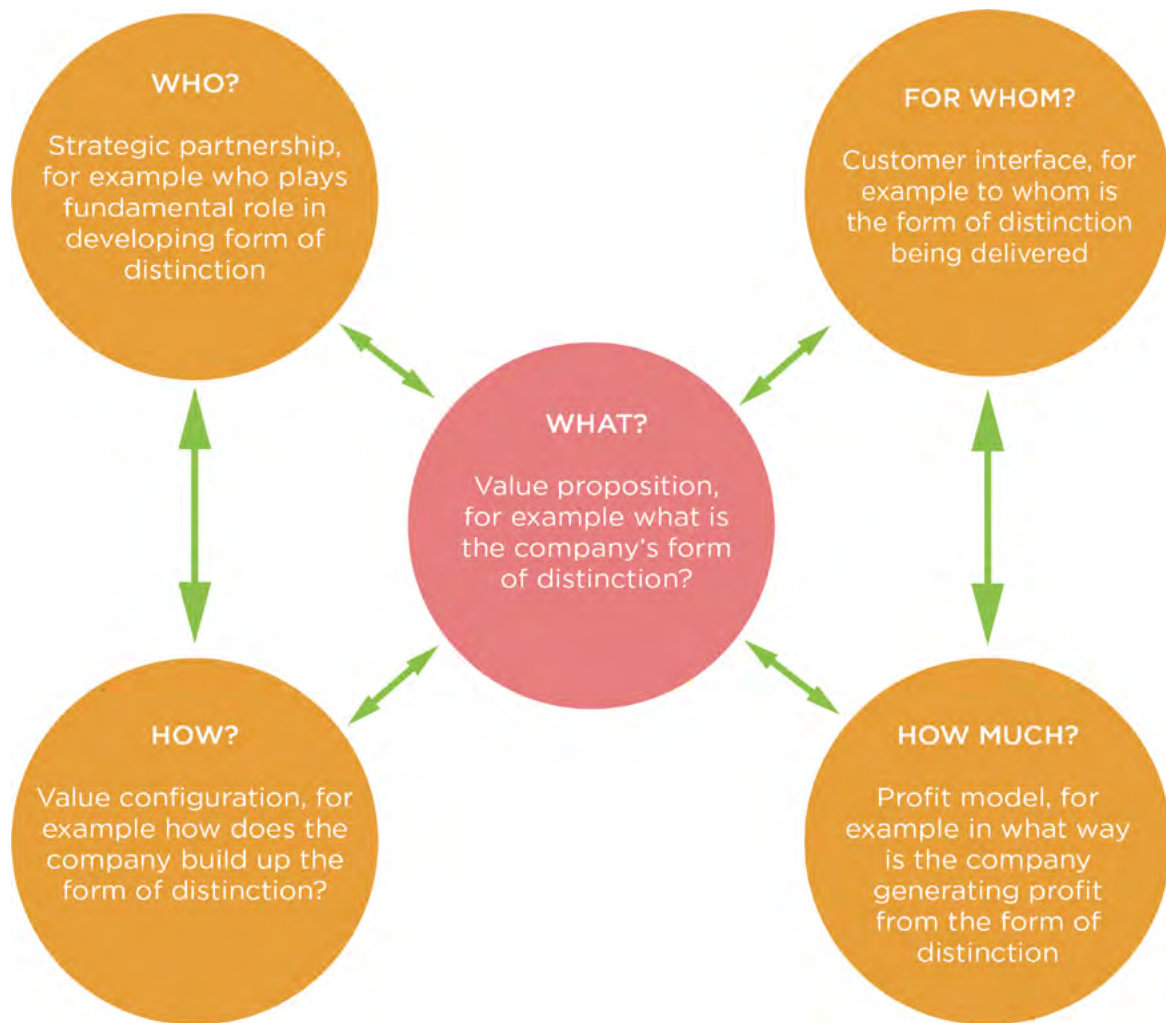


Figure 1. Business Model Framework (12)

The AoTF report (12) made the following observations in relation to outcomes of their work, namely that immersive SMEs:

1. Operate on the basis that funding (either grant or client-based) will lead to the development of their own IP.
2. Are driven by a belief that immersive technologies are transformative but, though they provide opportunities, their nascent status also brings challenges, which often leads to a continuous state-of-flux.
3. Face a difficulty of 'selling' immersive experiences to audiences, distributors and investors, so err toward short-term channels for visibility and/or revenue.
4. Need to understand the interdependencies that link business model choice, technology and success.

Each point leans toward embedding business model thinking to better enable success. What success is of course is open to question and varies with perspectives. From a government perspective, it is rooted in high level measures such as productivity and Gross Domestic Product (GDP); for any given SME it may vary from artistic expression through to profitability, growth or new business; for the sector it is likely revenue and sustainability. Regardless, it is arguably innovation that drives the process from start-to-end-point.

“While success criteria do not always need to be directly tied to revenue, they are ultimately what would establish the creative immersive landscape as a viable one for both present and future creators to pursue. It is therefore important to use business models as a tool to start unpicking the interdependencies that can potentially lead to sustainable revenue and growth” (12)

In that context, we seek to better understand how innovation emerges from the everyday practice of immersive SMEs. Our starting assumptions are that:

1. R&D is the work required for innovation and . . .
2. Business model thinking/innovation provides a ‘translation mechanism’ to achieving value (for all parties).

We report on the nuances of practice in relation to these points – drawing on in-depth interviews with immersive SMEs (mainly within the StoryFutures cluster area that includes London and its immediate surroundings). In

the context of policy and funding initiatives that have come into play in the immersive sphere, we essentially explore how R&D plays out in everyday practice, explore the prevalence and actuality of business model thinking and examine the challenges and barriers that arise in the practice of innovating within the immersive landscape.

Building on earlier reports, however, we do not present company-specific instances of business models – rather we generalise to present the **types** of models that our SMEs employ. This enables: (a) Learning from collective practice; and (b) for SMEs to employ that learning in ways that best suit their business.

3.4 How We Gathered and Analysed Data

For our analysis we chose a mixed-method approach. First, we conducted 42 semi-structured interviews with 31 UK creative SMEs who work in the immersive market with immersive backgrounds across VR games, AR advertising campaigns, 360-degree movies, immersive theatre performances, etc. Our sample included both new companies and those that have been working in the immersive market for over a decade. It included micro-businesses, small companies of 3-5 people, independent medium companies that had more than 10 full-time employees, as well as creative arms of larger companies that would be considered medium-sized businesses if they were independent. To triangulate our findings, we referenced articles about these companies, reviewed their website pages and examined their financial reporting over the last three years (up to the end of 2019¹).

Our analysis was carried out in two steps.

First, we did a *thematic analysis* of the data. The interviews were coded against categories grounded in prior research literature on business models, business model innovation, R&D approaches, co-creation practices, dynamic capabilities, entrepreneurial orientation, the markets in which the companies operate, as well as challenges and opportunities in the immersive sphere. That allowed us to establish common trends and characterise the UK immersive market as a whole.

Second, we did a more detailed configurational analysis to identify the different ways companies navigate this market. The data was analysed using fuzzy-set Qualitative Comparative Analysis (fsQCA) with a dedicated software (29). This novel sociological method applies Boolean algebra to qualitative data to arrive at configurations of factors associated with an outcome of interest (28).

Recognising the core values and goals of our companies (discussed in Section 4.1), we went beyond a simple financial measure to understand what might make an immersive creative company more-or-less successful, and our final measure (detailed in Appendix 1) combines creative, market, and organizational performance.

This approach to the analysis allowed us to obtain rich, yet generalisable insights, schematically illustrated in Figure 2. We have thus taken the next step in studying the immersive market, not only noting the existent variety of approaches, but identifying types of companies that succeed in the immersive market. For the details of our analysis and the calibration of the variables please see Appendix 1.

