Chapter 8
Conclusions: Virtual Reality, Augmented Reality and Mixed Reality

Abstract This chapter concludes the book and addresses XR design. It features a case study of Icelandic musician and visual artist Björk's release of her full VR album *Vulnicura* (Björk 2019c). A case study of Florida-based company Magic Leap's work with Icelandic band Sigur Rós is also provided. Sigur Rós (2020) and Magic Leap collaborated to develop an interactive music and mixed reality experience called *Tónandi*. This chapter then traces the declining cost of XR production and the role companies such as Facebook, and platform economics generally, have to play in this. Design culture has agency here for changing practice norms for the visual creators/designers and artists interviewed for this book, particularly in relation to intellectual property policies, and therefore design culture has an instrumental role to play in changing the deal making around visual representative media in this business; the music business can be changed through a new kind of design culture.

Keywords Virtual reality · Augmented reality · Mixed reality · Platform economics · Blockchain

8.1 Cutting Edge

On 5 September 2018, I was invited to Cutting Edge's studio complex in the West End in Brisbane, Australia to interview Benjamin Richards for this book. Cutting Edge has been a leading provider of sound and picture post-production for the advertising, film and television industries for 27 years both in Australia and internationally (Cutting Edge 2020). At the time of the interview, Benjamin was the Director of Creativity and Innovation and was Asia Regional Manager for the company. In this role, Benjamin was responsible for developing market strategies for new geographical territories and for new technologies (Richards 2020). He led Cutting Edge's research and development efforts in the fields of virtual reality (VR), augmented reality (AR) and mixed reality (MR) (VR/AR/MR will henceforth be collectively referred to as 'extended reality' (XR): see Greengard 2019, p. xvii). He also opened the first international branch of Cutting Edge in Tokyo, Japan, had one of his VR films screened at Cannes

Film Festival and was awarded both the Queensland and Australian International Export Awards for Creative Industries in 2016 (Richards 2020).[1]

Prior to the interview, Benjamin took me on a tour of the studio complex. On the way to the XR studio I was introduced to various producers, visual effects artists, a creative director, sound designers, an immersive content supervisor, an animator and a 3D artist who were all working busily in their open plan and semi-open plan offices. Once we made it to the XR studio, Benjamin provided me with a VR headset and gave me the opportunity to experience some immersive content; giant robots surrounded me and then I walked through a virtual maze. While I had the headset on, I had a disconcerting feeling that I did not know what the people in the actual room I was in were doing while I was immersed in the experience.

This book has concerned design culture not only in terms of the creation of visual artefacts that are to be used or 'read'; it has also examined the structuring of systems of encounter within the musical, visual and material world (Julier 2013, p. 11). It has achieved this through an analysis of the businesses associated with album cover design, gig and tour posters, music videos and stage and merchandise designs. Arguably XR will increasingly become part of this interlocking web of cultural production within the contemporary music business. In this book I have not singularised and isolated the visual artefacts that are produced within the music business in my analysis of them and their production. Although in structuring this book I have included separate chapters on all of the aforementioned areas of visual culture production, by analysing them in the one book I have been able to produce an overview of an interlocking web or design culture/organisational culture. This has generated a better understanding of the product milieu (Margolin 1995) that often surrounds a piece of music. For the purposes of this concluding chapter, XR simply becomes an extension of this *music* product milieu; it will increasingly be used alongside these other elements of design culture to create the context and environment in which a piece of music 'lives'.

The multiplication of the artefacts produced by music-related designers and visual artists within and across the different media this book has analysed is what makes them so meaningful. As has been discussed throughout this book, musicians and their management orchestrate these artefacts into an architectonic structure through the way in which key visual signs are often serially reproduced through a range of media.[2] This concluding chapter explores the notion that, as musicians and bands' story lines increasingly enter the realm of XR, effective communication in this field will soon commonly include creativities relating to touch (somatosensation) and our kinaesthetic sense (proprioception), which is used for spatial movement.[3] XR

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[1] For a full list of Benjamin Richard's awards, see Richards (2020).

[2] While, following Karjalainen (2019), these visual signs can sometimes be predominantly arbitrary in nature, at other times intentional encoding can reduce the arbitrariness of such signs and they can come to generate a consistent visual narrative (as was evident in the case of the Stanley Donwood/Radiohead case study in the previous chapter).

[3] For Richards, this may also come to involve the user's sense of smell (olfaction): 'So the most immersive experiences that occur when you're in a 6 degree of freedom thing and when you can activate as many other senses as possible. So if you're on a motion ride so that you're feeling

has been—and will arguably more commonly be used as—an additional touch point between musicians and bands as 'narrators' and their fans. Further, fans will not only be 'readers' of their work, but participants who actively choose from the multilinear narratives that XR artefacts make available.

8.2 The Declining Cost of VR Production: Björk Case Study

As I discussed in Chap. 5, from the 1980s to the present day the democratisation of film production technologies has allowed musicians to create music videos for thousands of dollars instead of hundreds of thousands.[4] While only the most popular musicians and bands could afford to produce music videos in the 1980s—because shooting on film was so expensive—the arrival of video and then digital technologies made the artform more affordable for more musicians. Benjamin Richards has observed a similar decline in the cost of production in the field of VR:

> I think the same sort of thing happened with computer graphics as well. It was, again, early days in computer graphics, it was prohibitively expensive to really do anything. I guess the first time I saw a 3D animated music video was 'Money for nothing', [by] Dire Straits, and that was one of the earliest 3D animated videos, maybe even the first. I saw it when I was a kid and I later got into 3D animation. I think it was one of the things that inspired me. We've sort of reached the point today where a kid at home could now make a 3D animated music video and do it for free. (Interview 13)

Richards cited Icelandic musician Björk's (2015) 360-degree virtual reality music video 'Stonemilker' as an early pioneering example of the use of VR technology within the field of popular music. This video was released on 6 June 2015 and as on 12 January 2020 it had been viewed 5,739,475 times on YouTube. Since the release of this music video, Björk launched Björk Digital, which is an ongoing immersive virtual reality exhibition. Debuting at Carriageworks in Sydney, Australia as part of the Vivid Sydney festival on 4 June 2016, the exhibition has since been toured to other cities such as Tokyo, London, Montréal, Reykjavik, Barcelona, Bogota, Mexico City and Los Angeles (Cooper 2016; Björk 2019a).

Following this, on 6 September 2019, Björk released her full VR album *Vulnicura* (Björk 2019c) on the Steam platform for the VR systems Oculus Rift, Valve Index and HTC Vive (Fingas 2019).[5] Discussing the five-year period it took her and her

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movement as well as seeing movement, and if there's smells and things like that, the more senses that are tricked into believing that you're in an alternate reality, then the more you believe you're there' (Interview 13).

