Australian Music and Games 2023 Benchmark

QUT Digital Media Research Centre

SWINBURNE UNIVERSITY OF TECHNOLOGY

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Untitled Goose Game, image courtesy House House.

About the benchmark

Digital games are a global cultural force, of which music is a foundational aspect. Music is crucial for digital games to develop atmosphere, convey narratives, and frame player interactions. At the same time, digital games provide musicians exciting new opportunities to experiment with dynamic, adaptive, and non-linear music structures. However, writing, producing, licensing, and implementing music for digital games also poses new challenges to existing screen music practices and business models.

The Australian Music and Games 2023 Benchmark is the first ever investigation into the scope and scale of Australia's game music sector. It reveals a great diversity of working arrangements, career pathways, and skill sets among game music workers. It exposes entrenched and emerging challenges facing the field that require a rethinking of conventional approaches, and identifies new opportunities for Australian game music to flourish and grow.

The benchmark was commissioned by Creative Australia, and undertaken by Dr Brendan Keogh (Queensland University of Technology), Associate Professor Dan Golding (Swinburne University of Technology), and Taylor Hardwick (Queensland University of Technology). All authors are leading experts of Australia's digital game industry, and Associate Professor Golding is a digital game composer in his own right (*Untitled Goose Game*, the *Frog Detective* series, *Mars First Logistics*).

A note on terminology

Throughout this report we use the term **game music** broadly to refer to music either created for or implemented in digital games.

We use **game music worker** to refer to music composers or performers creating, performing, or licensing music for digital games of any scale. We use **game music sector** to refer to the broader industrial context that game music workers are situated in, between the music industry and the digital game industry.

We use **digital games** to refer to the cultural works and industry also commonly known as videogames, computer games, or otherwise just 'games'.

Executive summary

In September 2023, a full house gathered at Melbourne's Hamer Hall to attend Orchestra Victoria's "Indie Symphony: Videogames in Concert". Along with international hits like the Grammy Award-nominated *Journey* (conducted in-person by composer Austin Wintory), the second half of the programme was entirely given over to soundtracks for Australian games. What followed was an encapsulation of a moment in time for music and games in Australia, from the newly released *Stray Gods: The Roleplaying Musical*, to *Necrobarista*, and *Hollow Knight*, the latter of which received a standing ovation.

The rhapsodic reaction to this concert captures an important juncture for Australian digital game music, which is not only thriving but loved by audiences and ready to be showcased to the world. Indeed, the Australian digital game sector has grown rapidly over the past decade, with Australian made and owned Intellectual Property (IP) having huge critical, commercial, and cultural success on the world stage. While many creative industries were debilitated by the COVID-19 pandemic, the digital game sector proved to be one of the most resilient and in fact grew larger and stronger during this time. Since 2015, the Australian games industry workforce has grown by 250% from 842 to 2,104 workers, and its revenue has more than doubled from $114.9 million to $284.4 million. Some of the most critically and commercially successful digital games globally in recent years were made in Australia, including not just the productions showcased at "Indie Symphony" but also *Untitled Goose Game*, *Cult of the Lamb*, and *Unpacking*.

Music is a crucial and fundamental component of digital games, both as an element of the broader design and as a significant creative work in its own right, and Australian digital games have been particularly successful when it comes to their music and audio design: *Unpacking* won Best Audio at the Game Developers Choice Awards in 2021; River Boy's soundtrack for *Cult of the Lamb* has been praised in the game's reviews, and Orchestra Victoria's 2022 live performance of the *Untitled Goose Game* score received special recognition in *Revive*, the Federal Government's new National Cultural Policy.[1]

The sector is also facing unique and evolving challenges. Along with the experimentations and innovations of Australian game music workers inevitably also comes new implementation and distribution complexities that challenge established models for negotiating pay and rights for screen music. Further, despite the global opportunities, Australian game music workers remain largely dependent on local networks for obtaining work. In turn, the digital game industry's structural inequalities find themselves currently duplicated in game music, with the sector currently dominated by white, male workers.

This national benchmark of Australia's game music sector, the first of its kind, paints a picture of a sector brimming with creativity, confidently performing on the global stage alongside far bigger national sectors. Australian composers and musicians are finding new and innovative opportunities to work within and alongside the digital games sector, from licensing existing music for use in digital games, to composing new dynamic soundtracks for specific games, and conducting live performances of game music. With the right targeted support to address the field's emerging challenges, game music is set to become a crucial platform through which Australian musicians of all stripes can reach global audiences.

To conduct the benchmark, the research team conducted a survey of Australian game music workers, which received 90 valid responses. Complementing the survey, 20 semi-structured interviews were conducted with game music workers (12), game developers (4), and industry organisations (4).

[1] Australian Government, *National Cultural Policy—Revive: A Place for Every Story, a Story for Every Place* (Canberra, Australia: Australian Government, 2023), 86, https://www.arts.gov.au/publications/national-cultural-policy-revive-place-every-story-story-every-place.

Key findings

As the Australian digital games sector continues to grow, it presents unique opportunities for musicians and game developers to work together. Game music workers are consistently seen by game developers as key creative collaborators, whether they are in-house employees or freelance contractors. The independent nature of Australia's digital games industry has also meant that those who create game music have often been able to do so while retaining their rights, releasing original soundtrack recordings on their own terms, and sometimes even enjoying a share in their game's profits. At the same time, Australian performers and orchestras are being recruited by both local and international studios to record original scores, such as Orchestra Victoria's soundtrack for *Stray Gods*, or Melbourne Symphony Orchestra's work on a number of titles for American studio Double Fine, including 2021's BAFTA-nominated *Psychonauts 2*.

This report frames game music workers as 'Venn diagram workers': creatives who are formed by both the games and music sectors while being reducible to neither. Game music workers are located at the intersection of these two sectors and perform crucial work as intermediaries, taking skills and knowledge from the music industry to games and vice versa. Game music workers can independently take advantage of the strengths of each sector and currently have significant opportunities for growth.

However, being at the intersection of two major sectors can also be challenging. Many Australian game composers are well paid for their work, but there is little consistency across the sector in terms of rights ownership and residual payments. Composers and game developers alike expressed frustration at the lack of clear institutional guidance for contractual agreements. Many are anxious about the availability of work in a sector seeing more and more interest, and are striving to develop global networks to obtain work. Some of these challenges are the result of the rapidly changing face of Australia's digital games sector as it grows and attracts the attention of major international games companies and publishers, requiring Australian game music workers to navigate complex global industry norms.

Other issues are more deeply entrenched, such as the endemic gender and racial inequality of both the digital game and screen composing sectors continuing into the game music space, with nearly three-quarters of all game music workers identifying themselves as male, and 72% as white, Caucasian, or European. While the opportunities for Australia's game music sector are rapidly growing, they are not growing for all game music workers—current or potential—at an equal pace.

▶ Australian game music workers are having global critical and commercial success.

The critical and commercial success of Australian digital games globally over the past decade is introducing Australian composers and musicians to audiences around the world. Independent Australian games such as *Cult of the Lamb* (2022; music by River Boy), *Hollow Knight* (2017; music by Christopher Larkin), *Untitled Goose Game* (2019; music by Dan Golding), and *Unpacking* (2022; music by Jeff van Dyck) have been praised by players and critics for their innovative approaches to interactive and atmospheric music. Elsewhere, musicians are collaborating with Australian digital game developers in a wide variety of capacities, such as Georgia Maq's (Camp Cope) voiceover work for *Paper Bark* (2018), and Orchestra Victoria's performances for the original recording of interactive musical *Stray Gods* (2023).

▶ Australian game music workers are recognised as crucial and central collaborators by Australian game developers.

Music holds a privileged position in digital games as both a core element of the overall game experience, and also a discrete creative work in its own right. Players and developers alike have a

strong appreciation for the value of game music. Over three quarters (78%) of Australian game music workers feel they are able to make a meaningful contribution to the creative direction of the games they create music for, and 85% feel the developers they work for strongly appreciate the importance of music for digital games. Composers in particular are able to make a name for themselves through game music, and can generate residual revenue through soundtrack sales and streams, as well as occasionally through live performances.

▶ Australian game music workers work under a vast range of conditions and rarely undertake game music work full-time.

While large 'Triple-A' game development companies do sometimes employ full-time music workers, smaller independent teams such as those prolific in Australia do not require full-time music workers on staff, and instead prefer to work with game music workers under contractual arrangements. Only 18% of Australian game music workers undertake game music under full- or part-time arrangements, while 70% take on contractual, project-by-project conditions. Further, only 10% of game music workers exclusively work in the games space. For most, game music work instead fits within the broader "portfolio career" structure of music work, as one gig alongside a number of others. Ultimately, game music workers build their careers not dissimilarly to music workers broadly.

▶ Australian game music workers earn more than the average musician, but unpaid work remains common.

Just like the broader music sector, many aspirational Australian game music workers undertake their work for little or no pay—either because of an intrinsic desire to undertake the work, or in the hope that unpaid work now will lead to paid work later. The situation is compounded by the small budgets and limited resources available to many Australian independent game studios. However, growing public and private investment in the digital game sector, generous rights agreements that allow game composers to sell soundtracks, and innovative approaches to profit share arrangements greatly benefit those Australian game music workers able to seek out paid work. 53% of surveyed game music workers made some income from game music work in the past twelve months, and of them the average income from game music work alone was $29,756. The average annual income from all sources for all respondents who reported an income—even those who made no income from game music—was $52,966, which is $11,709 higher than the average Australian music worker income.[2] Nonetheless, 40% of game music workers highlighted navigating pay amounts as a main challenge they faced when undertaking music work for games.

▶ Australian game composers are better able to retain rights and opportunities compared to other screen music sectors.

Composers for other screen sectors, such as film, television, and advertising face increasing exposure to sign 'buyout' contracts where the rights to music recordings and to collect money from broadcasting and public performance is sold to the project's producer. This limits a composer's revenue streams and their ability to release soundtracks for independent listening. In contrast, we found that Australian game composers are largely able to licence and retain rights as independent game studios are typically uninterested in entering the domain of music publishing. This means that in many cases, the release of Australian game soundtracks can be managed exclusively by the composer, who can also retain modest but rewarding revenue

[2] Brydie-Leigh Bartleet et al., *Making Music Work: Sustainable Portfolio Careers for Australian Musicians* (Brisbane, Australia: Queensland Conservatorium Research Centre, 2020), https://makingmusicworkcomau.files.wordpress.com/2020/06/mmw_full-report.pdf.

streams relating to broadcast and live performance. Further, the practice of revenue share is common within the Australian games sector, where composers can receive a percentage of a game's ongoing sale profits. While not always successful, this kind of agreement can be highly lucrative for composers.

▶ Australia has an extensive game music talent pool, which growing funding and tax relief opportunities can help connect with local and international demand.

When asked about the main challenges they face in doing music work for games, 61% of game music workers chose "Limited opportunities for obtaining work"—the most frequently chosen response. As more and more young musicians and composers grow up playing games and then strive to enter the game music space themselves, Australia is growing a larger pool of game music talent than the local game industry alone can employ. The challenge, then, is to find sufficient demand to meet Australia's game music talent supply. A growing number of federal and state-based funding arrangements are likely to grow this demand locally, while the newly legislated Digital Games Tax Offset, alongside Australia's recent global successes, means Australian game music workers could be more easily marketed as collaborators to development studios of all scales internationally.

▶ There is no single technical skill set for game composers in Australia, but a plethora of approaches.

Composers we spoke to frequently assumed that the ability to implement music into a game directly, or even technical sound design skills, were standard and expected by game developers. Around half of all Australian game music workers at least occasionally implement music into a game engine or middleware software, and 64% also undertake sound design work. However, these skills are not necessarily a prerequisite of entry to the field, and many game developers and composers alike valued music skills and creative communication skills as more important than being able to work at every step of the game audio production/implementation pipeline. Technical and sound design skills are seemingly more important for those game music workers striving to work in the game space full-time, as music composition alone is insufficient for filling a full-time role in most game studios. But as already noted, this is neither the only nor the main pathway to a career in game music. Accordingly, implementation of game audio is not a make-or-break essential skill, and many developers appear content and even eager to work with people whose music and creative skills they value in other ways.

▶ Established methods of payment and rights management for screen music are a poor fit for digital games.

While Australian game music workers are better able to retain rights compared to other screen music sectors, game developers and game music workers alike expressed frustration and confusion about their obligations and expectations when it came to payment structures and rights agreements. Only 16% of game music workers feel adequately supported by either music or games industry organisations, and many felt that existing arrangements designed for linear media were not easily adaptable to the ways in which digital games are produced, distributed, and consumed. Some sort of rights structure is still crucial to prevent underpayment and secure residual payments for game music workers, but one that accounts for the unique situation of game music.

▶ Game music workers are younger than the traditional art and music sectors, and the field has inherited endemic gender and race inequalities from both the digital games and screen composing sectors.

61% of game music workers are younger than thirty-five, compared to only 36% of the general arts sector and 30% of the music sector.[3] Meanwhile, only 20% of game music workers are women, and only a single survey respondent identified themselves as Indigenous or Torres Strait Islander. These inequalities align with the demographics of the broader digital games industry, both in Australia and globally. Even while great opportunities exist in game music, access to these opportunities remains influenced by endemic structures of exclusion in both digital games and screen composing. Proactive strategies are required to dismantle these structures.

[3] Bartleet et al., "Making Music Work."; David Throsby and Katya Petetskaya, *Making Art Work: An Economic Study of Professional Artists in Australia* (Sydney, Australia: Creative Australia, 2017), https://creative.gov.au/advocacy-and-research/making-art-work

Unpacking, image courtesy Witch Beam.

Recommendations

While the Australian game music sector is both robust and talented, there are key challenges that might prevent the sector taking full advantage of new opportunities in the coming years.

In the context of rapidly growing national and global digital games industries, we recommend a focus on three major long-term **goals**.

Targeting these three long-term goals in parallel takes advantage of the key strengths the benchmark has identified to expand the Australian game music sector while also working to address the key challenges its currently facing:

1. Expand and tighten networks between Australian game music workers (both current and aspirational) and Australian digital game developers;

2. Showcase Australia's game music talent and achievements to game development companies globally; and

3. Develop clear and consistent guidelines on types of game music work, appropriate pay rates, and appropriate rights management to guide both Australian game music workers and developers alike.

	Provides	Doesn't provide	Obtained conditions	Conditions yet to be obtained
1. Expand and tighten networks between Australian game music workers and Australian digital game developers	▶ Exposure of game music opportunities to broader Australian music sector ▶ Opportunities for more collaborations and professional development	▶ Clarity on how such work should be negotiated in terms of pay or licensing	▶ Some collaborations between Australia's game and music sectors	▶ Australian game developers prioritising Australian game music workers rather than overseas workers ▶ Formalised recognition of successful work domestically through industry awards
2. Showcase Australian game music talent to global game developers	▶ More work for Australian game music workers ▶ Opportunity to address gender and racial imbalances of current sector	▶ Clarity on how such work should be negotiated ▶ Protection against undervaluing of game music labour by demands of international corporations	▶ Occasional (inconsistent) employment of Australian game music workers overseas ▶ Digital Games Tax Offset encouraging global game development companies to hire Australian collaborators	▶ Equal opportunity for employment globally for Australian game music workers of all genders and ethnicities
3. Develop clear guidelines for types of game music work, and appropriate pay rates and rights management.	▶ Clarity for music workers as to their rights in game music work ▶ Clarity to game developers to assist in the appropriate budgeting for music work early in projects ▶ Maximum opportunity for game music workers to exploit residual payment options ▶ Security to boost music workers' confidence to undertake game music	▶ Connections between musicians and game developers locally and globally to obtain work	▶A wide range of existing (but inconsistent) experimental approaches to game music remuneration to draw from ▶ Growing institutional recognition from royalty collection agencies, guilds, etc. as to uniqueness of game music sector in terms of rights	▶ Consensus on minimum standards of rights and royalty retention for music workers ▶ Consensus on appropriate pay ranges for game music workers ▶ Consensus of the different types and contexts of game music work, and the skills required of each

Figure 1: Recommended long-term goals

We make the following seven **recommendations** to work towards the conditions yet to be obtained for these long-term goals:

1. Develop and disseminate clear guidelines and resources for pay and licensing standards that account for the unique and varied ways game music is produced and distributed.

2. Ensure Australian game music workers can access new revenue streams without restricting access to existing revenue.

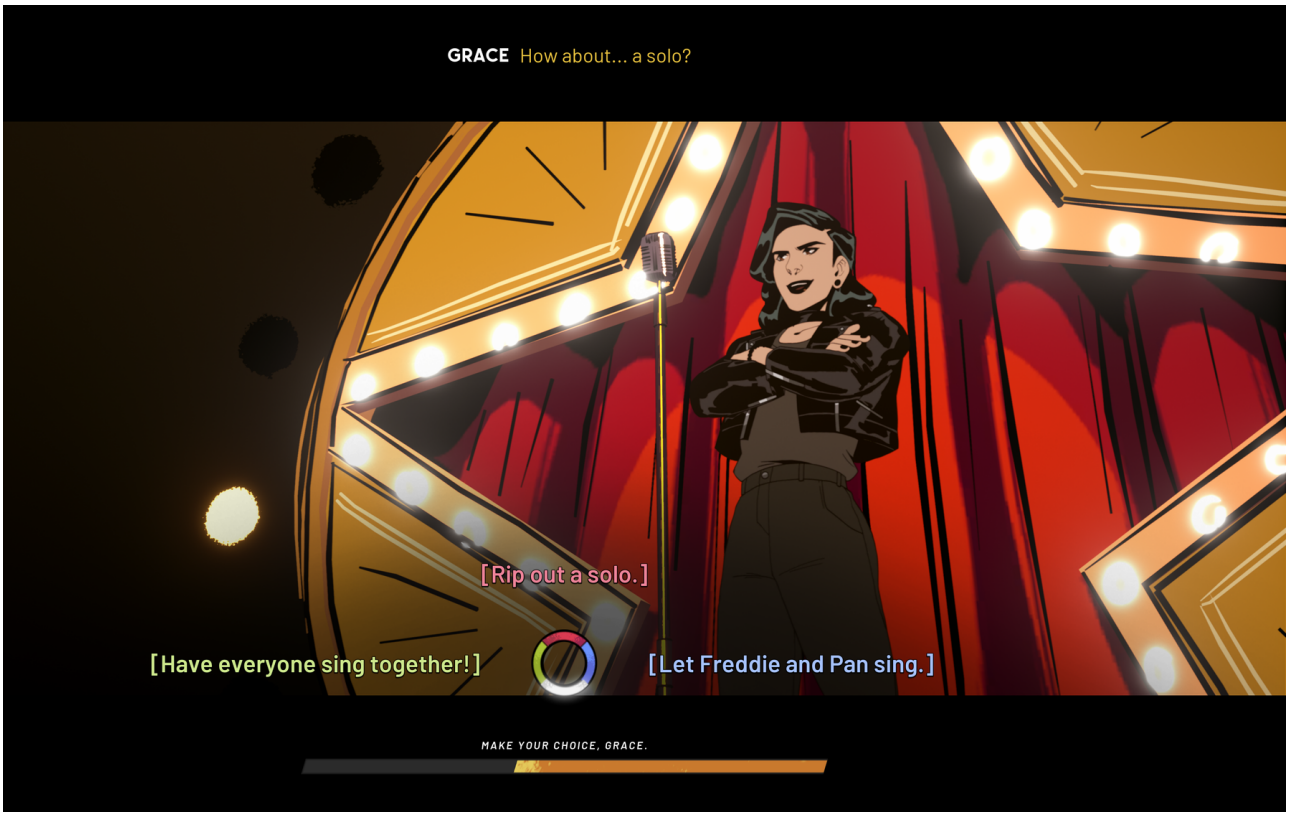
3. Ensure game development funding programs adequately support composers and performers to work with game developers.

4. Advocate for the broader visibility of Australian game music excellence.

5. Support skill development and collaboration between musicians and game developers—especially for women, gender-diverse, and Indigenous musicians, who are typically excluded from the games industry.

6. Showcase Australian game music talent to global game development companies.

7. Conduct more granular and longitudinal research into the state of the Australian game music sector.



Stray Gods, image courtesy Summerfall Studios.

1. Develop and disseminate clear guidelines and resources for pay and licensing standards that account for the unique and varied ways game music is produced and distributed.

Many Australian game music workers are well remunerated for their work, and are experimenting alongside their game development colleagues on a vast range of different payment models such as profit-share agreements, milestone payments, or one-off payments. However, both game development broadly and game music work narrowly comes in a vast range of different guises with different business models, budgets, and obligations to platform holders and publishers. Game music workers and game developers alike expressed frustration at the lack of available information to help them budget their game music work accordingly.

We recommend clear guidelines and resources be developed to help both game developers and game music workers develop fair estimates of how much they should budget and charge respectively. These should be developed in consultation with game and music industry and worker representatives. Crucially, such guidelines must be flexible and adaptable in a way that accounts for the vastly different scales and types of game development, from Triple-A, large-scale independent, independent with a publisher, small-scale independent, and others. A one-size-fits-all model would be doomed to obsolescence.

2. Ensure Australian game music workers can access new revenue streams without restricting access to existing revenue.

Performance royalties from game purchases remains a complex issue for game composers, who broadly lack royalty collection agreements comparable to those that are effected for film and television composers when their work is played in a cinema or on television. However, this is beginning to change, and from 2023 APRA AMCOS has licensed Sony PlayStation for game downloads on PlayStation Network within Australia and New Zealand. This brings it in line with the pre-existing Pan-European Games Licence negotiated by English Performance Rights organisation PRS in 2014.[4] This is a welcome development and a crucial stream of revenue for game music workers that complements the existing range of income in the sector, including other royalties, soundtrack sales, up-front fees, and revenue share. Other platform owners beyond PlayStation's Sony, such as Microsoft, Nintendo, and Valve, should also be encouraged to licence music with Performing Rights Organisations (PROs) within their territories such as APRA AMCOS for Australia and New Zealand.

However, we also note that the availability and awareness of each additional revenue stream, such as performance royalties, may change the attractiveness of the sector along a number of vectors, including music labels, publishers, game publishers, and international game development studios. Currently, there is little interest from game composers in working with music publishers and labels where they are not already doing so. Equally, few Australian game development studios are interested in buying or licensing rights to soundtrack royalties from composers. As revenue from such rights becomes more easily obtained, however, these perspectives may change.

Accordingly, publishers and studios should be discouraged from seeking the buyout of music rights from game music creators as a default, in order to preserve and defend the currently-existing revenue strengths of Australian game music. Current and future state and federal funding for digital games should also encourage the retention of rights by game composers, and should make explicit that public funding models

[4] The full list of territories covered in the licence is UK, Republic of Ireland Eire, Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovenia, Spain, Sweden, and Switzerland.