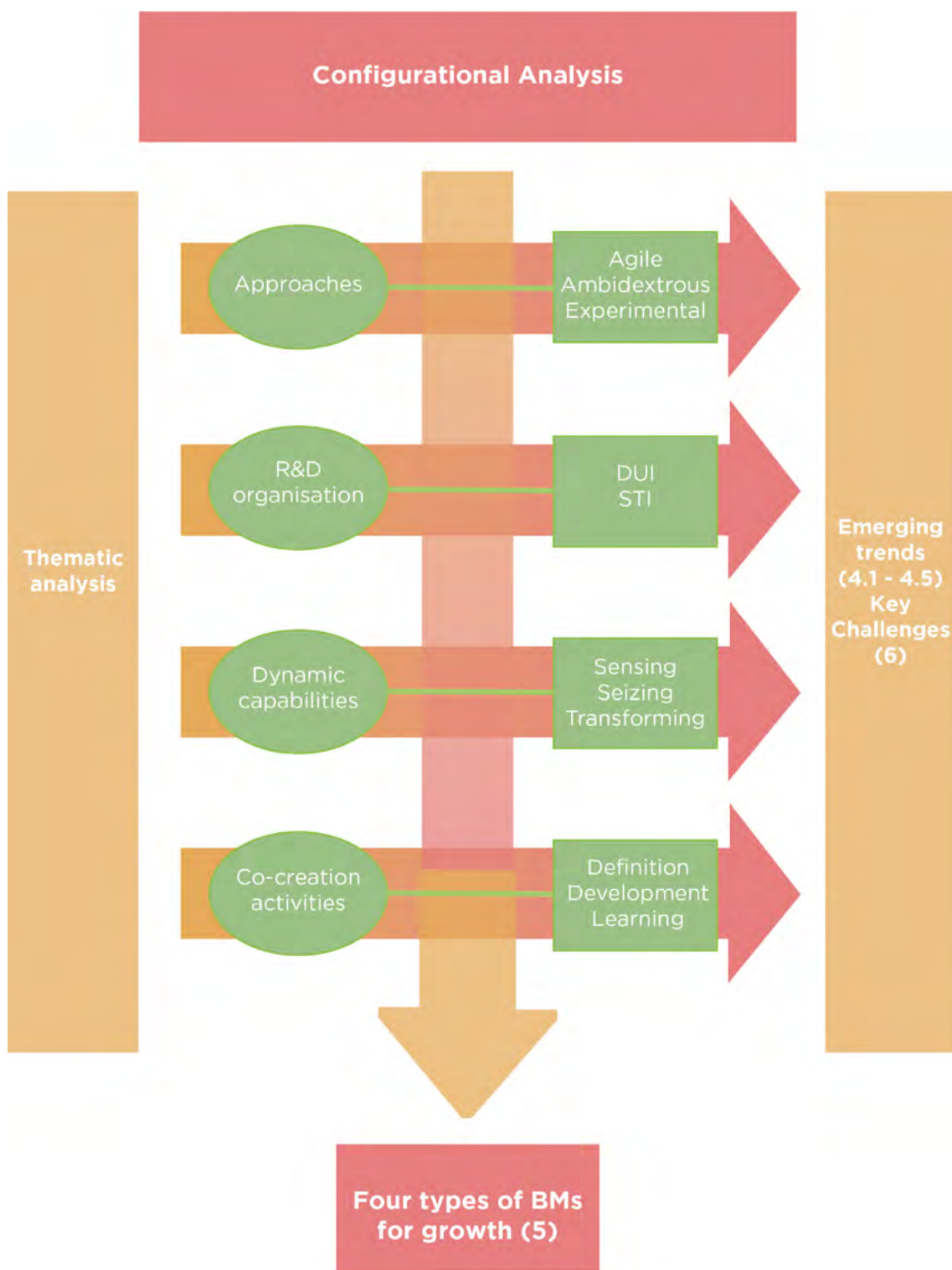


Figure 2. Analytical Pathways

4. What Makes SMEs ‘Tick’

4.1 Driving Forces

Overall, the typical immersive SME in our sample is a risk-taking company where collaboration – internal as well as external – is more important than competition. These companies want to make a difference in the world through their products and see themselves as pioneers of a new field. They are fascinated by immersive technology and its creative uses and market success is more of a necessity than a goal – a requirement to continue being creative and exploring this new exciting market in essence.

SME Character



68% of SMEs are risk-taking



52% of SMEs demonstrate proactiveness

29% of SMEs demonstrate competitive aggressiveness



42% of SMEs practice autonomy



Our study identified entrepreneurial attitudes of company founders and managers by examining their entrepreneurial orientation along five dimensions: Risk taking, proactiveness, autonomy, competitive aggressiveness and innovativeness (11). This concept examines whether decision-making favours entrepreneurial activities (10) and is generally associated with improved ability of an SME to innovate its business model and grow in the long term.

“I thought the only way I get to get really [do what I want] in the way that I want is to start my own studio and be proactive and be the change that I would see in the world. So that’s why I started.”

Taking risks comes with the territory: Which includes both organisational risks, such as entering new markets, as well as proclivity for personal risks, such as financing development out of one’s own pocket or quitting other employment to start a company. The majority

of our sample noted taking such risks. This percentage isn’t surprising, however, given that the majority of our interviewees are founders of their own businesses.

“And with being an industry that is growing and has just has lots of use cases for our clients . . . We shaped our business around it”

Acting in anticipation of future problems, needs, or changes and actively shaping an environment was also important. Proactiveness is often a characteristic of companies that are driven by social causes rather than profit and/or innovative companies who want to pioneer their markets. Over a half of our interviewees stated that their goal is to improve society through their work, to shape the immersive market in the direction that they think is the most interesting, or to become known for a particular type of product.

“Basically, I get to decide what I find interesting and exciting and then get to decide 'OK, I'm going to do it'”

It was also clear that the ability of an entrepreneur to impose their vision on the organisation through his or her personal control of its action was a notable characteristic. Out of our sample, 42% stated that their voice carries more weight than those of their employees, or that they often go with their gut feel when developing new products and services.

“Our long-term vision is to continue to globally expand”

We also sought to understand the primary motivations for SMEs to innovate in the immersive sphere. In this case we looked at

Interestingly, however, only 29% of our sample displayed any form of competitive aggressiveness and, even then, it came in a very subdued form. In fact, most interviewees highlighted the collaborative and supportive environment of the immersive industries and our data showed multiple instances of mutual support between competing firms (such as user testing each other's products, networking and catching up at industry events, and giving each other advice). The conclusion here is that the immersive sector clearly favours collaboration over competition at the moment.

innovativeness, which examines the proclivity and motivations for creating innovative products.

Innovativeness Drivers



68% are artistic drivers



65% are technological drivers



48% are market drivers

“Well, we're storytellers, and we ultimately, you know, we like to get out of bed in the morning to tell stories that need to be told”

Though the three drivers are not mutually exclusive, artistic innovativeness was the primary motivation of our interviewees to venture into the immersive sphere. This is the inclination to create new products by emphasising the aesthetic aspects of the subject matter, more abstract approaches to production and using 'artistic resources, with the main objective of attaining the artist's desire of independent and customised inclusion' (26). We found that this aspect of

innovativeness to be particularly relevant to the creative SMEs, with the majority of our interviewees mentioning that their desire to remain creative is an important factor in their decision-making on how to develop business and what opportunities to pursue. These SMEs primarily see immersive technology as a means to make creative products, on par with older technologies.

“We found that . . . the software and procedures to do things were far behind where they needed to be, and that there was a huge divisional gap between visual effects technology”

Second was technological innovativeness emphasising process development, engineering, research, technical expertise and industry knowledge as main priorities for the SME and the founder. Out of the interviewed companies, 65% stated that it is important for them to create technologically novel products and that their fascination with immersive technology is what motivates them to work in this sphere.

“I think for us, the future is creating things that are probably of enough scale to be able to open up venues for them.”

Next was market innovativeness, which suggests an emphasis on product design, market research, and advertising and promotion. Almost a half of our interviewees stated that creating a successful product or becoming a market leader in a certain area was a priority for them. Out of all three types of innovativeness, market aspect was least important.



4.2 The Key Facets of Business Models in Practice

Consistent with the findings of previous industry reports (12,25), we observed a wide range of ways to create, deliver and capture value amongst our SMEs. Figure 3 illustrates the most prominent elements of immersive business models.