[4]Caston and Smith (2017) noted that David Bowie's 'Ashes to ashes' video (1980) secured a budget from his label of £250,000 (AU$472,563.65 as of 20 January 2020) whereas Jefferton James disclosed that the budget range that he worked within over the six-year period under examination in Chap. 5 (2012–2018) was AU$1,000 to AU$10,000 (£529.38 to £5,293.88 as of 13 January 2020).

[5]Regarding headset options, Richards noted that 'the Oculus Go has really been the biggest market disruptor in a while. It's actually a higher resolution than the Oculus Rift, because it's much

creative director James Merry to produce this VR album, Björk noted that she had mixed

> the sound of this album a million times now … there's a new format, new mastering software or now we have to mix it for 360 … The amount of work and the amount of tech and the amount of money… it's the most labour intensive of anything I've ever done. (Björk, as quoted in Charara 2019)

Music video, as a non-interactive form of cultural production, only allows its consumers to react to, interpret and reconstruct the intended meaning of the artform. In contrast, the amount of labour, time, technology and money that Björk cites here as having gone into the production of her *Vulnicura* VR album reflects the fact that the audience for it can intervene in the various representations themselves. The linearity of the traditional storytelling evident in the majority of music videos has become a 'multi-linear network through which the audience navigates' (Julier 2013, p. 191). Björk's gamble that by the time she released her VR album in 2019 the technology would have developed enough to enable her audience to drive the narrative, through their own spatial movement, seems to have paid off. Regarding the democratisation and accessibility of the requisite VR technologies to enable the album to function as a mainstream release, Björk stated:

> [When] I went into the VR album, I allowed myself to dream that I'd be able to eventually release it on something as democratic as a gaming device … But I decided that'd be a bonus … I had to let the industry or whatever it is develop, and trust it. (Björk, as quoted in Machkovech 2019)

Björk's VR album release was well timed given that, as Greengard (2019) noted, after much hype over a long period of time, XR has entered the mainstream:

> Extended reality is taking shape. Zion Market Research estimates that the total market for virtual reality will swell from [US]$2.2 billion in 2016 to [US]$26.89 billion in 2022. According to the market research firm ARtillry Intelligence, the augmented-reality market will reach $18.8 billion by 2022. Yet these technologies are also reshaping business. The number of companies entering the augmented-reality market is growing at an annual rate of about 50 percent. Total global extended reality revenues will reach [US]$61 billion in 2022, ARtillry reports. (p. xiii)

At the time of writing (early 2020), Björk was advertising forthcoming 2020 headline shows at Carnegie Hall, New York (7 March and 14 March), Kings Theatre, Brooklyn (18 March and 22 March), City Center, New York (25 March, 28 March and 1 April), All Points East Festival, London (27 May), Welovegreen, Paris (3 June), Northside, Sweden (7 June), Governors Ball Music Festival, New York (5 June), as well as Manchester International Festival (5 July), Pohoda Festival, Slovacchia (11 July), Colours of Ostrava, Repubblica Ceca (16 July), Auditorium Parco della Musica, Rome (29 July), Spandauer Zitadelle, Berlin (2 August), Wilderness Festival, Cornbury Park, Oxfordshire (6 August), Tbilisi Concert Hall, Georgia (31 October), State

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newer generation. The one with 32 gig of internal storage is US$199. So it's very cheap. It's fully standalone, you don't need a computer, you don't need a phone to drive it' (Interview 13).

Opera House of Georgia (3 November), Harpa, Iceland Airwaves (7 November), and a DJ set at Art Basel (7 December) (Björk 2019b). While it is beyond the scope of this book to pinpoint exactly why there was such demand for Björk's live performances in 2020, and most of these shows would have been cancelled or postponded due to the COVID-19 pandemic, an area for further research is whether her VR visual narrative, and the story of innovation associated with it, helped to generate the media attention that has enabled her to create this demand.

For Benjamin Richards, a VR album such as *Vulnicura* potentially opens the way for new business models. He noted that:

> Spotify and any sort of music streaming service that you pay $10 a month, if you listen to whatever artist a million times, okay maybe they see a bit of that $10, but for many artists I know that get a pay cheque from Spotify, it's not much. And certainly not much compared to album sales in the past when people were buying physical media. A friend of mine worked on Björk's first 360 video VR experience. Once they started putting it out there, showing Björk fans, it went nuts, because anyone who was a real, pure, hard-core Björk fan was just in tears because of the fact that they could put on this VR headset and it felt like Björk was there looking into their eyes giving them a personal performance with no one else around. So it was an intensely personal and intimate experience, and it was the sort of thing that those fans didn't hesitate to pay a few dollars for that individual song. (Interview 13)

In this case, while music videos in the past were often simply used to advertise albums, for Richards, this 'model has changed because you're not really buying the album; you're maybe now just buying the visuals, which—they've sort of turned that on its head a bit' (Interview 13).

8.3 Platform Economics

However, any assertion that the sale of Björk's (2015) 360-degree VR music video 'Stonemilker' as a download marks the return of the music business to the economics of goods such as CDs and music downloads is undermined by the potential of platform economics in this space. For Evans (2011), platform economics are facilitated by 'businesses that create value by providing products that enable two or more different types of customers to get together, find each other, and exchange value' (p. vi).[6] While selling a 360-degree VR music video as a download may have worked for Björk—because she was such an early adopter of these technologies in 2015—platform economics, a relatively new term, provides an economic model for intangible trade (Towse 2019). For Parry et al. (2011): 'Intangible things are not physical objects and only exist in connection to other things. Examples include a brand image, or goodwill' (p. 21).

While intangible products such as music composed by musicians and bands have a history of being recognised and sold as a type of good rather than an intangible service, platforms such as Facebook already incorporate VR into the services they provide. Therefore, VR products such as Björk's *Vulnicura* will arguably come to

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[6]These businesses were originally called 'two-sided markets' by Rochet and Tirole (2003).

function as intangible services in the platform economy, rather than being sold as downloadable artefacts. In this context, VR music videos will essentially function as intangible digital goods[7] and the business models of platforms such as Facebook and YouTube will dwarf those of individual artists such as Björk (and most other businesses in the world for that matter).

For Haskel and Westlake (2017), an intangible-rich economy is fundamentally different from one based on tangibles (see also Klein 1999, 2010; Gawer 2009; Kenney and Zysman 2016). And the future of XR is arguably going to be caught up in the economic and social activity that is facilitated by transaction and 'digital matchmaking' platforms that facilitate this intangible-rich economy. For example, Facebook (2020) noted on their website that:

> Facebook IQ commissioned a study by Neurons Inc to compare how participants in the United States responded both cognitively and emotionally to conversing in virtual reality via an Oculus Rift headset versus having a face-to-face conversation. Learn more on what social interaction looks like in VR and the implications for marketers.

