

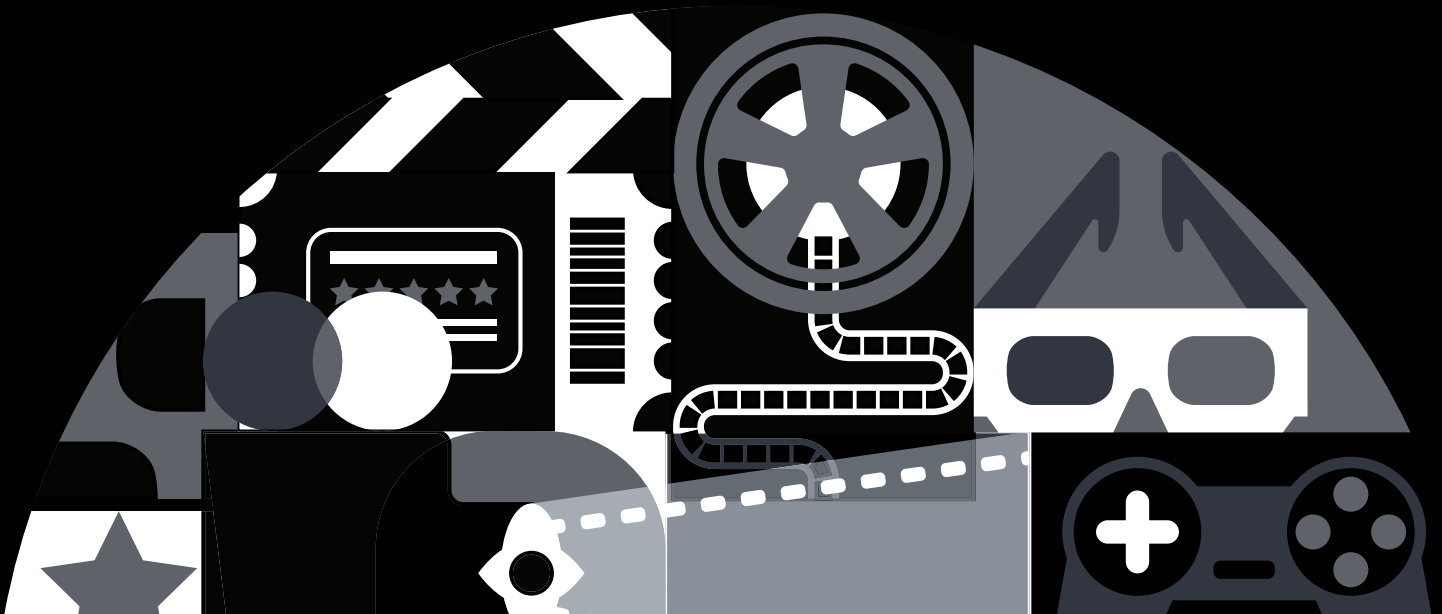


Economic contribution
of South Australia's
screen sector 2019-20

South Australian Film Corporation
February 2022

Contents

Glossary	iii
Key points	iv
Executive summary	1
1 Background	5
1.1 Definition of the screen sector	6
1.2 Structure of this report	7
2 South Australia's screen sector	8
2.1 Screen production in South Australia	9
2.2 Game development in South Australia	13
3 Economic contribution of South Australia's screen sector	16
3.1 Methodology and approach	17
3.2 Results	18
Endnotes	21
Appendices	27
Limitations of work	27

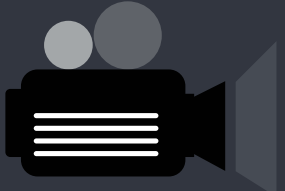


Glossary

Acronym	Full name
ABS	Australian Bureau of Statistics
ANZSIC	Australia and New Zealand Standard Industrial Classification
BLADE	Business and Longitudinal Analysis Data Environment
DIS	Department for Innovation and Skills
EBITDA	Earnings Before Interest, Taxation, Depreciation and Amortisation
FTE	Full Time Equivalent
GOS	Gross Operating Surplus
GSP	Gross State Product
GVA	Gross Value Added
IGEA	Interactive Games & Entertainment Association
IO	Input-Output
IP	Intellectual Property
PDV	Post-Production, Digital and Visual Effects
SABRE	South Australian Business Research Environment
SAFC	South Australian Film Corporation
SVOD	Subscription Video on Demand
VGD	Video Game Development
VR	Virtual Reality

Key points

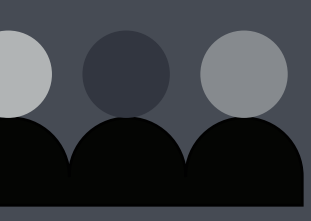
Economic contribution of the South Australian screen sector



In 2019-20, the screen sector in South Australia – including **both screen production and game development activity** – contributed a total of **\$187 million** to gross state product (GSP) and employed **2,297 full time equivalent (FTE)** employees in the state.



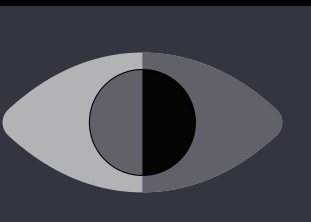
The **direct economic contribution** of the screen sector in South Australia in 2019-20 was \$100 million, employing 1,330 FTEs. The **indirect economic contribution** represents the value added to the South Australian economy as a result of the purchase of intermediate inputs by the screen sector. In 2019-20, screen sector expenditure in South Australia indirectly contributed a further \$87 million in value added, and 967 FTE jobs



This means that **for every four jobs within the screen sector, roughly three jobs were supported elsewhere in the South Australian economy in 2019-20.**



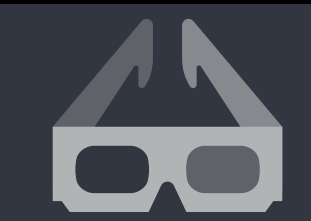
The majority of this economic contribution was generated from **screen production expenditure**. The 2019-20 financial year was a record-breaking year for screen production in South Australia, with drama production expenditure reaching 14 per cent of national expenditure in the year.



In 2019-20, screen production expenditure contributed a total of \$165 million to GSP and employed 2,040 FTE employees in the state. This points to significant growth from earlier Deloitte Access Economics reports on screen production in South Australia – with the total contribution growing at an average annual rate of 15 per cent between 2017-18 and 2019-20.