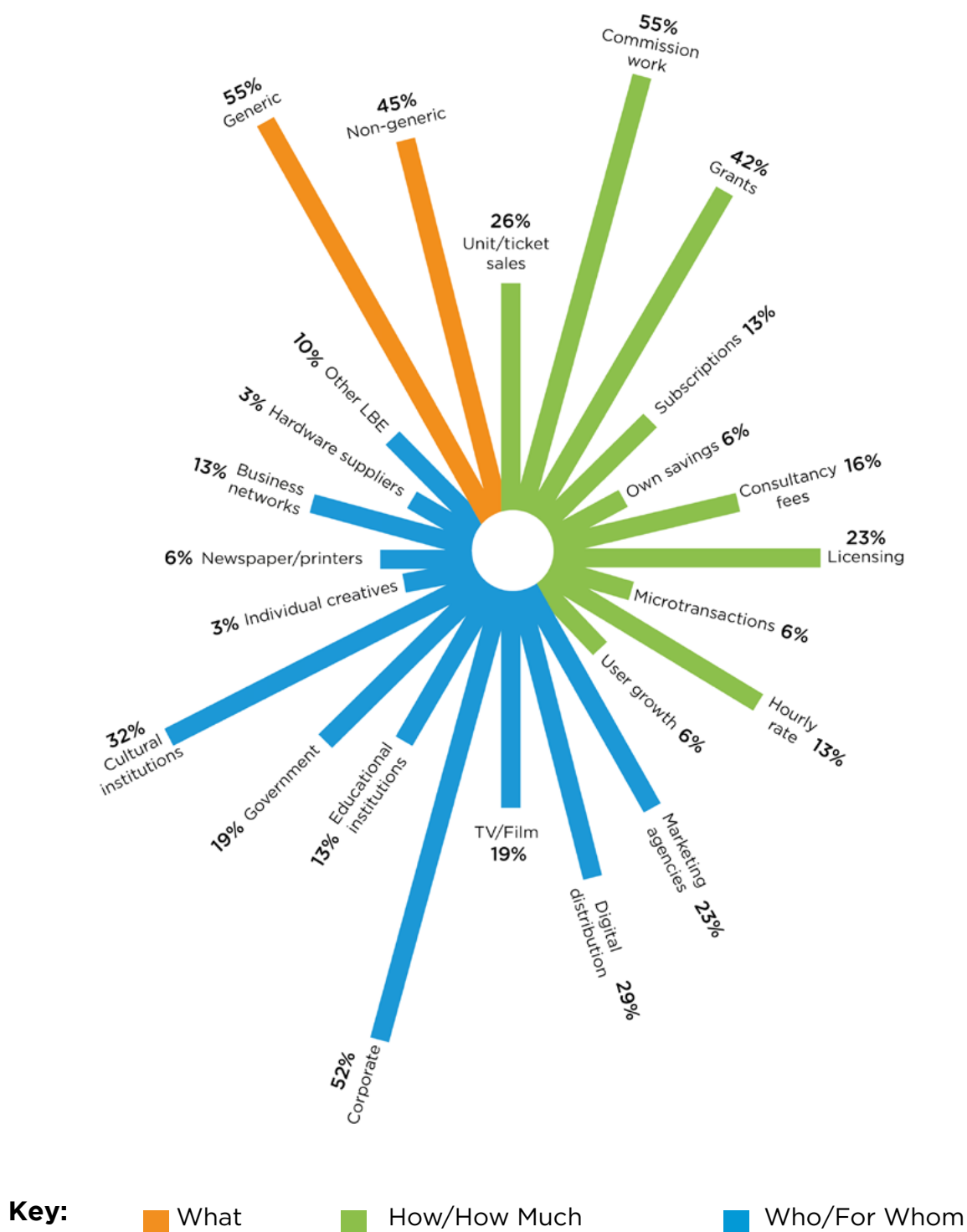


Figure 3. Prominent Business Model Aspects



The thematic analysis of our data provided some novel insights.

First, a clear value proposition is key for company success, as it describes what value the company creates for its consumers, what needs it addresses with its products and services, the company's unique selling point and the source of their competitive advantage.

Whilst the companies in our sample create a diverse range of products – e.g., from VR games through XR experiences to interactive theatre plays – we were surprised by how homogenous (and vague) the descriptions of their value propositions were. More than half of the companies we interviewed (55%) described their value proposition in a very generic way that identified neither their strengths nor uniqueness or did not define their value proposition at all. Among such descriptions were very generic statements about the company's creative skill, such as *'quality of work', 'creativity, and married with technology, and our understanding of both', 'highly creative story-led stuff'*, as well as the claim of combining creative skills and XR technologies within one company. And even among the remaining 45% some of the value propositions were extremely weak in the sense that they did not allow to differentiate the company from the competition. These SMEs were contrasted by others who had greater clarity on value creation, typically expressed through a specific technology that they are mastering (e.g. 3D scanning), a specific need they satisfy (e.g. connecting customer to place) or a particular solution they provide (e.g. virtual simulation of real world actions).

Second, in terms of value delivery and monetisation, we found that few companies rely on a single specialism, such as VR games or AR advertising experiences. Instead, they deliver their content through a variety of channels, including marketing agencies, cultural and heritage sector, digital channels, as well as corporate market – wherever the opportunities lie in essence. This approach was rarely a conscious effort of changing the way they do business however: More often than not, such experimentation is just a part of the company's creative process and is done to make a bigger and better experience or chasing the bottom line.

Nevertheless, we observed that instead of differentiating on **what** value is created, **what** channels are used, and **what** the company is paid for, our immersive companies often specialise on **how** to create, deliver and monetise the value. Our coding identifying these approaches as:

- Agile, where the initial creation of value was achieved by either developing outcomes via sprints, involving the clients in those sprints, and/or having special roles and structures to manage clients and/or projects. While the companies would not perceive themselves as doing project management, they claim to “tend to do sprints, and really try and get the client involved all the way through . . . and they tend to be very short projects as well, say, nothing really exceeds six weeks.” Whatever the delivery and monetisation means are, this approach is streamlined towards fast value creation, and heavily structured process punctuated by frequent meetings and touchpoints.
- Ambidextrous, referring to the company’s ability to combine exploration and exploitation of innovations (33). These companies may create and deliver value in different ways, but the key element of their approach is their propensity to capture value from their innovations in two ways. First, by delivering their innovative immersive work to the audiences; second, by drawing on their experience of creating those projects to provide consultancy services to other creatives or businesses interested in creating immersive experiences: “through consultation with you where we’re looking at the discovery phase, [...], through a series of workshops, that is paid time. The value of delivery is consultancy”.
- Experimental, where companies step away from the structure and focus of their ‘legacy’ industry. Some studies of immersive industries (12) revealed a new type of approach that emerged in immersive sector. It is characterised by a wide range of the ways a company creates, delivers, and monetises value, and a diversity of expertise it has in-house. They tend to work on a project-by-project basis, incorporating new knowledge as they go along. We term this new generalist approach ‘experimental’ as it allows the companies to create a variety of very different types of experiences. For instance, a movie company starting to make 360° films, hiring the same freelancers it did for linear production doesn’t profoundly change the way it operates, it retains its ‘legacy’ structure. If the same company starts making interactive experiences, location-based entertainment, AR, VR, AI-driven narratives, hires a developer, starts working with new channels outside broadcasting – it accumulates expertise outside its legacy field, starts creating and delivering value in new ways, and becomes an experimental generalist.



4.3 The Role of and Approach to R&D

Given the relative novelty of immersive technology, most companies do R&D in order to create new products. There are also some signs of businesses maturing, however, as some SMEs are approaching R&D with a view to improving their production processes or marketing.

In examining how SMEs approach R&D, we followed an existing research classification that differentiates between the 'Science, Technology, Innovation' (STI) mode and the 'Doing, Using, Interacting' (DUI) mode. Following this classification, we've identified the ways in which companies in the creative immersive market perform both types of R&D. The results are illustrated in Table 1.

DUI mode component	DUI in Immersive	STI mode component	STI in Immersive
Experience-based learning from informal problem-solving communication, including experimentation and trial and error	<p>The costs of the R&D are baked into the project</p> <p>Done casually, on an opportunity basis</p> <p>Often stays within the project it was done for</p>	Formal learning of science and technology	<p>Dedicated time for staff to do R&D</p> <p>Internal R&D schemes</p> <p>Participation in R&D grants and programs</p> <p>Done because of an identified need</p>
Overall importance of locally embedded tacit knowledge, with high priority given to know-how and know-who	<p>Determining the most cost-effective solutions or solutions that produce better results among available options</p> <p>Optimising existing technological processes</p> <p>Combining known technologies</p> <p>Experimenting with narrative forms</p> <p>Finding new domains for application of known technologies</p> <p>Finding the best suppliers, freelancers, or clients</p> <p>Finding sources of assets or expert advice</p>	Production and use of explicit, codified, and global knowledge with a focus on know-why and know-what	<p>Creation of assets or software/hardware tools</p> <p>Establishing new technological processes</p> <p>Expanding technology portfolio of the company</p> <p>Testing the limitations of technologies</p> <p>Experimenting with prototypes to test the market</p> <p>Identifying what needs to be researched</p> <p>Identifying reusability of assets or tools</p>

DUI mode component	DUI in Immersive	STI mode component	STI in Immersive
Collaboration with customers, suppliers and competitors	<p>Cultural institutions</p> <p>Cinemas</p> <p>Theatres</p> <p>Other creative companies and independent creatives</p> <p>TV broadcasters</p> <p>Newspapers</p> <p>Advertising agencies</p> <p>Hardware suppliers</p>	R&D cooperation with universities, other external scientific institutes, or consultancies	<p>Digital Catapult</p> <p>Creative XR</p> <p>Arts Council</p> <p>Grant bodies</p> <p>Nesta</p> <p>Creative Clusters</p> <p>UK universities</p>
Close link to process innovation and to nontechnological innovation (organisation and marketing)	<p>Finding new markets</p> <p>Business development</p> <p>Optimising the project workflow</p> <p>Exploring scaling up opportunities</p> <p>Identifying business goals</p>	Higher levels of technological innovativeness	<p>Creating new software solutions or improving existing ones</p> <p>Creating and testing prototypes</p> <p>Building technological platforms or architectures</p> <p>Building new hardware</p> <p>Multiplatform development</p> <p>Building social immersive experiences</p> <p>Introducing new technologies in existing creative formats</p> <p>Creating new assets, environments, visualisations</p>

Table 1 R&D Modes (adapted from (32)).

Nearly all of the SMEs we interviewed see R&D as an important activity and are engaged in it – many funding what they do from profits generated from their day-to-day business. There were several key findings from the thematic analysis of R&D activities:

First, the type of R&D undertaken by some SMEs is sophisticated, combining several technologies together for example, or exploring the new narrative forms enabled by immersive technologies. That said, the commercialisation of these innovations lags behind this R&D. Thus, the market and organisational development done by the companies is somewhat rudimentary, such as identifying new markets and optimising workflow. Little work is being done in trying to better understand the requirements of those markets or explore new business models outside the one a company has at present. This exposes a gap between R&D and innovation – SMEs struggle to commercialise their R&D effectively.

Second, there is a lot of potential for R&D collaboration on the 'R' element. Several of our interviewees (39%) noted efforts to obtain grant funding to support their R&D. Among the companies doing the STI-type R&D, each

company usually collaborates with one or two support organisations or universities. Across our sample, however, there is significant diversity. Whilst SMEs naturally prefer more development-oriented schemes (due to that being both their main expertise and the higher percentage of the cost they recoup) it is clear that there are a lot of opportunities for them to get involved into the research-oriented projects.