This quotation helps to explain the decreasing cost of VR production; platforms such as Facebook are investing heavily in this technology in order to make it broadly accessible, as Richards noted:

> Even in the last three years, just looking at 360 camera technology, the cost of what we were doing things for three years ago is much less today. Just to give a quick example, it was very, very common three or four years ago to see Go Pros mostly used for shooting 360 content. There's a few technical reasons why that was a good approach, but there were not many software options for how to then stitch all of those different video streams together. Then Facebook, because they've got a vested interest in immersing you in content and shoving ads down your throat, they're investing billions, not just into headsets but into the tools for people to make content. So the most expensive and most advanced sound tools for doing spatial audio were made by a company called Two Big Ears, and we were actually right on the verge of buying those tools for stupid amounts of money. Then Facebook bought them and released it all for free and threw more developers on it and quickly developed more and more features to just give everybody the opportunity to do spatial audio for free. (Interview 13)

Through such investments, Facebook is making these technologies more accessible for music business practitioners to use. At the same time, though, they are potentially replicating the problematic role YouTube plays in the music business ecology that was discussed in Chap. 6. Clearly Facebook desires to become the largest XR service in the world by developing these technologies to provide use value to the masses. And for Towse (2019), the dynamics of intangible markets suggest that size counts: the big get bigger, and this is a space where large, multifaceted enterprises such as

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[7]Whilst VR headsets are certainly tangible, the entry-level VR hardware such as Google Cardboard is very affordable, as Richards noted: 'On the low end of the scale you've got your Google Cardboard, which advertisers for example are using for all sorts of experiential marketing or activations and this sort of thing. If you're buying a Google Cardboard that's not printed on or whatever else, then you can be paying [AU]$2 or something. So your entry point for having VR is almost nothing' (Interview 13).

Facebook can dominate. Furthermore, datafication is an issue here: large companies such as Facebook have more data than their competitors and can afford better analysis (Towse 2019; see also Morrow 2019). For Towse (2019), the implications of platform economics for the earnings of artists are that 'the larger the enterprise, the relatively weaker the artist in terms of getting a deal. Also the chain of production from creator to market has lengthened with DSP [Digital Service Provider] taking a cut'.[8]

Platforms/DSPs such as Facebook do not create XR content; they just distribute it. This is why, according to Richards, the software that stitches all of the different video streams together when producing XR artefacts are designed to plug into Pro Tools and Reaper, two popular software programs for audio professionals. Facebook's attempt to make this software available to a wider audience has been matched by the way in which they have functioned as a platform of sorts for hardware manufacture. Richards continued:

> When it comes to stitching and post-production tools for 360 video, Facebook built a 360 stereoscopic camera, then never produced the camera but they just open sourced everything. Then in addition to the camera they built an optical flow stitching algorithm for stereoscopic footage which was the best that anyone else had done, and also stabilisation tools and all sorts of stuff to help with shaky footage—and shaky footage in VR will make you sick. They developed all these tools. Then it was probably only the matter of a year before five or six new camera companies popped up in China who just took all of Facebook's camera designs and referenced it and built it, put their own shell on it, then all those cameras shipped with their own stitching tools with their own stabilisation, and then all of a sudden there was just this proliferation of affordable camera gear with easy post-production and easier stitching. Still a little bit out of the hands of everybody, but it shows that movement towards it being completely democratised. (Interview 13)

In the age of big data and associated surveillance capitalism (Zuboff 2018), the platform economics facilitated by companies such as Facebook mean that, while artists such as Björk may have been able to generate capital income during the period 2015–2020 from the sale of VR artefacts as downloads, this will become increasingly difficult income for such artists to generate. The rapid democratisation of VR-related software and hardware means that music-related VR directors and producers may only be able to generate labour income from these technologies by receiving a fee for the service of creating content. Then the content created will essentially function as advertising, not as saleable products that could generate royalties/capital income.[9] Similar to the way in which music video was harnessed by YouTube,[10] music-related VR artefacts may simply come to be harnessed by the big platforms of the data economy such as Facebook to sell advertising.[11]

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[8] Albeit, the passing of Article 17 of the European Union's Copyright Directive, discussed in Chap. 6, may make a difference here in relation to XR creators' copyright.

[9] That is, they will be in the same position in the music business as music directors have been throughout the years, rather than functioning in a similar way to record producers who often receive capital income from their work (see Chaps. 5 and 6).

[10] See Chaps. 5 and 6 of this book.

[11] For more on the topic of artist management practices in the age of big data, see Morrow (2019).

8.4   Augmented Reality and Mixed Reality: Sigur Rós and Magic Leap Case Study

In contrast to Björk's pioneering work with VR technologies and design, Icelandic compatriots Sigur Rós were chosen by Florida-based start-up Magic Leap to be the first band they would work with to develop a music-related mixed reality (MR) product.[12] The company worked with Sigur Rós to develop an interactive music and mixed reality experience called *Tónandi. Tónandi* can be experienced through Magic Leap's head-mounted virtual retinal display called Magic Leap 1, 'a wearable spatial computer that brings the physical and digital worlds together as one' (Magic Leap 2020b). This head-mounted display superimposes 3D computer-generated imagery over objects in the physical world by using a tiny projector to shine

> light onto a transparent lens, which deflects the light onto the retina [the user's eye]. That pattern of light blends in so well with the light you're receiving from the real world that to your visual cortex, artificial objects are nearly indistinguishable from actual objects. (Metz 2015)

By projecting light onto the user's eye in this way, the device is able to generate a hologram that only the user can see, rather than projecting a hologram into a physical space that multiple people can see.

Magic Leap founder and CEO Rony Abovitz noted that their 'philosophy as a company (and my personal view) is to "leave no footprints" in the brain' (Abovitz, as quoted in Lapowsky 2015). Magic Leap argued that their competitive advantage is that their technology is safer than alternatives because it addresses the side effects of other 3D technology such as nausea and headaches. The company claimed to have addressed this issue by generating holograms that the user's brain perceives in the same way as objects in the physical world, and at the same time as the user's brain interprets and 'reads' the physical space they are in. Richards discussed Sigur Rós and their Magic Leap-designed interactive music and MR experience, *Tónandi*:

> When it came to music, they were looking for pioneering musicians to go along for the ride with them and imagine what they could be. So Sigur Rós was someone they chose to work with. Basically the idea with the Magic Leap headset is it's an augmented reality device. So unlike virtual reality where it replaces everything, it's just integrating digital content into the world around you. So for Sigur Rós, they've designed all these sound elements which have visual representations, then those visual representations adapt to your environment. (Interview 13)

In the case of *Tónandi*, Sigur Rós's music did not exist first and then the MR experience was designed afterward; the music and the sensory experience were designed together and are intimately linked: 'A sensory ecosystem grows and surrounds you … Tónandi is a creature with unique sound and personality, inhabiting your environment and inviting interaction' (Magic Leap 2020b). Richards continued:

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[12]For Greengard (2019) mixed reality refers to a 'world somewhere between virtual and augmented reality' (p. xv).