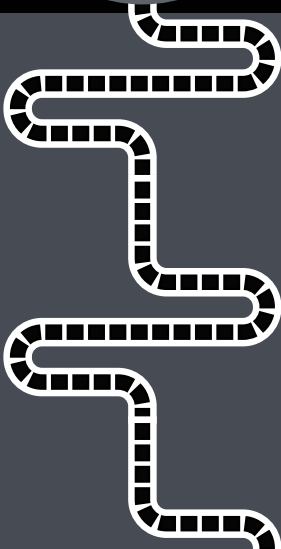
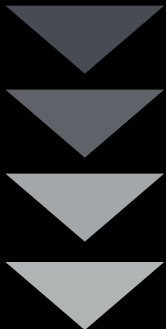
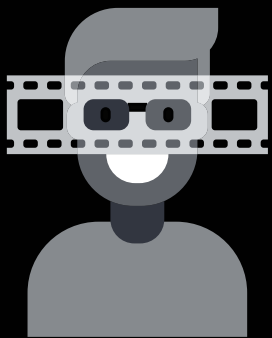


The remainder of the economic contribution of the screen sector was generated from **game development** expenditure. The total contribution of game development expenditure in South Australia in 2019-20 was \$24 million, employing 276 FTE employees. Game development represents a major area of growth in the screen sector, with previous analysis showing that South Australia's game development businesses have grown at an estimated annual rate of 39 per cent over the five years to 2017-18.



Despite continuing impacts from the COVID-19 pandemic, the South Australian screen sector appears poised to continue its historically strong growth. Based on a survey of 49 screen sector businesses in South Australia in mid-2021, 70 per cent of businesses reported **feeling moderately or very positive about their business' outlook** over the next five years.

Executive summary



2019-20 was a **record-breaking year** for the screen sector in South Australia, with the state capturing a **greater than population share of activity** in both screen production and game development.

South Australian drama expenditure reached an all-time high in 2019-20, standing at 14 per cent of national expenditure – double South Australia's seven per cent share of national population. Drama expenditure has been increasing year on year in South Australia since 2015-16, partly driven by expenditure by "footloose" productions locating in South Australia. Titles produced in the state in 2019-20 included feature films such as *Mortal Kombat* (2021), and television series such as *First Day* (2020) and *Stateless* (2020).

While drama production often takes centre stage, screen production also comprises a diverse set of businesses providing services such as crew and casting, camera and audio, wardrobe, set and props, and catering services (collectively referred to as screen services in this report); as well as editing footage and audio and producing visual effects in post-production, digital and visual effects (or PDV).

Collectively, expenditure in South Australia's screen production sector directly contributed **\$165 million in value added** to the state's economy, and employed 2,040 full-time equivalent (FTE) workers in South Australia in 2019-20.

Game development represents a major area of growth in the screen sector. Previous analysis has shown that South Australia's game development businesses have rapidly expanded in recent years, growing at an estimated annual rate of 39 per cent over the five years to 2017-18.

In 2019-20, South Australia's game development sector was home to **12 per cent of national industry employment**, while 16 per cent of game development studios were based in Adelaide. Considering the direct and indirect economic contribution, expenditure in South Australia's game development sector contributed a total of **\$24 million in value added** to the South Australian economy and supported 276 FTE jobs in 2019-20.

Combining the contribution of both screen production and game development (and taking out inter-sector transfers) – the net, or total, contribution of the screen sector to South Australia in 2019-20 was **\$187 million in value added** to the economy, employing **2,297 FTE workers**.

This points to significant growth in the contribution of South Australia's screen sector – with the total contribution of screen production growing at an average rate of 15 per cent each year between 2017-18 and 2019-20. This growth partly reflects the impact of *Mortal Kombat* in 2019-20, the largest production undertaken in South Australia to date. These figures are all the more significant considering that for one quarter of the financial year, the screen sector – and the South Australian economy more broadly – were significantly impacted by COVID-19 and associated lockdowns. Nationally, drama expenditure declined by 14 per cent in 2019-20 compared to the previous financial year.

Following this record-breaking year in 2019-20, the future outlook of South Australia's screen sector remains positive – despite continuing impacts from COVID-19. PDV expenditure in South Australia declined in 2020-21, with COVID-19 delays to production schedules around the rest of the world delaying incoming post-production work for PDV businesses. Drama production expenditure also declined relative to 2019-20, but remained above 2018-19 levels – pointing to sustained growth in the sector.

On a national basis, South Australia's share of national drama expenditure also fell to five per cent in 2020-21. This may partly reflect a recovery in screen production activity in the rest of Australia following the loosening of COVID-19 restrictions in different states and territories.

For example, drama expenditure in New South Wales nearly doubled between 2019-20 and 2020-21 and grew eight-fold in Queensland in the same period.

There are some green shoots to show that the South Australian screen sector is poised to continue its historically strong growth. Based on a survey of 49 screen sector businesses in South Australia in mid-2021, 70 per cent of screen businesses reported **feeling moderately or very positive about their business' outlook** over the next five years. Only 10 per cent of businesses reported feeling moderately or very negative, with the remainder reporting feeling neutral or unsure.

Deloitte Access Economics

Contribution of screen sector businesses

This report estimates the economic contribution of **screen sector expenditure** in South Australia – including all expenditure on screen production and game development undertaken in South Australia in 2019-20.ⁱ

An alternative approach to understanding the contribution of the screen sector is to consider the contribution of all activities by **screen sector businesses** headquartered or operating in South Australia in 2019-20.ⁱⁱ This approach enables capturing a wider range of activities compared to the expenditure approach, by including a broader scope of supply chain activities by screen businesses – such as activities by businesses engaged in the **distribution of screen content** (e.g., South Australian-headquartered cinemas and entertainment retailers).

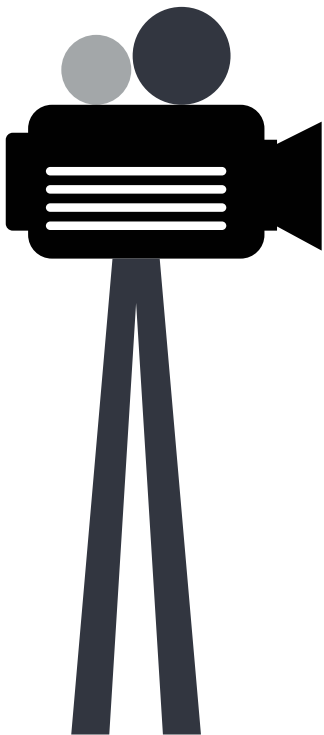
Based on the approach of measuring the direct contributionⁱⁱⁱ of screen businesses:

- Over 500 screen production businesses headquartered or operating in South Australia directly contributed \$124 million in value added to the economy and supported 1,477 FTEs in 2019-20.
- 30 game development businesses headquartered or operating in South Australia directly contributed \$23 million in value added to the economy and supported 208 FTEs in 2019-20.