"Sony PlayStation Game Music Licence Update," *PRS for Music*, 2014, https://www.prsformusic.com/-/media/files/prs-for-music/membership/newsletters/newsletter-nov-dec-2014/sony-playstation-faqs-festive-enewsletter-2014.ashx.

for games do not require composers to sell their rights to the game studio receiving funding, given the significant downsides (including potentially the permanent loss of APRA membership eligibility) for composers when buyouts occur.

3. Ensure game development funding programs adequately support composers and performers to work with game developers.

While game developers recognise the fundamental importance of quality music for the success of their products, they are often unable to grasp the full extent of work required to implement such music, and budget too little for game music work when approaching private publishers or public funding bodies alike. Composers in particular expressed feeling like they had to do what was possible within a project's budget rather than what they thought was best for the project, as budgets were often determined before their involvement. Others simply did the work for a lower rate than they otherwise would have quoted.

We recommend that existing game development funding programs more fully account for game music budgets, potentially either by involving musicians in the assessment process, or through the dissemination of the resources suggested in Recommendation One above.

We further recommend the design and implementation of funding programs that support game music workers directly to develop working relationships with game development companies.

Such programs could compensate the game music worker for their time required to work on a project, ensuring they are paid adequately while also allowing the game product to have higher quality music implementation than it otherwise would have if reliant on the developer's own budget. Such programs could also be designed to directly address the game music sector's gender and racial inequalities with dedicated funding, for instance, for gender-diverse or Indigenous composers or performers.

4. Advocate for the broader visibility of Australian game music excellence.

Australian game music is loved by Australian audiences. However in both the music and the games sectors, few avenues exist to spotlight excellence and achievements in game music. In global game industry awards, music is often combined into a broader 'best audio' or 'best sound' category. This has also been the case locally. Despite operating since 2002, the Australian Game Developers Awards have only awarded a Best Music award since 2019, with absence of this category in 2021. In the music industry, while the Grammys have in 2023 introduced an award for Best Score Soundtrack For Video Games & Other Interactive Media,[5] the achievements of game music workers are largely unrecognised within Australia, with only one Australian game soundtrack having ever been nominated for an ARIA, and no consistent category for Best Game Soundtrack at any Australian music awards, including the Screen Music Awards.

More consistent and dedicated awards focused on Australian game music excellence would showcase the talent of Australia's game music sector to both the wider music and game industries as well as the broader public, encouraging further participation and growing opportunities for collaboration.

An important caveat to this recommendation, however, is that screen music awards have previously entrenched established gendered discrimination,[6] and any such awards for game music would have to be carefully designed to ensure nominations and awards work to proactively counter the structural challenges of the sector.

[5] Tom Phillips, "And the First Grammy for Video Game Music Goes to... Assassin's Creed Valhalla," *Eurogamer*, February 6, 2023, https://www.eurogamer.net/and-the-first-grammy-for-video-game-music-goes-to.

[6] Catherine Strong and Fabian Cannizzo, *Australian Women Screen Composers: Career Barriers and Pathways* (Melbourne, Australia: RMIT University, 2017), 22, https://apo.org.au/node/130821.

5. Support skill development and collaboration between musicians and game developers—especially for women, gender-diverse, and Indigenous musicians, who are typically excluded from the games industry.

While Australian composers and musicians are highly enthusiastic about working in the game music space, there is also uncertainty about just what skills and competencies are required to do so. Only half of all game music workers interface directly with game engine or middleware software, with the other half more regularly working in more standard music industry software and leaving the technical implementation to game developers. However, our interviews with game music workers revealed a tendency towards thinking of technical proficiency with a variety of engines and middleware as the 'correct' way to go about a career in game music.

Ultimately, there does not seem to be a particular technical skill gap preventing Australian musicians from collaborating more broadly with the games sector. Rather, the issue seems to be more one of awareness of just what is possible in the game space with both traditional and technical music skill sets. This likely also feeds into the sector's demographic issues, with women likely pre-emptively and mistakenly deciding they don't have the right skills or "gaming capital"[7] to work in the space; however more research to confirm this is required.

We recommend the initiation of more low stakes opportunities for musicians to collaborate with game developers to grow a sense of what is possible in the space with different skill sets. This could include events such as workshops and game jams. We note that there are already some welcome developments in this area, such as Melbourne Electronic Sound Studio's Game Audio Intensive program.[8]

6. Showcase Australian game music talent to global game development companies.

Game music workers often work remotely from their game development clients. Especially since the standardisation of remote work since the COVID-19 pandemic, an Australian game music worker can technically work for an overseas game developer as easily as they could for a game developer in their own town or city. However, *obtaining* such work still typically relies on a pre-existing personal relationship and familiarity. This restricts game music workers, especially more junior ones, to local networks and opportunities.

We recommend more programs to help showcase Australia's game music talent to, and to facilitate networks with, global game development companies. Creative Australia's sending of Australian game composers and sound designers to the 2023 Game Developers Conference is a welcome development in this area,[9] and could be repeated through other key game developer events in other regions such as Gamescom in Europe and Southeast Asia, or BitSummit in Japan. Beyond delegate travel support, running exhibition or concert events that showcase Australian game music talent could take place alongside these key game industry conferences.

7. Conduct more granular and longitudinal research into the state of the Australian game music sector.

While this benchmark provides the first ever insights into the Australian game music sector, it is only a snapshot in time. Longitudinal research, such as conducting a benchmark every two years, would provide more robust data on the changing nature of the Australian game music sector. This research would be especially valuable for tracking

[7] Mia Consalvo, *Cheating: Gaining Advantage in Videogames* (Cambridge, United States: MIT Press, 2007).

[8] "Game Audio Intensive," *Melbourne Electronic Sound Studio*, 2023, https://mess.foundation/game-audio-intensive/.

[9] "Australian Composers Hit the Right Note in Thriving, Global Games Industry," *Creative Australia*, April 11, 2023, https://creative.gov.au/news/media-releases/australian-composers-hit-right-note-game-developers-conference-san-francisco-2023/.

the influence of the still nascent Digital Games Tax Offset (DGTO) and growing state and federal public investment in the sector, as well as the impact of APRA AMCOS's recent performance royalty collection for games from the PlayStation Store.

This first benchmark has also revealed the need for more granular detail in future research. For example: more detailed information on current payment rates, years of experience in the sector, time required for different types of work, and the extent of overlap between music and broader audio skills and roles. Further, targeted research on the reasons for the lack of participation of more diverse groups in the Australian game music sector (or, at least, in this benchmark), such as Indigenous musicians, could be of great benefit.

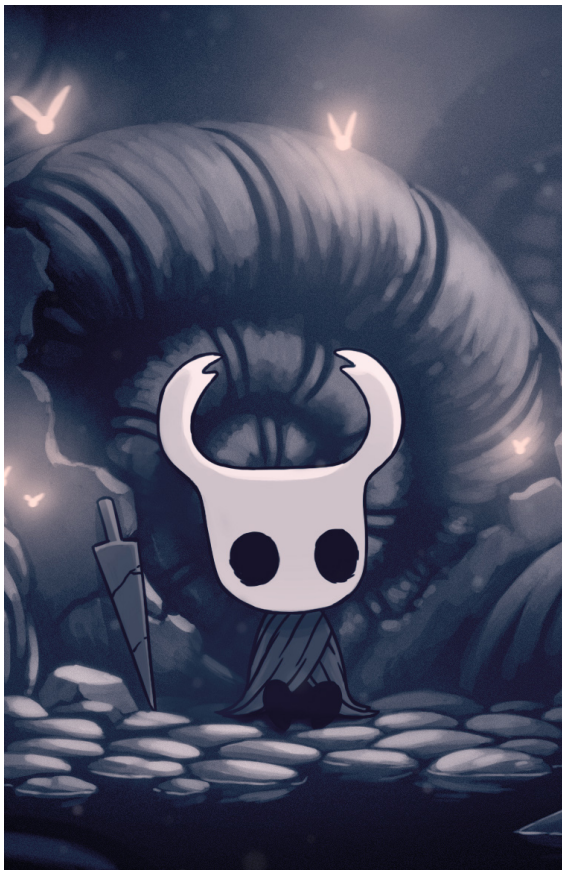
Photo by Casey Horsfield (courtesy Orchestra Victoria).

Wayward Strand, image courtesy Ghost Pattern

Overview of the digital games industry

The digital games industry is one of the most lucrative entertainment industries globally, and over 3.4 billion people play digital games in one form or another.[10] This market holds numerous opportunities for Australian game music workers; however, it is far from homogenous. The global digital game industry is characterised by its variety, with very different kinds of products, business models, and production pipelines defining digital game production and distribution in different geographic contexts.

This section overviews the global and national industries' established and emerging markets, and the shape and size of the global and national workforces, to provide crucial context for the experiences and opportunities of Australia's game music workers outlined in the following sections.



Hollow Knight, image courtesy Team Cherry.

[10] Newzoo, *Global Games Market Report 2023* (Newzoo, 2023), 18, https://newzoo.com/resources/trend-reports/newzoo-global-games-market-report-2023-free-version.

The global games industry

Game revenue and markets

The global digital game market is worth $187.7 billion USD.[11]

While other creative sectors such as live music, festivals, and film production all struggled during the pandemic, the digital game sector instead saw a spike in revenue as more people sought digital modes of entertainment and socialising. While growth has slowed after the pandemic spike, the global market still grew by 2.6% since 2022, and digital game revenue has grown year-on-year for over five years (Fig 2).[12]

Nearly half of all digital game revenue is from the Asia-Pacific region ($85.8bn USD; 46%), with North America ($51.6bn USD) and Europe ($34.4bn USD) accounting for another 45%. The Asia-Pacific revenue is concentrated in China, Japan, Korea, and increasingly Southeast Asia.[13] In 2022-23, Australians spent $4.2 billion AUD on digital games—approximately 1.5% of all global revenue.[14] It's thus unsurprising, as we will see below, that Australian game developers primarily focus on overseas markets.

Much of the growth in digital game revenue over the past decade has been from the rapid expansion of the mobile games sector since the launch of the Apple iPhone in 2007. In 2023, mobile games still account for $92.6 billion USD (49%) of the industry's total revenue. However, mobile revenue now only sees 0.8% year-on-year growth, compared to 7.4% for console games, which account for 30% of the total market ($56.1 billion USD) (Fig 3).[15] A number of factors account for this, including the dominance of mobile markets by low quality and free-to-play products, deceptive marketing and manipulative business models, and consequentially lowering consumer trust in mobile games.[16]

For Australia's game music sector, this is particularly worth noting due to the relative significance of high quality music and audio for console and PC games, and the inverse relative insignificance of music and audio for mobile platforms. As players often play mobile games while either listening to their own music, sitting on public transport, or watching TV, developers typically consider music a less significant investment when working for mobile platforms.

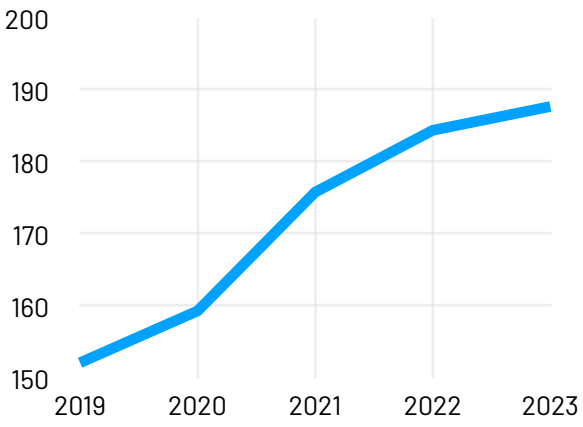


Figure 2: Global digital games revenue ($billion USD)

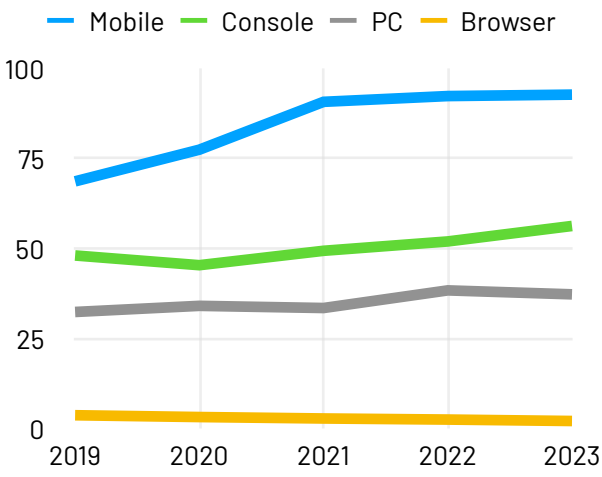


Figure 3: Global games market by platform ($billion USD)

[11] Newzoo, *Global Games*, 17.

[12] Newzoo, *Global Games*, 17.

[13] Newzoo, *Global Games*, 21.

[14] "Australians Subscribe to Video Game Growth," *IGEA*, June 8, 2023, https://igea.net/2023/06/australians-subscribe-to-video-game-growth/.

[15] Newzoo, *Global Games*, 20

[16] "Homescapes and Gardenscapes Ads Banned as Misleading," *BBC News*, October 12, 2020, https://www.bbc.com/news/technology-54509970.

Top grossing game companies (million $USD)	
Tencent	$7,556
Sony	$4,380
Apple	$3,683
Microsoft	$3,152
NetEase	$2,717
Google	$2,432
Activision Blizzard	$2,261
Electronic Arts	$1,874
Nintendo	$1,295
Take-Two	$1,266
Warner Bros	$1,007
Total	**$31,623 (17%)**

Figure 4: Top grossing game companies

Inversely, music and audio are of paramount importance for the more immersive and story-driven experiences of console and PC games.

Scale and scope of global digital game development companies

While digital game players are global, the game industry itself is more concentrated. Specific cities in North America, Western Europe, and East Asia account for the overwhelming majority of the game industry's global footprint, both in terms of revenue and workforce. The top eleven grossing companies in the digital games industry in 2023 are all American (7), Chinese (2), or Japanese (2), and together account for 17% of the sector's total global revenues (Fig 4).[17]

However, the last fifteen years has also seen the rise of independent modes of game development, which have radically changed the structures and

> "On mobile you learn pretty quickly that people turn the sound off, so we try and find that balance between making a good experience but not over investing. As we moved into the PC and console space more, you generally pay a lot more attention to it."
>
> **– Game studio cofounder and CEO.**

nature of game development globally, and led to the rise of new local game industries throughout the world, including in Australia. Half the global industry now works in companies of twenty employees or less, nearly a third (31%) in five or less (Fig 5).[18]

Today, there are broadly two vastly different modes of digital game production that are commonly called **Triple-A** and **Indie**. While each of these categories contains a great variety of approaches, broadly they can be understood in the following ways:

- **Triple-A** accounts for the most visible and technologically impressive blockbuster titles such as *Call of Duty*, *Assassin's Creed*, and *Grand Theft Auto*. Such games are made by teams of hundreds or even thousands of developers, distributed at studios across the world, and take upwards of five years to complete.[19]
- **Indie** accounts for a vast range of independent modes of game production—much as it does for music production—where much smaller teams (typically ten or fewer, but sometimes upwards of fifty) focus on smaller scale games for digital distribution, often working on both original intellectual property (IP) and client-based work simultaneously, and with a balance of personal funds and private or public investment.

[17] Newzoo, 23

[18] Game Developers Conference, *2021 State of the Game Industry*, (New York, United States: Game Developers Conference, 2021), 22, https://reg.gdconf.com/LP=3350.

[19] Jordan Middle, "Xbox Game Studios Chief Says People Need to Realise Games Now Take 4-6 Years to Make," *VGC*, June 13, 2023, https://www.videogameschronicle.com/news/xbox-game-studios-chief-says-people-need-to-realise-games-now-take-4-6-years-to-make/.

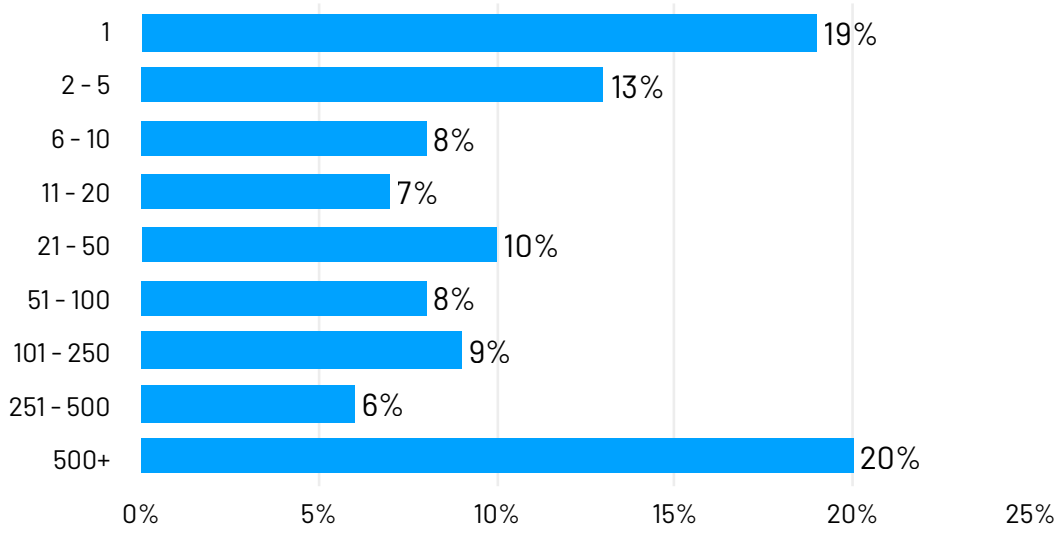


Figure 5: Distribution of global game development workforce by company size

Both Triple-A and indie modes of game development provide vastly different work arrangements and business models. For instance, the large scope and team sizes of Triple-A typically requires much more specialised and departmentalised skills, whereas the small scale and limited resources of indie studios require more multi-tasking and generalist skill sets.[20] Companies working at a Triple-A scale are typically more secretive and rely on hiring most staff on a full-time bases (with notable exceptions of outsourcing and subcontracting for particular departments), whereas indie studios typically work with common technological frameworks, such as commercial game engines, and having fewer secrets to protect, are thus more likely to be working in a contractual arrangement across multiple projects at once.

These vastly different working arrangements between Triple-A and indie game development are particularly important to consider in relation to opportunities that exist, or could exist, for Australian game music workers.

Challenges facing the global games industry

Ongoing inclusivity issues: Diverse genders and ethnicities continue to be considerably underrepresented in the digital games industry, despite the fact that people of all genders, ages, and ethnicities play digital games. The global games industry workforce is approximately 70% male,[21] and over 81% of respondents to the IGDA 2021 Developer Satisfaction survey identified themselves as white, Caucasian, or European.[22] Age wise, the industry has long skewed young, with 61% of the workforce 35 years or younger—despite the modern game industry being over 40 years old.[23] These pervasive workforce homogeneities speaks to persisting social issues of masculine tech culture, job insecurity, overwork, fraternal studio cultures, and unclear career pathways.[24]

[20] Jennifer R Whitson, Bart Simon, and Felan Parker, "The Missing Producer: Rethinking Indie Cultural Production in Terms of Entrepreneurship, Relational Labour, and Sustainability," *European Journal of Cultural Studies* 24, no. 2 (2021): 606–27, https://doi.org/10.1177/1367549418810082.

[21] Game Developers Conference, *State of the Game Industry 2023* (New York, United States: Game Developers Conference, 2023), 33.

[22] International Game Developers Association, *Developer Satisfaction Survey 2021* (Ontario, Canada: International Game Developers Association, 2021), https://igda.org/resources-archive/developer-satisfaction-survey-summary-report-2021.
While this is no doubt skewed by the non-participation of Chinese and Japanese developers in the IGDA, it regardless speaks to the ongoing racial diversity issues facing Western game industries.

[23] *Developer Satisfaction Survey 2021.*

[24] Marie-Josée Legault and Johanna Weststar, "Videogame Developers among 'Extreme Workers': Are Death Marches Over?," *E-Journal of International and Comparative Labour Studies* 6, no. 3 (2017).

Labour conditions: Historically seen as a 'fun' industry driven by individual vocation, poor labour conditions have long been endemic in the digital games industry. 10% of developers worked more than fifty hours a week in 2022,[25] and a number of high profile cases have drawn attention to harassment and bullying endemic in studios of all scales, including in Australia.[26] In response, game developers are increasingly looking to unionisation as a potential solution.[27]

Discoverability: the growth of digital platforms and accessible software tools has led to massive increases in the total games released. On Steam alone, the primary platform for PC games, 10,963 games were released in 2022—one game every 50 minutes.[28] For independent companies in particular, standing out to players in a crowded marketplace is increasingly difficult. Developers often feel forced to invest in strategies such as lowering prices, constant post-release updates, or partnering with marketing agencies or publishers in order to reach audiences.

Speculative technologies: As a sector driven by technological innovation, the digital games sector is perpetually disrupted by technological changes, making it challenging for developers to create consistent workflows that don't require reinventing the wheel every project. This situation has been made even more complex in recent years with the rise of a number of speculative, and highly dubious, technologies such as cryptocurrencies, NFTs, and the metaverse. While a significant amount of money has been invested in these technologies, game developers are highly sceptical of the value they provide, and a number of high profile companies in each space have already collapsed or suffered extensive job losses.[29] Further, the rise of automation and AI raises concerns for those in the digital games industry focused on outsourcing asset generation—roles that, in the future, may instead go to a computer.[30]

Conglomeration and fragmentation: The digital games sector, like most entertainment industries, is defined by extreme fragmentation at one end and extreme conglomeration at the other. While more and more independent developers are taking advantage of digital platforms to release their own games using minimal resources, at the other end of the digital games sector profit is concentrated in a small number of massive multinational companies. Most recently, after a long court battle, Microsoft is likely to take over Activision Blizzard—itself the product of a previous merger—concentrating a large number of the game industry's most prominent intellectual properties.[31] Elsewhere, Swedish company Embracer aggressively bought up studios and IP throughout 2022, and is now beginning to close some of these studios only a year later.[32] For many game developers at all scales, volatility and precarity remain the only norms.

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[25] *State of the Game Industry 2023*, 22.

[26] James Batchelor, "Ken Wong Apologises Following Accounts of Abuse from Former Employee," *GamesIndustry.Biz*, August 29, 2019, https://www.gamesindustry.biz/ken-wong-apologises-following-complaints-of-abuse-from-former-employee.; Dom Peppiatt, "Activision Blizzard Sued by California over Sexual Harassment and Bullying Allegations," *VG247*, July 22, 2021, https://www.vg247.com/activision-blizzard-sued-california-sexual-harassment-bullying-allegations.