So if you've got a small coffee table in your lounge room, or a very large table in a boardroom, then your experience will be different depending on your environment. For example, if there's some strange sound coming out, there might be organic objects floating out and growing out of your small coffee table and it would limit itself to the size of that coffee table. If it's a very large table, then those objects might be—there might be many more of them or all spread out. But basically when you reach out and touch that object, you can alter the sense. It's a fully interactive thing, so the more you touch the more it changes. (Interview 13)

On their website, Sigur Rós noted that they have been working with Magic Leap for five years:

exploring and expanding the frontiers of musical creation within 'mixed reality'. Tónandi is the first fruit of that collaboration, and perhaps even a glimpse of the future of music … a place in the here and now, where the 'sound spirits' of Sigur Rós's music can be played with. (Sigur Rós 2020)

In 2017, senior staff writer for *Pitchfork* Marc Hogan was invited to Magic Leap's headquarters to experience an early demonstration of *Tónandi*. Hogan (2017) described the experience in the following way:

There's a nervous hum, and then I see a group of little sprites floating around in front of me. The jellyfish-like creatures seem to match the waveform of the music I'm hearing through headphones. Encouraged to explore with my hands, I reach out, causing the waveforms to alter shape—both visually and in the audio.

As on 16 January 2020, the price points for the various versions of the Magic Leap 1 were US$2,295 for the basic Magic Leap 1, US$2,495 for the Developer Suite and US$2,995 for the Enterprise Suite (Magic Leap 2020a). Richards noted on the adoption of headsets for XR generally:

The adoption of quality headsets is still not where any of VR's biggest fans would like it to be. I know that certain headsets like Oculus Go are already in the millions, which having been released only earlier this year [2018], that's decent sales. And critics of the adoption of VR try to remind people how slow the adoption of smartphones were. Now everyone can't live without their smartphone, but it took a while for it to get on people's radars. A lot of people hadn't heard of the iPhone until it came to iPhone 3. So again, with VR it just might be that 10 years until everyone's got a high-end headset. (Interview 13)

Assuming that the adoption of VR headsets does follow a similar trajectory to the uptake of smartphones, the way in which visual content in the music business functions, and is managed, may change as a result.[13] As was evidenced by the Björk and Sigur Rós case studies in this chapter, the potential for these technologies to break the traditional relationship between the viewer and the viewed in the field of

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[13]Furthermore, as Richards noted: 'Alternatively you can watch 360 content on a phone or on a tablet; you can hold it and move it around or you can use your finger to swipe it around. You could view it on a computer screen the same way, and a lot of the YouTube 360 videos are consumed not on headsets. But of course that's the least immersive way to experience the content, and for me it's not very compelling unless it's in a headset' (Interview 13).

popular music may require alternative conceptions of how visual culture is produced, understood and contracted, and its creators remunerated.

In the case of these technologies and the 'experiences' they facilitate, 'immersion' in the content becomes literal. As Chan (2014) noted, 'instead of viewing an image with a defined boundary such as a frame, virtual reality seems to offer the possibility of moving beyond the frame and into the image' (p. 1). A consumer of Sigur Rós's *Tónandi* release literally steps into the 'object' and this signifies a paradigmatic shift in how we understand the function of 'visual' culture within the music business—and potentially the deal making relating to it.

8.5   Emergent Themes

How XR technologies and design will be applied in the music business largely remains to be seen as well. When writing a future-gazing conclusion to a book such as this one it is tempting to engage in futurism that is not grounded in empirical evidence. Apart from the research interview I conducted with Benjamin Richards (Cutting Edge) that is cited above, and the secondary data relating to the Björk and Sigur Rós case studies also above, the majority of interviewees for this book were not engaged in XR production. During the timeframe the interviews were conducted for this book (2018–2020), XR technologies and designs were simply something that *may* be on the horizon for the music business from the perspective of the majority of participants. The following themes were identified in my analyses of the interview data relating to XR technologies and design.

8.5.1   *Theme 1: Storytelling and Extended Reality (XR)*

In Chap. 3, I argued that post-digital visual storytelling, when compared to pre-digital, is more interactive, agile, iterative, initially direct-to-fan, and it involves faster processes that require more content. Comparatively speaking, for the time being at least, XR design is much more reminiscent of the top-down storytelling of the MTV era of music video production. This is due to the current expense of producing XR content and the access to, and knowledge of, the technology required. Interviewee, my client Jefferton James (Jefferton James Designs) was critical of VR. He noted that:

> I have a mate that's really into the VR stuff and thinks I should get into it and that's where the future is, but I don't know. I'd rather focus on good visual storytelling over—this will come back to bite me on the arse—but what I almost feel is a gimmick. Look at *Avatar*. Everyone went bonkers over that movie because of the 3D … They kind of lost track that it was a very ho-hum story with really mediocre acting, but because the 3D was so dazzling, everyone lost their fricking minds over it. (Interview 1)

To a large extent the case studies of Björk and Sigur Rós's respective VR and MR releases conducted earlier in this chapter evidenced that much of the press coverage relating to these releases concerned the novelty of them. However, once this technology is no longer novel the content itself will need to be engaging enough to garner an equivalent amount of attention. Los Angeles-based Canadian entrepreneur Vince Bannon (formerly Getty Images and Sony Music and now So.Co) commented that there is currently a lack of clarity regarding what the 'content' of VR will be and that simply being able to have the experience of being on stage with a famous musician is not a sufficiently compelling 'story'. He discussed his key insights after visiting a VR demonstration at Google:

> Number one, until it becomes just simply a pair of glasses, it's not going to happen. Number two, nobody knows what the content will be. I got asked by a lot of start-up VR companies to come work with them or consult them and what they wanted was my rolodex and my rolodex has, like, every manager and every band in the planet … And I said, 'Well, wait a second. If I'm going to give you this and you want to talk to them, you have to tell me what you want them to do.' The idea of just sitting on the stage with Paul McCartney is pretty fucking boring, right? And so nobody's really come and said, 'This is what it's going to do.' (Interview 10)

For Bannon, visual storytelling is going to be the key to XR experiences that work:

> You see that all these festivals are streaming their shows, and you know what? Any time I see that it's as boring as all hell to me … one of the things that we knew at Getty [Images] was you could hang on to somebody's attention with a slideshow much easier than you could with a video unless the video has a story in it. (Interview 10)

Former artist manager and now Brisbane-based music business consultant Leanne de Souza made a similar point concerning artistry, storytelling and XR: 'Ultimately if the artist's got nothing to say as an artist are we just going to get caught up in technology again to make art that's crap?' (Interview 14). Unlike Vince Bannon, however, Leanne did view the interrelationship between XR and live music experience design as having potential:

> The way AR or VR works to enhance the intent of the art in the live space could be really cool. I thought Pink almost verged on that in her show. They weren't just using slides and visuals. It was like creating other worlds for songs out of how she staged stuff. (Interview 14)