ⁱ Based on production and expenditure information provided by SAFC, alongside publicly available industry data. For more detail, please see Chapter 3.

ⁱⁱ Based on data extracted from Business Longitudinal Analysis Data Environment (BLADE) and the South Australian Business Research Environment (SABRE) by the Department for Innovation and Skills (DIS). For more detail, please see Chapter 2.

ⁱⁱⁱ Due to the breadth of production and distribution activities by screen businesses captured under the alternative screen businesses approach, estimating the indirect contribution would result in double-counting the value of upstream and downstream activities across the screen supply chain.



Economic contribution of the South Australian screen sector

\$187 million
in value add

2,297
FTE jobs

Screen production

\$165 million
in value add

2,040
FTE jobs



Game development

\$24 million
in value add

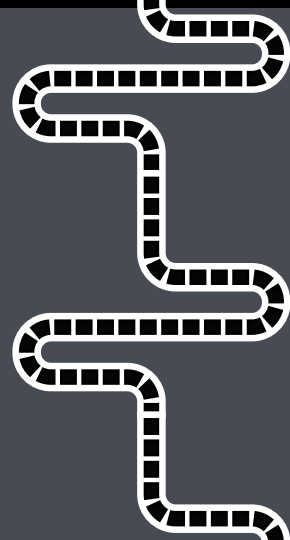
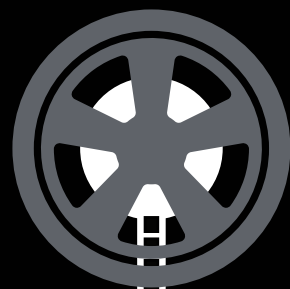
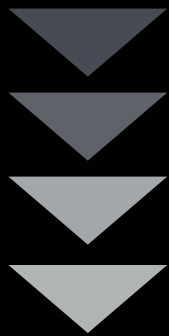
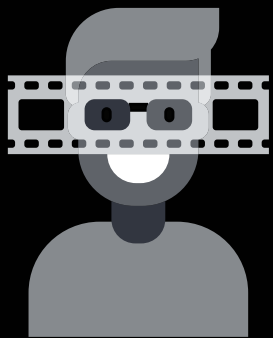
276
FTE jobs



Economic contribution of screen sector

*Note: Screen production and game development figures do not sum to total screen sector due to the removal of purchases between screen production and game development firms (see Section 3.1.3).

1 Background



2019-20 was a **record-breaking year** for the screen sector in South Australia, with the state capturing a **greater than population share of activity** in both screen production and game development.

South Australian drama expenditure reached an all-time high in 2019-20, standing at **14 per cent of national expenditure**¹ – or double South Australia's seven per cent share of national population.² Drama expenditure has been increasing year on year in South Australia since 2015-16, partly driven by expenditure by "footloose" productions locating in South Australia. Titles produced in the state in 2019-20 included feature films such as *Mortal Kombat (2021)*, and television series *First Day (2020)* and *Stateless (2020)*.³

In addition, South Australia's game development sector captured **12 per cent of national employment** in the sector in 2019-20.⁴ Previous analysis has shown that the contribution of game development businesses in South Australia has rapidly expanded in recent years, growing at an estimated annual rate of 39 per cent over the five years to 2017-18.⁵

The South Australian Film Corporation (SAFC) engaged Deloitte Access Economics to estimate the economic contribution of the screen sector in South Australia in the 2019-20 financial year. This analysis updates previous Deloitte Access Economics reports for SAFC published in 2015 and 2019, which analysed the economic contribution of screen production in South Australia in 2013-14 and 2017-18.

In considering the economic contribution of the total screen sector to South Australia, this report also expands on the scope in earlier Deloitte Access Economics reports which considered drama and non-drama screen production (such as documentaries, children's television, reality entertainment, and corporate activity), by also considering the economic contribution relating to game development.

1.1 Definition of the screen sector

South Australia's screen sector comprises a diverse set of activities across screen production and game development. For the purpose of this report:

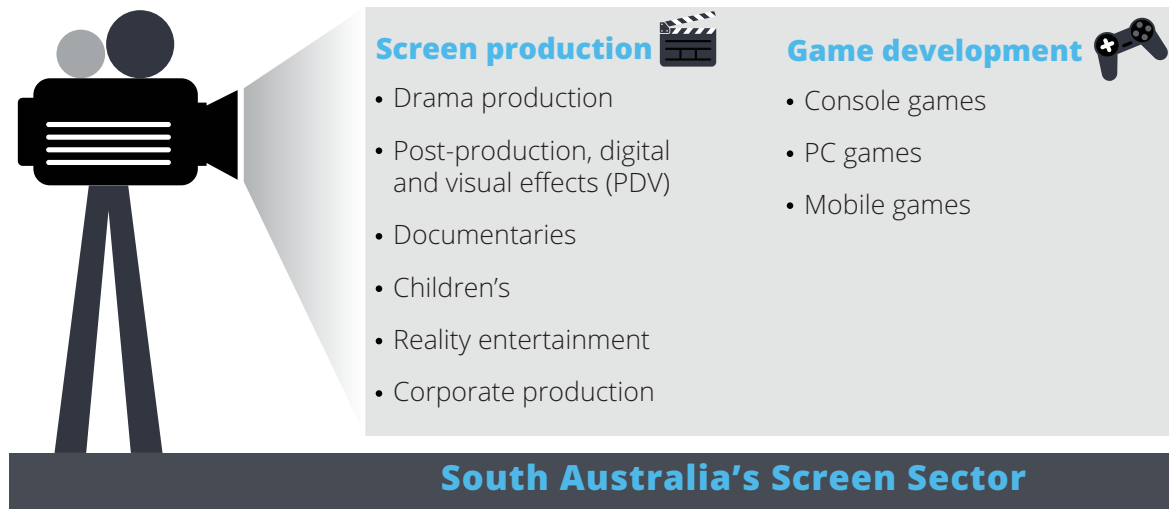
- **Screen production** activities are defined to include the production of film, television and online media, including post-production activities (but excluding the distribution and exhibition of screen content).⁸ This analysis considers drama and non-drama screen production including documentaries, children's television, reality entertainment, and corporate activity, but excludes sports and news broadcasting.
- **Game development** is defined to include the production of digital and online games developed for formats including major consoles, handheld consoles, personal computers and mobile phones. Software development is excluded from this analysis.