[27] Sarah Parvini and Brian Contreras, "How 'Crunch' Time and Low Pay Are Fueling a Union Drive among Video Game Workers," *Los Angeles Times*, January 31, 2023, https://www.latimes.com/entertainment-arts/story/2023-01-31/video-game-industry-union-movement.

[28] J Clement, "Steam Annual Game Releases 2022," *Statista*, February 20, 2023, https://www.statista.com/statistics/552623/number-games-released-steam/.

[29] Leah J. Williams, "Crypto Gaming Company Immutable Lays off 11% of Its Workforce," *GamesHub*, February 22, 2023, https://www.gameshub.com/news/news/immutable-web3-nft-gaming-company-lay-offs-2023-2607644/.

[30] Aleena Chia, "The Artist and the Automaton in Digital Game Production," *Convergence* 28, no. 2 (2022): 389–412, https://doi.org/10.1177/13548565221076434.

[31] Oli Welsh, "What's happening with Microsoft's acquisition of Activision Blizzard " *Polygon*, July 18, 2023, https://www.polygon.com/23546288/microsoft-activision-blizzard-acquisition-deal-merger-ftc-latest-news.

[32] Taylor Lyles, "Embracer Group Is Starting to Close Studios After Losing Out on Deal Worth Billions," *IGN*, August 5, 2023, https://www.ign.com/articles/embracer-group-is-starting-to-close-studios-campfire-cabal.

The Australian games industry

The Australian games industry is continuing to grow and become more resilient in the face of global instabilities. While Australian developers made a name for themselves in the 1990s and 2000s as affordable work-for-hire labour for North American and European companies, the Global Financial Crisis of 2008-9 abruptly rendered this business model unfeasible, and nearly obliterated the national industry.[33] The story of the national industry since has been one of a phoenix rising from the ashes, with Australian developers innovating in the mobile and digital spaces throughout the 2010s, spawning a vast range of independent companies producing original IP. Indie companies now "form the backbone of Australian game development".[34]

During this time, a number of Australian digital games have had global success, both critically and commercially, such as *Flight Control* (Firemint, 2009), *Fruit Ninja* (Halfbrick Studios, 2010), *Ski Safari* (Defiant Development, 2012), *Untitled Goose Game* (House House, 2019), *Unpacking* (Witch Beam, 2021), *Webbed* (SBug Games, 2021), and *Cult of the Lamb* (Massive Monster, 2022).

In 2021-22, the Australian games industry generated $284.4 million AUD. In other words, the revenue generated by Australian game development companies was equal to 6.7% of the

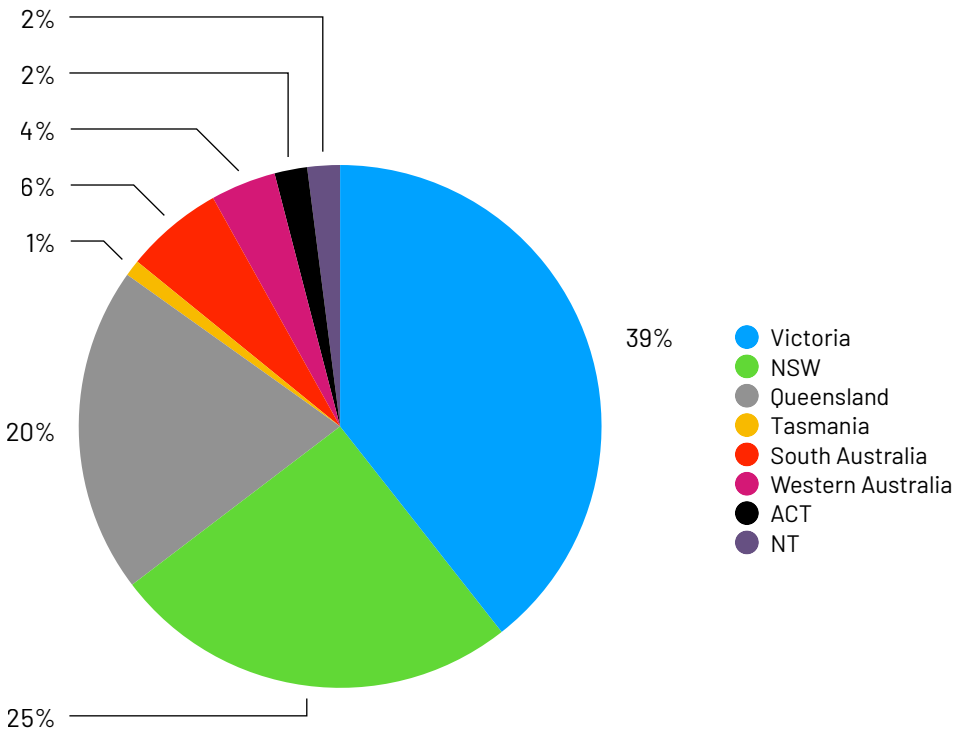

Figure 6: Distribution of Australian game development studios by state/territory

[33] Mark Serrels, "The Incredibly Shrinking Australian Games Industry," *Kotaku Australia* (blog), February 17, 2011, https://www.kotaku.com.au/2011/02/the-incredibly-shrinking-australian-games-industry/.

[34] Thomas H. Apperley and Daniel Golding, "Australia," in *Video Games Around the World*, ed. M.J.P. Wolf (Cambridge, United States: MIT Press, 2015), 57–70.

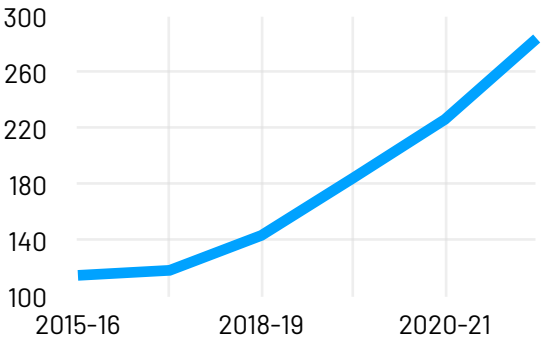

Figure 7: Revenue generated by Australian game companies ($million AUD) [35]

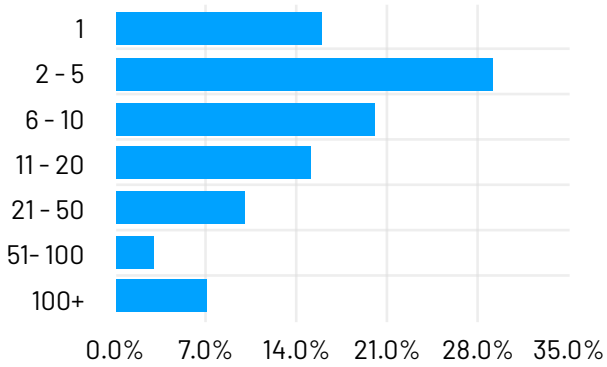

Figure 8: Size of Australian game companies, by number of workers [36]

total revenue spent by Australians on digital games in 2022.

In 2021-22, the Australian game development industry employed 2,104 full-time equivalent jobs, a jump of 59% from the previous year (Fig 9). Despite this rapid growth in the Australian game development workforce, the number of studios that are less than five years old has dropped from 55% in 2018-19 to 27% in 2021-22, suggesting a growing resilience of Australian game development companies; that is, they are persisting as small businesses rather than booming and busting as startups.[37]

The majority of Australian game development companies persist at under ten employees, with a small number of larger independent companies (such as League of Geeks in Melbourne and Mighty Kingdom in Adelaide) and a handful of large foreign owned companies (Activision and EA in Melbourne, Riot in Sydney). In 2022, Irish outsourcing and quality assurance firm Keywords bought several existing studios and opened several more around the country.

While this resurgent Australian independent games industry originally relied on mobile platforms to reach global audiences (60% of studios in 2015-16), less than half of all companies surveyed in 2020-2021 by IGEA develop for mobile platforms (46%), while 65% develop for PC/Mac and 35% for console.[38]

This shift towards larger scale, story-driven games for PC and console—alongside a growing focus of Australian game companies on creating original IP—likely increases the demand for high-quality music and audio by Australian game companies.

Australian game developers are highly concentrated in urban centres in Victoria, followed by the other east-coast states of New South Wales and Queensland (Fig 6). This largely reflects the public funding availability over the past decade, with superior support available through the Victorian government (notably VicScreen and Creative Victoria) and the historical absence of such support elsewhere in the country or at a federal level from 2014 until recent years.[39] This is now shifting as other states increasingly offer their own support for the sector (see Appendix B for current public game funding programs around the country).

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[35] IGEA, *Australian Game Development: An Industry Snapshot FY 2021-22* (IGEA, December 19, 2022), https://igea.net/wp-content/uploads/2022/12/AGD-2022-Standalone-Infographic-FINAL.pdf.; IGEA, *Australian Game Development: An Industry Snapshot FY 2020-21* (IGEA, December 14, 2021), https://igea.net/wp-content/uploads/2021/12/AGD-2021-Infographic-2pp-SQUARE.pdf.; IGEA, *Australian Game Development: An Industry Snapshot FY 2019-20* (IGEA, January 28, 2021), https://igea.net/wp-content/uploads/2021/12/AGD-2021-Infographic-2pp-SQUARE.pdf.; IGEA, *Australian Game Development: An Industry Snapshot FY 2018-19* (IGEA, November 28, 2019), https://igea.net/2019/11/australian-video-game-development-industry-contributes-to-exports-and-job-opportunities/.; IGEA, *Australian Game Development: An Industry Snapshot FY 2016-17* (IGEA, January 17, 2018), https://www.igea.net/wp-content/uploads/2017/11/AGD-2018-Infographic-1.jpg.; IGEA, *Australian Game Development: An Industry Snapshot FY 2015-16* (IGEA, December 21, 2016), https://www.igea.net/wp-content/uploads/2016/12/AGD-Infographic-15_12-01.jpeg.

[36] *Australian Game Development: An Industry Snapshot FY 2021-22.; Australian Game Development: An Industry Snapshot FY 2020-21.; Australian Game Development: An Industry Snapshot FY 2019-20.; Australian Game Development: An Industry Snapshot FY 2018-19. Australian Game Development: An Industry Snapshot FY 2016-17.; Australian Game Development: An Industry Snapshot FY 2015-16.*

[37] *Australian Game Development: An Industry Snapshot FY 2021-22.*

[38] *Australian Game Development: An Industry Snapshot FY 2020-21.; Australian Game Development: An Industry Snapshot FY 2015-16.*

[39] Edmond Tran, "Victoria's games industry continues to thrive, and other states must take note," *GamesHub*, August 12, 2022, https://www.gameshub.com/news/features/vicscreen-victoria-melbourne-games-industry-state-government-funding-is-key-26638/

Australian game development beyond the industry

Beyond these industrial numbers, vibrant artistic cultures underpin Australian game development in most capital cities. In Melbourne especially, institutions such as the Freeplay Independent Games Festival[40] and organisations such as Hovergarden, Glitchmark, and Firepit have fostered vibrant informal communities of creators underpinning and providing talent for the formal companies. Recent research by one of the authors of this report has exposed the extent and importance of this informal creative activity for the foundations and ongoing innovations of the national digital games industry.[41]

While this informal sector is, by its nature, difficult to measure, it is just as important for the rise of new digital game talent, groups, and ideas, just as broader informal music scenes and communities form a crucial basis for the music industry.

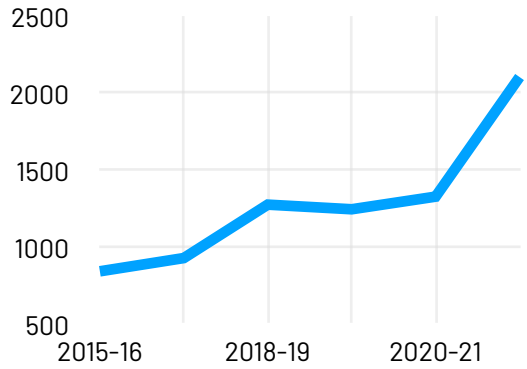


Figure 9: Number of full-time equivalent jobs in the Australian game industry [42]

Photo by Rick Clifford (courtesy APRA AMCOS).

[40] The authors have both current and former professional relationships with the Freeplay festival. Dan Golding was the festival director from 2014-2017. Brendan Keogh has occasionally been involved in both the programming committee and judging panel for the festival. Taylor Hardwick is a current board member for the festival.

[41] Brendan Keogh, *The Videogame Industry Does Not Exist: Why We Should Think Beyond Commercial Game Production* (Cambridge, United States: The MIT Press, 2023).

[42] *Australian Game Development: An Industry Snapshot FY 2021-22.; Australian Game Development: An Industry Snapshot FY 2020-21.; Australian Game Development: An Industry Snapshot FY 2019-20.; Australian Game Development: An Industry Snapshot FY 2018-19. Australian Game Development: An Industry Snapshot FY 2016-17.; Australian Game Development: An Industry Snapshot FY 2015-16.*

The role of music in games

Music for digital games can be both a crucial part of the development process and a formative element for a game's place within popular culture well beyond its initial release. A game's soundtrack shapes players' understanding and appreciation of a game narratively, emotionally, and in terms of their actions during the moment of play. A soundtrack can tell a player something about the emotional state of a scene, what a character might be feeling, and how the moment fits into the game's narrative trajectory so far.

In these ways, game music is similar to music for film, television, or even musical forms that do not necessarily involve screens like theatre and opera. However, game music can also change the way a player responds to a moment within a game itself: the appearance of tense action music may suggest to the player that enemies are approaching, and its conclusion might tell them that the threat has passed. A musical cue that builds up and counts down may tell the player to anticipate starting their engine at the right moment in a racing game; or that time has elapsed while solving a time-limited puzzle.

While many forms of music have a level of plasticity or improvisation in their performance, few require the level of technical implementation to accommodate and respond to player action and input like music for digital games. In this sense, too, players do not just listen to music in digital games: they interact with it.

Equally, as another point of difference from the film and television soundtrack industries, where soundtrack genres and sound identities have over the course of one hundred years solidified into largely accepted groupings, the music for digital games can take on many different forms and styles. One of the most routinely difficult questions we asked game music workers during our interviews was "what kind of musician do you describe yourself as?", with answers as varied as "neoclassical", "jazz", "electronic", "experimental", "dark", and "folk" being offered, illustrating the variety of musical traditions currently at home in Australia's digital games sector. The diversity of approaches is a strength of the game music sector as it encourages workers from different compositional and educational backgrounds to be involved. This potentially even helps to avoid the sexist "framing [of] female composers as

It is common to hear a number of technical-sounding terms used when discussing what game sound does and how it differs from audio found in other linear screen media.

Researcher Karen Collins defines the most common terms as:

1. **Interactive audio:** audio that reacts directly to a player's input. This might be the sound of a car engine revving up as a player presses the accelerate button.
2. **Adaptive audio:** audio that reacts to changes in the game. An example of adaptive audio could be a change from ambient music to tense combat music after the player is seen and attacked by enemies.
3. **Dynamic audio:** audio that includes both interactive and adaptive audio. Dynamic audio is typical for most contemporary digital games.

There may also be *linear* music for digital games designed to play statically from start to finish without any interactive or adaptive elements, most commonly in non-interactive cutscenes.

Karen Collins, *Playing with Sound: A Theory of Interacting with Sound and Music in Video Games* (Cambridge, United States: MIT Press, 2013).

specialists in 'feminine' music" in the film and television soundtrack world.[43]

While shaped by the technological limits of early digital games hardware and software, digital game soundtracks even just within Australia and just within the last decade can encompass influences from musical theatre (*Stray Gods*), synthwave (*Vactics*), chiptunes (*Knuckle Sandwich*), small jazz ensemble (*Gubbins*), classical piano (*Untitled Goose Game*), as well as music that would be at home within a Hollywood production (*Hollow Knight*).

Even more broadly, in-game musical experiences can result in a tight bond between player and soundtrack that frequently outlasts the direct game experience itself. As President of the Australian Guild of Screen Composers (AGSC) Dale Cornelius says, "The culture with gaming is so much more music-focused. There's a real appreciation with gamers for soundtracks, and a deep connection in storytelling that was inspired by film, but because of the immersiveness is so much more present [in games]". If you search for covers of the *Super Mario Bros.* theme on YouTube, you will get thousands of results of performances from musicians as diverse as metal bands, jazz ensembles, marimbists, melodica duos, *a cappella* groups, and even Jimmy Fallon and The Roots singing a version with the cast of the recent official *Super Mario Bros.* movie. Such digital game melodies have become, as director Edgar Wright put it while making the film *Scott Pilgrim vs. The World* (2010), "nursery rhymes to a generation".[44]

As a public venue for digital games and memory, soundtracks are a powerful nostalgic force. Digital game soundtracks additionally have opportunities as additional revenue streams for both musicians and game studios alike in the form of original soundtrack (OST) sales and royalties. Yet as Cameron Lam, Art Music Lead at APRA AMCOS pointed out, "it's worth remembering that games in the grand scheme of things is a relatively new distribution model". It was not until relatively recently, in the late 1990s and early 2000s, for example, that digital games were technologically able to play recorded music

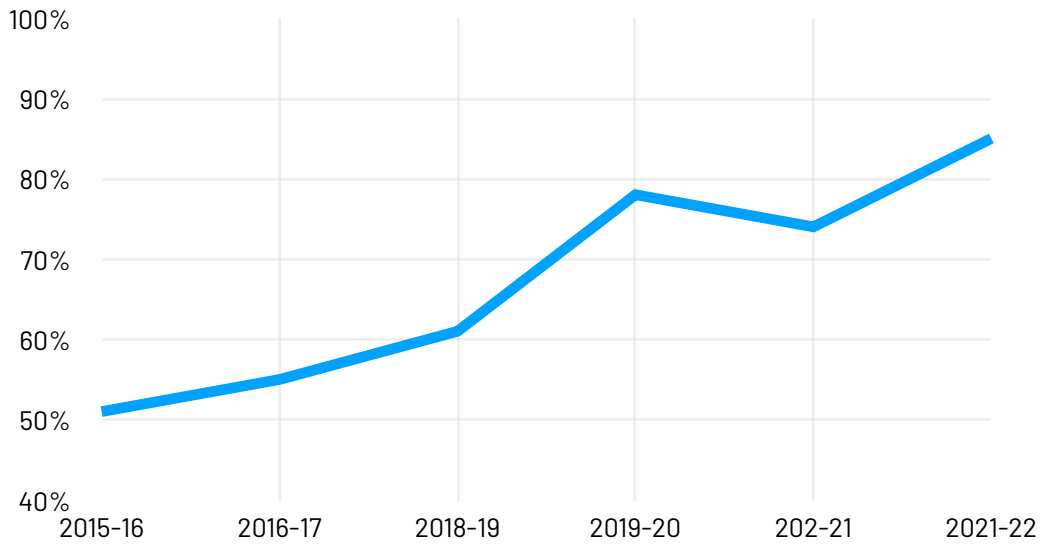


Figure 10: Percentage of Australian game companies working on original Intellectual Property [45]

[43] Catherine Strong and Fabian Cannizzo, *Australian Women Screen Composers: Career Barriers and Pathways* (Melbourne, Australia: RMIT University, 2017), 25, https://apo.org.au/node/130821.

[44] James McMahon, "Edgar Wright: Why the Scott Pilgrim Soundtrack Matters as much as the Movie," *The Guardian*, August 19, 2010, https://www.theguardian.com/music/2010/aug/18/edgar-wright-scott-pilgrim-soundtrack

[45] *Australian Game Development: An Industry Snapshot FY 2021-22.; Australian Game Development: An Industry Snapshot FY 2020-21.; Australian Game Development: An Industry Snapshot FY 2019-20.; Australian Game Development: An Industry Snapshot FY 2018-19.; Australian Game Development: An Industry Snapshot FY 2016-17.; Australian Game Development: An Industry Snapshot FY 2015-16.*

at high quality, opening the door to synchronisation and a wider range of compositional styles than was available when game music was limited to what could be produced by game hardware-level music chips.

This was a pivotal juncture in music history. The coming-of-age for digital game soundtracks coincided with fundamental changes to the music industry around piracy concerns and the emergence of digital download models like iTunes in the 2000s. Australia's independent music sector has also flourished over the last decade at a time while the music industry grapples with the emergence of streaming platforms. At the same time, music made for digital games up until the rise of independent game development was largely made in-house by employees where questions of licensing were much more straightforward. The legacies of technological and industrial change for both the digital game and music industries have combined to create a unique set of circumstances for Australian game music workers where questions that have been solved in other sectors need creative and urgent solutions.

Photo by Casey Horsfield (courtesy Orchestra Victoria).

Ring of Pain courtesy Simon Boxer and Twice Different

The Australian game music sector

A vast range of composers and performers are working in Australia's game music sector, undertaking different types of work for different scales of games, under different contractual arrangements. Some simply compose pieces of music of varying levels of dynamism; others fully implement interactive music systems into the game development software. Some exclusively work with music; others also work in broader audio design and implementation. Some work full-time within a single company; many others are contracted onto multiple simultaneous projects at once.

Very few game music workers work solely in game music. Instead, like most music workers more broadly, game music workers undertake their game music work as just one element of a broader portfolio career that transcends specific media or roles.

Game music workers are Venn diagram workers

Unlike many other kinds of creative workers in the digital games industry, game music workers are defined by their ability to intersect, overlap, and interconnect with digital game studios and projects. At its core, this is because game music workers are part of *both* the digital games *and* music industries: two sectors that have much in common but with acute and highly visible points of difference.

Accordingly, this report views game music workers as performing **Venn diagram work**: constituted by both the digital games sector and the music sector, but wholly reducible to neither.[46] This is a framework that illustrates both the ways game music is created, and the ways of working within the game music sector.

> "The other challenge of working with a game developer is if they don't have the right kind of language to describe what they want. They'll say weird things like, 'make it sound more green.' That sort of thing. And really, the solution to that is to try and push it more emotional and say, 'Tell me how you want to feel at this point in the game.' Like, should I feel scared or remorse or excited? That's something that you can do with music. And so, the challenge there is that creative communication."
>
> **– Jeff van Dyck, composer**

In some ways this is in keeping with careers in the music sector more broadly. As Bennett notes, "It is incomplete to describe a musician as a performer. Musicians engage in multiple roles within and outside the music profession, and success is meeting personal and professional goals rather than a preconceived hierarchy of roles".[47] However, while the concept of a 'portfolio career' speaks to multiple concurrent roles (something also certainly common among game music workers), game music work is also a type of creative identity found at—and translating across—the intersection of multiple industries, skill sets, and traditions.

'Venn diagram work' also encapsulates the way that a composer may work on a particular digital game project, or with a particular studio. A composer may be invited to work on a game from its inception, or they may be the last creative element to be included. They may join the other workers inside a physical studio space as an employee, or they may never meet their fellow workers in person. The Australian game music sector includes the full range of these potential approaches.