As I discussed in Chap. 3, an obvious challenge in the post-digital environment is that not all musicians also possess visual and design culture-related creative confidence, despite them having to produce a lot more of their visual representative media themselves. For interviewee, Australian artist manager and song publisher Keith Welsh (Velocer Music), we have gone full circle when it comes to XR design. He made the following comment concerning the extent to which the musician or band has historically been involved in the creation of their visual presence or 'look', and the extent to which they have relied on professional help in this area. According to him, when it comes to XR design, the music business has gone back to needing professionals to be involved:

> You've got to have the latest fashions … The fact of the matter is, the musical artist has to be involved somewhere with how they're going to express their visual presence. Up until probably the last 10 years, more often than not they hired people in. I think that most artists have had to become more and more involved in their own videos and their own creations and be part of that creative process than probably any other time in the past, just because of scarcity of resources and way we work, and tying in with what is the image. Because if somebody's heavily working Facebook, heavily working YouTube, doing all those sorts of things, everything has to marry, and it's generally around the artist and their management team that are going to be at the centre of that, who are going to be able to direct what's needed. When virtual reality comes along and the whole 3D idea of visuals, we're back to that situation where we're going to need the experts more. (Interview 8)

For Welsh, this will cause an increase in the cost of producing this type of content, but this will be followed by a steady decline in the cost of the technology and expertise required:

> I think the price is going to go up for a while and it'll be the people with money or who are super interested, and then the cost of the technology will come down and more artists will embrace it themselves, and that will be part of what they've got to do. But it is going to become part of what the artists are going to have to educate themselves in; not how to write the code so much, but certainly how to use it to communicate with potential consumers. (Interview 8)

As I argued earlier in this chapter, companies that facilitate platform economics such as Facebook are accelerating the democratisation of XR technologies through their investments. If Welsh is correct here and artists *have to* embrace these technologies in order to have careers, then the music business will play right into the hands of companies such as Facebook and their surveillance capitalist agenda facilitated by platform economics.

8.5.2   Theme 2: The Cost of XR Production

The theme of the cost of XR production was raised in a number of other interviews as well. Similar to the way in which YouTube used music video and video generally to establish a massive global platform that in many ways does not serve the music business well (as I argued in Chap. 6), Facebook's desire to become the largest XR service in the world could cause similar problems for the music business in this space. There is a long way to go however before we reach this point as, according to London-based music video and film business entrepreneur Caroline Bottomley (Shiny Awards and formerly Radar Music Video), XR-related technology is currently very expensive and the content being generated does not involve sufficiently compelling stories:

> It's expensive technology or relatively expensive technology and so emerging filmmakers don't necessarily have access to it … I've still yet to see particularly much interest in content in that world—the technical things are really interesting, but the editorial stuff isn't so interesting. That's a challenge that they're looking at, at the moment—how to make this more interesting and more relevant to people? (Interview 17)

For Bottomley, the expense and challenge of being able to realise the potential of XR design in the film business means that at the moment there is a lot of frictionless collaboration between companies:

> The technology barrier is high, but the people who own the technology or who have access to it are really keen to share it … collaboration is a necessity for the industry at the moment because one company can't really do it on their own. At the moment everyone is friendly and sharing and doing things together and collectively trying to encourage new talent to come in and work with them. (Interview 17)

For interviewee, Sydney and New York-based artist manager and label owner Gregg Donavan (Wonderlick Entertainment), while XR-related technologies are too expensive for his clients to be using directly at the moment, he cited their use in the world of sport as an example of what is to come for the music business:

> I think it's no secret that VR's one of the most exciting things coming on the horizon but no-one's really touched it yet to get it. But if you look at, say, the NFL in America, I mean it's an amazing experience to sit there and watch TV in those goggles and look around and look at the audience and look at those things. So that's why I can see Live Nation and these huge promoters—I get why they are putting money into this because you could sell tickets to say a Madison Square Garden U2 show and then sell another fucking 50,000 tickets at a quarter of the price to your VR subscribers. (Interview 2)

Despite these technologies being too expensive for his company to experiment with directly, Donavan gave the following concrete example of a VR experiment that took place at a show in Ballarat in regional Victoria, Australia as part of the regional touring festival Groovin the Moo in 2018. Donavan's client, Australian band Grinspoon, participated in the experiment:

> A few hundred metres away from the main stage they had a tent … [and] front of house again that was getting mixed in the room by another mixer who was making sure the mix in the tent was sounding perfect but you were getting it live. You could hear the crowd. They were just a few hundred metres away and they were mic'd as well so you were getting it in the room. You put on the VR goggles and the stage had cameras all over it. So you could be in that VR tent and Phil [Jamieson, Grinspoon's lead singer] would come running by you and you could stand on the stage and look at the audience and do things or then you could choose to put yourself in the audience and watch from different places in the audience or you could be up on stage … It was free, it was Groovin the Moo and the VR company working together as an experiment so it wasn't like anybody tried to monetise that or do anything with it. It was just a bit of a show, show these kids and see how they reacted … Interestingly enough they reckon about 10% of people that do it start vomiting straight away. It's like sea sickness. (Interview 2)

In a more future-gazing section of the interview, Donavan posited:

> I think that is an incredibly exciting space for us. Imagine the videos we can make, the content we can create, not to mention the events … I can see that being exciting just to use that to announce a tour … I think we're barely scratching the surface of VR and I think it's going to be a huge game changer … Gaming, sport, porn—if they've got them everyone's going to have them and then music will just benefit … Right now it's too expensive for us to—I've looked into it. It's just like, holy shit! That's five times what we're going to make on

> the show … We believe it's going to be important but I don't think we'll really know exactly where it's going to go just yet and that's exciting because it's obviously good for live. It's obviously good for fan-to-band interactions of some sort. The real question is what else can we do with it and when is it going to be affordable? (Interview 2)

Therefore, for Donavan, while there is clearly potential for these technologies to expand and develop the design culture of the music business, at present these technologies are cost prohibitive.