Economic benefits of screen sector activity

In addition to the cultural value of producing homegrown screen content,⁶ activity within the screen sector produces a number of economic benefits through supporting **economic activity** and employment across the state. Large-budget "footloose" productions or game development projects can attract **additional investment** into South Australia from interstate and overseas. Screen production tends to draw on a range of intermediate inputs from across the economy, creating flow-on expenditures in a range of different sectors.

Game development is a **largely export-facing industry**, with 87 per cent of Australian game development revenues generated from exports in 2019-20.⁷ Game development and post-production activities also rely on a **highly skilled workforce** including both digital and creative roles such as artists and animators, graphics and audio engineers, computer programmers and software engineers.

Figure 1.1: Scope of production considered in this report



Source: Deloitte Access Economics

This report considers **all screen production and game development activity taking place within South Australia** by businesses which are headquartered in South Australia, as well as businesses which are headquartered outside of the state but undertake activities in South Australia. Production by South Australian businesses which takes place interstate is not included in the scope of this analysis.

The SAFC is the central development and investment agency for South Australia's screen sector, providing a range of supports for screen production and game development businesses, as well as industry and audience development in the state. SAFC is responsible for administering major industry programs including the Screen Production Fund, the SA PDV Rebate, and the SA Video Game Development (VGD) Rebate. SAFC also operates screen production facilities at Adelaide Studios.

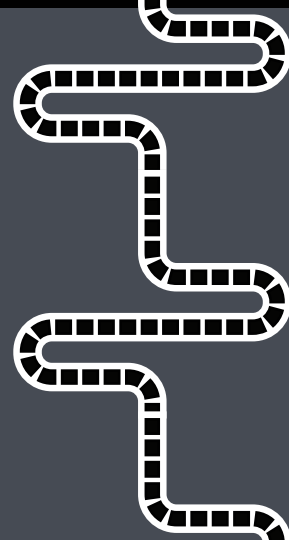
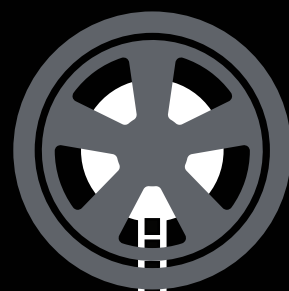
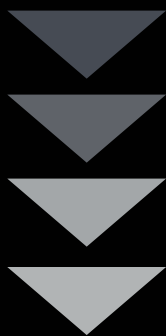
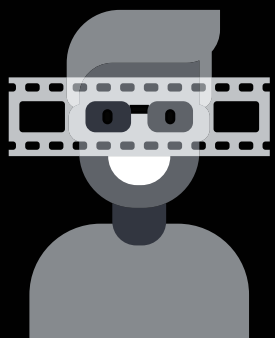
1.2 Structure of this report

The remainder of this report is set out as follows:

- Chapter 2 provides an **overview of the screen sector in South Australia**, including information on screen production and game development businesses in the state
- Chapter 3 sets out the methodological approach to estimating the **economic contribution** of the screen sector to South Australia, and presents the results estimated for the financial year 2019-20.

Further information on the economic contribution methodology adopted is detailed in the Appendix.

2 South Australia's screen sector



South Australia's screen sector comprises businesses engaged in a range of activities – including across screen production, post-production, digital and visual effects, providing screen services, and game development.

This Chapter provides an overview of the activities and services provided by the screen sector in South Australia, including by **screen production businesses** and **game development businesses** in the state.

2.1 Screen production in South Australia

Screen production activities refer to the production of film, television and online media, including post-production activities. This report considers drama and non-drama screen production, including documentaries, children's television, reality entertainment, and corporate activity, but excludes sports and news broadcasting.

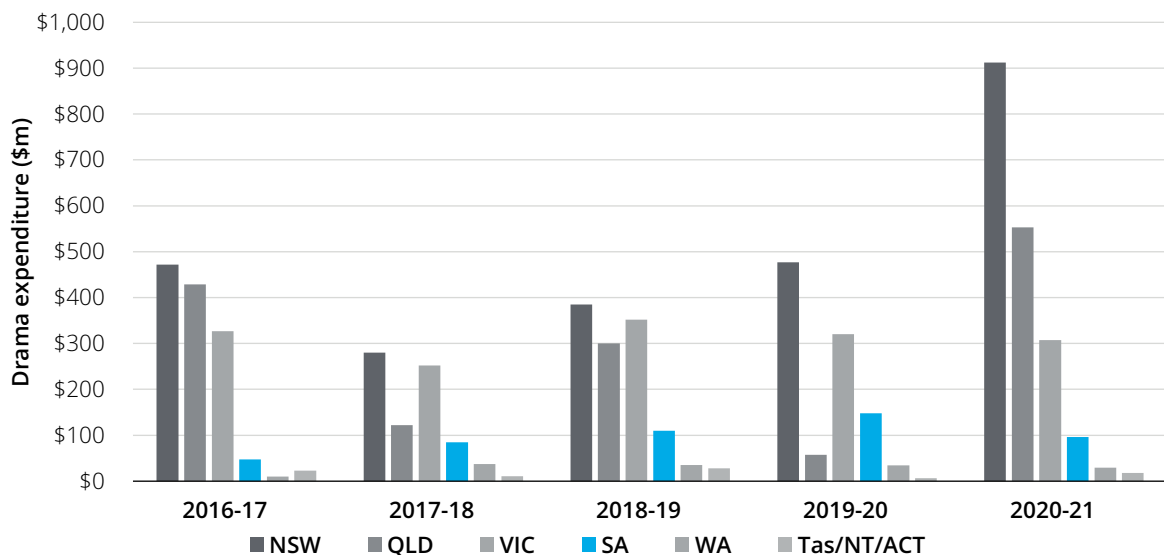
2.1.1 Screen production expenditure

Screen Australia's annual Drama Report shows that expenditure on drama production in South Australia (including shoot and PDV) reached \$148 million in 2019-20, growing by more than one third from 2018-19.¹⁰

This represented 14 per cent of national drama expenditure in the year (Chart 2.1). This activity was partly driven by expenditure by feature films such as *Mortal Kombat*, the largest screen production undertaken in South Australia to date.¹¹ Post-production work also comprised a significant component of work in the year, with expenditure on PDV productions in South Australia standing at \$58 million in 2019-20.¹²

These figures are significant, considering that for one quarter of the financial year, the screen sector – and the South Australian economy more broadly – were impacted by COVID-19 and associated lockdowns. Nationally, drama expenditure declined by 14 per cent in 2019-20 compared to the previous financial year.¹³

Chart 2.1: National drama expenditure (shoot and PDV), 2016-17 to 2020-21



Source: Screen Australia

Case Study: *Mortal Kombat* (2021)

In 2019-20, South Australia was chosen as the stage for the filming of the Hollywood blockbuster *Mortal Kombat* (2021) – the largest screen production undertaken in South Australia to date.