Equally, a game composer might be expected to work within the game engine or middleware, or at

[46] In academic research, particularly Science Technology Studies, this kind of work is similar to that often described as 'boundary objects and agents', "objects which both inhabit several intersecting social worlds and satisfy the informational requirements of each of them". See: Susan Leigh Star and James R Griesemer, "Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39," *Social Studies of Science* 19, no. 3 (1989): 393.

[47] Dawn Bennett, *Understanding the Classical Music Profession: The Past, the Present and Strategies for the Future* (Ashgate Publishing, 2008), 3. See also Bartleet et al., *Making Music Work*, 18

least to understand the game's systems and mechanics as far as their music is concerned. Similarly, while a game composer may serve as a translator, a creative communicator for a studio to understand the possibilities of a soundtrack, the studio itself or other employees may be perfectly happy, or even prefer to actually implement the music in the game itself.

Indeed, initially many game music workers expressed reservations about not possessing the skill or opportunity to work directly with the game engine itself or with middleware. Ultimately, however, in practice in Australia game developers and musicians alike are comfortable working in a range of contexts that include, but are not limited to, musicians primarily focusing on music and leaving implementation and game-project level skills to the studio.

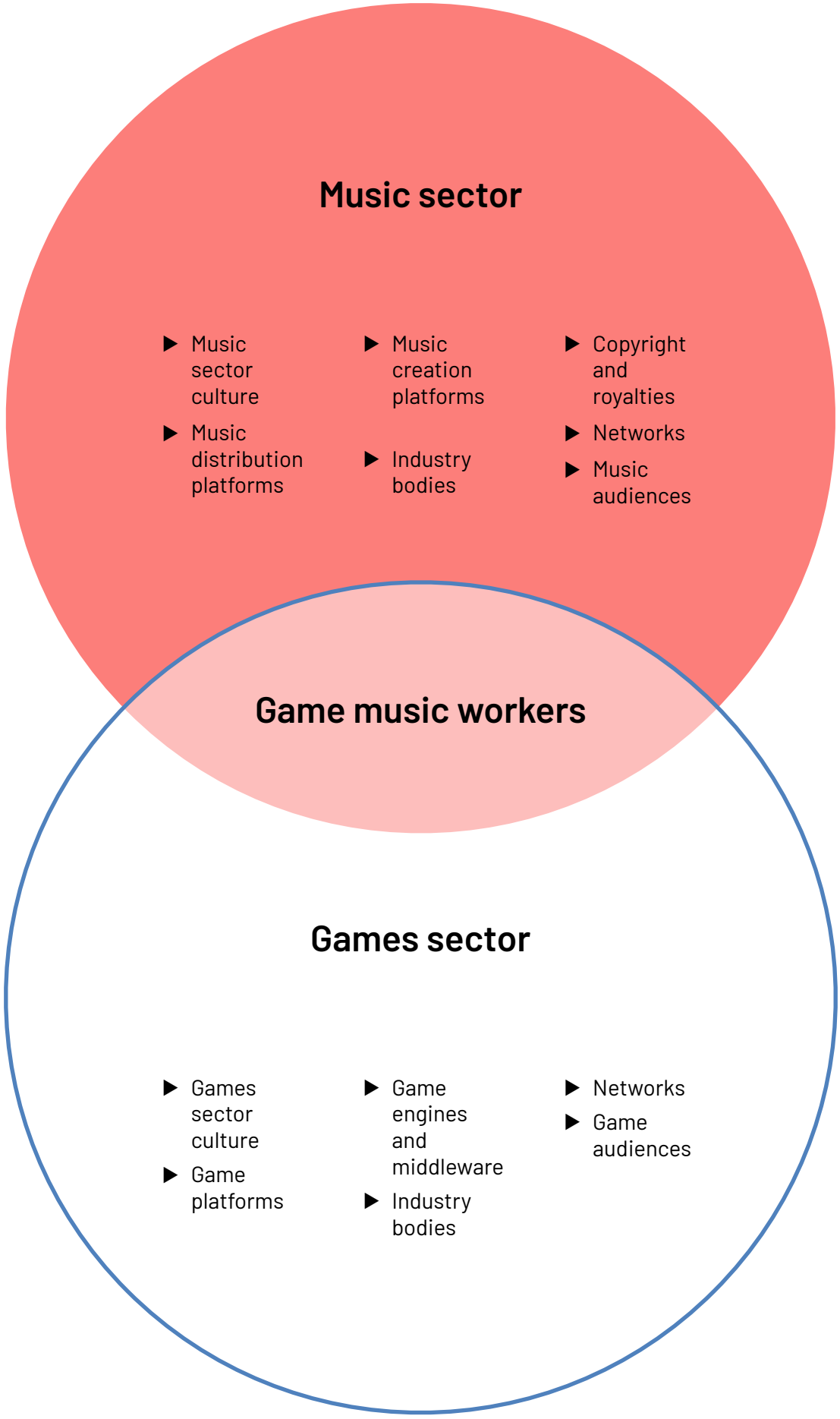
Yet it is also common to find game musicians immersed within the total development of a game project. Another way to think of the totality of approaches is to ask what channels a composer has access to in a game studio's Discord or Slack server. In some cases it is a single channel for music where the composer and a studio contact communicate directly, compartmentalised from the rest of the development team's communication. In other cases, a composer has full, untethered access to the total development communication channels, and are able, if not encouraged, to also comment on discussions surrounding art, design, and even promotion, categories well outside their direct purview as composer. Each end of the spectrum of these approaches is valid and can be found in Australia's game music sector.

Finally, 'Venn diagram work' also describes the way that game music workers intersect with the digital games industry, and are able to take advantage of its unique elements (such as audience enthusiasm for soundtracks and, within Australia at least, the prevalence of independent development and generous revenue streams) while also inherently bringing in elements of music industry norms such as the retention of rights regarding royalties and so on. This can be a point of confusion for digital game studios unaware of the regulations regarding music copyright or inexperienced in dealing with music licences.

This way of conceptualising game music work illustrates both the opportunities and the challenges facing the sector. Both the games sector and the music sector do not fully understand each other, and perhaps cannot be expected to either. The music industry has made some progress in understanding the nature of game music work but remains outside it; equally, the games industry so far has had little call to understand and support the norms of music work beyond games and how it might complicate work within the games sector. In other words, though game music workers find opportunity and power from their location in the Venn diagram between two major industries, they and their work are also at risk of falling into the cracks between both.

The game music worker's task is to be an intermediary between these two worlds.

> "With my current game developer [clients] sometimes what I'll do is, over Discord, I'll open up my music software and go, 'How does this kind of thing sound?' It's almost like the old image of John Williams sitting at a piano showing Stephen Spielberg 'This is what the French horns are going to do.' This is kind of what I'm doing sometimes, but I feel that we've established a process that allows for that."
>
> **- Meena Shamaly, composer and session musician**


Music sector
Music sector culture
Music distribution platforms
Music creation platforms
Industry bodies
Copyright and royalties
Networks
Music audiences
Game music workers
Games sector
Games sector culture
Game platforms
Game engines and middleware
Industry bodies
Networks
Game audiences

ARCHETYPES OF AUSTRALIAN GAME MUSIC WORKERS

ARCHETYPE 1: THE ENTHUSIAST

The Enthusiast game music worker is just starting their career in the game and music sectors. They have attended a few game industry events and have considered enrolling in a degree.

They find the prospect of making music for games deeply exciting, and it feels like a dream job. The Enthusiast has a working knowledge of music making and the software required to do so. They have little experience with middleware and game engines and feel this gap keenly.

They're attending conferences and events in the hopes of creating a connection that leads to their first engagement. They have identified some leading figures in the games and game music sectors through these events as role models, but are still struggling to form connections with game developers.

In the meantime, they are primarily working for free on small, hobbyist games by local developers, just to get some experience on their portfolio.

They have not yet considered how rights or payments will be part of their careers and don't know where to begin.

The next 12-24 months will be key for The Enthusiast's career.

ARCHETYPE 2: THE FREELANCER

The Freelancer game music worker is established in their career as a dedicated game music and audio worker. They are the sole employee at a small business they founded and run, which manages game music and audio for small independent developers. Although this is contract work, they have managed to assemble enough to be one of the few game music workers in Australia to have approximate full-time employment.

Although they have worked with a range of studios including those with physical offices, they work completely remotely. The pay and conditions for each project can vary significantly, though with track record and experience The Freelancer has the power to insist on minimum standards. They may or may not receive revenue share or performance bonuses on specific projects.

They have deep knowledge of music and audio software, and are very comfortable working in middleware and game engines. They are just as comfortable creating a full suite of sound for a game as an original soundtrack, and they sometimes wish game developers gave them more opportunities to do so. Their networks within Australia are formidable, and they know most other workers in the sector.

The Freelancer has a good working knowledge of typical contracts for music work, and often has to act as an intermediary for game developers unused to this area. The Freelancer nonetheless finds processes around music copyright and the finer details of royalties complicated and frustrating. They occasionally have contact with game sector bodies, and rarely contact music industry bodies.

ARCHETYPE 3: THE ESTABLISHED MUSICIAN

The Established Musician has been making music for some time and has a prominent profile in the music sector. They have assembled a portfolio career and have at least one other major source of income outside of game music. Accordingly, they are able to pick and choose their game music projects based on criteria other than making ends meet. The Established Musician sits in a particularly powerful position of Venn diagram work, and more strongly relies on norms and standards from sectors other than game music, especially when it comes to contract negotiation and rights. The Established Musician will likely receive revenue share of a game's profits.

They have strong music skills and are largely approached by game developers for the quality of their soundtracks and existing popularity as a first priority. They may or may not be able to work in middleware or in engine, but largely a developer working with The Established Musician elects to do the implementation themselves.

The Established Musician does not do sound design.

The Established Musician lends a name and publicity hook to their game, especially when it comes time for release, but works fully remote. They have established networks in the games and music sectors but generally do not attend events and conferences. They are a member of APRA AMCOS and are peripherally engaged with other institutions. They do not engage with games sector institutions.

ARCHETYPE 4: THE STUDIO WORKER

The Studio Worker is an employee of a mid-sized game studio and works on all of a project's audio, including sound effects and music. They work a number of days per week in a physical studio alongside their colleagues and are fully immersed in the studio's game development processes and culture. There are only a handful of game audio Studio Workers of this type in Australia.

The Studio Worker works in-engine and drives the game's audio work through middleware. Sometimes an external composer is brought on to supplement their work, and once engaged will report directly to The Studio Worker.

The Studio Worker is paid a salary which is steady but not especially high. The copyright to all their music is owned by the studio, but they receive profit share or bonuses depending on the success of the game when released.

The Studio Worker has extensive networks within the games industry locally and internationally, but has limited contacts in the music sector. The Studio Worker attends a game sector conference at least once per year locally, and potentially internationally as well. They describe themselves to others as working in the games industry.

Who is working in game music in Australia?

75% of Australian game music workers identified themselves as male, and 20% as female. 2% identified themselves as non-binary, and a further 3% did not disclose their gender. 93% of respondents identified themselves as cisgender.

Game music workers were asked to manually enter how they identify ethnically. 72% of game music workers who answered the question identified themselves as either white, European, or Caucasian, and a further 12% as simply 'Australian'. Only 16% explicitly identified themselves as from a non-white ethnic background. Only a single survey respondent identified themself as of Indigenous or Torres Strait Islander descent.[48]

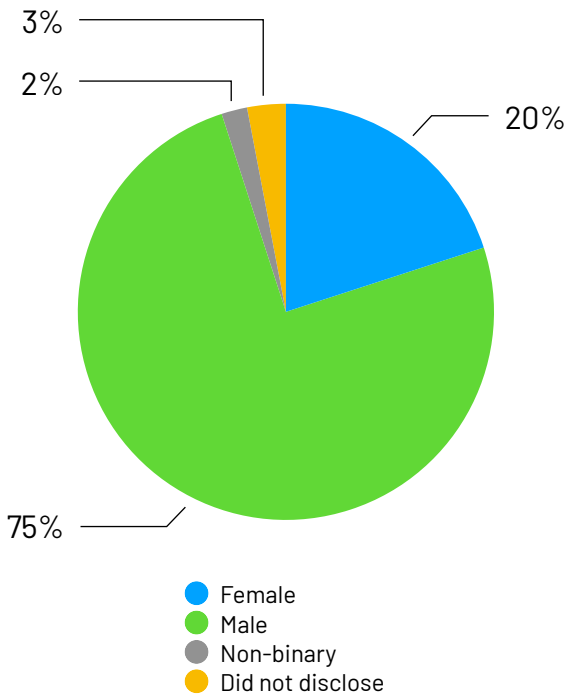


Figure 11: Gender distribution of Australian game music workers

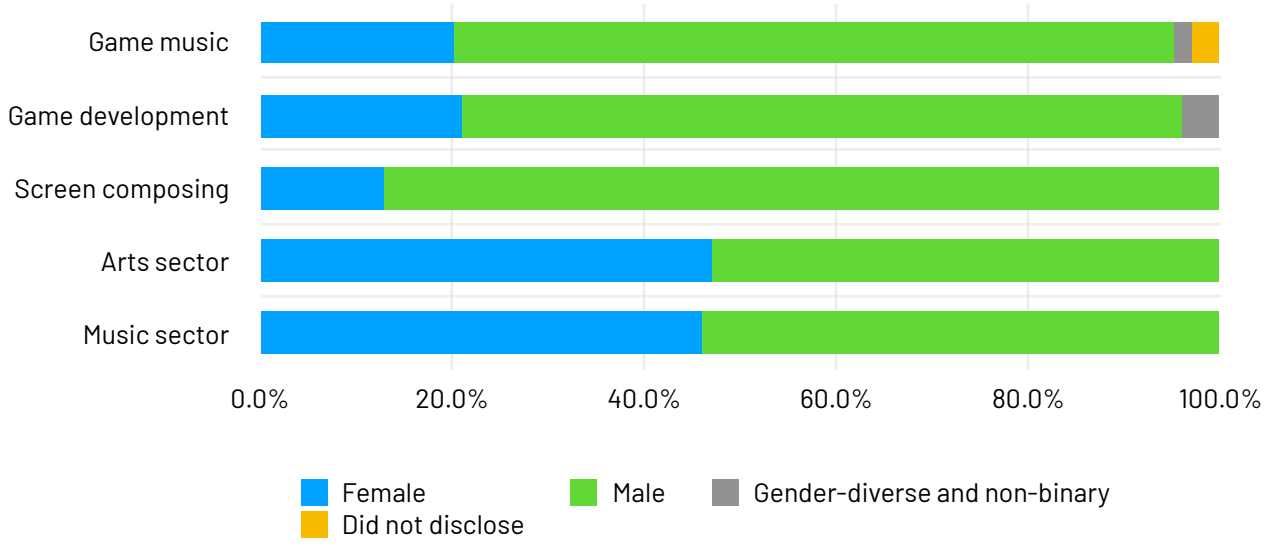


Figure 12: Gender distribution of different creative sectors in Australia [49]

[48] Due to the limited responses from both gender-diverse game music workers and game music workers who identified as Indigenous or Torres Strait Islander, no further analysis was conducted of the survey data to determine the particular challenges facing these groups.

[49] Music sector data from: Bartleet et al., *Making Music Work*.; game development data from IGEA, *Australian Game Development: An Industry Snapshot FY 2021-22* (IGEA, December 19, 2022), https://igea.net/wp-content/uploads/2022/12/AGD-2022-Standalone-Infographic-FINAL.pdf.; screen composing data from: Catherine Strong and Fabian Cannizzo, *Australian Women Screen Composers: Career Barriers and Pathways*, (Melbourne, Australia: RMIT University, 2017), https://apo.org.au/node/130821.; art sector data from: David Throsby and Katya Petetskaya, *Making Art Work: An Economic Study of Professional Artists in Australia* (Sydney, Australia: Creative Australia, 2017), https://creative.gov.au/advocacy-and-research/making-art-work

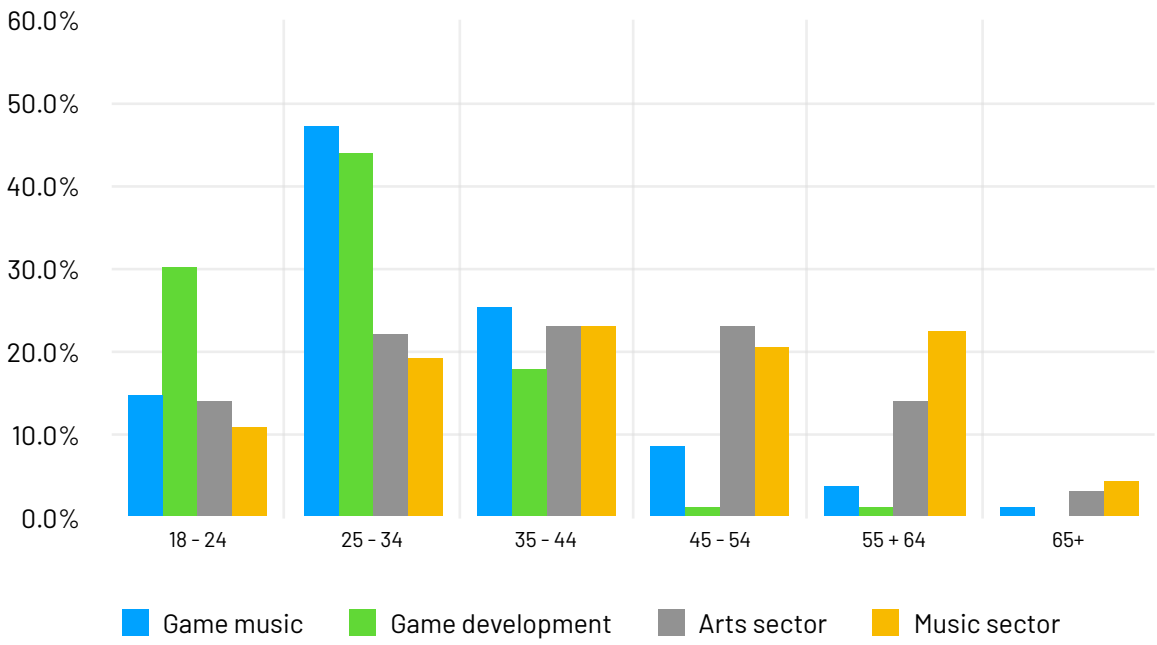


Figure 13: Age distribution of different creative sectors in Australia [50]

In terms of age, too, the game music sector aligns more closely with the broader games industry than with the arts or music sectors, and 57% of all respondents were under 34 years old.

The demographic imbalances of the game music sector closely correspond to similar imbalances in both the Australian game development industry, as well as that of APRA AMCOS registered screen composers (Fig 12). This suggest that the endemic structural barriers present in both these sectors—including lack of access to networking and professional development opportunities, as well as a lack of stable career trajectories—are equally present in the game music sector.

This perhaps makes further sense when considering the reasons why Australian game music workers decided to pursue game music in the first place. While nearly half (48%) were motivated by the commercial possibilities of the sector, Australian game music workers are primarily driven by a personal interest in digital games (88%) and the compositional possibilities of the medium (77%). As such, it is perhaps unsurprising that game music worker demographics are skewed towards those groups (i.e. young men) that have historically been most catered to by digital game cultures.[51]

> "Videogames were a big part of my early life, and videogame music was also a big part of my early music listening. ... I guess as I got more serious about getting into music and wanting to create more serious music projects, it felt natural to try and move into games."
>
> **- Evangeline Williams, composer and musician**

[50] Music sector data from: Bartleet et al., *Making Music Work*.; game development data from: Brendan Keogh, "What Australian Gamemakers Told Me about Making Games in Australia," *Youtube*, December 2, 2019, https://www.youtube.com/watch?v=056wdv07YcA.; Screen composing data from: Strong and Cannizzo, *Australian Women Screen Composers*.; Art sector data from: Throsby and Petetskaya, *Making Art Work: An Economic Study of Professional Artists in Australia*.

[51] Amanda Oschner, "Reasons Why: Examining the Experience of Women in Games 140 Characters at a Time," *Games and Culture* 14, no. 5 (2019): 3; Amanda Phillips, *Gamer Trouble: Feminist Confrontations in Digital Culture* (New York, United States: NYU Press, 2020); Adrienne Shaw, "Do You Identify as a Gamer? Gender, Race, Sexuality, and Gamer Identity," *New Media & Society* 14, no. 1 (2012): 28–44.

Where are Australian game music workers?

Australian game music workers are largely located in the same states as the Australian games industry itself, with Victoria (43%), Queensland (24%), and New South Wales (22%) the main hubs. Relative to share of the overall population, Victoria and Queensland represent the greatest concentration of both game development companies and game music workers (Fig 14).

On the one hand, it is unsurprising that game music workers are located where demand for their skills is highest. Despite this colocation of Australian game music workers with the Australian game industry, however, the development companies that Australian game music workers are working for are in fact located all over the country and indeed the world (Fig 15). While still the most common response, only 59% of game music workers work for game developers located in the same city/town as themselves, and 41% work for game developers, at least in part, who are based overseas.

> "I didn't realise we had a game scene here. … I've always played games; I've always been a big gamer. So the ideal job would be working in games. But when I was younger, I just didn't know that that was a thing. And then it was APRA AMCOS who sent around the email about High Score conference in I think 2017. I went to that and that's how I found my way into the games industry."
>
> **- Belinda Coomes, composer**

28% also work, at least in part, for companies that are fully remote. Indeed, nearly three-quarters (74%) of all game music workers primarily work remotely, in a home studio (Fig 16). This speaks to how game music work is not constrained by local geographic space, and neither is the Australian game music sector necessarily constrained by the size of the

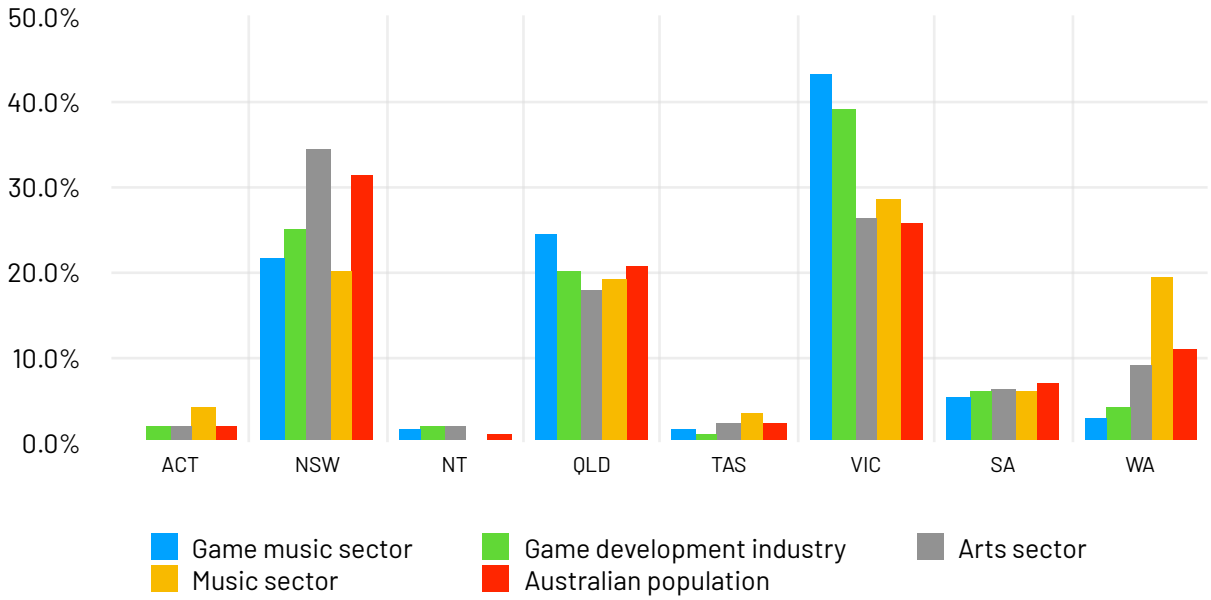


Figure 14: State/territory distribution of different creative sectors [52]

[52] Music data from: Bartleet et al., *Making Music Work.*; game development data from: IGEA *Australian Game Development: An Industry Snapshot FY 2021-22.*; art sector data from: Throsby and Petetskaya, *Making Art Work: An Economic Study of Professional Artists in Australia.*; Australian population data from: Australian Bureau of Statistics, "National, State and Territory Population," September 14, 2023, https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/mar-2023.