8.5.3 Theme 3: The Impact of XR on Live Music Experience Design

Another common theme that emerged in the research interviews was the impact of XR on live music experience design. Notably, interviewee Australian singer–songwriter Josh Pyke made the following comment concerning potential VR experiences and the multisensory nature of actual live performance experiences:

> I could do a show here in my studio and people could subscribe and log in and have a virtual reality experience with that … I think it will be quite a long time until that technology replaces an actual live experience because unless we're talking like full-on VR where you're wearing a full suit and it's like pressure sensitive, you're not experiencing the sweat of the crowd and a crowd pressing against you and you're not hearing the echo off the walls, you know, the walls of the venue and how it sounds different in different venues. So it would be really cool to feel like you're sitting in the room with somebody but I think that's a long way before that replaces the live experience. But it could be a fantastic extra thing you know, an extra experience. (Interview 4)

Similarly, interviewee Sydney and New York-based Australian artist manager and label owner John Watson (Eleven Music) noted that, while his company has not yet experimented with XR, there are some interesting questions relating to its impact on live experience design:

> At the very cutting edge of the business … I'm sure David Byrne and Brian Eno are doing something in it right now but we're still trying to figure out how to collect our YouTube royalties … It's particularly interesting in the area of live performance. Are we going to finally digitise the live experience? Is that going to be something that becomes sharable? Is that going to become something whereby artists who don't like to tour can still perform live? There's lots of really interesting questions in the VR space around that. But right now it's still a couple of steps away from being a practical reality for artists and there are so many other challenges, the execution challenges of things, that we currently confront, that our ability to turn our minds to those new ideas, new opportunities is limited because we're still trying to execute the ones we've already got. (Interview 6)

Therefore for Watson, and a number of other interviewees, it is simply too early for them to be using XR-related technologies.

8.5.4   Theme 4: Too Early

For interviewee, Sydney-based Australian musician and videographer Sean Walker (Breathe), while there is a certain novelty associated with these technologies, it is too early for him to have engaged with them. He commented that:

> I was in Japan last year and I saw the Chainsmokers do a collaboration with VR … You put the earphones and the goggles on and you go on a journey with the track and when you turn your head it changes the song and it changes the position of where you go in the music. So it's an interactive music video. Really novelty and it didn't seem like it would be anything I'd want to straight away explore. It worked so perfectly for them because it's a big band and everyone knows the song. They're kind of already out and about. It's not quite there yet in terms of something I'd want to pursue. (Interview 9)

Again, for Melbourne-based Australian artist manager Catherine Haridy (Catherine Haridy Management), while it is too early for her management firm and their clients to attempt to use XR-related technologies to engage audiences, she has noticed others starting to use it:

> It's not something we're utilising right now, but I know there are people that are starting to utilise it. It's too early for us to be implementing within the structure of our artists' broader strategy, but it is something I realise we will all be utilising meaningfully within the next ten years. I believe there's a Japanese artist that's actually completely virtual … this artist has been incredibly successful and is 100% virtual [Hatsune Miku] … I also think it will be really interesting to see how the live space is integrated visually into being a more technologically accessible thing via our screens … I personally believe that it's got to be a full sensory experience for people now and a very, very integral part of that is what we see and how that is experienced alongside the music that's created. (Interview 11)

Therefore, while for Haridy it is too early, she argued that it is very much going to be a part of the future music business. Likewise, for Melbourne-based artist manager Michael Parisi (Michael Parisi Management) XR is going to be a part of the future, as is artificial intelligence (AI):

> Silicon Valley is all about that right now. Investors are looking—they've invested a lot of money in this space and artificial music—AI—is the future too. I saw a presentation recently by a company in Brisbane called Popgun and they've created a software program which enables anyone with half an idea to be able to create a song from scratch. It's incredible. You may not be able to play a musical instrument, but you'll be able to produce a song yourself … half the room were arguing that it was going to destroy the music industry and half of them were going 'this is an opportunity' and this kind of thing. I see it as an opportunity … I think virtual or augmented reality is going to become a massive part of the future, not just in the music business but in everyday life. (Interview 12)

However, in order to reach this future, XR-related skills and knowledge will need to be developed.

8.5.5   Theme 5: XR Skills Development

Another theme that emerged in the research interviews concerned the development of XR-related skills and the use of UK, Australia and New Zealand taxpayer funding to assist with this development. Discussing her overview of both the film and music businesses, London-based entrepreneur Caroline Bottomley (founder of Radar Music Video and Shiny Awards) noted that there is a:

> massive skills shortage down the line, so there's a huge concentration on beginning to build a pipeline for that … there's definitely a supply problem there in terms of creatives which is a great opportunity for people. It's part of UK policy to try and be number one in the world for that industry, so there's a lot of government funding for it and there's a lot of private investment. (Interview 17)

Discussing music export initiatives such as Sounds Australia[14] in Australia and NZ on Air[15] in New Zealand, London-based Australian artist manager Rowan Brand (Tribe Management) made the following comment regarding arts funding opportunities in this area:

> What I think would be really interesting is if there was funding to develop new forms of visual creativity. Augmented reality, virtual reality are emerging and expensive fields for artists to get into but if there were mechanisms by which people could participate in these newer technologies and engage audiences in that way … it's not about looking at what the previous formats for visual content are, but looking at what the future formats are and investing in those and investing in interesting creativity. It's also a much better story, an artist that creates something that's AR is so much more worthy of discussion, than someone who creates another [video] clip of someone walking through the woods. What's the point of difference? How do artists stand out? How do smaller markets have artists that are distinctive and are worthy of cutting through the international competition? (Interview 16)

Brand's point here that the novelty of XR could be harnessed by smaller countries in order to help their artists stand out is a salient one, albeit the novelty of such technologies will fade if and when they do become commonplace in the music business.

Abbasi et al. (2017) developed a 'technology roadmap for the creative industries' that examined the present, probable and possible uses of XR technologies and it could be used to inform the development of such funding initiatives within the music business. In order to realise the potential of XR technologies, Abbasi et al. (2017) noted that:

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[14] According to their website, Sounds Australia is Australia's 'export music market development initiative, established to provide a cohesive and strategic platform to assist the Australian music industry access international business opportunities. Sounds Australia is a joint initiative of the Australia Council for the Arts and APRA AMCOS, supported by the Federal Government together with State Government Agencies and Peak Industry Associations' (Sounds Australia 2020).

[15] Amongst other media products, NZ On Air fund the production of music videos for New Zealand musicians and bands. On their website they noted that the 'NZ On Air model is unique in the world. Formed in 1989 … we invest in authentic New Zealand stories and songs. This is public media content that reflects our cultural identity, which in turn helps build social cohesion, inclusion and connection' (NZ On Air 2020).

> New modelling and management software tools for non-programmers (curators, librarians, artists, etc.) are needed in order to help manipulate and use rich, multi-layered structured data files … as they become standard and replace flat files (two-dimensional [2D] images, text files, etc.). (p. 48)

While, as was discussed earlier in this chapter, Facebook has invested significant amounts of money in order to assist non-programmers in this way, there appears, for the time being at least, to be an opportunity for taxpayer-sourced arts funding here as well.

8.6 Further Research

XR is obviously a very rich area for research relating to design cultures within the music business, as well as the design culture of the music business itself; there are a number of areas that fall outside the scope of this research project that could be explored in further research. In addition to an examination of the use of wearable technologies for performers and audiences, cyborg implants, XR glasses and experimental body technologies, another area for future research is the use of holograms in live performance contexts. Notable examples of this include deceased musician Tupac's 2012 appearance at the Californian music festival Coachella (Bukszpan 2017), deceased heavy metal singer Ronnie James Dio's 'world tour' (Bukszpan 2017), the use of Michael Jackson holograms in live performance contexts (Bukszpan 2017) and Amy Winehouse's announced and then postponed/cancelled posthumous 2019 world tour (Reed 2019; Snapes 2019; Spangler 2019).