Alongside the record-breaking production budget, the production also engaged a blockbuster South Australian cast and crew. Over 14 weeks of filming, the production employed 819 cast and extras and 524 crew in South Australia.¹⁴ 675 local vendors were also engaged to provide services such as building and construction, set design and fabrication, and other screen services. Five local PDV companies were also engaged to deliver post-production services on the film.

Filming for *Mortal Kombat* took place across South Australia, helping to showcase the diversity of locations available across the state. Locations in Adelaide included Port Adelaide as well as the Adelaide Studios operated by SAFC at Glenside. Regional locations included the outback settings of Coober Pedy and Leigh Creek, and the Adelaide Hills at Mount Crawford. *Mortal Kombat* producer James Wan described that the range of locations made South Australia “an ideal filmmaking experience” for the production:

“The diversity of locations we were able to find in South Australia — from the deserts to the lush forests, to urban streetscapes — was perfectly suited for our production.”¹⁵

The range of screen incentives administered by SAFC can also be a key factor to attracting blockbuster productions such as *Mortal Kombat* to the state. In the tightly competitive global marketplace for footloose productions, screen sector incentives such as the Screen Production Fund and the SA PDV Rebate can be decisive for producers in maximising the ease and affordability of shooting.

The SAFC describes *Mortal Kombat* as a “super showcase” of South Australia’s screen sector – highlighting the state’s capabilities across crew, acting talent, post-production facilities and locations. According to *Mortal Kombat* producer E. Bennett Walsh, “Adelaide and South Australia is ready to do major action-adventure movies because of the experience of *Mortal Kombat*.”¹⁶

Yet the continuation of COVID-19 has presented challenges for the industry in subsequent years. PDV expenditure in South Australia declined in 2020-21, with COVID-19 delays to production schedules around the rest of the world delaying incoming post-production work for PDV businesses. Drama production expenditure also declined relative to 2019-20, but remained above 2018-19 levels – pointing to sustained growth in the sector.

On a national basis, South Australia's share of national drama expenditure also fell to five per cent in 2020-21.¹⁷ This may partly reflect a recovery in screen production activity in the rest of Australia following the loosening of COVID-19 restrictions in different states and territories. For example, drama expenditure in New South Wales nearly doubled between 2019-20 and 2020-21 and grew eight-fold in Queensland in the same period (Chart 2.1).¹⁸

In addition to the changes in screen expenditures caused by COVID-19, the “footloose” nature of screen production expenditures can also lead to large variations year to year. Attracting a large production can result in a significant increase in expenditures in a given year – which may then lead to a sudden decline if large productions are not also attracted in subsequent periods.

Variations in expenditure may also be partly explained by accounting methods for screen production. For example, Screen Australia's Drama Report attributes drama production expenditure to the financial year in which principal photography was scheduled to commence – which may differ from when activity actually took place where production takes place across multiple financial years, or where productions were delayed due to COVID-19 in 2019-20.¹⁹

In addition to drama production, other genres of screen production considered in this report include **documentaries, reality entertainment, as well as corporate activity**. In 2019-20, expenditure on these genres in South Australia is estimated to have reached \$36 million – or **four per cent of national non-drama screen expenditure** in Australia.^{iv}

There are green shoots to show that the South Australian screen sector is poised to continue its historically strong growth. Based on a survey of 49 screen sector businesses in South Australia in mid-2021, 70 per cent of businesses reported **feeling moderately or very positive about their business' outlook** over the next five years.²⁰ Only 10 per cent of businesses reported feeling moderately or very negative, with the remainder reporting feeling neutral or unsure.

2.1.2 Screen production businesses

Screen production businesses include firms engaged in the development, production and post-production of screen content. Screen production businesses may undertake activities such as:

- **screen development**, including drafting scripts and screenwriting
- **producing scripted or unscripted screen content** for television, feature film, short film or subscription video on demand (SVOD) and online formats, from original or licenced intellectual property (IP)
- providing **screen services**, such as crew and casting, camera and audio, wardrobe, set and props, and catering services
- editing footage and audio and producing animations or visual effects in **post-production**.

An alternative approach to estimating the contribution of screen production businesses in South Australia is discussed on page 12.

2.1.3 Screen production supports and funding

The SAFC provides a range of supports for screen production taking place in the state. In 2019-20, SAFC was responsible for administering a total of \$6.5 million to screen productions commencing principal photography in South Australia through the **Screen Production Fund**.²² A further \$5.8 million was also administered to PDV productions commencing in 2019-20 under the **South Australian Post Production, Digital and Visual Effects (SA PDV) rebate**.²³

The SAFC also provides some funding and supports for screen development, industry skills, and audience development in the state, as well as operating screen production facilities at Adelaide Studios.

iv Deloitte Access Economics estimate, based on IBISWorld (Motion Picture and Video Production in Australia) and Australian Bureau of Statistics, 'Counts of Australian Businesses, including Entries and Exits' <<https://www.abs.gov.au/statistics/economy/business-indicators/counts-australian-businesses-including-entries-and-exits/latest-release>>.

Contribution of screen production businesses in South Australia

Information on production and employment by screen production businesses in South Australia can be accessed through reported business data available through the Business Longitudinal Analysis Data Environment (BLADE) and the South Australian Business Research Environment (SABRE).²¹

Based on aggregated production and employment information collected through the BLADE and SABRE for 'screen production businesses'^v in South Australia,^{vi} there were **506 screen production businesses** operating in South Australia in 2019-20. These businesses **directly contributed** an estimated **\$124 million in value added** and **1,477 FTE** jobs to the South Australian economy in 2019-20 (Table 2.1).

While the number of screen production businesses operating in South Australia fell between 2018-19 and 2019-20, the direct contribution increased by nearly 20 per cent – pointing to a marginal increase in activity among a smaller group of firms.