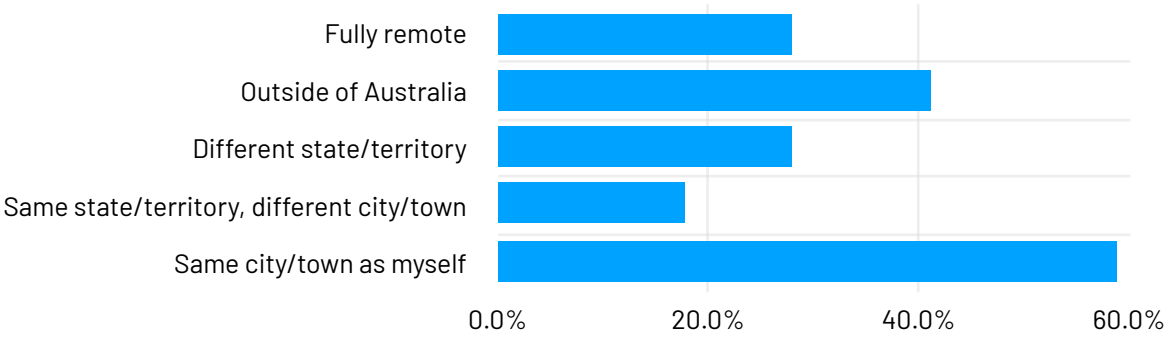


Figure 15: Where are the game developers you work for located? (Select all that apply)

Australian game development industry, so long as they are able to tap into global networks.

However, notably, women game music workers seem more reliant on local networks for obtaining work than men, with only 11% of women working for overseas game developers compared to 49% of men. At the other end, 72% of women worked for game developers in the same city as themselves, compared to only 54% of men.

Why, then, are Australia's game music workers largely colocated with the Australian games industry if they are able to work for game developers located anywhere? There are several possible answers for this:

1. **Importance of local networks and socialising for obtaining game music work:** 63% of Australian game music workers first found game music work by actively seeking it out. Local events and groups serve an important function for introducing music workers to the game music field. This perhaps, too, suggests why women game music workers are more likely to work for local clients, due to the existing gendered, fraternal structural barriers for accessing the global games industry.[53]

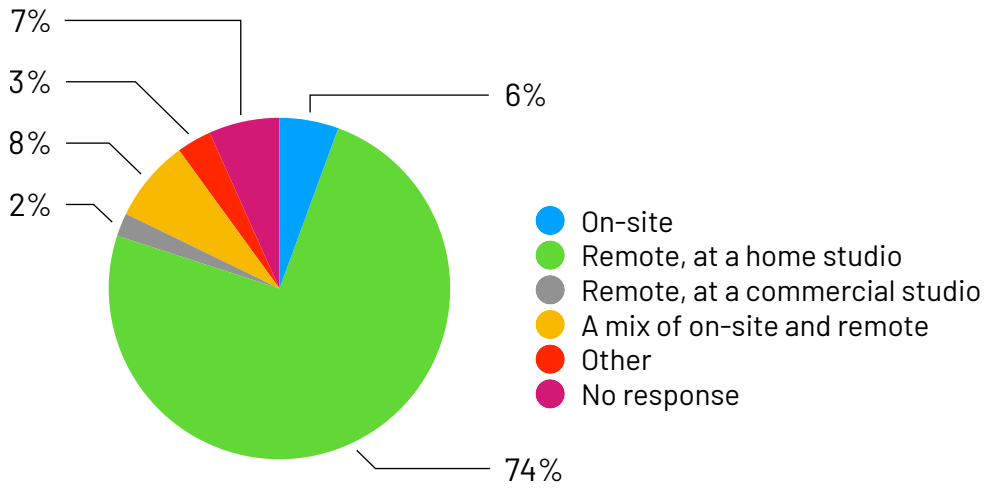


Figure 16: When working for game developers, where do you most commonly work?

[53] Johanna Weststar and Marie-Josée Legault, "Women's Experiences on the Path to a Career in Game Development," in *Feminism in Play*, ed. Kishonna L. Gray, Gerald Voorhees, and Emma Vossen (London, UK: Palgrave Macmillan Cham, 2018), 105–23, https://doi.org/10.1007/978-3-319-90539-6_7.

2. **Necessity of visible game development cultures:** Closely related to the importance of local networks and socialising opportunities is that many music workers don't even know game music work is a possibility until they see the existence of game music work locally. For those outside the game development industry, how game development works and where it is located can be difficult to perceive. A highly visible local game development culture can greatly facilitate music workers first considering the sector. This particularly speaks to the concentration of game music workers in Victoria, which is also home to the majority of Australia's game development workers and games industry events.

3. **Requirements of state-based public funding to spend locally:** While only 14% of all game music workers noted they are at least partially supported by public funding, this statistic jumps to 22% for Victorian game music workers, and drops to 8% for NSW respondents (Fig 17). This corresponds to where local governments offer the most and least public funding, which typically comes with obligations to spend within the state (see Appendix B).

"I'd never really thought about how the gaming industry is structured. ... I ended up having coffee with a few game developer [friends] who gave me advice on where to start, what to do, and I ended up going actually to the very first PAX Australia in Melbourne and just loving it and being overwhelmed with this feeling of like, "Oh, these are my people," going around to the indie booths and meeting all the developers, not necessarily pitching myself or anything, just literally just trying to learn and just trying to learn more about how do independent game developers think? How do they work? Who are they? What are they doing? What kind of games are being made?"

- Tim Shiel, composer, musician, radio host

It also correlates with the overrepresentation of Victorian game music workers relative to the general population, and the underrepresentation of New South Wales.

"It's only because music is such a small part of our budget that it doesn't super matter to us that we're getting that from overseas, but any government grants for game development, they all stipulate that the money needs to be spent in Australia. So, if we were to get a Screen Queensland grant or something with music as part of that budget, we would need to have a Queensland based musician. There's already a lot of incentives for that."

- Riley Neville, director, Sbug games

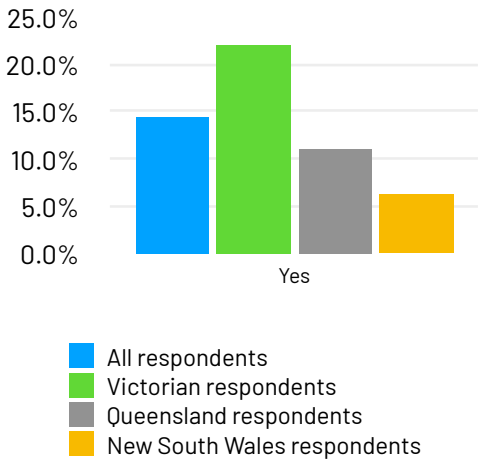


Figure 17: Has any of your game-related music work in the past 12 months been supported by public funding?

How do Australian game music workers work?

Game music workers overwhelmingly (70%) work in a contract or freelance capacity, and only 17% in either full- or part-time employment. Notably, no women respondents work in full- or part-time employment (Fig 17).

Furthermore, the majority of game music workers do not work exclusively in the games industry, with many doing game music work as part of a broader portfolio of music work. This is understandable when one considers the structures of indie game development more prominent in Australia and overseas. Indie game developers can rarely afford—or require—a full-time composer or musician.

A strong correlation exists in the survey data of those game music workers who at least occasionally work for international game developers, and those who work for team studios that employ more than ten people (Fig 23). This further highlights how the indie nature of the Australian game development industry contributes to the dominant game music work arrangements as contractual and piecemeal. To work for larger studios, game music workers have to look overseas.

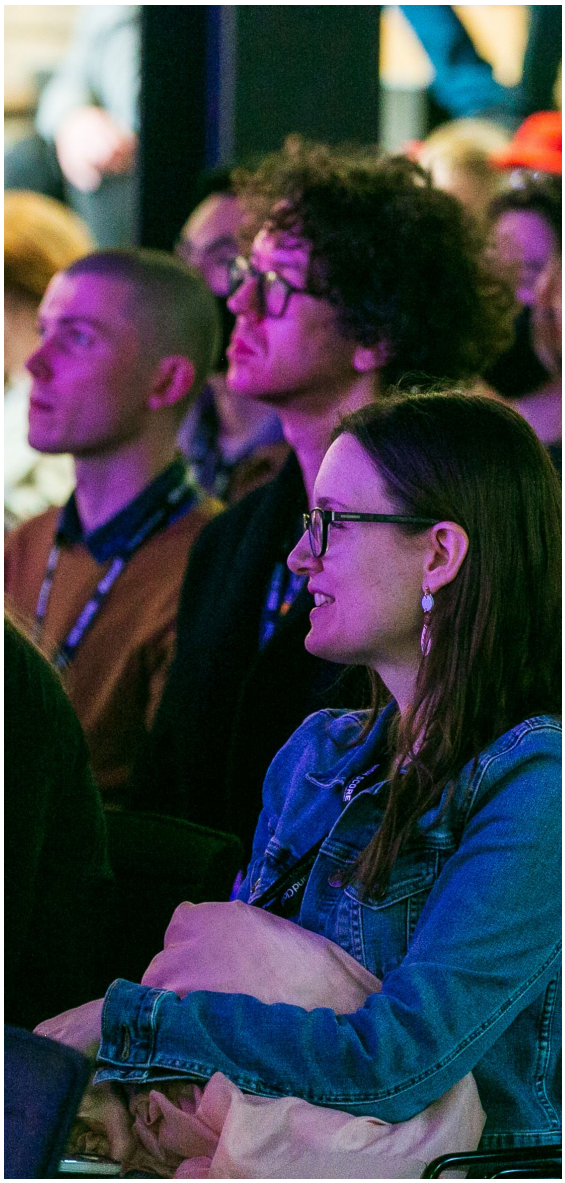


Photo by Rick Clifford (courtesy APRA AMCOS).

What do Australian game music workers do?

Types of work

Despite the freelance contractual arrangements, Australian game music workers are able to make significant creative contributions to the games they work on.

The majority of game music workers undertake broadly compositional work: writing (84%), arranging (73%), and producing (73%) their own music. 57% of game music workers perform music (either their own or pre-existing) and 53% implement music (either their own or pre-existing) into the game engine environment. 89% of game music workers work with music they themselves create at least some of the time—36% exclusively with their own music (Figs 20 & 21).[54]

Across the field there was a sense that game music workers are significant creative collaborators, regardless of the contractual arrangements they work under. Over three-quarters of game music workers (78%) either somewhat or strongly agreed with the statement that they are "able to make a meaningful contribution to the creative direction of the games [they] make music for". 85% either agreed or strongly agreed that "the game developers [they] work for have a strong appreciation for the importance of music in their game". These sentiments were reaffirmed in interviews with game developers.

> "As we're thinking about our projects moving forward, it's highly unlikely we will ever have an in-house composer. It just doesn't make sense from a studio perspective because there's not always things for them to do.... It's not impossible, but highly irresponsible from a financial side to try to bring on musicians full-time when they're not going to have work to do across the project."
>
> - **Liam Esler, cofounder and managing director, Summerfall Studios**

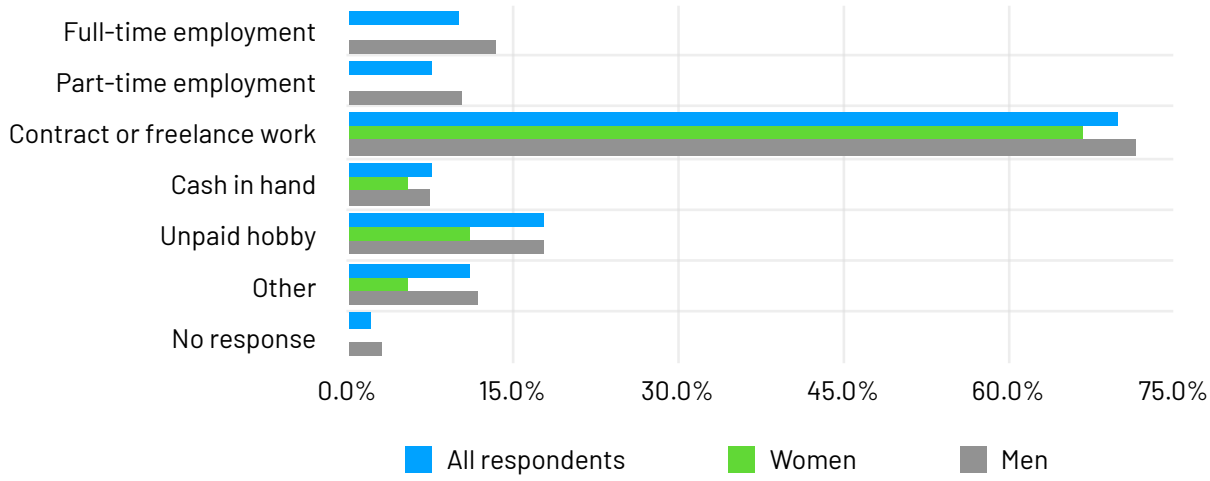


Figure 18: In what capacity do you conduct your games related music work? (Select all that apply)

[54] A possibility here is that those music workers who create original music for games are more likely to self-identify as *game music workers*, while those who simply license pre-existing music for games may not identify in such a way, and consequentially may have been less likely to participate in the benchmark. In future research, targeted interviews of musicians who license music for games, but don't create original music for games, could address this potential knowledge gap.

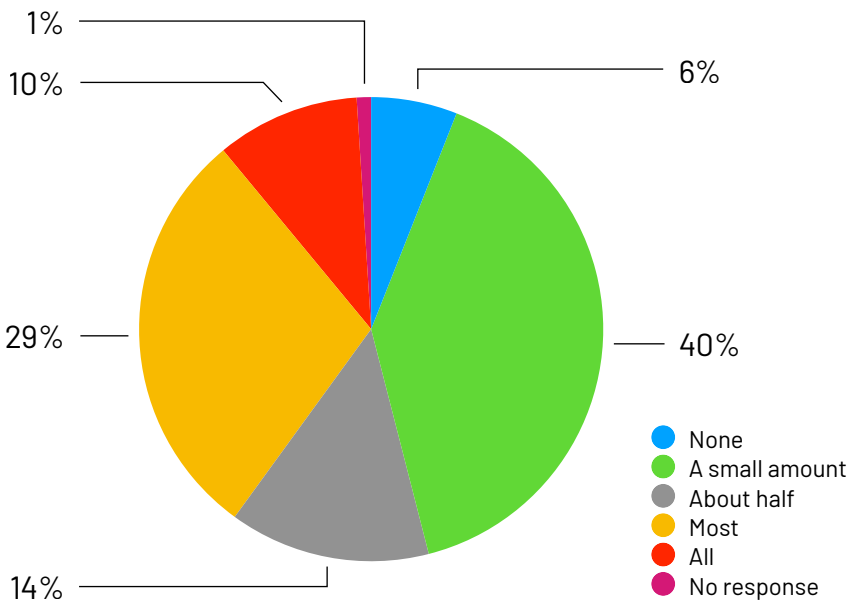


Figure 19: Amount of music work undertaken for games

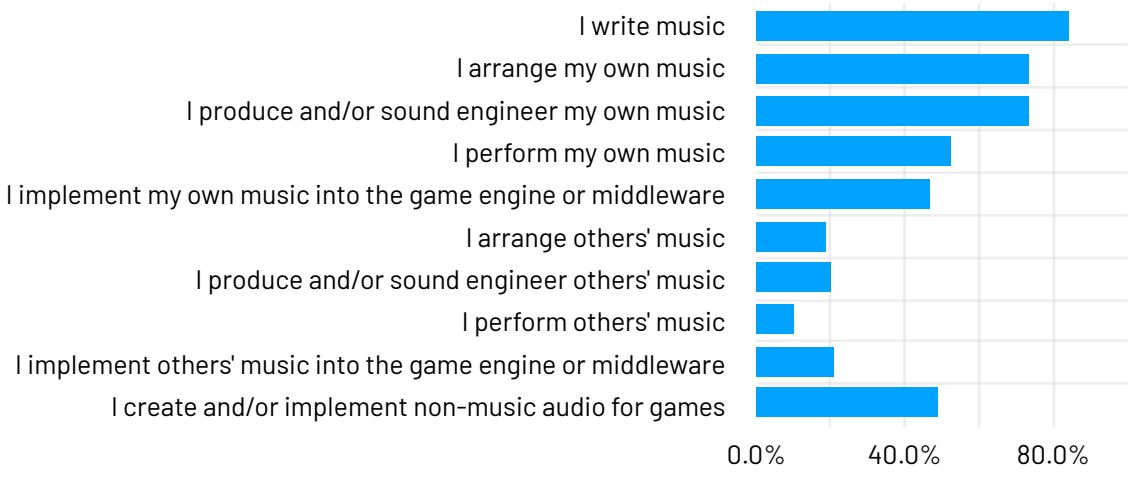


Figure 20: What sort of music work do you typically undertake for games? (Select all that apply)

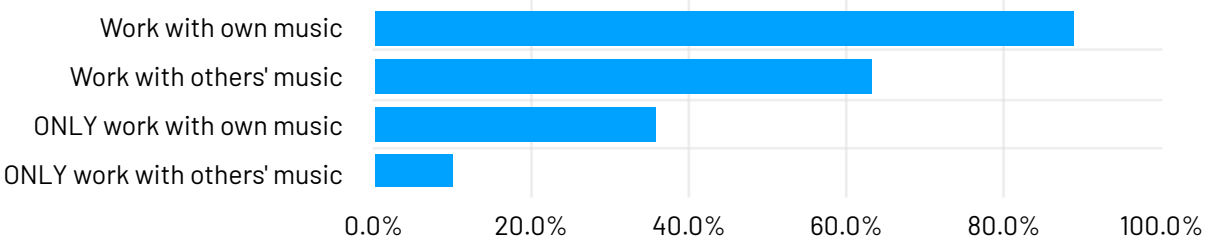


Figure 21: Types of music work undertaken for games (grouped by creator of music)

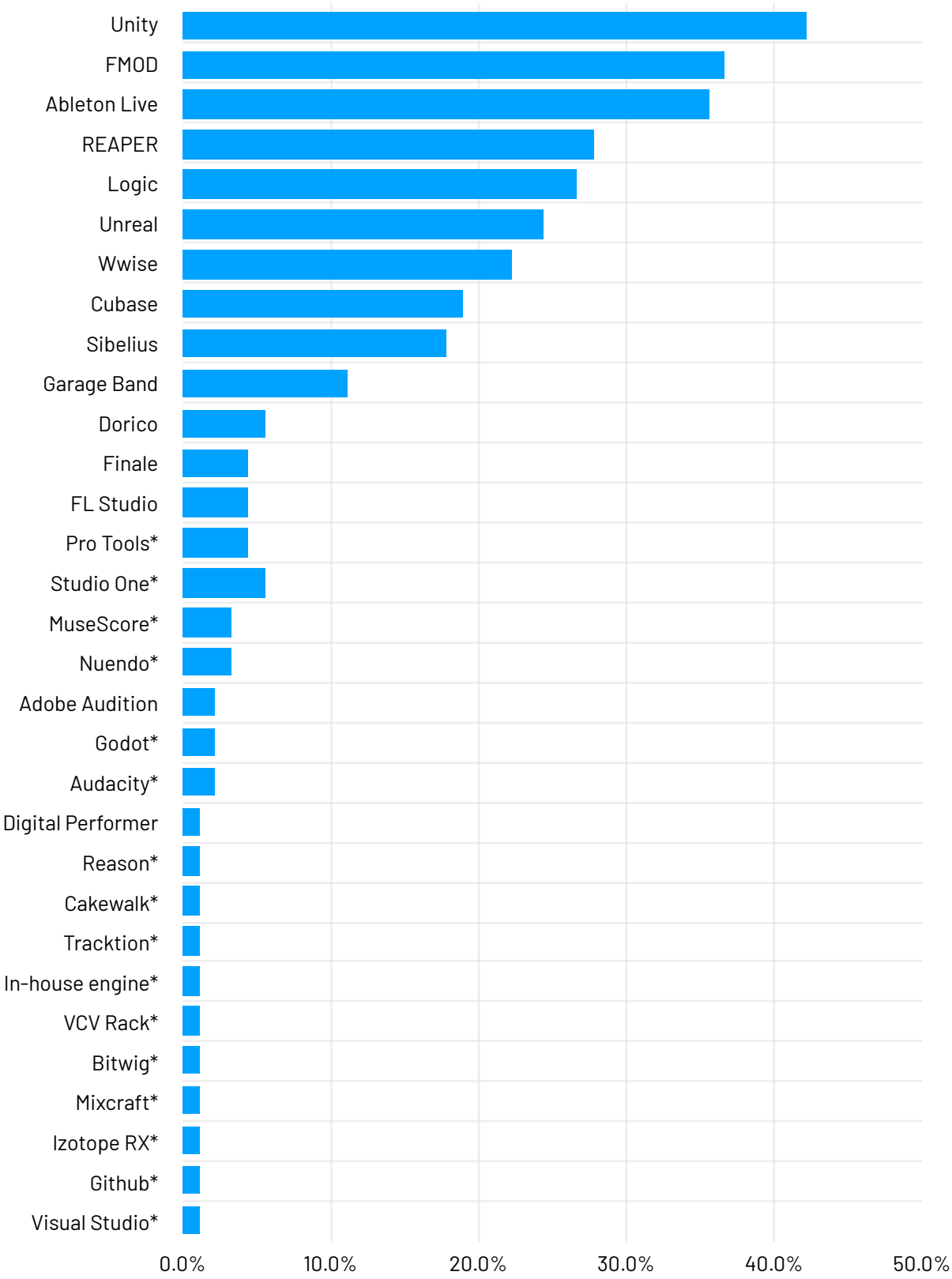


Figure 22: What software do you directly use when doing music work for games? (Select all that apply)

*Software added manually by respondent under 'other' option.