Discussing the postponement/cancellation of Amy Winehouse's posthumous 2019 world tour, Catherine Allen, founder of the arts venue virtual reality platform Limina Immersive and VR ethics expert commented that 'consent for holograms is going to be a hot topic. As long as the person has consented it's fine. And this is where it gets tricky with Amy' (as quoted in Snapes 2019). The production company behind this now indefinitely postponed tour, BASE Hologram, made this statement on Twitter concerning the reason for the postponement: 'In developing the type of highly ambitious, state-of-the-art hologram/augmented reality theatrical event that would truly capture [Winehouse's] genius and incredible artistic and social contributions, we have encountered some unique challenges and sensitives' (BASE Hologram, as quoted in Spangler 2019). While this tweet did not provide much information regarding the specific reasons for the postponement, the issue of consent to use footage and copyrighted imagery is key here.

Clearly, the use of posthumous holograms that bring musicians, and the businesses stemming from their estates, back to life are fascinating areas for others working within the field of music business research to explore. Of particular relevance to music business studies are the legal and ethical complications in this process. As US attorney Jeff Brown noted, there are major legal hurdles here:

> When a performer dies, the name, image and likeness rights held while they were alive may
> or may not still apply, and those rights must be secured. Brown added that if the hologram
> is created with third party images, it's necessary to acquire those rights as well. (Brown, as
> cited in Bukszpan 2017)

There is clearly a way to go with regard to the broad use of these technologies to enhance the experience of music. In particular, Abbasi et al. (2017) noted that 'the lack of broadcast grade or even hobbyist cameras capable of capturing VR content (hence, the existence of very little VR content) is a fundamental constraint and key reason for VR's minimal impact on TV and movies to date' (p. 49). Yet there is potential here for these technologies to become democratised and therefore accessible enough to be used for managing musicians' legacies and associated estates. In addition, for living musicians and bands the issue of the punishing physical demands of touring is moot when it comes to the touring potential of their holograms. Furthermore, the punishing physical demands of touring are also moot for virtual hologram singers such as the China-based Luo Tianyi (Tangermann 2019), or the Japan-based Hatsune Miku (Petrarca 2016). These are no doubt worthy areas for further research.

8.6.1   Blockchain Technologies

An obvious area for further research here is blockchain technologies. At the time of writing (January 2020), discussions of blockchain technologies involved a lot of hype and potential but not much substance, or evidence that these technologies will actually provide deal making solutions for the musicians, artists, designers and videographers featured in this book. Whether these technologies will address the problems outlined (and argument put) in this book remains to be seen. For Potts (2018), the first generation of the internet broke the creative and cultural industries, whereas the second generation of the internet, which includes blockchain, will fix it. For him, blockchain is the solution to the problem of being able to put contracts and economics 'natively' on the internet.

Rijmenam and Ryan (2019) defined a blockchain as being 'a digital ledger in which transactions made in bitcoin or another cryptocurrency are recorded chronologically and publicly' (p. 12). Potts (2018) argued that such a digital ledger will provide the economic infrastructure for artificial intelligence/machine learning, as well as for the field of XR, through the way in which it will provide solutions for data management, information and record keeping. Issues relating to meta-data, contracts, co-production management, payments, digital assets and collectables, content databases and authentication can also potentially be addressed through the use of blockchain technologies. Early examples of attempts to use blockchain technology in the creative and cultural industries include Cellarius (2020), a decentralised story-telling economy, Plantoids' (2020) 'blockchain-based life forms', and CryptoKitties (2020), a game that involves breeding virtual cats (Berg 2018). Specific music business-related examples include Björk's work with UK-based start-up Blockpool

(Greene 2017), and Imogen Heap's release of her track 'Tiny human' (Heap 2017). In an attempt to further explain the utopian potential of blockchain technologies, Rijmenam and Ryan (2019) noted:

> Although ledgers have been around for millennia, for the first time in history they can be updated across multiple organisations and computer networks simultaneously through the use of blockchain technology. This functionality significantly reduces the possibility of 'gaming' the system, that is, the distributed and decentralised nature of the blockchain ledgers prevents any single party from controlling, and therefore manipulating, the ledgers. The cryptography underlying blockchain ensures a 'trustless' system, thereby removing the need for intermediaries to manage risk. This is a true paradigm shift and it is why so many organisations are exploring Blockchain's potential use. (p. 12)

Note the reference to 'potential' use rather than 'actual use' at the end of this quotation. The *potential* disintermediation that blockchain technologies would facilitate in the music business would involve automated 'smart contracts'. The so-called smart contracts would enable money to be sent peer-to-peer, thereby cutting out the cost of transactions because the parties would not have to go through a third party. The potential here of being able to 'cut out the intermediaries', which is reminiscent of similar claims made during the early days of the internet, accounts for the excitement, hype, controversy and perceived *threat to intermediaries* surrounding blockchain technologies within the music business. In contrast to the hype surrounding blockchain technologies, however, in a research interview for this book, Mark Meharry (founder of leading London-based global e-commerce platform for the music business Music Glue) noted that not only has his company *not* experimented with blockchain technologies, but that:

> Blockchain's a bit of a buzzword that became very popular within the venture capital world. And so a lot of companies got a lot of investment, but it wasn't because of blockchain, it was because of the cryptocurrencies and the opportunity that came from nowhere in cryptocurrencies. Now that that has all died down because it's all complete nonsense, the actual benefits of blockchain are now being analysed and I'm not too sure the application of blockchain is really that applicable in all the cases where people have tried to apply it. It's a little bit like AI [artificial intelligence] as well; unless there's a problem that needs to be solved with that technology, then it's just a buzzword technology that's being used for the wrong reasons … I mean, AI, I think it is starting to come through. Blockchain, I'm not aware of anything that's actually managed to get off the ground and be used. I mean, you've got the theoretical people that, you know, the Benji Rogers[16] of the world that have gone out and tried to build the blockchain music solutions, which I totally endorse. I get what he was trying to achieve there. However, if you're going to have a ledger of all music that's been recorded ever, obviously you need the main participants—the most commercially viable participants—participating in that ledger. And we all know that the major record companies who own the majority of the commercial content benefit from opacity. So why would they

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[16]Benji Rogers is a New York–based serial technology entrepreneur who founded the company Dot Blockchain Media. Rogers has since left the company (Reinartz 2019) and Dot Blockchain Media has since become Verifi Media. Verifi Media (2020) is a company that claims to harmonise media and ownership using blockchain technologies: they 'link media files, ownership data, and artwork in a bundle to facilitate multiparty communication'. Rogers is perhaps most well known for having founded the direct-to-fan crowdfunding platform PledgeMusic, which went into administration in 2019 (Liptak 2019).