By comparison, employment by screen production businesses increased by 38 per cent in the year. This faster increase in employment compared to value added could be driven by the impact of JobKeeper payments in the year.^{vii} This means that BLADE estimates for 2019-20 may overestimate FTE employment in the year.

Table 2.1: Direct contribution of screen production businesses in South Australia, 2018-19 to 2019-20 (\$2020)

	2018-19	2019-20
Businesses (no.)	762	506
Value added (\$m)	\$107	\$124
Employment (FTE)	1,073	1,477

Source: Data extracted from BLADE and SABRE by Department for Innovation and Skills.

Due to the breadth of production and distribution activities by screen production businesses captured under this approach, estimating the indirect contribution would result in double-counting the value of upstream and downstream activities across the screen supply chain. This analysis therefore only considers the direct contribution of screen production businesses.

v Screen production businesses are defined to include: 5511 motion picture and video production businesses; 5512 motion picture and video distribution businesses; 5514 post-production services and other motion picture and video activities; 4242 entertainment media retailing; 5513 motion picture exhibition; and 6632 video and other electronic media rental and hiring. For additional detail, see Deloitte Access Economics, 'Economic value of creative businesses in South Australia' (commissioned by Department for Innovation and Skills, August 2021) <<https://innovationandskills.sa.gov.au/creative-industries/about-creative-industries>>.

vi Including all activity taking place within South Australia by screen production businesses which are headquartered in South Australia, as well as businesses which are headquartered outside of the state but also undertake activities in South Australia. However, production by these businesses which takes place interstate is not included. For additional detail, see Deloitte Access Economics, 'Economic value of creative businesses in South Australia' (commissioned by Department for Innovation and Skills, August 2021) <<https://innovationandskills.sa.gov.au/creative-industries/about-creative-industries>>.

vii JobKeeper payments and other Commonwealth subsidies are removed from estimates of value added. However, JobKeeper payments may be retained in estimates of labour compensation.

2.2 Game development in South Australia

Game development includes the production of digital and online games developed for formats including major consoles, handheld consoles, personal computers and mobile phones.

2.2.1 Game development expenditure

Nationally, game development studios in Australia generated \$185 million in 2019-20, employing 1,245 FTE workers.²⁵ South Australia was home to an estimated 12 per cent of the national game development workforce in 2019-20, as well as 16 per cent of game development studios – reflecting the higher proportion of small and independent studios in the state (Chart 2.2).²⁶

National and South Australian game development expenditure can be estimated by applying the average industry profit margin to national industry revenues for the financial year 2019-20.²⁷ Based on this approach, game development expenditure in Australia

in 2019-20 reached an estimated \$165 million. Applying South Australia's share of national game development employment, game development expenditure in the state reached an estimated **\$26 million** in 2019-20.

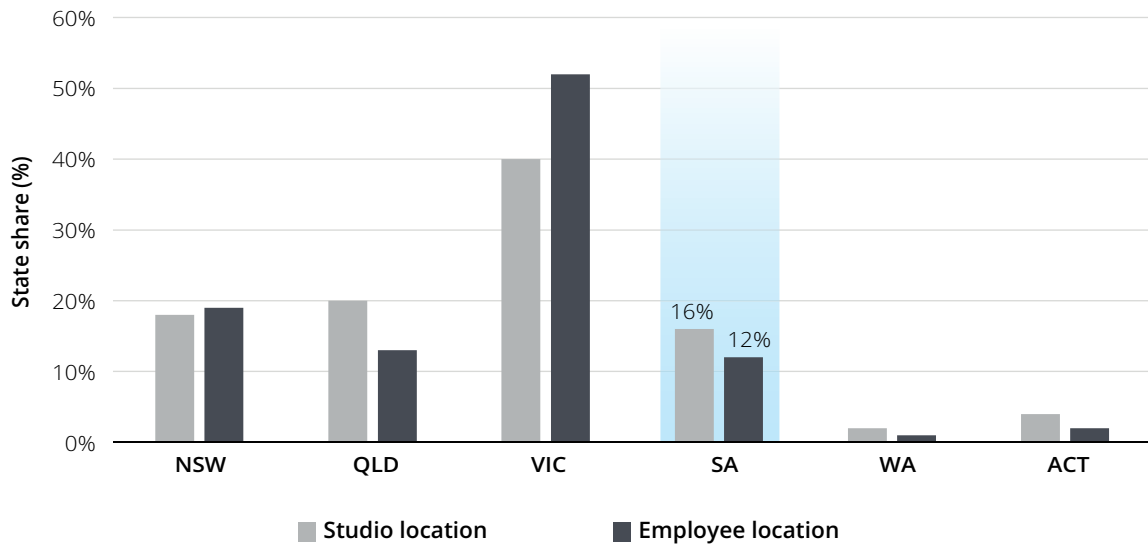
2.2.2 Game development businesses

Game development businesses include small and independent studios as well as mid-size firms and major publishers. Game development studios undertake activities such as:

- **developing or licencing game** ideas, narratives and content
- **designing and programming** games
- **publishing, promoting and distributing** games through physical retail and digital platforms
- **outsourcing** to artistic, audio or technical service providers.

An alternative approach to estimating the contribution of game development businesses in South Australia is discussed on page 14.

Chart 2.2: National distribution of game development studios and employment, 2019-20



Source: IGEA (2021)

Contribution of game development businesses in South Australia

Based on aggregated production and employment information collected through the BLADE and SABRE for game development businesses in South Australia,²⁸ there were **30 game development businesses** operating in South Australia in 2019-20. These businesses directly contributed an estimated **\$23 million in value added** and 208 FTE jobs to the South Australian economy in 2019-20 (Table 2.2).

While the number of game development businesses operating in South Australia fell slightly between 2018-19 and 2019-20, the direct contribution increased by 53 per cent. This reflects the rapid pace of growth of businesses in the game development sector. Similarly, the contribution of game and software development businesses in the state grew at an estimated annual rate of 39 per cent over the five years to 2017-18.²⁹

Similarly to screen production businesses, BLADE estimates for 2019-20 may overstate FTE employment in the year due to the impact of JobKeeper payments in the year.^{viii}

Table 2.2: Direct contribution of game development businesses in South Australia, 2018-19 to 2019-20 (\$2020)

	2018-19	2019-20
Businesses (no.)	36	30
Value added (\$m)	\$15	\$23
Employment (FTE)	138	208

Source: Data extracted from BLADE and SABRE by Department for Innovation and Skills.