“I don't think we would be around if we didn't because it is a big help to us cashflow-wise”

Finally, there was a limited awareness of R&D tax credits, with less than a third of our sample (22%) demonstrating awareness. Those who use the scheme (or tax credits more widely) are clear to point out its importance. Whilst some of those who don't apply for the R&D tax credits may not be eligible due to being a charity organisation, others do not consider themselves eligible (“we're not doing a new process and we're not doing new hardware, you know, if we were to invent an amazing delivery system – absolutely, but we're not”) or only get the tax credits specific to the legacy industry (“We haven't really seen them, we've had more success with the film [tax credits]”).



4.4 Ensuring Longevity in the Immersive Sphere

Here, we categorised: (a) Sensing capabilities as the ability of a company to identify new opportunities through 'scanning, creation, learning, and interpretive activity' (31); (b) seizing capabilities as the ability of the company to address identified opportunities 'through new products, processes, or services' as well as 'investments in development and commercialisation activity' (31); and (c) transforming capabilities as the ability 'to recombine and to reconfigure assets and organisational structures as the enterprise grows, and as markets and technologies change' (31).

Our analysis identified a number of actions, or routines, that companies undertake that have the capacity to transform business in a positive manner. We looked for three types of capability - sensing, seizing, and transforming - identifying whether they were nascent or developed in nature. Nascent capabilities include actions that do not require investments (other than time to perform them), that are performed as needed and are yet to become established routines: They provide undeniable benefit for the company in the short term but are also less likely to produce consistent results and stimulate the growth of the firm. Developed capabilities are established routines that are more costly to implement but they provide a company with a clear differentiation from the competition, often allowing it to 'punch above its weight'. As may be expected, nascent and developed capabilities are not mutually exclusive, and can and do coexist.

Dynamic Capabilities				
	Sensing		Seizing	
Nascent	58%	Watching market	23%	Exploration
			10%	Adapting to a market
			10%	Workload evaluation
Developed	26%	Checklists	23%	Exploitation
	13%	Data analysis	16%	IP management
	10%	Customer training	6%	Pivoting

Sensing Opportunity

Our study showed that the sensing capability is the most varied and common type of capability present in the immersive market. The most wide-spread nascent sensing capability was watching the market, which refers to monitoring competitor offers and new technology availability from suppliers. Nascent sensing capabilities also included networking, attending events, trying out experiences, reading industry press, and other ways of keeping up with the market that rely on the founder's understanding to make sense of the trends.

SMEs also showed developed sensing capabilities as follows:

- Checklists. These enable any new opportunity, be it technology, new client, new IP, or new market to be classified and/or scored against a set of criteria. Typically, this is to ensure any opportunity meets the company's creative and business goals, leads to growth and is worth pursuing. Given the limited ability of SMEs to pursue new opportunities due to their size and capacity, it is unsurprising that this is the most frequent developed capability in the sensing group, as it focuses the SME's attention on the opportunities that are worth pursuing and cuts out the 'noise'.
- Data analysis. In order to identify best design solutions, emerging trends and audience preferences, SMEs are analysing sales, app use and other objective data available on their own or competitor products.
- Customer training. Due to the relative novelty of immersive technologies, many customers require training for effective use. While many companies showcase their work to help consumers make sense of technology, some go one step further and organise customer training. This may take a form of workshops or writers' rooms and is particularly relevant in B2B market. Such workshops allow SMEs to collect feedback and requirements from the customers and inspire new product development.

Seizing Opportunity

Our study identified a number of nascent seizing capabilities displayed by creative SMEs:

- Exploration. As the immersive market remains a largely unknown quantity, firms often struggle to establish in advance what new products are going to succeed. One of the ways companies deal with it is by creating a pilot or a prototype and launching it in the market. These are usually 'pet projects' that companies launch in the hopes of understanding a market and gaining enough interest to continue development.
- Adapting to a market. Perhaps as a result of exploration, a small number of SMEs are moving into niches that they see as most profitable or provide more business.
- Re-evaluating workload. Working in immersive sphere often requires SMEs coming from different creative industries to change the priorities in their work processes, devoting more time or upskilling in the areas that were not as important before moving into immersive, such as development.

Immersive SMEs have also established some developed seizing capabilities:

- Exploitation. In order to capitalise on their innovations, some SMEs create solutions for the projects with the view of using them in future projects and products. This can be done through standardisation, connectivity-driven design, or maintaining a database of assets and prototypes to draw from for future projects. Such approaches allow companies to both explore new ways of doing things and exploit their existing solutions, improving their ability to respond to new opportunities and removing the need to 'reinvent the wheel' for every new project.

- IP Management. The next step in exploiting former work is through productising solutions and monetising them, either through licensing, renting out equipment, or software/asset packages.
- Pivoting. A small number of SMEs are also seeking to showcase their ability to produce innovative content by pivoting - exploiting their outcomes by delivering them in different ways than first envisaged. We expect this strategy to be much more common than our sample shows due to social desirability bias: Admitting that one uses new technologies for advertising purposes rather than committing to them might seem like an undesirable answer. However, this approach has some merit to it for a company that has a strong business in non-immersive market as it allows an SME to improve its capacity to work with immersive technology while also protecting its main income source.

Transforming for Growth

The capability to transform is usually a characteristic of companies experiencing growth, which is less common for creative firms due to their reliance on production networks. For this reason, it is not surprising that only a few companies in our sample exhibited this capability.

Among the nascent transforming capabilities, the most prominent one was the ability of a company to upscale or downscale depending on the project. This capability was exhibited by as little as 19% of the SMEs we've interviewed and is closely connected to their common ability to orchestrate networks and gather the people they need to fulfil a project (on-demand as such).

Only 16% of our sample exhibited developed transforming capabilities. These included: (a) Vertical integration, or partnering downstream to improve distribution and workflow; (b) introducing project-based coordination teams to manage each client individually; as well as (c), general formalisation, be it in the approach to hiring or standardising work processes.



4.5 Co-creation Practices in Immersive

Many companies in our sample involve their clients and audiences in creation of value in some shape or form. The examples of different practices revolving around audience and client involvement are illustrated in Table 2ⁱⁱ.

Stage of the Design Process	Examples of Co-creation Practices
Empathise	<ul style="list-style-type: none"> • Drawing on own and the client's knowledge to understand the audiences, their tastes, goals, emotional responses, responses, interaction preferences, what hardware they have, define the segments • Running focus groups to better understand users • Running workshops with clients to understand their needs • Doing a Q&A with the client
Define	<ul style="list-style-type: none"> • Discussing client's aims, budgets and understanding with them • Educating the client about the technology affordances and limitations, showing examples • Shaping and scoping the project • Establishing areas of expertise and input (such as technical, creative, marketing) between the co-creators • Establish further contact points and milestones for getting feedback
Ideate	<ul style="list-style-type: none"> • Pre-visualisation of experience with the client • Bringing together project goals and available technological and creative solutions • Getting feedback on initial ideas (art, slide decks, storylines, character designs) • Taking clients/audience members' suggestions on production process and tech solutions during the design process • Setting up dedicated ideation meetings, workshops, focus groups, etc. • Adjust the level of involvement of audiences/clients if the existing arrangement is too taxing or not enough
Prototype	<ul style="list-style-type: none"> • Getting informal feedback on elements of the product (environment, scenes, mock-ups, worldbuilding) • Running early tests of low fidelity prototypes with the help of research collaborators • Involving clients in sprints • Allowing client on the set for a fresh look at the process • Running regular item-specific meetings to get a sign-off on separate elements of the experience • Managing a Discord server/Facebook group to discuss development in an ongoing fashion
Test	<ul style="list-style-type: none"> • Running usability and/or appeal tests of high-fidelity prototypes and getting informal feedback or having questionnaires • Doing user observations alongside testing to see the actual use patterns • Having research collaborators run audience tests of high-fidelity prototypes to look for specialised feedback (emotional reactions, engagement with the story, physiological responses, pricing estimates) • Collecting app user data from tests • QA testing • Launching experiences at festivals and industry events to gather initial feedback • Doing preview screenings in collaboration with a co-production partner
Implement	<ul style="list-style-type: none"> • Bug fixing • Using feedback and tests results to plan future projects or the main project if the initial one was a prototype • Using early audiences for word-of-mouth marketing

Table 2. Co-creation Practices in Immersive



Several insights can be drawn from thematic analysis. First, most companies involve their clients and audiences during the definition and testing phases, but not the ideation and early prototyping. Whilst this allows companies to maintain an absolute creative control over their projects, it also suggests that they may not be maximising market feedback.

Second, there are very few companies (only 19% of our sample) that involve audiences in the implementation stage. Consistent with our findings in other aspects of immersive production, this trend suggests the over-emphasis on exploration and doing one-off projects, at the expense of exploitation in the form of product maintenance or creating serialised experiences.

Third, and as reinforcement for addressing the first two points here, we see an increase of appreciation of more formal and in-depth testing procedures. Based on the feedback of some companies who have participated in formal research programs (e.g., StoryFutures fellowships), in-depth feedback on emotional reactions and engagement was particularly valuable for them - both for the product and business development.