> want to create a transparent model which is detrimental to them? And they're not going to. They may even say they will, but they won't do it … The theory of blockchain, it's absolutely perfect. There's a fantastic solution for this problem. However the execution and the implementation of it is impossible. Therefore, it's not actually a good solution, if I may say. If you can't implement it, it will never be done. (Interview 21)

Therefore, for Meharry, blockchain technologies *sound* like a good solution, but they are actually *not* a good solution because they will never be implemented. Another interviewee, London-based artist manager Rowan Brand (Tribe Management), commented:

> I am a curious onlooker in the blockchain discussion. I'm yet to see a material manifestation of it that I can get my head around, but it's something that's frequently discussed at industry conferences and literature that you read about the future of the music industry. Until we see some more examples of how it could work, even on a small scale, I think it's difficult for the industry to perceive how they best participate and how to be a part of it … finding people who can build an ecosystem using blockchain and encouraging a consumer base to participate in it is the challenge and we're yet to see how that's going to be expressed. (Interview 16)

For the purposes of this book, it is too early to be able to say whether blockchain technologies present solutions to the problems relating to the deal making leverage that visual artists, graphic designers, videographers and stage designers in the music business have, and the associated status they have. Even if blockchain technologies do enable artistically creative people in the music business to be better remunerated, visual artists, graphic designers, videographers and stage designers may still remain an afterthought when it comes to deal making: it is the *music* business after all. Ultimately, to discuss blockchain technologies further here would be to go beyond the scope of the research design for this book. Suffice to say that blockchain does not appear to be the solution to the problems outlined in this book, at least not yet anyway.

8.7 Designing the Music Business

The processes of 'encounter' between a musician or band and their audience are becoming more involved and complex due to the use of XR technologies in this field. For Julier (2006) and also Chan (2014), VR moves us away from a certain ocular-centrism towards understandings of the embodied nature of engagement. This has implications for musicians and designers in the music business; it changes the rules of engagement between the subject and the object, as well as the relationships between music, visual culture and 'embodied' culture. Reminiscent of Es Devlin's live music experience designs that were outlined in Chap. 7, engagements with recorded music through VR experiences become as much spatial and temporal as they are musical and visual: 'Information is presented within architectonic planes rather than in the bounded, two-dimensional space of representation' (Julier 2006, p. 69). Given this

paradigmatic shift, the music business itself will need to evolve and arguably be 'redesigned'.

This book has explored a number of themes relating to design culture within the music business. In Chap. 3, I considered how the art philosophy of the 'International Situationists'—an anti-music movement that mirrored an anti-art concept used by Paris-based Dadaists in the 1950s—actively shaped punk music by providing and suggesting 'a way of doing things' (see Wicke 1990). I also explored the question of whether album cover designs are artworks or are simply advertisements. In Chap. 4, I considered the extent to which Jonathan Zawada had been able to successfully transition from being a 'designer' to being an 'artist', yet the deal making surrounding his work remained fee-for-service. Thus, he was only able to generate labour income. While the musicians he worked for were paid royalties by way of royalty-based deals and can therefore also generate capital income, Zawada himself was not able to realise this type of deal. As we move further into the virtual realm, with visual content including gig and tour posters, album cover designs, music videos and stage designs feeding into XR designs, there is a need to think about how the business may evolve. The VR and MR experiences examined in this chapter by way of the Björk and Sigur Rós case studies do not simply function as advertisements for their music—as some music videos arguably did in the MTV era, and as some album cover designs still do. As the creators of capital in the form of VR and MR-related copyright, artists such as Björk and Sigur Rós arguably hold the key to shifting the deal making pertaining to musicians' and bands' design culture production. In a parallel with the situation Sean Walker (Breathe) was in by being both a musician *and* a videographer (outlined in Chap. 6), Björk and Sigur Rós's ownership of music copyrights/capital creates wealth and therefore power for them within the music business ecology that they could apply to this end.

Design culture is a form of organisational culture that includes deal making. This is because organisational culture involves simply 'the way we do things around here' (Bower 1966, as quoted in Saintilan and Schreiber 2018, p. 213). A key question here therefore is whether the design culture/process of producing music-related XR artefacts is going to change the 'way of doing things' in the music business. Design culture has agency here and therefore has an instrumental role to play in changing the deal making around visual representative media in this business; the music business can be changed through a new kind of design culture.

Following Julier (2006), I am not using the term design culture in this book to signify cultural capital that is used for competitive advantage; it is not directly equivalent to 'branding' practices in the music business. It instead refers to design practices that are 'encultured' and that therefore strive for a higher moral ground (Julier 2006, p. 71). Of course the notion of being able to redesign the entire music business is problematic—it to an extent implies that one single entity *could* redesign it—and therefore any attempt to argue here that we should strive for higher moral ground and make the music business 'better' will inevitably be met with the questions: Make it better? How do you define better? Fairer to whom? Better for whom? The music industries are constituted by a collection of industries and businesses that often have competing and conflicting interests (Williamson and Cloonan 2007). Therefore

what are you arguing here? That it should be made 'better' for artists? Which artists? Musicians or visual artists and designers? Musicians who are also visual artists, videographers and designers? Better for videographers and graphic designers who work in the music business? Better for the music industries as defined as different to big tech? Or is big tech now part of the music business and therefore will it be fairer and better for them?

Amongst other research methods that were outlined in Chap. 2, the research design for this book involved use of my insider perspective as the manager of graphic designer, videographer and stage designer Jefferton James. This method helped to create knowledge concerning the ecology of design cultures that stem from music by being embedded within them *and* their production. Therefore in response to the aforementioned questions, I have argued throughout this book that a *part of* the music business needs to be redesigned in the following ways. First, designers and visual artists such as Jonathan Zawada need better/fairer deals (see Chap. 3), and second, musicians who are also designers, visual artists and videographers such as Sean Walker (see Chap. 6) will potentially help visual artists and designers/videographers such as Jefferton James to obtain better/fairer deals. By better and fairer deals, I mean ones that enable them to generate capital income from the copyrights they generate as opposed to just labour income, or a combination of both—like some record producers do.

As was evidenced in Chap. 3 through the case study of Jefferton James' graphic design work for Australian musician Dustin Tebbutt, visual design can be fundamentally important to a musician's project, but it is often not remunerated as such. As I outlined in Chap. 3, in many countries, performing rights/neighbouring rights income from recordings is shared between record companies and recording artists (usually 50/50) (see Osborne 2014, p. 574) and the recording artists' share is often split between 'featured' artists and 'non-featured' artists such as session musicians and singers (Osborne 2014, p. 578; see also Stahl 2012). It is arguably time for a similar arrangement to be negotiated for visual designers—be they 'non-featured' commissioned designers, or the musicians themselves. Design culture has a role to play here in changing 'the way of doing things' in the music business.

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