What technologies do game music workers use?

Australian game music workers use a vast variety of software tools, speaking to the range of working styles in the sector (Fig 22). Much of the software used by game music workers overlaps with standard music industry work, with high usage of Digital Audio Workstations (DAWs) such as Ableton (36%) and Logic (27%) and music notation software such as Sibelius (18%), but there are several exceptions.

Game engines such as Unity (42%) and Unreal (24%) are prominent. Likewise, industry standard middleware used explicitly for implementing interactive audio is commonly used, including FMOD (37%) and Wwise (22%). However, it's worth noting too that half of all Australian game music workers (49%) directly use neither game engines nor such middleware. Instead they solely use music industry software, suggesting game music work is feasible without specific technological competencies.

"I have to be multifaceted in my skill set. So it's not just audio that I'm doing; because I'm partners in the company, I'm also dealing with biz dev and marketing and everything from editing a trailer or all these different things that are all part of running the business, to hiring a producer. It's become just very broad and interesting."

- Jeff van Dyck, composer

"They [the composers] just send me files. I don't think I've ever worked with a musician that's actually been tinkering around the engine. I know Maize [Wallin] does; they will happily integrate stuff. I think they might have done a little bit in that project [*Dissembler*], but mostly it is just, 'Here's the .wav files,' and I put them in."

- Ian MacLarty, director, Shape Shop

"[It's less about how music fits into the game development process and] more about 'I want to collaborate with this person' and then it kind of goes from there. They help to sort of form the direction of the project. Then [the music] kind of informs the rest of the project as well, right? So it's not just music, but then the music's giving the game a certain tone, which is then informing everything else about the game as well."

- Ian MacLarty, director, Shape Shop

"Typically, most indies I know, unless they've got some sort of funding deal, most indies are working for free, and they're just investing their time and their lives into this. And so they don't have that cash to give to somebody who can only do one aspect of the audio. They're probably looking for somebody who's an all-rounder. Like, 'Oh, what, you can do music and sound effects and actually record some of the voiceovers? Great. Let's hire you.' I think that's going to be their perspective, and they'll be limited by the budget."

- Jeff van Dyck, composer

Unpacking, image courtesy Witch Beam.

"One of the main things [a game composer needs to be able to do] is just writing music that fits in that area of 'catchy but not annoying' when it's repeated on loop for half an hour straight. That, I think, is a particular sort of skill that not all musicians get. And also just the process of matching the style of a level that might not actually be finished yet … But one of the main things is just looping tracks and dynamic elements that can respond to gameplay. … [Our composer is] not doing anything in-engine. Generally, we will say 'this is an area we need music for, these are the narrative themes we're going for at the time' and discuss the genre of music, the kind of feel of the track. ... Sometimes there'll be one or two demo tracks and then they will send back the finished WAV files and we just plug those into the game."

- Riley Neville, director, Sbug Games

"I have the capability to use FMOD and I have used it in the past but normally the tech side of things, especially nowadays, developers are so tuned in—sorry for the pun—about how to work with audio so unless there's a really specific interactive idea that is impossible to really tell them about… That's when middleware can be quite useful, where you can say, 'This is how I imagine it,' but depending on the development team, they might just be able to get the idea from what you told them and go from there."

- Kevin Penkin, composer

"I find game developers are quite happy for me to be more experimental and creative with the music. I like colouring outside the lines with ideas: 'and what could we do with this?' That's not to say that film isn't that, but I just find game developers are more happy for it to be more creative or for you to be creative, compared to my experiences with film and other things. Because with linear media, the music is dictated by what's on screen. … But with games, you can, because the music is telling more of the story."

- Belinda Coomes, composer

What skills do game music workers need?

There is no one way to be a game music worker, and no one skill set demanded of all game music work. Most fundamentally, and unsurprisingly, game music workers need to be skilled as musicians—be that composers, performers, etc.—and capable of using appropriate music industry standard technology and instruments. Only 51% of game music workers interface with either a game engine (such as Unity or Unreal) or audio middleware software (such as Wwise or FMOD). However, this could be due to a lack of opportunity to learn such skills, as 47% of game music workers highlighted "a lack of professional development opportunities" as a major challenge they face.

More important than technical software skills seems to be a clear understanding of the particular challenges and structures demanded of interactive and dynamic music (most commonly acquired through a familiarity of playing games), and the ability to work as one part of a broader interdisciplinary team. A game music worker may be required to serve as an intermediary and a translator to the world of music for the broader game development team. This includes, on the one hand, being able to communicate about music with non-musicians and to understand the regulations and requirements of music copyright. On the other hand, it may include understanding and formulating practical strategies for dynamic music, which may or may not involve dealing in middleware or game engines, but will always require compositional planning and consideration. It also includes the capacity to

work within technological limitations, such as maximum file sizes for music files and recognising when the music should or shouldn't be the most prominent element.

The skills game music workers require, however, shifts if they wish to seek full-time employment in a single game development company. Due to the interdisciplinary nature of independent game development, this requires the game music worker to be able to bring skills to the table *other* than strictly music production or implementation, such as broader audio and sound effects implementation. Indeed, 64% of game music workers also work in sound or audio design for game development, in addition to game music work.

> "I think the other thing is really looking towards skill sets and pathways and acknowledging that there are multiple [ways into] the [games] industry. And being realistic about what you want to do. My number one conversation with [aspiring game music workers] is just, 'Okay, you want to work in games? Awesome. You are going to be working in indie games, most likely.' That is just how that works. You need to be a generalist, and I really don't care about your opinion on the matter. You must have something else other than composition. That's not good enough."
>
> **- Cameron Lam, Art Music Lead, APRA AMCOS**

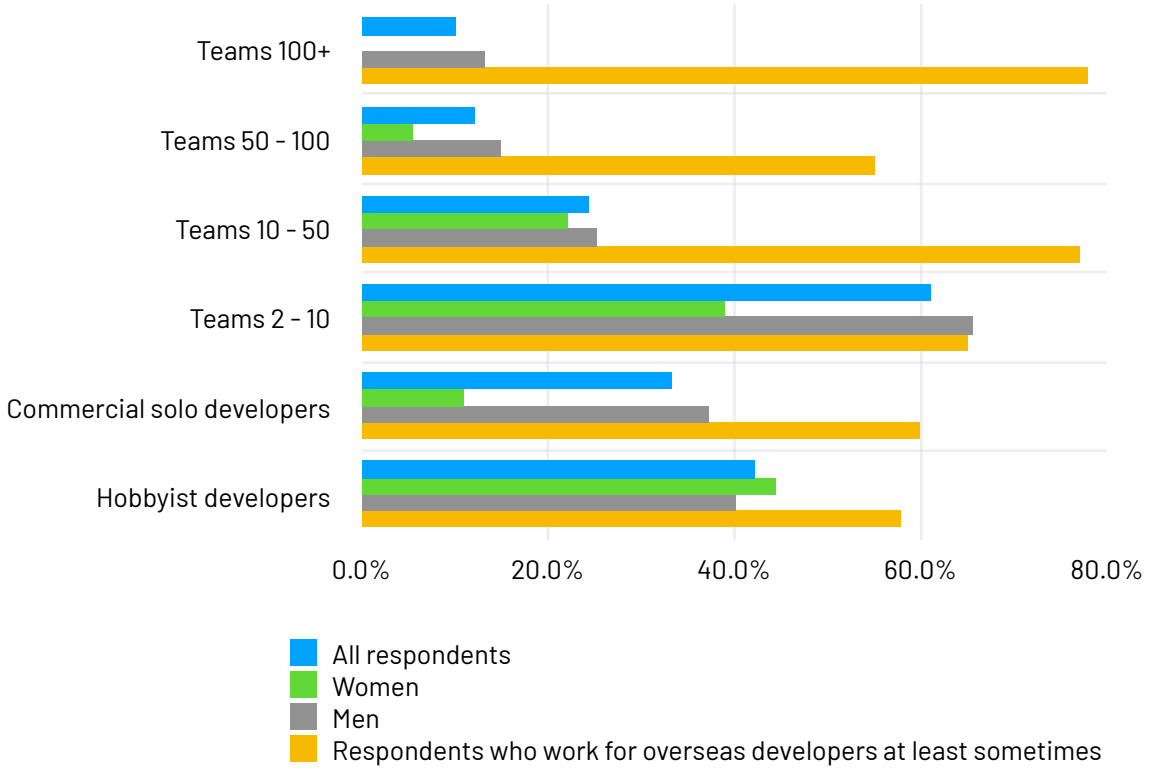


Figure 23: What types of game developer do you conduct your game-related music work for? (Select all that apply)

Pay and licensing arrangements of game music work in Australia

Income

Like in most creative sectors, much game music work is speculative and unpaid, as people work on small-scale hobby projects for friends simply for the experience and the hope of it turning into paid work later. Over half (53%) of all game music workers that responded to our survey reported earning no income from their game music work in the past twelve months. Only 14% earned the equivalent of an annual minimum wage ($45,000) from game music work, and only 11% earned the median Australian wage of $65,000 from game music work alone.

Stray Gods, image courtesy Summerfall Studios.

Income from past 12 months (from all sources) of at least...

	$1	$45,000	$65,000
All respondents	86%	40%	31%
Average	$52,966	$100,035	$111,831
Median	$40,000	$82,500	$97,500

Figure 24: Income from all sources

Game music income from past 12 months of at least...

	$1	$45,000	$65,000
All respondents	53%	14%	11%
Average	$29,757	$87,846	$97,200
Median	$10,000	$80,000	$92,500

Figure 25: Game music income

Only 13% of game music workers who reported any game music income exclusively lived off game music income, and most made income from a vast range of other sources—most prominently from other types of music work (39%), rather than other types of game work (13%), speaking again to the primacy of music skill sets among game music workers. On average, game music income accounted for 36% (median 13%) of respondents' total annual income of the past year. For comparison, in the broader music industry, "non-music work accounts for approximately 90% of musicians' income overall".[55]

[55] Brydie-Leigh Bartleet et al., *Making Music Work: Sustainable Portfolio Careers for Australian Musicians*, (Brisbane, Australia: Queensland Conservatorium Research Centre, 2020), 2, https://makingmusicworkcomau.files.wordpress.com/2020/06/mmw_full-report.pdf.

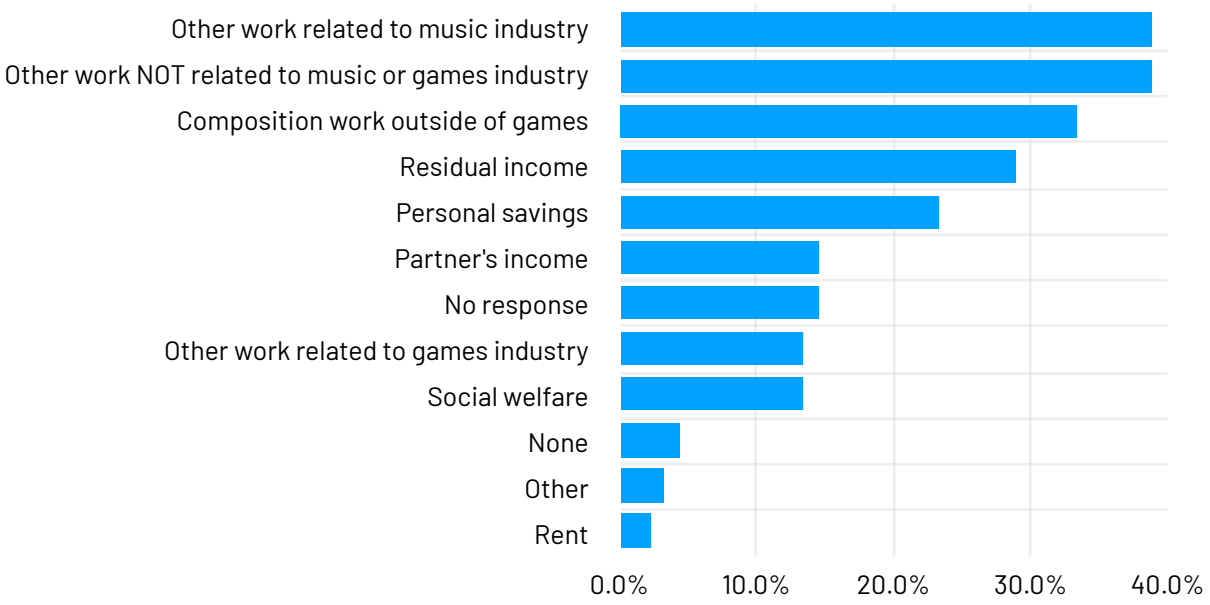


Figure 26: If any, from what sources do you financially support yourself other than games-related music work? (Select all that apply)

Untitled Goose Game, image courtesy House House.

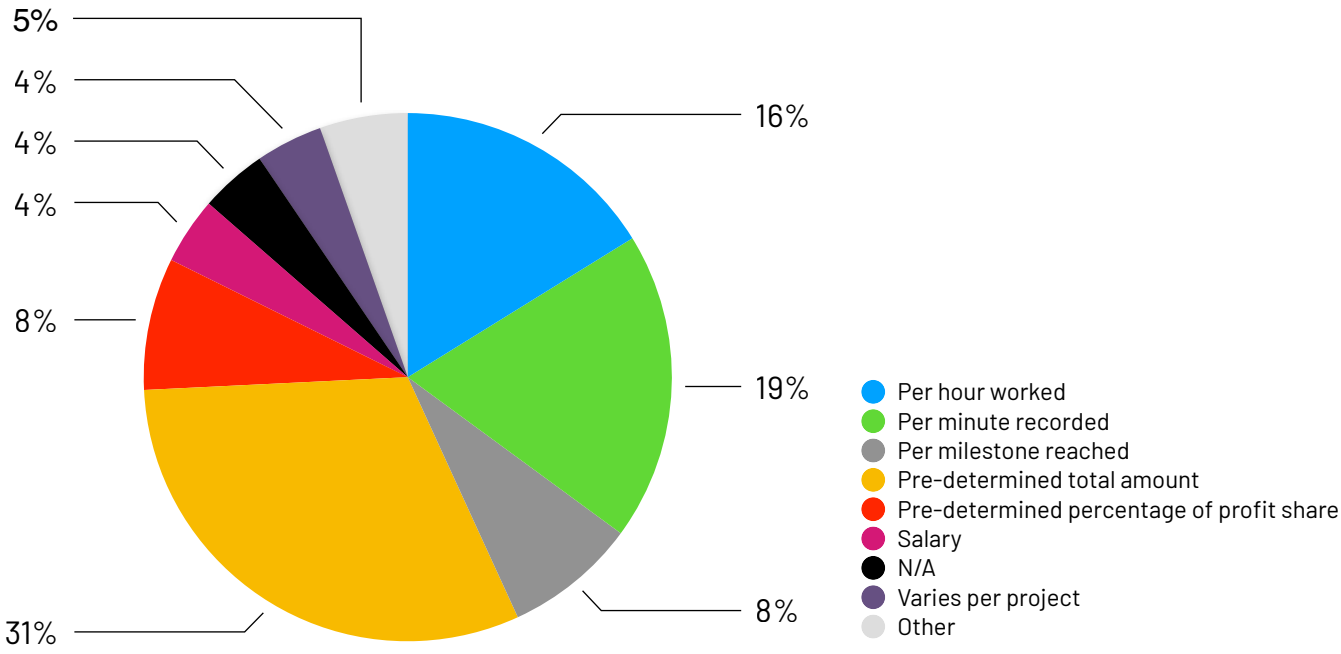


Figure 27: When charging for game-related music work, how do you most typically charge?

Ways of charging for game music

How game music workers are paid for their work greatly varies. Some charge per hour worked (16%), some per minute of music recorded (19%), many a predetermined flat amount (31%). The wide reaching and often vague responsibilities of game music workers (from writing and production to implementation alongside more general design feedback, preparing trailers for music, occasional other audio work) complicate how reimbursement works.

One notable trend is the number of game music workers that receive a share of the profit of all game sales. 8% of game music workers identified this form of income as how they most typically charge for game music work. While the possible revenue of profit-share can vary greatly pending on how well the game sells, it can work out very well for some game music workers, and also works to make game music workers feel more invested in the project as core members of the team.

> "I didn't take any kind of fee, no fee, no hourly rate, nothing. Instead, I have a 10% stake in the game itself, which proved to be a very sound deal, which was great. And we're all really happy with that. … We all essentially worked on that game and then we divvied up the results of it. … This was one of the great things that I loved about working with [this game], and even just the different conversations I was having with developers at the time was that the rules didn't seem to be codified. So you could just talk to each other and go, 'What feels right? Oh, well, let's do it like this.' … I ended up feeling such a sense of ownership and investment in the game that I still feel like I'm a part of it."
>
> **- Anonymous composer**

> "Now, because I do so much integration work, [I charge] per milestone or even per hour of work, if we get to that relationship. But I see that as kind of crossing my boundaries a little bit as a freelancer because I don't want people to know how long it takes me to do things. It's none of their business. But per milestone is kind of how I go because it's more honest in a way, while allowing for more leniency, because I'm not making a minute of music, and what even is a minute of music anymore when there's so many layers or it's in little blocks or whatever?"
>
> **- Maize Wallin, composer and audio director**

> "I'm working in the games industry much differently than the way I used to in that I'm not work for hire. I've actually kind of become partners with all the different [developers] I work with. They're not paying me a wage; I'm earning effectively royalties through these companies that I'm partners in. So it's totally different. And it's a great way to do it."
>
> **- Jeff van Dyck, composer**

Negotiating licensing rights

Game developers and game music workers alike reported uncertainty and even confusion about negotiating rights for game music. The world of music licensing can prove to be complicated at the best of times, and something that a small, independent game studio may not have investigated before or be prepared to deal with. Questions around the ownership or licensing of the multiple copyrights associated with music, royalties, soundtrack releases, distribution, and even revenue share may understandably be well beyond the consideration of a small game development studio already occupied by their own many non-music considerations and without dedicated legal departments or advisors.

Accordingly, for the kind of small game studio that typifies Australia's sector, an informed composer can become an ***ad hoc*** guide to the world of music rights and regulations, before even writing a note of music. For composer Zander Hulme, "every time you work with a new client, it feels there's a whole lot of new groundwork to be laid."

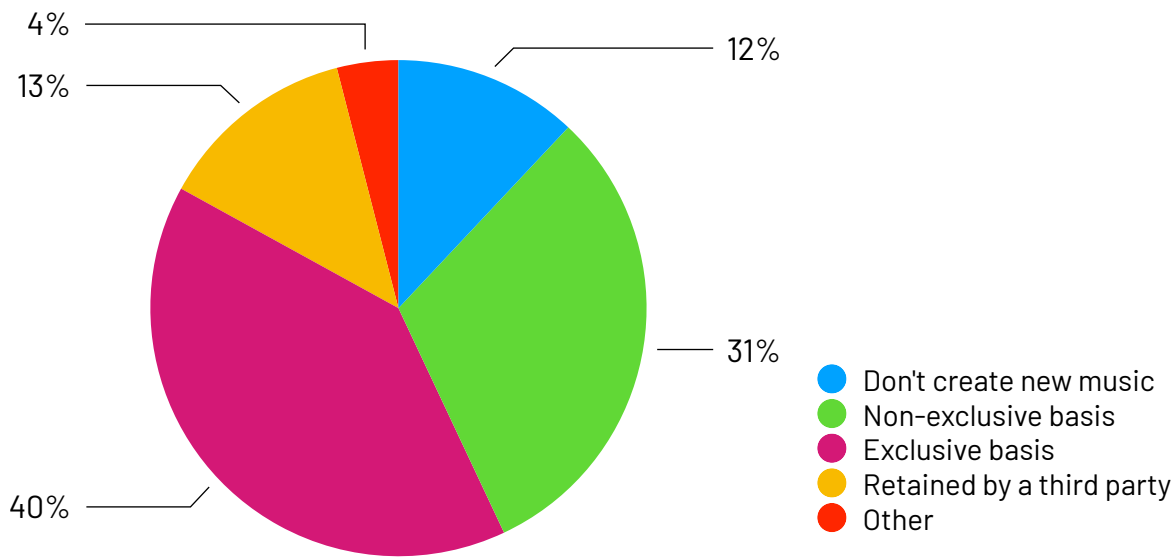


Figure 28: When you create new music for games, how are the rights typically determined?

> "I wish I could have had a talk with older me when I was in my mid 20s and told myself, 'Do what you can to keep ownership of what you do. Retain ownership of as much of it, the masters, the composition, the rights, whatever.' That's something that I wish I had known earlier."
>
> **- Jeff van Dyck, composer**

Even for the informed game musician or developer, negotiating music rights can be complicated, and many developers engage lawyers to deal with music rights as a default action. While standard practices for game music rights have not yet been established, some Australian bodies do provide guidance, such as ArtsLaw's sample Music Commission Agreement for Games,[56] and the AGSC's advice regarding buyout deals, copyright, and composer's fees, which despite being aimed at film and television composers may nonetheless be applicable for games.[57]

Nonetheless, the complications of music rights almost always remain. "The contracts tend to be a lot longer for musicians than for other contributors, I've found," says game developer Ian MacLarty. "It's all there for a reason, but it is a lot more challenging. And expensive, because you need to get a lawyer to work it out."

The independent nature of Australia's digital games industry means that currently at least, the general impression from game music workers was one of an open industry unlikely to want to negotiate away crucial rights and conditions for composers. For composer Kevin Penkin, "especially with indie video games, people tend to be quite open to maybe your preferred method, which is to keep as much licensing or keep as

> "The same questions keep coming up… So you can be a composer as well as an audio guide. Licensing – 'What do you mean licensing? I had no idea that there was different licensing that we have to talk about!' to, 'can I have a percentage of the royalties or the money earned on OST?', 'What do you mean that there's a fee for that? Isn't it easy putting together a music playlist?' [This is game developers] not realising that there's aspects for [music] distribution and they're different assets and there's the whole licensing aspect around that."
>
> **- Belinda Coomes, composer**

> "Every single model that exists for use in the music industry does not work for games. We've spoken to APRA AMCOS. We've spoken to local entities. Their models don't work for games because games platforms will not cooperate with them. Steam refuses to do any kind of payments. They won't do mechanical royalties, which is a regular model that is used in the music industry. So instead we were like, 'We're going to have to do this ourselves.'
>
> In an ideal situation, each game sale would result in mechanical royalties that get taken from the purchase at the time of purchase and funnelled through to organisations like [APRA AMCOS] who then pay it out. But obviously – and I do understand, that is remarkably complicated for Valve and for Steam and for Sony and for Microsoft and Nintendo and all of these platforms. I do understand that and so I don't particularly blame anyone, but it does make it harder."
>
> **- Liam Esler, cofounder and Managing Director, Summerfall Studios**

[56] ArtsLaw, "Music Commission Agreement for Games," *Arts Law Centre of Australia*, 2023, https://www.artslaw.com.au/product/music-commission-agreement-for-games/.