Due to the breadth of production and distribution activities by game development businesses captured under this approach, estimating the indirect contribution could result in double-counting the value of upstream and downstream activities across the supply chain. This analysis therefore only considers the direct contribution of game development businesses.

2.2.3 Game development supports and funding

In 2019-20, the South Australia Film Corporation provided \$300,000 in development funding for 11 South Australian game projects, workshops and industry initiatives through the Games Innovation Fund.³⁰

In September 2020, SAFC introduced the South Australian Video Game Development Rebate (SA VGD Rebate), offering a 10 per cent rebate on game development expenditures over \$250,000 incurred in South Australia.

viii JobKeeper payments and other Commonwealth subsidies are removed from estimates of value added. However, JobKeeper payments may be retained in estimates of labour compensation.

Case Study: Mighty Kingdom

Founded in 2010, Mighty Kingdom is the largest independent game development studio headquartered in Australia. The studio has developed over 75 games and applications for mobile, console and PC platforms to date, consumed by more than 50 million gamers worldwide.

The studio currently employs more than 120 employees in Adelaide, bringing creative talents with skills from across game development, film production, illustration, and music. Games are developed based on both original intellectual property (IP) designed in-house, as well as fee-for-service development for major international customers including Disney, LEGO, Sony, and Snapchat.

The ease of exporting game content to larger consumer markets overseas means that game developers such as Mighty Kingdom are able to grow alongside the global gaming market. Globally, the interactive games industry was estimated to grow by 9.3 per cent in 2020 to US\$160 billion.³¹ Attracting a share of this global activity can help to bring additional employment and investment to South Australia. In early 2021, Mighty Kingdom raised \$18 million in an Initial Public Offering and listed on the Australian Stock Exchange (ASX).

With the 10 per cent SA VDG Rebate administered by SAFC introduced in September 2020, game development businesses will also be able to take advantage of the new 30 per cent federal tax offset administered by Screen Australia from July 2022.

Managing Director and CEO of Mighty Kingdom, Phil Mayes sees a “bright” future ahead for game development businesses in South Australia:

“With the growth of the games industry continuing apace, Mighty Kingdom continues to grow as we develop more games for global audiences across mobile, PC and console. With South Australia’s supportive games ecosystem of screen and technology industries, we [see] a bright future for the state’s game developers.”³²

In 2019-20, the screen sector in South Australia contributed a total of \$187 million to gross state product (GSP) and employed 2,297 full time equivalent (FTE) employees.

This Chapter sets out the methodological approach to estimating the economic contribution of the screen sector to South Australia, and presents the results estimated for 2019-20.

3.1 Methodology and approach

This analysis adopts an expenditure-based approach to estimating the contribution of the screen sector to GSP and employment in South Australia. This section sets out some of the key inputs and assumptions adopted in the methodology, with further detail set out in the Appendix.

3.1.1 Methodology: screen production

The methodology used to measure the economic contribution of the South Australian screen sector is based on Deloitte Access Economics' previous work for the South Australia Film Corporation. In both the current and earlier analysis, screen production is defined to include the production of film, television and online media – excluding the distribution and exhibition of screen content.

Data used for the analysis included SAFC's 2019-20 financial statements and budget acquittals of SAFC-supported projects as provided by SAFC, and industry data from Screen Australia, IBIS World, and the ABS.³⁴ These sources were used to estimate total spending in the screen industry in South Australia in 2019-20 and to generate a representative expenditure profile for the sector.

3.1.2 Methodology: game development

Game development is defined to include the production of digital and online games developed for formats including major consoles, handheld consoles, personal computers, and mobile phones – and excluding the distribution or retail of game content.³⁵ Software development is also excluded from this analysis.

Data used for this analysis included revenue, profit margin, expenditure and employment information extracted from industry data from the Interactive Games & Entertainment Association (IGEA) and the ABS.³⁶ These sources were used to estimate total expenditure in 2019-20 and to generate a representative expenditure profile for game development.

3.1.3 Methodology: total screen sector

Some activities taking place in the screen sector represent linkages between screen production and game development businesses, requiring removal from the headline sector estimates in order to avoid double counting. For example, when screen producers purchase digital development services from game development businesses, counting both the expense to the screen producer and the income generated for the game development business would result in double counting the single payment and overstating the size of the screen sector.

To remove these cross-sector linkages, potential shared income flows were identified in the screen production and game development expenditure profiles and removed from the total screen sector contribution estimates.

Economic contribution studies

Economic contribution studies measure the direct and indirect contribution to GSP and employment arising from activity in a particular industry, firm or event. This report assesses the economic contribution of screen sector expenditure in South Australia in 2019-20 – including both screen production and game development activities.

The **direct contribution** to GSP is measured through the value added by labour and capital inputs directly engaged in screen production and game development activities in South Australia. For example, direct activities in screen production include filming and post-production activities such as editing and visual effects. Direct activities in game development include production activities such as script writing, animation, coding and editing.

The flow-on, or **indirect contribution**, is a measure of the demand for goods and services produced in other sectors of the economy as a result of the direct economic activity in the screen sector. For example, screen production requires a large number of inputs such as expenditure on sets, props, travel and hospitality – stimulating activity in the sectors of the economy providing those inputs.

Estimates of the indirect contribution are based on input-output (IO) modelling techniques.³³ The Australian Bureau of Statistics (ABS) produces IO tables which provide the value added for each sector of the South Australian economy, as well as the linkages between sectors allowing the expenditure to be traced through the economy to estimate the value added at each stage.

The **total contribution** of the screen sector is the sum of the direct and indirect components. Additional detail on the inputs and assumptions to the contribution modelling for screen production and game development is set out in sections 3.1.1 and 3.1.2.

3.2 Results

3.2.1 Contribution of screen production

The direct economic contribution of screen production expenditure in 2019-20 was **\$82 million**, with **1,123 FTEs directly employed** across South Australia (Table 3.1). \$74 million was paid to workers directly engaged in screen production, while gross operating surplus (GOS) totalled \$20 million. \$12.3 million in subsidies was paid to screen production companies through the SAFC Screen Production Fund and SA PDV Rebate.

The indirect economic contribution of screen production expenditure in 2019-20 captures the value added to the economy as a result of the purchase of intermediate inputs. In 2019-20, screen production expenditure in South Australia indirectly contributed a further **\$83 million** in value added and **917 FTE jobs** (Table 3.1).

Summing the direct and indirect contribution, screen production expenditure in South Australia contributed a total of **\$169 million** to GSP in 2019-20, with **2,040 FTEs** employed directly and indirectly in the state as a result of activity in the screen sector.