A lot of our user testing has been things like observing how people are using VR controllers . . . But asking people . . . some more emotive subjective questions I think is actually quite a useful way of measuring user experience, which maybe we were just being a bit ignorant to before.

Finally, in one of the most surprising findings of our study, the process of co-creation appears to trigger companies to develop dynamic capabilities related to sensing, seizing and/or transforming, depending on the way the given SME chooses to involve its customers. From a sensing perspective, companies use co-creation to identify new opportunities via early interaction with their customers. From a seizing perspective, co-creation allows the SMEs to both decrease their own workload and risks, as well as gain expert input in their projects.

5. The Four Types of Growing Immersive SME

In looking at our analysis holistically, we identified four configurations of factors associated with a better overall performance - which we have termed Scouts, Navigators, Cartographers and Explorers. These configurations are illustrated in Figure X.

- Key:**
- Condition present/high
 - Condition absent/low
 - Condition may be absent or present

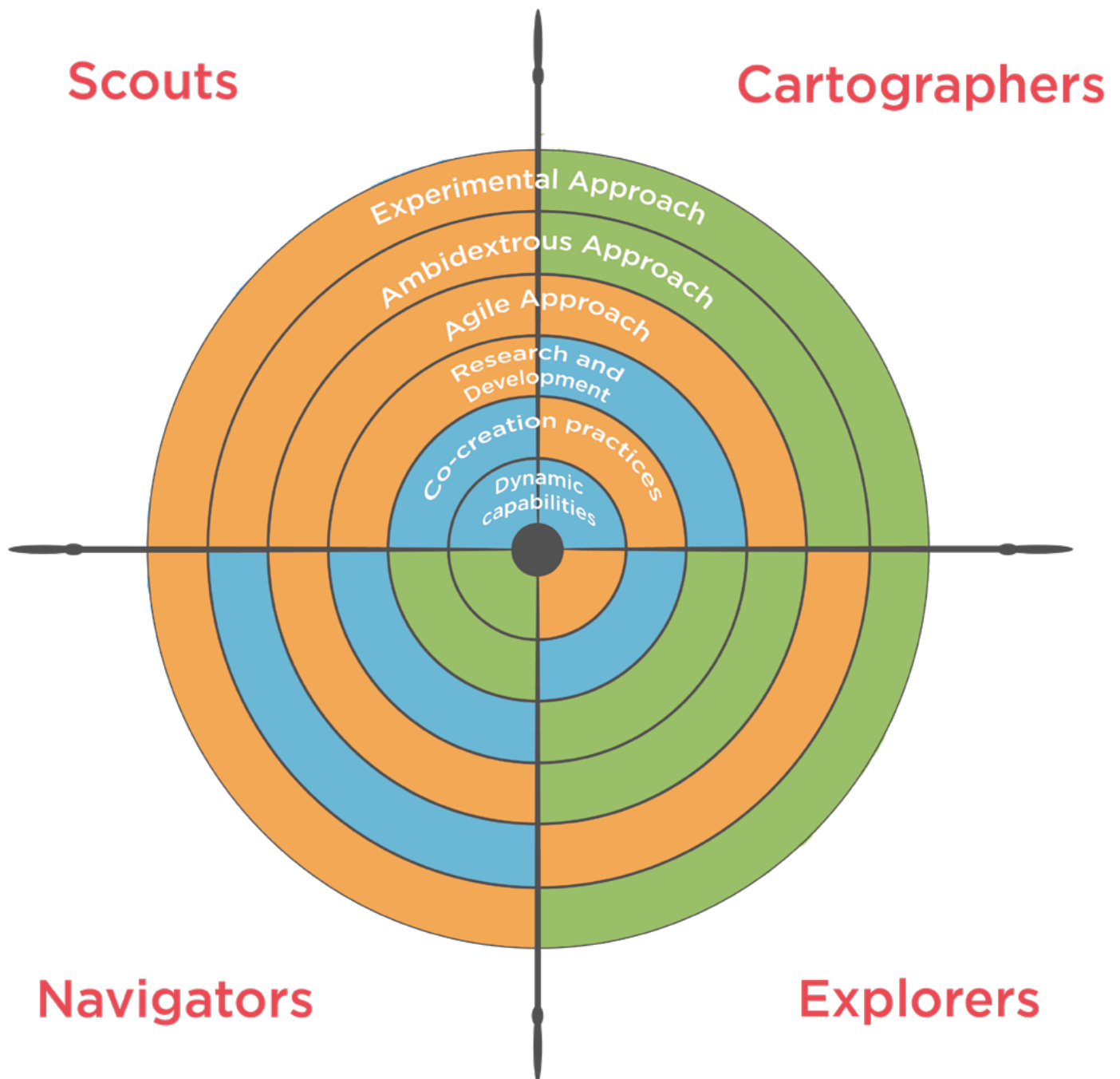


Figure 4. Business Model Configurations

5.1 Scouts

“I personally come from a more traditional background where you come up with a concept, you build a vertical slice and you go and pitch it to a publisher”

Scouts group consists of better performing SMEs that have their business structured in a way traditional to the creative industry they come from - be that television, movies or video games. Their entry into the immersive market is supported by a strong background in their industry of origin and they often continue working in that sphere even after entering the immersive market, as they are scouting the opportunities afforded by the new technologies.

What

These companies tend to have a rather generic description of what they do, saying that their competitive advantage is *“something that the technology offers”*, *“our ability to integrate technology”*, or creating *“high quality . . . story-driven VR experiences”*. Thus, it is clear that, whilst their actual activities are quite diverse, they do not have a profound understanding of how their company stands out from others in the immersive space. Differentiating on technology suggests that their thinking still sits in their original domain, where the use of immersive technology sets you apart from 'legacy' technology users.

“We went ‘OK, let’s do VR.’ That was successful in terms of attracting that initial capital, giving the studio a runway”

How

Scouts typically focus on one type of immersive technology (e.g., VR) to create products. Their approaches to the technology are unique in that they target at-home, location-based or combined delivery. They all ideate and develop concepts for their products predominantly internally. Although it is common for immersive companies in general to rely heavily on commissioned work, the most important resource for Scouts is their own IP.

SMEs in this group vary in the amount of co-creation they do. A few involve their clients,

but most work on a traditional commission logic where the touch points with the client or publisher are in the beginning and the end of the projects.

While Figure 4 shows R&D as ‘absent’ for these SMEs, that is not to say they don’t do it. On the contrary, one of the interviewees referred to his company as *“a company doing R&D, embracing new technologies and ideas, experimenting and pushing . . . concepts.”* However, this group tends to have a very loose DUI approach to research in development. They are relying on their internal resources to do R&D as an experience-based activity, meaning the company’s employees work on R&D as a part of creating projects. These companies rarely engage in formally organised R&D, unless there is external financing to support the development.

Who

In the light of this strong connection to the legacy industry, it is not surprising that, while different in other aspects of entrepreneurial orientation, all companies in this category show a strong artistic innovativeness. To them, content is more important than the technology it relies on and, to some, the move to immersive is a pivot to showcase the company’s ability to work with the newest pieces of technology. Their presence in the immersive market is not necessarily strategic however, often stemming from a real passion and desire to be on the cutting edge of storytelling.

This group is rather diverse, working both with corporate clients, collaborators on joint projects, and in creating products for general audiences. Scouts have structures similar to other companies of their original industry, without any special units or divisions to manage activities in immersive sphere. To compensate for skills they are missing in-house, they typically hire freelancers. Their networks of freelancers tend to be stable, and all Scouts point out these networks as an important resource for their success.

The companies in this category have very few dynamic capabilities specific to the immersive market. However, their connections with the traditional markets allow them to bring their clients into the immersive sphere. In that sense they act as a gateway to immersive for their clients.

For Whom

Being firmly based in their original industries, they often work with partners that are characteristic within those industries, such as publishers in video game industry, film studios and directors in movies and television. The value for the client or the customer lies in the immersive spin on the more traditional content, which is still a novelty in many markets.

How much

Scouts monetise from one or two sources that are, again, characteristic to their industries of origin. Thus, video game companies would sell games in online stores, advertising companies take commissions from the corporate clients, etc. They are willing to try out new things when they are venturing into the immersive market, such as ticketing location-based entertainment, but it is not a major revenue stream for them.

Creating novel solutions allows them both to maintain their innovative reputation and monetise. These SME's enjoy mainstream success, either having won prestigious international awards or having been commercially successful with wider audiences.

5.2 Navigators

“It does allow us to engage with an audience quite early and quite informally to get a few outside opinions into the development.”

The second group of better-performing companies that our analysis identified also do not use an experimental approach, but leverage audience engagement to provide them with valuable insight. This allows them to have a very clear idea of where they are going and how to get there as they navigate the ever-changing immersive market.

What

Unlike the previous group, Navigators have the most clearly defined value proposition among all other companies in our sample. In fact, their value propositions are so specific that they make the companies immediately identifiable (meaning, that for the reasons of anonymity, we cannot quote them). What the value propositions have in common, however, is that they identify the one thing that the company does better than others or differently to others: Be it technological leadership, unusual creative choice, or a novel type of product, the value proposition very clearly identifies what the company excels at.