[57] Australian Guild Of Screen Composers, "Buyouts and APRA Membership," *Australian Guild Of Screen Composers*, 2021, https://agsc.org.au/buyouts-apra-membership/.; Australian Guild Of Screen Composers, "Composer Fees," *Australian Guild Of Screen Composers*, 2021, https://agsc.org.au/composer-fees/.; Australian Guild Of Screen Composers, "Copyright, Publishing & Licensing," *Australian Guild Of Screen Composers*, 2021, https://agsc.org.au/copyright-publishing-licensing/.

much royalty as possible, while also making sure that they're protected."

Indeed, several composers insisted that the Australian digital games industry has so far avoided many of the pitfalls of the standard practices of the film and television soundtrack sectors, or even the international game industry.

Buyout agreements are not currently prominent in the game music sector in Australia, and only 13% of survey respondents report that the rights to their music are typically retained by a third party. The vast majority of respondents retain the rights to their original music (71%), with a mixture of exclusive and non-exclusive licensing. The same is true for those game music workers who license pre-existing music.

> "[Had I used a sync agent to negotiate my contract] I think I possibly would have ended up with a result where the game developers would have taken the rights as a buy-out to my music, which is just dumb, because what are they going to do with it? They're not going to release the soundtrack, probably. They don't know how to exploit music, so why would they do that? [...] It's just - I ended up feeling such a sense of ownership and investment in the game [because of profit share] that I still feel like I'm a part of it."
>
> **- Anonymous composer**

Hollow Knight, image courtesy Team Cherry.

Residuals, royalties, and profit-share

However, the importance of royalties for ongoing income is not yet as keenly felt in the game music sector in the way it currently is for other soundtrack composers. For AGSC President Dale Cornelius, "something I often tell [film and television] composer students or composing students ... is that roughly 60% of a screen composer's lifetime earnings comes from royalties". However, in our survey only 48% of respondents who had reported any income from game music reported having a residual income. It is unclear from our data what percentage of game music worker income is from residual payments, and more data in this area is required. However, interviews suggest that residual payment is currently of lower priority to game music workers than those in other screen music sectors.

In part, the emphasis on profit share and not royalties in the Australian game music sector is driven by circumstance. For example, one anonymous game studio co-founder and managing director describes trying to find an equitable royalty arrangement for their music-heavy digital game before electing to enact their own solution.

Recent developments granting Australian composers access to performance royalties from the PlayStation Store via APRA membership for the Europe region (and from 2024, Australia and New Zealand) may reshape the sector's attitude towards royalties. However, while the PlayStation store is a significant platform, it remains just one platform among many. There is a long way to go in the digital games sector before performance royalties sit alongside those for the film and television soundtrack sectors.

Photo by Jacinta Keefe (courtesy APRA AMCOS).

	All respondents	Respondents who earn at least $1 from game music in the past 12 months	Respondents who earn at least $45,000 from game music in the past 12 months	Respondents who earn at least $65,000 from game music in the past 12 months
None	53%	52%	19%	36%
Soundtrack sales	24%	45%	26%	36%
Game sales (e.g. profit share)	17%	24%	15%	14%
Broadcasting royalties	8%	14%	7%	7%
Inclusion of game in subscription service	3%	5%	4%	7%
Other	2%	5%	0%	0%

Figure 29: Sources of residual income for game-related music work.

Soundtrack releases

The production of an original soundtrack for purchase and streaming remains important to game composers, who identified it not just as the most common additional revenue stream, but as a way to engage with their audience and to generate a portfolio. Game developers, too, benefit from their game's soundtrack being released separately, even when they don't directly profit from it since, as audio director Maize Wallin noted, "there's definitely a cool factor for especially indie games" to have the soundtrack available for purchase alongside the game. As evidence of this, major PC game platform Steam now allows for the purchase and playing of game soundtracks directly in the same platforms as the games themselves are purchased and played.

56% of survey respondents said that a standalone soundtrack is typically released for their game music (Fig 30). Three-quarters (74%) of respondents whose music is released as a standalone soundtrack are responsible for creating and releasing their soundtracks themselves, reflecting the current ability for Australian composers to retain rights relating to their music and avoid buyout contracts (Fig 34). Just 4% of survey respondents whose music is released as a standalone soundtrack said they typically worked with a record label to release original soundtrack recordings, a factor that may have implications for how recording industry bodies such as ARIA (Australian Recording Industry Association) and AIR (Australian Independent Record Labels Association) interact with the Australian game music sector.

While soundtrack sales and streaming revenue was the most common source of residual income for survey respondents (Fig 29), interviewed game music workers' experiences varied as to how much money could be made via soundtracks. For some composers, like Jeff van Dyck, the experience had been a largely positive one: "I think it's possible to make decent money selling your OST, and certainly, Spotify ... if you have enough material up there, you could actually make a half decent amount of money each year on people playing your music".

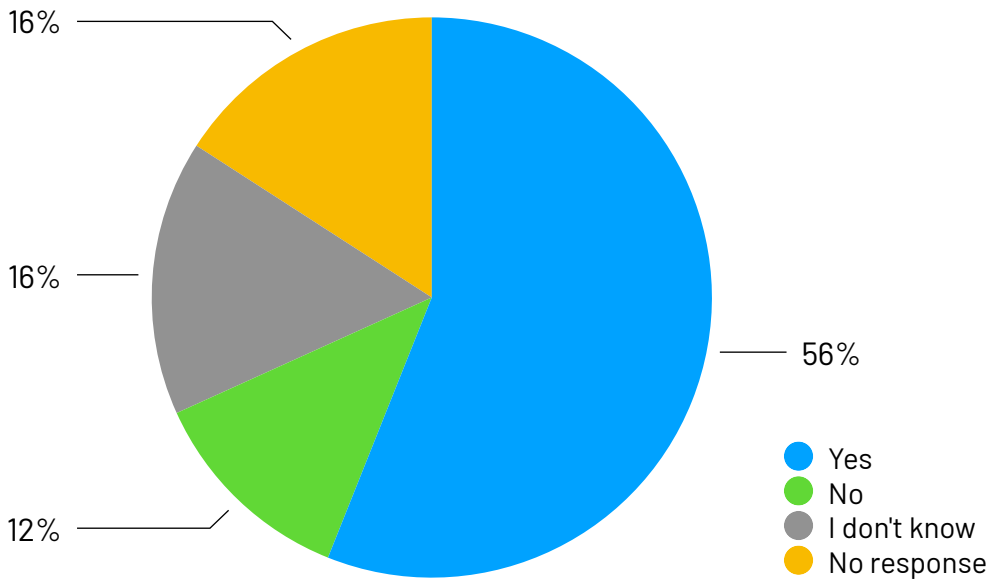


Figure 30: Does the music you create for games typically get released as a standalone soundtrack?

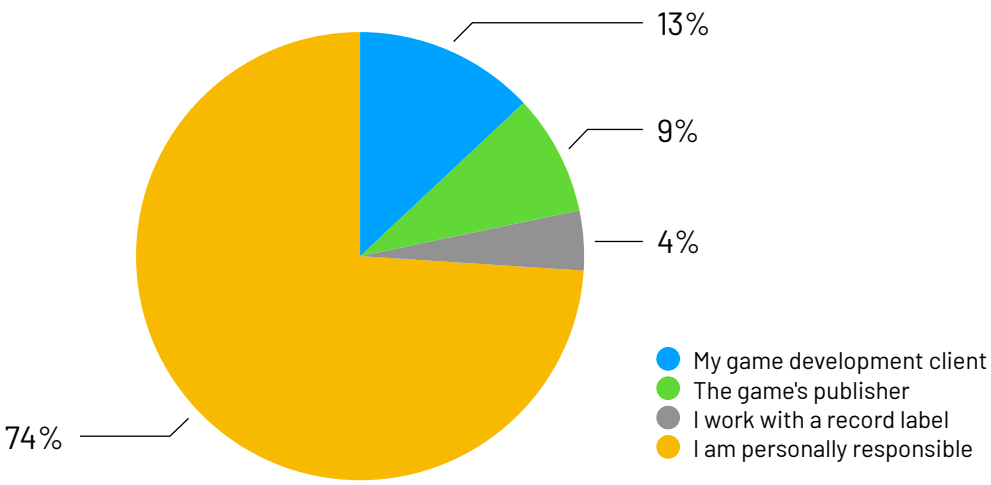


Figure 31: Who is responsible for releasing your music as a standalone soundtrack, if it gets released at all?

On the other hand, Belinda Coomes identified the potential cost and time involved in personally putting together an original soundtrack release as an investment that may never be returned: "Not only do I then have to take the game assets, I then need to reorganise the music to make it linear form. And then I need to put in a playlist, and I need to submit it to Steam. There's all this work that goes behind it, and there's potentially money involved there... I like to get it professionally mastered, and a mastering fee is going to cost you $1,500 for like an hour of music. I'm banking on that there's enough sales of the music that pays for the mastering".

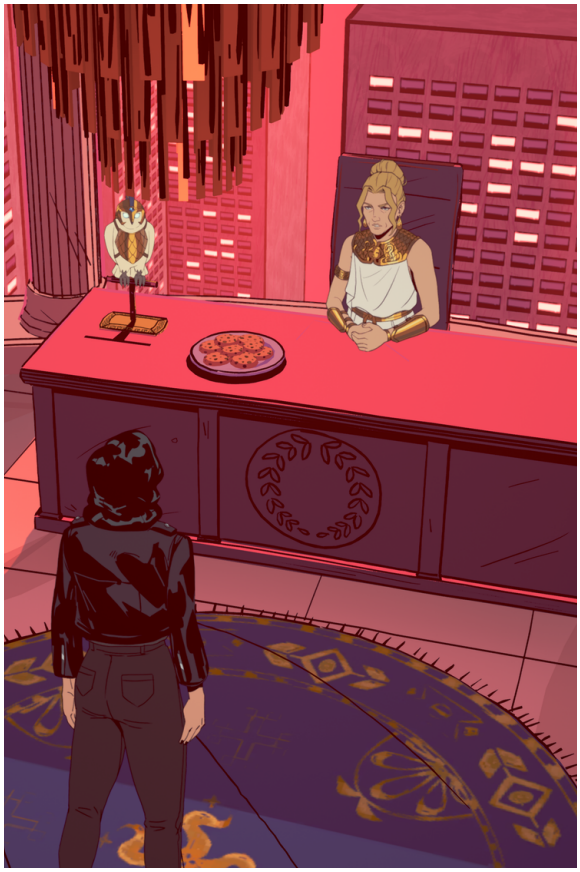
> "There's also a lot of complications around streaming platforms like YouTube and TikTok and things like that, because they do a lot of Content ID. For example, if the musician registers their music with YouTube, and then someone streaming the game, or a Letsplayer uploads their play through the game, then it can get demonetised because YouTube has detected the music. Obviously, as a game developer, I don't want that, because I want people to be playing the game, and it's marketing for the game. I want people to be able to freely stream it, and monetise their streams, because a lot of them are doing it professionally. That's something that needs to be considered when negotiating contracts as well."
>
> **- Ian MacLarty, director, Shape Shop**

Whatever the income level, however, the composer retaining the right to release and even manage the soundtrack was widely agreed on as paramount. Partly this came down to composers feeling best equipped to manage a soundtrack release themselves, especially in Australia's digital games sector where small independent game studios may not be interested or equipped to enter the ecosystem of streaming platforms and music promotion. Another key factor in the importance of soundtrack releases was the ability to use albums as a portfolio for obtaining future work and maintaining a profile as a composer.

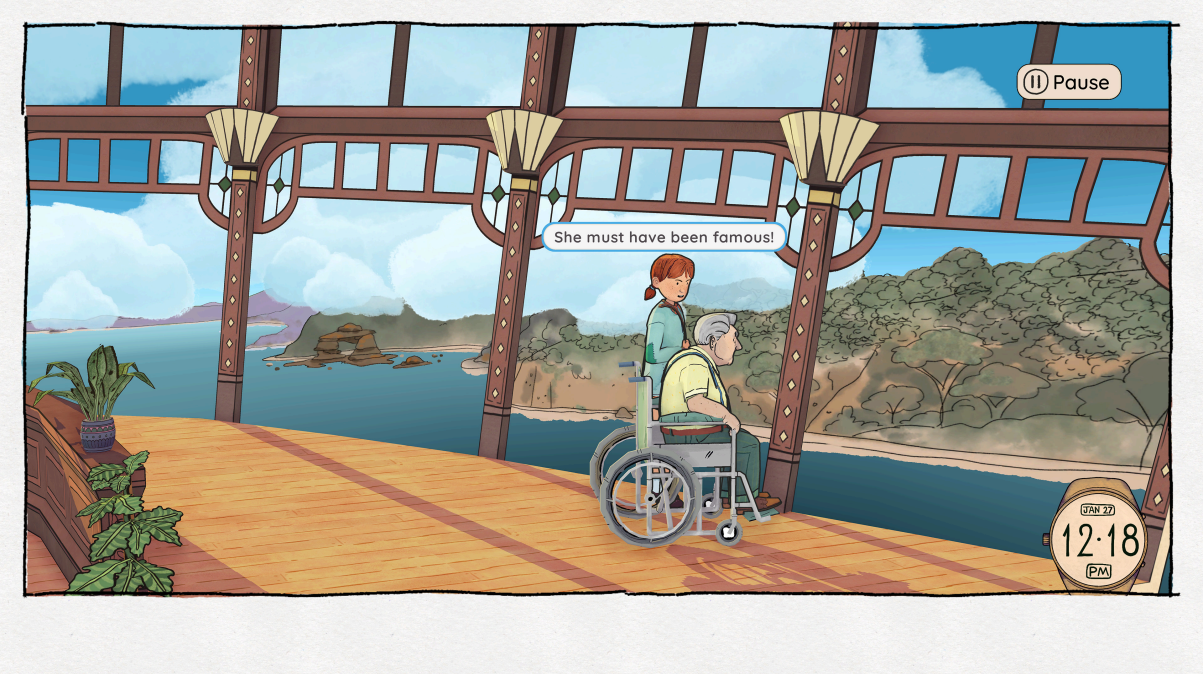
Finally, releasing a soundtrack can also have unintended side-effects that need to be accounted for during contract negotiation. Regardless of who manages the distribution of a soundtrack (the composer, a label, or a game studio), the question of platforms and algorithmically-driven copyright strikes can be crucial for platforms like YouTube, Instagram, and TikTok. Independent game developers rely on

building good will with their fanbases through social media to draw attention to their games. Through no fault of the developer, this good will can be threatened if that fanbase receives copyright infringement notices from the videos of the game they upload to social media.

It remains surprisingly difficult to 'whitelist' music on platforms like TikTok, YouTube, and Twitch to avoid automated takedowns. Once an original game soundtrack is registered with platformised systems for detecting copyright infringement, however intentional or unintentional, difficulties can arise for game developers who want to encourage player uploads as organic game promotion. Accordingly, distributing music to platforms with content identification systems may be explicitly ruled out at the contract level, where trade-offs between revenue streams and organic game promotion have to be considered and weighed by music worker and developer alike.



Stray Gods, image courtesy Summerfall Studios.



Wayward Strand, image courtesy Ghost Pattern

Growth potential for the Australian game music sector

A rapidly growing local game industry creates new opportunities to involve Australian musicians and composers

The Australian games industry is growing rapidly, while retaining its longstanding focus on producing original IP. Most crucially, this resurgent Australian industry is increasingly prioritising development for console and PC platforms. Original music is a fundamental requirement of such games, and together, these trends will greatly increase the demand from Australian game development companies for skilled game music workers.

However, as the remote and contract nature of game music work at independent scales is highly flexible, this does not necessarily mean Australian game development companies will instinctively hire Australian game music workers. Australian game music workers require greater visibility and recognition, and more opportunities to network and collaborate with Australian game developers.

Australian musicians and composers are well positioned to take advantage of global game music opportunities

While Australian game developers don't necessarily need to hire locally, likewise Australian game music workers don't only need to work for Australian game developers. Many Australian-based game music workers already work for overseas clients. The growing number of critically acclaimed Australian independent game soundtracks from recent years is building global recognition of the quality of Australian game music workers. However, acquiring game music work typically requires a pre-existing relationship with the developer. Connecting at international industry events such as GDC, Gamescom, or PAX can be pivotal for building such connections on a global scale. Ultimately, to obtain international work, what Australian game music workers need is international game development networks. The recently legislated Digital Games Tax Offset (DGTO) will also likely draw attention to Australia's game development talent of all stripes, including game music workers. At present, game music workers are unsure how exactly the DGTO will impact their work, either directly or indirectly. Future research will be crucial to assess its impact for the Australian game music sector.

> "I guess the other thing is the tax offset. I don't think we've felt the effects of that yet, in terms of how people are planning for it and what people think they can afford. I feel like it doesn't really impact the smaller [game development] teams that we want to work with. It hasn't really been a consideration, I think, for any clients we've been working with, the notion that they might be able to get tax back on the work that we do for them."
>
> **- Zander Hulme, game composer and director, Supertonic**

> "With everybody working from home and spread all over the world, composers, if they can't find anything locally, they should be able to find something overseas. It's just that you need to find it. That's where going to GDC, GCAP, NZGDC, any of these things are good opportunities for composers to advertise their abilities. … I think going to GCAP or GDC is where you're going to end up getting those clients that are from elsewhere."
>
> **- Jeff van Dyck, composer**

Musicians and composers working with local studios often retain generous rights and control of their music, and are gaining access to new revenue streams

Game music workers in Australia most commonly licence their music to game developers, and retain not just copyright but publishing and performance royalties, and the ability to control and profit from the release of their own original soundtrack. In addition, they often are able to obtain a share of their game's profits, confirming their status as genuine creative collaborators with skills and insights that are highly valued by game developers. These conditions are shaped by Australia's independent digital games sector, and are highly desirable for composers especially compared to equivalents in other screen sectors.

Generosity and equity should be—and currently are—the baseline expectations for Australian game music workers when it comes to negotiating rights. While game music workers and developers alike are often confused and frustrated in their attempts to translate the arrangements and norms of the broader music sector to the interactive context of digital games, recent developments suggest optimism for game music taking the best of both the games and the music industries may not be misplaced. Notably, APRA AMCOS's recent PRS licence deal enabling the collection of performance royalties for games purchased through the Sony PlayStation Store in Europe, and a forthcoming Australian and New Zealand licence means that Australian game music workers are currently gaining access to new revenue streams while not going backwards on their existing conditions and rights. This is an ideal scenario for future growth in the sector.

Digital games provide a platform for Australian musicians to reach new audiences

Digital games are fundamentally multimedia, converging a range of creative disciplines into a single work including visual art, programming, writing, voice acting, animation, and of course music and sound design. Game music is unique, however, in the way it functions as both a key element of the broader work as well as a discrete creative work in its own right, engaged with independently by audiences, and thus capable of being sold and exploited by rights holders.

Most Australian game music workers are creating original music, and have extensive autonomy to create the kinds of music they wish to create. Furthermore, they most often retain the rights to this music, and are able to make further income off soundtrack sales and streaming. Live performances of game music, too, can be wildly successful, with Orchestra Victoria assembling an array of concerts both focusing on individual games (such as *Untitled Goose Game*, and *Cult of the Lamb*) and wider programmes of game music (such as "Indie Symphony").

Considering that 3.4 billion people worldwide play digital games, digital games are a powerful platform through which Australia's music can be showcased to a global audience. However, at the same time, people often don't know where the games they are playing are actually made. More formalised and standardised approaches to awards and credits could help address this.

Most soundtracks are self-published

A majority of Australian game music composers are able to manage and exploit their own music for standalone soundtrack releases. Though not always money-makers, these releases serve three important purposes: first as additional revenue streams for game music workers; secondly as portfolio and profile building material for composers; and third as promotional material and audience engagement exercises for games.

Currently, a negligible number of game music workers say they typically work with music labels or publishers to manage music releases beyond their digital games (4% of those whose music gets released as a standalone soundtrack). This impacts on the visibility of the Australian game music sector. It is likely that *Untitled Goose Game* was the first digital game soundtrack to be nominated for an ARIA simply because it was also only one of a vanishing few to be distributed by a major label, and therefore by an ARIA member (Universal Music). That said, no game soundtrack has to date been nominated for an AIR Award, suggesting a deeper disconnection between the Australian game music sector and the broader Australian music sector.

Many composers we spoke to either explicitly rejected the prospect of signing with a music label or a music publisher, or had not appeared to consider the possibility.

While most Australian game music workers release their music independently and reap both the rewards and the risk of that approach, there remains an opportunity for a label or a publisher to make a modest and considered intervention in the market that rewards game composers and studios alike.

> "There was some label interest, but especially digitally, I was like – what's going to get people to listen to the soundtrack on Spotify is if they like the game or not. I don't think that a label in there pushing it is going to help, in my opinion. And then they take 20, 30, 40 per cent, so I just couldn't really see the value in that with the digital release."
>
> **- Anonymous composer**

Photo by Casey Horsfield (courtesy Orchestra Victoria).

Potential to grow use of live performance rather than digital instruments

Convenience and cost considerations mean that the majority of Australian game music composers currently work with digital instruments, rather than record live performances. In many cases this is both a budgetary necessity and a great convenience. Few small-scale independent teams think they can afford to hire live performers. Yet, game music workers broadly nonetheless agree that live performances have the ability to bring something unique and special to a game's soundtrack.

While the smaller scale of game development focused on by Australian game developers is unlikely to ever see game music live performance turn into a major domestic industry, there are nonetheless opportunities to grow and encourage live performance locally, such as by providing funding support for live performance use by Australian game developers, better educating Australian game developers as to what is possible with live performance, or by advertising Australia's live performance ability to international large studios looking to take advantage of the DGTO.

"I think that's just the most recent observation I've had about this. We [Australia] make excellent music; our composers are brilliant, but sometimes I feel if there was more money, or better budgets for music, that can allow for live instrumentalists, our soundtracks would go from [down] here to [up] here. ... Often we're having to be composers and performers ourselves … I just feel it would expand so much when you have better engagement with live musicians."