How

Navigators create products that may be traditional in form such as AR games or VR movies, but the real value lies in the engagement with their audience and/or client, better ensuring that whatever they create will gather appeal in the market. Whilst they all create their own products (that is, no white-label development), they either license IP and create an immersive experience around it or create original experiences together with the IP holder.

Navigators systematically interact with their clients and or/audiences across multiple stages of creative process. Rather than trying to vicariously guess audience needs, they ask directly, *“just trying to understand what story is trying to be told and why it's important that it's done in an immersive way as opposed to in a more traditional storytelling way.”* They present their ideas in the form of pitch/slide decks, story beats or designs to the clients or potential audience members to



gather feedback. Their ideas “*evolve through collaboration rather than the technical delivery*”. Treated as expert consumers, their clients and/or audiences provide solutions for creative and technical challenges the companies face. These companies test experiences with the end users in a small informal focus group, inviting fans over for “*pizza and try-outs*”, or on a large sample.

“[We have] a database of about 4,000 volunteers, which we’re actively trying to grow. So every time we do a new game, we’re going to have a test game. And it’s a great way to reach out to the community, get people excited.”

Navigators often manage their communities through social media, for instance by having a Facebook group or a Discord server. When Navigators work with commercial clients, the form is not that of traditional commission work, but a result of co-creative work with said client across all stages of production.

This group varies in its R&D approach: Those who have the capacity engage in some DUI development in-house, sometimes achieving very novel technological solutions. Whilst they have internal support for more profound type of R&D, the members of this group can succeed without formal R&D, as their competitive advantage lies in co-creation.

Who

Whilst there are no pure technology companies in this group, such as hardware developers, all the companies in this group exhibit a strong technological bent. So, despite creating creative products that have received international acclaim, Navigators are more interested in technology than content itself.

Unlike other groups, Navigators consistently show well-developed dynamic capabilities. This is unique for SMEs, as dynamic capabilities are most often a feature of established businesses that exhibit scale. This group demonstrate established ways of identifying and pursuing new opportunities, mostly stemming from their co-creation practices. They also have other developed capabilities, however, such as the ability to identify and manage IP. Adapting creative IP from other media into immersive, Navigators heavily rely on their technical IP, such as

proprietary software tools, to create their experiences.

For Whom

Navigators create products for general audiences and deliver them through established channels, such as video game stores or television. Much like Scouts, their products tend to conform to the types known to the wider markets, such as ‘video games’, however, the insights gained from their customers and/or clients put a unique twist on the content.

How much

Companies in this group predominantly rely on a sole source of commercial income, that being the one-off payments for their products or contract fees for developing the experience – they may also obtain grant funding.

5.3 Cartographers

“We do a lot of consultancy on the side to keep the lights on”

Moving into the companies adopting an experimental approach, the first group does that in an ambidextrous manner. These companies experiment with new creative and technological forms and then package their experience in workshops or consultancy work, charting the immersive market for themselves and others.

What

Despite relying on the combination of creative and technical skills, these companies do not have the generic value proposition that many other companies do. Instead, their value proposition emphasises their role as a bridge between their clients and their audiences. They claim to provide *“at home, socially distanced experience of what the gallery provides”* or *“improve how we interact with our favourite brands.”*

How

These companies are generalists in the sense that they create experiences using different technologies and work with clients from different industries: From automotive and construction to galleries and creative agencies. Consistent with their experimental approach, the technology they are using is usually project-specific rather than company-specific - the exact nature of experience differing from project to project.

Cartographers engage in R&D either through a purely DUI approach without collaborators, or, sometimes, by joining existing R&D placements or schemes and working on know-how that they can later monetise through their consultancy. Their experimentation is opportunistic: Unlike Navigators, they do whatever R&D the project requires/allows or seek grant funding if there is a topic they are interested in - they don't have the capacity to do both however.

It is not surprising that with two approaches pursued at the same time, Cartographers don't employ co-creation systematically, other than for defining the business cases of their clients or occasional user testing.

Who

The business model of cartographers indeed reflects these companies' entrepreneurial orientation: Cartographers combine artistic innovativeness with risk taking behaviour.

Cartographers have varied degree of dynamic capabilities. Their experimental nature allows them to, in some ways, lead the market. Even if their creative products aren't a massive commercial success, their consultancy works makes up for it, as they can always capitalise on the lessons learned.

With this reliance on the value of their know-how, the key resources for these companies are the team's technical and creative skills that not only allow them to create novel solutions, but also become a selling point for their consultancy work.

For Whom

The companies in this group create products for general audiences and immersive tools for training. In both cases their primary clients are other businesses who commission immersive experiences for location-based entertainment. The value for their clients lies not just in getting an immersive experience produced for their customers, but also in learning about immersive technologies from working with the Cartographers and improving their own understanding of the market.

How Much

Cartographers charge commission fees. Apart from creating products, however, these companies also monetise by commercialising their know-how and experience. Branching out into consulting is more an organic outcome than a strategic decision, which enables additional income.

“We're actually finding now that . . . we actually consult with design and understand the business case first.”

The focus on consulting is generally that of how to create immersive experiences, supplemented by presentations/talks at events related to immersive market. This approach has the advantage of generating awareness of their work.

5.4 Explorers

"There is a procedure where you basically write a proposal and we put it in front of the founders and then they will invest in that R&D"

The final group of well-performing companies rely not only on experimental approach, but also on doing R&D in a more formally organised way than other groups. These companies explore the possibilities afforded by immersive technologies more profoundly than others and reap the benefits.

What

Like the Scouts, this group does not seem to have a very clear idea of their value proposition, stating that they are making *"highly creative story-led stuff"* using *"accessible technology"* or creating *"meaningful interactions"*. While such positioning may be more understandable due to the variety of the technologies and products they create, it still shows that they are unclear on their differentiation.

How

Explorers combine an experimental and agile approach by: (a) Working across industries and technologies, for instance, creating both AR and VR experiences; and (b) by doing sprints. This provides a better fit with the client demand, but also speeds up the work process.

"We do work in quite an iterative-prototype way where we try and get something out and to users as quickly as possible in a project."

SMEs here devote a lot of attention to R&D, doing it both as part of their regular projects and as separate standalone projects – either internally driven if the company has enough cash to support that or done via public funding. These companies create knowledge in different areas: What technological solutions work and what don't, how to best apply technology to the given context, and constantly enriching their 'vocabulary' of tools and ways to work. Explorers often join forces with support organisations, such as Digital Catapult or Creative Clusters, to get expert advice in areas beyond commercial technology, such as the psychological effects of the experience on users.



Explorers do not engage in co-creation in a profound way. Due to the experimental nature of their products, however, they do rigorous audience testing, supported by their research partners.

Who

Explorers exhibit a propensity for risk taking, but vary on their motivation – they can be interested in either technical or creative innovativeness. Their entrepreneurial orientation mostly consists of willingness to create novel products wherever they get an opportunity, rather than aggressively shaping the market.

Companies in this group are on the cutting edge of creativity and technology, receiving internationally recognised awards for their prototypes. Explorers have a lot of diverse expertise in-house or in their immediate network, relying on a variety of resources, including technical skills, flexibility and proprietary tools that they have developed through their R&D activity. They do not limit themselves to a single technology and can venture into AR, VR or MR depending on their vision for the project and the clients' needs.

Our research has not found a consistent presence of dynamic capabilities in Explorer-type companies. Similar to Cartographers, they have been able to lead the market so far and have not developed profound ways to adapt.

For Whom

True to an experimental approach, Explorers deliver their experiences in a variety of ways with a prevalence of location-based experiences (in a pre-Covid immersive market). They create immersive experiences for general public, but tend to work on commission rather than going to consumers directly.

Being generalists, these SMEs work with a variety of clients, from arts and heritage to FMCG brands and events companies. Through their expertise and expansive networks of creative freelancers, they can provide diverse, client-specific solutions.

How much

Due to their constant involvement in R&D and their experience in creating innovative solutions, Explorers often obtain grant funding, which becomes one of the ways to keep the company going. Other than that, they rely on commissions as their own IP is often experimental and is not always directly commercialised.

5.5 Lessons from Companies Performing Less Well

There are three main types of companies in our sample that consistently perform below average:

1. Companies that are new to the immersive market, coming from the corporate or hardware world. These companies have strong process but haven't had enough time to become successful in this particular market. They engage in R&D, but it is not systematic: It has little formal organisation and focuses on many aspects at the same time – e.g., creating new products, improving existing ones and looking for new markets simultaneously. These companies have the potential to become Explorers, however, should they successfully commercialise and streamline their innovations.
2. Sole traders who are not interested in growth. These creative micro-businesses have strong artistic innovativeness but are lifestyle-oriented and have no explicit interest in growing.
3. Co-creating experimenters. These are immersive companies that have an experimental approach, show technological innovativeness, while some are also artistically motivated, and are risk-takers.

These SMEs appear to be 'stuck' between the two successful types: Navigators and Explorers. Similar to the latter, they engage in either STI-type or both types of R&D, but they don't have an auxiliary approach that would help them to capitalise on R&D results. They also engage in co-creation activity, however, unlike Navigators, they do not leverage their co-creation activities to develop dynamic capabilities to adapt to the market. That is, they bear the costs of both these more successful types, but do not reap any of the benefits.