- Meena Shamaly, composer and session musician

"Orchestras have a reputation for being expensive, and whilst there are expenses associated with any project that includes a large number of personnel, I think that some developers would be surprised as to what they can afford. In some cases, I think this is due to a knowledge gap about what recordings really cost and the way the industry operates: the number of people you actually need, and the providers available, even when it comes to projects at a larger scale. When it comes to smaller scale projects, where you only need four or five musicians in particular, I think a lot of developers would be surprised to learn that they can afford to record with live musicians."

- Elise Lerpiniere, Orchestra Victoria, Artistic Planning and Engagement Manager

Photo by Casey Horsfield (courtesy Orchestra Victoria).

Key challenges facing the Australian game music sector

More Australian composers and musicians want games work than is locally available

The constant growth of the digital games industry, and the regular successes of local game developers, mean more and more composers and musicians are striving to enter the space. As the high number of unpaid game music workers in our survey suggests, there are far more people striving to work in game music than there is local demand for game music workers.

This is hardly surprising, and is common across the creative industries, including the music sector more broadly, where non-music work accounts for over 90% of the income of music workers. Nonetheless, the limited ability of obtaining new work is the most consistent struggle highlighted by game music workers (61%), and only 12% of game music workers agreed or strongly agreed with the statement that "it is easy for me to obtain game music work".

Fostering sufficient demand—both locally and globally—to meet the current and growing level of talent supplied by Australia's game music sector is one of the sector's most pressing needs.

> "I need X number of games per year, but there's not that many projects of the music that I specialise in to get that, unless I'm charging really high fees, but then they don't have that budget. And then all the established studios already have relationships with composers. So you've got to work your way up. But that's the challenge, that you're working your way up, but at the same time, you need more games. You need multiple games per year, which is a lot of onboarding new clients. ... So it's just the amount of work that I need. There's just not enough work in the local industry for the services that I provide."
>
> **- Belinda Coomes, composer**

Game developers struggle to budget appropriately for the required music

Game development companies work with a wide range of resources, but in the independent space that dominates the Australian industry, most teams are working with highly restricted budgets. At the same time, while developers appreciate the importance of music for their game, they struggle to anticipate the full extent of music production and implementation work their game will require, and just how much this work should cost. Consequently, when going to publishers or public funding programs, developers tend to

> "I've noticed a lot of developers tend to put a grant in before they've really spoken to someone who sat down with them and looked at their project and looked at what they need. … So then they put a grant in for that much. And then they'll say, 'Well, this is what I've got'. And then you start talking about what they actually need. And then it's actually more than what they thought. So you often end up working with their budgets, and working out what you can do with that amount …
>
> I find a lot of developers are really conservative in their budgets because they're worried the grant isn't going to be successful. So they ask for less thinking that that's going to help them. But then if they want to work with people that are more established, then there's a bit of a bottleneck there because the budget doesn't always extend to what they're looking for. So a lot of the budgets don't extend to what ideally I'd like to do."
>
> **- Belinda Coomes, composer**

propose a music budget that is much leaner than they will actually need.

This predetermines the available funding a team has available for music work, so many game music workers end up having to figure out how much work they can achieve within that budget, as opposed to providing a quote for the amount of work the game would best benefit from. Game music workers and game developers alike require clear and accessible information that outlines accepted rates, and standard rights expectations, to ensure all parties are treated fairly.

> "There needs to be a standardised rate for music composition in the [games] industry so that people can survive as composers and create a life without spending it stressing so much about being undercut. I was charging horrendously low prices for what I was doing. It was only when I could afford to go to GCAP and High Score and chat to other industry professionals did i fully understand what I was doing. I was setting the bar very low."
>
> **- Survey respondent**

Game developers and game music workers alike are confused by rights and payment agreements, mostly making it up as they go along

As with pay rates and budgets, a general lack of awareness about standard contracts and composer rights has contributed to a scenario where many game music workers feel confused and uncertain about what may be negotiated. Is it reasonable to expect a full buyout contract, or can game musicians ask for more? This report may go some way towards illuminating the range of current practices occurring in the Australian game music sector, but it cannot provide minimum standards or provide collective pressure to retain rights and working conditions.

In this case, game music workers have fallen into the gap that exists between music and screen composing sector associations, and game sector associations, neither of whom currently provide guidance or advocacy on game music sector-specific issues. The Arts Law Centre of Australia provides access to a sample Music Commission Agreement for Games which can be used when a game developer wants a composer, musician, or band either to create original music for use in the developer's game or to adapt existing music into a new composition or arrangement. However, it is also important to establish collective and sector-level norms for what rights a composer may reasonably expect to retain in any agreement.

This work could be done by games sector bodies and screen composer organisations alike.

Increasing foreign private investment in Australian game development risks disrupting current generous (albeit confusing) rights arrangements for game music

Payment and rights management situations are made even more complicated when private publishers enter the equation, often after agreements have already been put in place between game music workers and developers. While rights management and pay remain a point of frustration and confusion for game developers and game music workers alike, the current game music sector nonetheless retains advantages and standard rights that have been diminished over time in the film and television soundtrack sector. For AGSC President Dale Cornelius, "historically, [how it currently is in games is] how it used to be for [film and television composers] as well, before the streamers came into the market and introduced these new contracts, and before you knew it, the [film or series] producer was often demanding at least a share of the publishing".

This seems to match the growing influence of international game publishers on composers' contracts in Australia. As Jeff van Dyck relates, "I

recently did a game called *Submerged: Hidden Depths*, which is by Uppercut. And that was published by Google [...] I said, 'I'd like to retain ownership of the music', and Google said, 'No', and there was no discussion". At least one other anonymous composer we spoke to noted that a music contract had to be redrawn with a local studio after that developer signed with an international publisher who demanded ownership of the music as a standard, non-negotiable practice. As the influence of international publishers becomes greater in the Australian digital game sector, the pressure to give away advantageous rights for composers may become greater.

Game developers often employ game music workers from overseas

Game music work is predominately conducted remotely on project-based contracts. The same is true for independent game development work generally, especially since the COVID-19 pandemic, as more and more teams work fully remotely across geographic regions, without needing a physical studio space.

Counterintuitively, this remote nature of game work can disadvantage local game music workers who are not tapped into game development professional networks, and instead favours game music workers globally already in those networks, considering the general irrelevance of geographic location.

Countering this trend requires local game music workers gaining access to local and national game development professional networks. This requires educating aspiring game music workers as to the events and networks through which to meet game developers, and providing support to foster collaborations, such as assisting Australian music workers to travel to international conferences. This would bolster relationships within the local game industry so developers are more likely to have familiarity with their work when they need to hire game music workers for their future projects.

> "We found [during the COVID-19 pandemic] that you can work just as effectively remotely these days. There's things that make that easier and things that makes it harder. … [But] as long as you've got effective communication, right? If you've got the right tools and communication methods and you've got an artist who's happy to be available, then you can overcome all the barriers of distance … What we're seeing now is people are more and more willing to just go to where the talent is, irrespective of location."
>
> **– Game studio cofounder and CEO**

Entrenched gender and racial inequality from the games industry is mirrored in game music work

While both the national arts and music sectors have relatively even gender distribution between men and women, both the Australian games industry and the broader screen composer sector are greatly skewed male. The game music sector seemingly follows these endemic gender inequalities. Likewise, the digital games industry has long been ethnically homogenous, and this too seems to have followed through into the game music sector. Broadly, the entrenched and discriminatory structural challenges of the digital games industry are currently mirrored in the game music sector.

This is particularly striking given the great diversity of music cultures and performers in the Australian music industry. Indigenous musicians and composers in particular are nearly entirely absent from our survey, apart from one respondent.

Any attempts to support and grow game music work in Australia will need to proactively work against these embedded structural challenges to ensure equal opportunity in the space. This might include requirements or assessment criteria on any funding targeting the field. More broadly,

providing education and opportunities to those not traditionally welcomed by the digital game industry could greatly increase participation in the field.

Automation

AI automation is increasingly disrupting a range of creative fields. Game development companies are increasingly looking to AI to automatically generate assets such as dialogue, 3D models, and of course music. Creatives themselves are more anxious than excited about such technological advancements.[58] Of our respondents, 18% either somewhat or strongly agreed with the statement "AI technology will likely make my work easier in the coming years", whereas 47% of game music workers are worried that their work is at risk of being made redundant by AI technology.

Beyond the concern that automatic systems might put game music workers out of jobs, there are also concerns as to the content that such systems are trained on. In recent months, games using AI-generated content have been rejected from Valve's Steam distribution platform due to a lack of information about the provenance of the work used to train the AI systems.[59] Australian game music creators—and music creators generally—are at risk of their own copyrighted music being used to train such systems without their permission.

This is a rapidly evolving space, made even more complex by digital game's long history of experimentation with procedural music. However, for now, game music workers are more anxious than excited about the potential of AI automation.

Hollow Knight, image courtesy Team Cherry.

[58] Shannon Liao, "AI Offers New Tools for Making Games, but Developers Worry about Their Jobs," *The Verge*, May 5, 2023, https://www.theverge.com/2023/5/4/23700619/ai-game-development-jobs-gdc-2023.

[59] Wes Davis, "Valve won't approve Steam games that use copyright-infringing AI artwork," *The Verge*, July 2, 2023, https://www.theverge.com/2023/7/1/23781339/valve-steam-ai-artwork-rejecting-banning-pc-games

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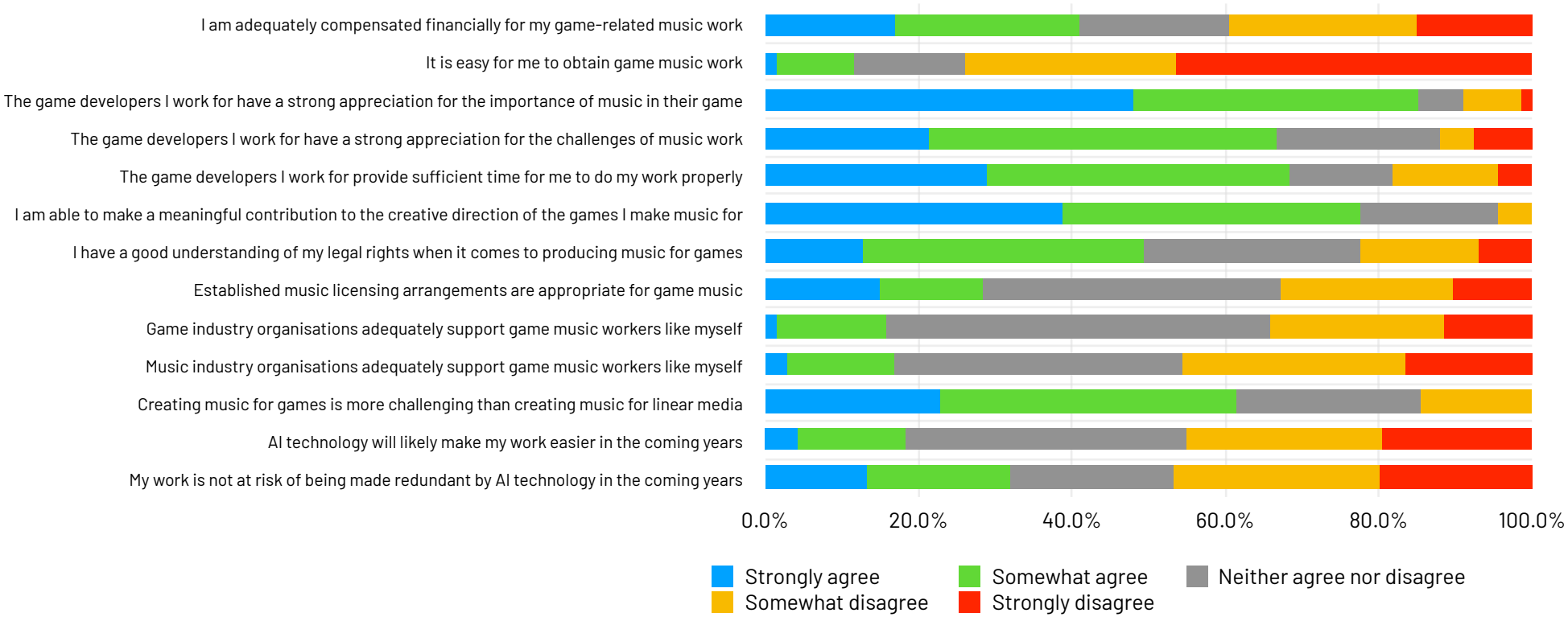
Appendix A: Insights



Appendix B: Public funding programs for game development in Australia

Organisation	Program name	Amount	Description	URL
Australian Government	Digital Games Tax Offset (DGTO)	30% tax offset refund for qualifying Australian development expenditure (minimum $500,000 spend)	The Digital Games Tax Offset (DGTO) forms part of the Government's National Cultural Policy — *Revive: A Place for Every Story, A Story for Every Place*. The DGTO supports the ambitions of Pillar 5: Engaging the Audience of the National Cultural Policy. As one of the fastest growing creative industries, a thriving domestic digital games sector will: engage audiences, both domestically and abroad, in a greater range of Australian games; recognise the centrality of the artist by providing a meaningful and diverse career path for Australian creatives; support the growth of industry and employment opportunities in cities, suburbs and the regions; and promote Australian stories and Australian talent, at home and abroad.	https://www.arts.gov.au/what-we-do/screen/digital-games
Screen Australia	Games: Expansion pack	Up to $150,000	A Screen Australia initiative to help Australian game studios increase the ambition and quality of their digital games, and to transition into businesses of scale that can better compete in the global market. Screen Australia will provide grants of up to $150,000 per successful application for production of a digital game with a budget up to $500,000. The initiative will run for the 2021-22 and 2022-23 financial years. Higher budget games are likely to be able to receive Australian Government support through the announced Digital Games Tax Offset.	https://www.screenaustralia.gov.au/funding-and-support/online/games/games-expansion-pack

Screen Australia	First Nations Game Studio Fund	Up to $150,000	The First Nations Game Studio Fund aims to support the activities of businesses that are led by First Nations game developers by providing funding to stabilise and grow their studios. This fund responds to the opportunity that is presented by First Nations-led game studios already working in the space. It aims to grow and strengthen game studios that are already invested in creating a culturally safe space for First Nations people to build their game development skills.	https://www.screenaustralia.gov.au/funding-and-support/online/games/first-nations-game-studio-fund
VicScreen	Vicitorian Production Fund - Games	$300,000 - 500,000	The Victorian Production Fund (VPF) – Games supports Victorian digital games development companies and creators to develop and release a variety of digital games. This program accepts applications to support the Pre-Production, Production, and Post-Production phases of game development.	https://vicscreen.vic.gov.au/funding/games#vpf-games
VicScreen	Originate Games	$10,000 - 50,000	Originate Games supports the development of original early-stage concepts from Victorian game developers, with a focus on new voices and new projects. By supporting projects in their critical early stages, Originate Games builds new Victorian original IP by giving developers the space to iterate on new ideas through creative experimentation, prototyping, industry mentoring,	https://vicscreen.vic.gov.au/funding/games

VicScreen	Victorian Digital Screen Rebate - Digital Games	10-15% of projects Qualifying Victorian Expenditure	The Victorian Digital Screen Rebate (VDSR) program is an economic development initiative that offers grants to digital games, animation, post-production, and visual effects (VFX) projects to be undertaken in Victoria. The objectives of the Victorian Digital Screen Rebate are to: – support digital screen business growth and employment in Victoria – attract interstate and international digital screen businesses to Victoria – increase employment and skills development opportunities for Victorian-based screen industry practitioners – build screen businesses, innovation, and entrepreneurs – increase business activity for Victorian based companies, including screen industry services, equipment providers, and related industries – increase economic activity in Victoria.	https://vicscreen.vic.gov.au/funding/incentives/#vsi
Screen QLD	Digital Games Incentive	15% eligible Queensland Game Development Expenditure	The Screen Queensland Digital Games Incentive attracts games development projects to Queensland and encourages further growth in the local sector. The incentive is designed to support local developers as well as international games companies looking ot establish a new studio in Queensland to expand their business.	https://screenqueensland.com.au/games/digital-games-incentive/
Screen QLD	Games Grants	Up to $90,0000	Screen Queensland's Games Grants support the growth of the local digital games industry in Queensland by supporting Queensland developers and studios. The grants support projects with funding of up to $90,000 at varying stages including experimental development, prototype, early access and full launch.	https://screenqueensland.com.au/games/games-grants/

Create NSW	NSW Digital Games Rebate	10% of Qualifying NSW Expenditure under $500,000	Program objectives: – To accelerate the growth of the NSW digital games sector – To enable NSW games companies to be internationally competitive, attract investment, and grow employment – To encourage international or interstate developers to locate studios or work in NSW – To promote investment in skills development and infrastructure – To attract and retain talent in NSW	https://www.screen.nsw.gov.au/funding/incentives/nsw-digital-games-rebate
Screen Tasmania	Games Development Program	$20,000-50,000	This program is for the development of digital games for all digital platforms, including, but not limited to, consoles, PCs, mobile, and tablet. It encourages Tasmanians to develop, adopt, and exploit new and emerging business models for the creation and delivery of compelling screen content, with a focus on the creation and retention of Tasmanian Intellectual Property. The program enables applicants to release a finished product or attract further development and/or production investment from the marketplace. The program encourages applicants to demonstrate an entrepreneurial approach by exploring new and emerging business models and potential revenue streams.	https://www.screen.tas.gov.au/__data/assets/pdf_file/0007/460582/games_development_guidelines_2023.PDF

South Australian Film Corporation	SA Video Game Development Rebate	10% eligible expenditure	The SA Video Game Development Rebate (SA VGD Rebate) enables digital games studios to claim a percentage of costs incurred to develop a digital game in South Australia. The SA VGD Rebate is paid by the South Australian Government and administered by the SAFC. The SA VGD Rebate is a new scheme and the first of its kind in Australia. The Rebate seeks to be responsive to the needs of the games industry and to establish South Australia as a leading location for games development by encouraging established South Australian games studios to scale and by incentivising other games studios to establish a base or undertake work in South Australia.	https://www.safilm.com.au/games/#VGDRebate
Screenwest	Digital Games Business Accelerator Fund	Up to $50,000	The Screenwest Digital Games Business Accelerator Fund assists Western Australian digital games companies with business development and capacity building with a focus on creating employment opportunities that support the stabilisation of business operations and the retention of key talent. The Fund is designed to: - Create pathways for Western Australian digital games companies to expand their businesses and production capacity. - Build the capability and capacity of the Western Australian digital games talent pool. - Support the growth and sustainability of the Western Australian digital games ecosystem.	https://www.screenwest.com.au/wp-content/uploads/2023/07/230725-Digital-Games-Business-Accelerator-Guidelines.pdf

Screenwest	Digital Games Production Fund	$25,000-150,000	The Screenwest Digital Games Production Fund provides grants to Western Australian companies and key creatives to develop and release high-quality, diverse, and engaging digital games. PreProduction, Production, and Post-Production phases of game development for PC, consoles, mobile, virtual reality (VR), augmented reality (AR), or extended reality (XR) can be supported. This fund is designed to help Western Australian studios and developers bring their ideas and prototypes to a level that will gain interest from other investors and partners, have successful releases and achieve high player retention post launch.	https://www.screenwest.com.au/wp-content/uploads/2023/07/230629-Digital-Games-Production-Fund-Guidelines-FINAL.pdf
Screen Territory	Conceptual Development	Up to $10,000	Up to $10,000 per application to deliver micro-prototypes demonstrating innovative game mechanics and audience/market.	https://screenterritory.nt.gov.au/funding/funding-available/games-development/conceptual-development
Screen Territory	Prototype	Up to $25,000	Up to $25,000 contributing to a significant development work which illustrate core gameplay and key differentiators of game to market competitors.	https://screenterritory.nt.gov.au/funding/funding-available/games-development/prototype
Screen Territory	Vertical Slice/ Early Access	Up to $40,000	Up to $40,000 contributing to polished core gameplay, where players can experience a good representation of full release gameplay.	https://screenterritory.nt.gov.au/funding/funding-available/games-development/vertical-slice-early-access

Screen Canberra	Arts Activities Funding	$500-5,000 (small); $5000-50,000 (large)	This fund provides support for Canberra artists, groups and organisations to undertake arts activities including creating new work, professional or skills development, mentoring, residencies, community arts, cultural development, and engagement. Activities can be across a range of artforms including dance, digital, literature, music, new media, screen, theatre, visual arts, and arts-based festivals. Funded activities must strongly meet one or more of the following three strategies: – Create amazing art and culture – everywhere, at any time and for everyone – Develop arts, cultural and creative industry, practice, and facilities – supporting creation and culture at all levels, via any path – Promote our arts and culture – to attract artists and creators, arts workers, visitors and investment.	https://screencanberra.com.au/funding/act-screen-arts-fund/

Appendix C: Methodology

To compile this benchmark, we adopted a mixed methodology, comprising the following key activities:

- **Desk research:** Analysing industry reports and academic research of the digital game, music, and screen composing sectors, in both Australia and globally.
- **Industry organisation consultation:** Invited music industry representative bodies to submit written comments to provide insights on the current state of the field.
- **Semi-structured interviews:** Consulting stakeholders in the Australian game music sector.
- **Game music worker survey:** Surveying Australian game music workers in terms of their demographics, ambitions, skills, and types of activities.

Semi-structured interviews

We conducted 20 interviews. 12 with game music workers of various backgrounds, 4 with game developers, and 4 with music and games industry organisation representatives.

Interviews were semi-structured, meaning that our questions were adjusted during the interviews to respond to key topics emerging from the interviewees' answers and areas of interests. Interviews were transcribed and returned to interviewees for approval before then being thematically coded and analysed in the NVivo coding software.

Game music worker survey

A survey was designed in consultation with Creative Australia, and informed by insights drawn from the interviews. Approximately fifty questions were used, all of which were voluntary to answer.

The survey was disseminated via social media and the member lists of various games and music industry organisations. The survey explicitly called for participation from "people over eighteen years old who either reside in Australia or who are Australian citizens who contribute music to digital games. This might include licensing pre-existing music, composing new music, or implementing pre-existing music tracks. We want to hear from people who either do this sort of work only infrequently or who work full-time in the space." As an incentive to take part in the survey, three passes for the 2023 High Score conference were provided by APRA AMCOS.

The survey was open from 9 June - 26 July, 2023. It was briefly reopened to allow one more respondent to complete the survey on 15 August, 2023. The survey was designed and disseminated using Qualtrics online survey software for desktop and mobile devices. Security tools were enabled to ensure anonymity and limit duplicate responses.

In total, 177 people began the survey, from which we received 90 valid responses. Quantitative analysis was conducted using Microsoft Excel. Qualitative, open-ended responses were coded in NVivo alongside the interview transcripts.