Moreover, most members of this group have very generic value propositions, suggesting that being unclear about one's own competitive advantage can prevent the company from developing.

Whilst financial performance of the companies is not the sole parameter by which we judge performance, it should be noted that the companies in this group either don't generate profit or work at a loss. It is unlikely that these companies will be able to succeed long-term if they try to span the Navigator and Explorer types, as both are very demanding on companies' resources.



6. Key Challenges Faced by SMEs

Though a number of challenges were identified that were common to many SMEs, additional challenges were also identified that are wider in their scope, suggesting that a common industry-wide response would be more appropriate in dealing with them.

Common Challenges Across SMEs



83% of SMEs see finance and time as a challenge



37% of SMEs have challenges around R&D capabilities



40% of SMEs have issues with business capabilities



23% of SMEs face resource challenges

6.1 Common Challenges

“We very seldom have an extra bit of cash to put into a pot to allocate towards R&D. So, R&D has to happen on the fly, it has to happen as a part of a project or part of a process.”

Unsurprisingly, finance was by far the most prevalent challenge noted. Most SMEs struggle to find a balance between paid work and unpaid work and the key themes that came up here were as follows. First, that paid work was often a necessity but not the *raison d'être* of the company, either diverting them from their vision or forcing R&D to be an activity on the side. Second, that R&D costs can be quite high (particularly related to some hardware), so generating enough revenue to fund R&D is problematic. Last, that some SMEs found access to funding and/or investors difficult and/or wanting. In more nuanced terms, some interviewees highlighted the relation between time and money – for example, noting that ongoing paid work made it difficult to find the time to do R&D or, that if you had the time, you didn't have the money.

“We have a lack of knowledge and infrastructure within our business to capitalise on the R&D . . . So, it's I guess it's the kind of route to market if you were to talk in grant speak terms.”

Several SMEs also pointed to issues of addressing capabilities within their business. First, some interviewees noted that they lacked the knowledge and infrastructure to capitalise on their R&D, the outcome being that R&D was often point driven and not strategic or capitalised on across projects for example. Second, the ability to scale a business is hampered by aspects such as the: (a) Understanding/ability necessary to put process and structure in place; and (b) managing time between activities such as pitching and production/development. Interestingly, interviewees who had made some attempt to scale their business noted that as their business grew, they realised they needed to think more as a business owner and less (or not only as) a creative, which was difficult and required support.

“When you’re commissioned to do something, you have to do it, obviously, and it gives you very little leeway to play and practise – and, because this is such a new technology, I think that’s what’s really, really missing.”

The capability of SMEs to undertake R&D is, in good part, tied up with finance and time – as noted above – but expressed more in terms of SMEs having the space for creativity and exploration. In addition to this, however, there were several other points of note. First, that external R&D funding options, routes, and process were not clear to some SMEs. Second, that developing funding applications: (a) Required significant time, which could be used elsewhere; (b) required the SME to know where they would be in X-months, the planning of which was difficult for some; and (c) the process was highly frustrating when unsuccessful. Finally, and more in relation to the arts, some SMEs felt there was a disconnect between what they wanted to do and what the funder was willing to fund.

“I guess equipment, specialist equipment, is another factor . . . I think having access to the right equipment can be a big area.”

“I think it is kind of a more general barrier but finding really good technical people has been a difficulty to-date.”

Several challenges were also related to non-financial resources. First, some SMEs noted that access to often expensive equipment and/or shared R&D space was problematic. Second, finding good creatives and/or technical people was difficult and often costly and that scaling such teams was challenging to do in a timely manner – particularly where the relationship was sub-contract. In that context, one interviewee also noted that knowledge transfer and retention was problematic.



6.2 Sector-Level Challenges

In addition to the above, several challenges were noted that had an industry-orientation, clearly being discussed in a context wider than any particular SME in question.

Key Sector-Level Challenges

76% of clients struggle with the nature of the market



40% struggle with the evolution of technology



20% face issues with the talent pool

30% find distribution challenging



“Clients are new to these technologies they don’t really understand them - they don’t understand the impact of them . . . I think everyone can see how amazing these technologies can be . . . but how does that really affect [their] business? . . . You know, what [is it that is] going to get them to spend and part with their cash to spend with us?”

The most commented on challenge relates to the nascent nature of the immersive market. First, client understanding of immersive is limited as things stand and the technology sits toward the ‘bleeding edge’. Consequently, from a client perspective, there is both a lack of understanding of what immersive can offer and the timelines involved in development and cost (contrary to something like TV or film production). Perhaps as a consequence, there is a limited willingness to adopt and embrace immersive making it quite a hard sell for SMEs involved in the area. Second, and more from a consumer perspective, several interviewees noted that there was a lack of an inbuilt audience and that an audience doesn’t always know what they are going to get from an immersive experience. Third, many interviewees noted that the size of both commercial and consumer audience is small as things stand and that it is taking time for people to feel comfortable spending on immersive. Last, in a more holistic sense, there were also a few comments on the ‘Wild West’

nature of the market – in essence that much is interpretation and experimentation and there are no set ways of doing things.

“In digital media it’s easy to innovate. But everything changes so that, you know, this thing you built might be completely obsolete because of the technology has changed a different way. Or, you know, markets change, right? . . . You know, it can be much more volatile than other areas, other media.”

The nascent nature of the technology also provided a common talking point. First, many interviewees commented on having to keep up with the constant changes (e.g., in hardware) and of having to deal with the limitations of that technology in developing immersive experiences. Second, and related, some commented on the fragmented nature of the technology and the difficulties of having to work to across different platforms. Third, there was some comment on the fit between the technology and the user experience (issues with wearables, nausea etc.) and, more widely, being able to effectively assess interaction.

“I’d like to see distribution more specifically about immersive . . . That’s a that’s a no brainer. I’d like to see distribution channels open up so that becomes less of a barrier.”

Related to the nascent nature of the market, distribution was also seen as challenging on a few counts. First, simply on the lack of distribution channels available – the emphasis being on channels rather than endpoints per se. Second, in relation to the endpoints that are available (e.g., the Oculus Store, Steam), the orientation needing to be more toward immersive narrative-driven content, rather than solely interactive gaming mechanics per se. Third, a small number of interviewees complained about the cost of getting content onto those endpoints.

“So, I think the available talent and the cost of the available talent . . . you know, not being technical ourselves, has been tricky as a small company. Finding really good technical people who are not being paid a hundred grand at one of the big games studios is difficult.”

Concern was also expressed about the talent pool, a subject we have previously broached in (5). First, several interviewees simply commented on the lack of available talent, noting that it was hard to find good people – comments here tended to be oriented toward technical roles. Second, and interrelated, some interviewees commented on the high cost of the talent that they had to contract in.



7. Moving Forward

7.1 SME Thoughts

During interviews, participants were given the opportunity to suggest ways in which some of the challenges they identified might be addressed. These responses were categorisable, but more diverse than the challenges that were identified.

Ways Forward

30% of SMEs suggested they would like additional research support



23% would like some form of standardisation



30% of SMEs would like networks for experience sharing and representation



“It would be amazing if, particularly for start-ups, if there was the potential to have full time researchers on board. I think to do R&D really well, you actually need a dedicated person or a dedicated team to really stay on top of it, especially if you’re looking at multiple products simultaneously. I think the opportunities for researchers in the commercial space in R&D aren’t publicised enough, actually, at universities, and particularly not during PhD programs.”

The key point of note here was that it would be advantageous to have (external) resource or support to enable the more effective identification of funded R&D opportunities and/or the application for funding. Other wishes were for: (a) Greater publicisation of public funding and how it can help SMEs; (b) continuity in funding such that outcomes could be developed over time - successively with smaller pots of money; and (c) safe spaces in funded initiatives such that SMEs were not in direct competition and could learn from each other’s R&D efforts.

“A better network of partners that were similar to my organisation in size and ethos that we could have honest conversations with . . . that we can actually share work and give other people work and vice versa for people to come to us and say ‘we know how to make this work, but we don’t know how to engage with the audience and we don’t know how to best tell a story or make the piece work’.”

In essence all responses were related to improving connectedness including: (a) Easing access to companies, decision makers and investors; (b) facilitating networks where SMEs can share their experiences and learn from others; and (c) a professional body that can represent the interests of immersive SMEs.

“I think . . . coalescing around a single bit of hardware or a standard, a universal standard for hardware and performance, which I think is kind of going that way with the mobile headsets, . . . But I think making it so that, you know, everything can be made available on every platform easily and you don’t have to go through a massive re-porting process to be able to move something from one thing to another.”

There were two key response types that related to standardisation in one form or another. First, and most obviously, standardisation (or perhaps a faster trajectory toward commonality) in formats and platforms, technology, protocol requirements. Second, and to a lesser extent, a collective push to do something serious in immersive rather than smaller piecemeal projects.

Other points that were made by a smaller number of people related to: (a) Marketing/PR activities that would promote the immersive industry in general and provide examples that show the business case for immersive; (b) networks specifically related to business support; and (c), unsurprisingly, more funding for immersive.

7.2 Policy Considerations

In reviewing what we have discovered as a result of this research, and though we hint at solutions in the section above, we conclude by highlighting three areas to be considered in framing future policy:



Weaving business model thinking and audience participation into the creative journey

The majority of SMEs we spoke with are pioneers, driven by creative and social benefits of their products; their engagement with the ‘business side of business’ is force majeure in response to the pressures of keeping afloat. Most SMEs neither have the time to think about scale and sustainable growth, nor have the tools to frame such thinking effectively. In the absence of commercial focus, some companies managed to build sustainable businesses by following the collaborative nature of the immersive market: By helping other companies succeed (the Cartographers) or by involving audiences in value creation (the Navigators). Without business model thinking, however, SMEs that adopt the same practices without understanding their benefits and requirements, risk getting ‘stuck in the middle’ as the analysis of less successful companies implies.

This leads to several questions that relate to policy, including:

- What do (scalable) innovation and the associated measures of growth look like if SME drivers are related as much to creative, cultural and social values as to economic ones?
- What can be done to more effectively embed and support business model thinking and skills in everyday SME practice?
- What synergies can be achieved by encouraging immersive companies collaborate and share knowledge across the value chain?
- What are the new opportunities for growth and creative development that companies can unlock if incentivised to involve audiences, including ones that are currently under-served by an immersive sector, such as differently-abled people?

2

Orienting funding at sustainable growth

Current support measures seem most effective for one out of four types of companies working in immersive (the Explorers), who take full advantage of funding and opportunities to create innovative experiences. These same companies, however, seem much less successful in commercialising their R&D. At the same time, other companies (the Scouts), despite having creative and technical potential, are sometimes reluctant to commit to the immersive field.

Public funding is clearly very important in enabling SMEs to translate creative practice into marketable products and services. Research clearly indicates limited awareness of public funding and associated tax reliefs alongside difficulties in engaging with those that exist (e.g., lack of time and resource). In addition, however, current public funding may be seen to have an implicit focus on a focal product/service as an outcome, which does not necessarily promote sustainable growth and innovation practice.

This leads to several interesting public funding questions that include:

- How can awareness of public funding initiatives be raised and barriers to entry reduced to increase uptake?
- In what ways can public funding initiatives evolve to include the development of sustainable practice (e.g., platform-thinking, effective production tooling, asset reuse etc.) as important/necessary outcomes of funding?
- How can other stakeholders (e.g., universities) be best incentivised to help SMEs address the difficulties they have in engaging with funding initiatives?
- How can public funding initiatives evolve to provide SMEs with continuity of funding as a means of incentivising long-term scalable innovation?

3

Consolidating the message

Given the clear collaborative orientation of the sector at the moment, and in the context of limited audience understanding of immersive, the opportunity presents itself for support of clear collective action. In essence, the underlying message relates to the development of an effective immersive 'ecosystem', which helps SMEs create value for each other - addressing current gaps (i.e., distribution), developing shared standards and platforms and allows organisations to come together in more modular manner - sharing best practice and reducing the cost of experimentation for example.

This leads to several questions that relate to policy, including:

- What benefits might an immersive 'trade body' bring to the sector and in what ways might one be best facilitated?
- What are the effective forms and types of 'safe space', in which SMEs might collectively learn and develop best practice for the benefit of the sector as a whole?
- In what ways can the standardisation of formats, platforms, technology and/or protocols be best incentivised?

Appendix 1: Methodology

We approached our work methodologically using Fuzzy-set Qualitative Comparative Analysis (fsQCA): This approach combines the benefits of quantitative methodology (in that it allows for rigorous analysis that provides generalisable formalised results) and qualitative methodology that relies on an in-depth understanding of the case to provide the details of not only what the companies do, but also how they do it.

Our **outcome** measure combines the following criteria:

- *Growth* over the three-year period, measured as an increase in the number of full-time employees as well as net assets.
- *Creative success* – measured as the company’s products receiving international acclaim through premiering at major festivals, such as Tribeca, South by South-West, or Raindance, or receiving international awards such as Steam awards.
- *Business model innovation* – an important antecedent of a company’s longevity and sustained development, measured as improving existing processes (operational business model innovation) or introducing new ways of doing things (dynamic business model innovation).
- *Diversification* – companies that work across technologies and markets are, relatively, in a more stable position in times of change than ‘one-trick ponies’. We considered two key parameters of diversification: Company’s presence in more than one market, and the company’s ability to produce creative experience using more than one technology (e.g. VR and AR, VR and linear, 360-degree filming and photogrammetry, etc.).

We calibrated **the antecedents** in accordance with theoretic approaches in related fields. Table 3 provides a summary of the calibration procedure.

Every immersive company does R&D in some shape or form, but our analysis sought to differentiate whether the process was formal or done in a more informal, experiential

way. We follow an existing classification of R&D in SMEs, differentiating between: (a) The Science, Technology, Innovation (STI) mode, which places an emphasis on formal processes of R&D that produce explicit and codified knowledge; and (b) the Doing, Using, Interacting (DUI) mode, which places an emphasis on informal processes of learning and experience-based know-how (32).

All companies have routines (implicit or explicit) that they consistently undertake in order to identify new opportunities, exploit those opportunities and/or adapt their structure to new market conditions – helping them to acquire and shed, integrate and/or recombine their resources in generating new value (13).

Last, we looked at the joint creation of value through the notion of co-creation - the degree of interaction between the company and its audience and/or clients (30). This practice is widely used in spheres where users are likely to have a good knowledge of the product, such as software and product design. We calibrated co-creation around common activities in design thinking, grouping them based on their timing in development process as: (a) Definition, where the company tries to understand the project’s requirements through empathising with the audience and/or client through data gathering, or by defining the requirements together; (b) development, where the company involves its clients in project development/production and/or engages the audiences in prototyping; and (c) learning, where the company runs test and amends the product based on feedback, and implements the new suggestions from the clients and/or audiences.

Factors	Theoretical or empirical set	Fully out	Fully out meaning	Neither in nor out	Neither in nor out meaning	Fully in	Fully-in meaning
Dynamic capabilities	Theoretical	0	No developed dynamic capabilities are present	0.33; 0.67	One type of developed dynamic capabilities is present; Two types of developed dynamic capabilities are present	1	Developed sensing, seizing and transforming capabilities
Co-creation practices	Empirical (scoring based on (7))	0.33	Only one part of creative process invites clients and/or audiences' input	0.62	Two parts of creative process invites clients and/or audiences' input	1	All parts of creative processes invite clients and/or audiences' input
Research and Development	Empirical (scoring based on (32))	0.17	Company only engages in DUI, and that is done sporadically	0.64	Company uses STI or combines elements of both	1	Both DUI and STI are present systematically
Agile approach	Theoretical (based on (17))	0	Company doesn't use formal project management activities	n/a		1	Company uses formal project management activities
Ambidextrous approach	Theoretical (based on (33))	0	Company only monetises its creative output	n/a		1	Company monetises its expertise
Experimental approach	Theoretical (based on (12))	0	Specialist company that operates similarly to its legacy industry	n/a		1	Generalist company that has features separating it from legacy industries
Performance	Empirical	0	Company performs below average	n/a		1	Company performs above average

Table 3. Calibration of Factors

Appendix 2: fsQCA Results

fsQCA enables the discovery of consistent configurations of factors that are associated with a given outcome: Stronger performance in the immersive market. The closer the consistency of a configuration is to '1', the more likely it is that only companies conforming to this configuration also exhibit the outcome. Of importance, if a given factor is neither present nor absent in the configuration associated with an outcome, it means that there is no evidence of this feature or its absence being associated with the outcome, so a company may or may not have it.

Solution coverage refers to the percentage of the outcome explained by a particular configuration, whereas unique solution coverage refers to the percentage explained by it uniquely (i.e. with no intersection with other possible configurations). Solution consistency refers how strong is empirical support for a connection between the configuration and the outcome, where 0 means that there is no empirical evidence that there is an association and 1 means that there is a consistent connection.

Overall coverage and consistency refers to the combined measure of all identified configurations.

Solution parameters	Configurations			
	Scouts	Navigators	Cartographers	Explorers
Solution coverage	16.4%	14.4%	10.6%	8.8%
Solution unique coverage	11.3%	9.4%	10.6%	8.8%
Solution consistency	0.91	0.98	0.97	0.83
Overall coverage	45%			
Overall consistency	0.92			

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ⁱ Reports for 2020 were not used on purpose to exclude the effects of Covid19 on the results for the companies who already submitted their 2020 reports against those who haven't. The resistance of SMEs to external shocks, such as the global pandemic, is an important topic, but not the main focus of this report. Therefore, we discuss it, but do not include it in the analysis.

ⁱⁱ Practices come from different companies; therefore, some are incompatible. For instance, a company cannot have ongoing conversation with its audience and time-separated meetings with them at the same time. The table illustrates the variety of approaches and should be taken as a 'shopping list' of possible ways to involve the clients and/or audiences, not as checklist of everything a company should do.

ⁱⁱⁱ This and subsequent tables in sections 6 and 7 reflect the percentage of respondents who indicated an issue/solution, not the percentage of SMEs as earlier tables.

^{iv} Due to many small companies and micro-businesses not generating profit or not being required to report it, we used net assets as a proxy to measure the increase in operation. For companies reporting profit and turnover, the change in those parameters tended to correspond with the change in net assets, which led us to believe it to be a suitable proxy for the increase in overall operation.