This points to significant growth in the economic contribution of South Australian screen production – with the total contribution of screen production growing at an average rate of 15 per cent each year between 2017-18 and 2019-20.³⁷

Table 3.1: Economic contribution of screen production expenditure in South Australia, 2019-20

	Direct contribution	Indirect contribution	Total
Value added (\$m)	\$82	\$83	\$165
<i>Wages (\$m)</i>	<i>\$74</i>	<i>\$49</i>	<i>\$123</i>
<i>GOS (\$m)</i>	<i>\$20</i>	<i>\$34</i>	<i>\$54</i>
<i>Less subsidy (\$m)</i>	<i>-\$12</i>	<i>NA</i>	<i>-\$12</i>
Employment (FTE)	1,123	917	2,040

Source: Deloitte Access Economics, using data provided by SAFC, Screen Australia, IBIS World, and ABS

The indirect economic contribution represents the value added to the South Australian economy as a result of the purchase of intermediate inputs for screen production. Applying an aggregated intermediate expenditure profile based on production budgets provided by SAFC, the top sectors providing inputs to screen production include purchases of goods through **retail trade** (representing 22 per cent of inputs to production), **construction services** (20 per cent), other contract inputs from **motion picture and sound recording** (14 per cent), and other industries such as **accommodation and transport** (11 per cent). This demonstrates that screen production draws upon an array of intermediate inputs from across the economy, creating flow-on expenditures in a range of different sectors.

3.2.2 Contribution of game development

The direct economic contribution of game development expenditure in 2019-20 was **\$18 million**, with **208 FTEs** directly employed across South Australia (Table 3.2). \$16 million was paid to workers directly engaged in game development, while GOS is estimated to reach \$3 million.

Game development expenditure in South Australia further indirectly contributed a further **\$6 million** in value added and **68 FTE jobs** (Table 3.2).

Summing the direct and indirect contribution, game development expenditure in South Australia contributed a total of **\$24 million** to GSP in 2019-20, with **276 FTEs** employed directly and indirectly.

Table 3.2: Economic contribution of game development expenditure in South Australia, 2019-20

	Direct contribution	Indirect contribution	Total
Value added (\$m)	\$18	\$6	\$24
<i>Wages (\$m)</i>	<i>\$16</i>	<i>\$4</i>	<i>\$19</i>
<i>GOS (\$m)</i>	<i>\$3</i>	<i>\$2</i>	<i>\$5</i>
<i>Less subsidy (\$m)</i>	<i>-\$0.3</i>	<i>NA</i>	<i>-\$0.3</i>
Employment (FTE)	208	68	276

Source: Deloitte Access Economics, using data from IGEA, ABS and SAFC

Based on an average expenditure profile for game development businesses,³⁸ **labour costs** are the major expense for game development businesses, representing 59 per cent of total expenses. This reflects the importance of skilled professional and creative workers to the sector – including artists and animators, graphics and audio engineers, computer programmers and software engineers.

The indirect economic contribution represents the value added to the South Australian economy as a result of the purchase of intermediate inputs for game development. The top sectors providing inputs to game development include purchases of goods through **retail trade** (representing 44 per cent of intermediate expenditures), and payments to other businesses or contractors for **game development services** (42 per cent).

3.2.3 Contribution of the total screen sector

In 2019-20, the screen sector in South Australia – including both screen production and game development activity – contributed a total of **\$187 million** to GSP and employed **2,297 FTE employees** (Table 3.3).

The direct economic contribution of the screen sector in South Australia in 2019-20 was \$100 million, employing 1,330 FTEs. The indirect economic contribution represents the value added to the South Australian economy as a result of the purchase of intermediate inputs. In 2019-20, screen sector expenditure in South Australia indirectly contributed \$87 million in value added, and 967 FTE jobs.

It is noted that estimates for the contribution of the screen production and game development expenditure do not sum to the contribution of the total screen sector. This reflects the removal of purchases between screen production and game development businesses in the state, to avoid double-counting shared income flows.

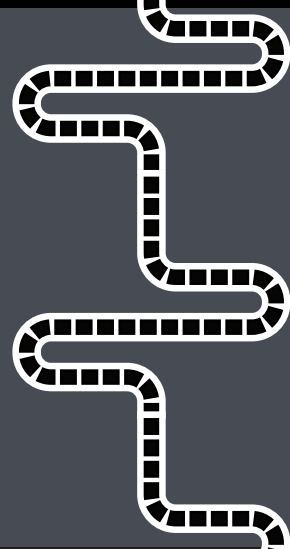
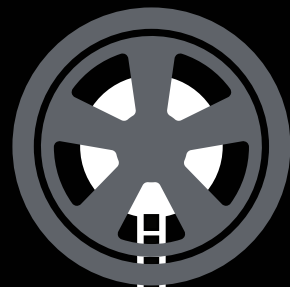
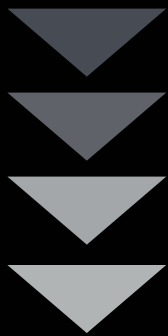
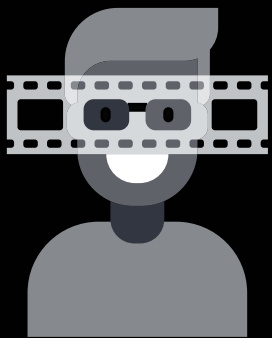
Table 3.3: Economic contribution of game development expenditure in South Australia, 2019-20

	Direct contribution	Indirect contribution	Total
Value added (\$m)	\$100	\$87	\$187
<i>Wages (\$m)</i>	<i>\$90</i>	<i>\$52</i>	<i>\$141</i>
<i>GOS (\$m)</i>	<i>\$23</i>	<i>\$35</i>	<i>\$58</i>
<i>Less subsidy (\$m)</i>	<i>-\$12</i>	<i>NA</i>	<i>-\$12</i>
Employment (FTE)	1,330	967	2,297

*Note: Figures do not sum to total due to the removal of intermediate purchases between screen production and game development firms. For more detail, see section 3.1.3.

Source: Deloitte Access Economics, using data provided by SAFC, DIS, Screen Australia, IBIS World and ABS

Endnotes



1. Screen Australia, Drama Report 2020/21 (2021) <<https://www.screenaustralia.gov.au/fact-finders/reports-and-key-issues/reports-and-discussion-papers/drama-report>>.
2. Australian Bureau of Statistics, 'National, state and territory population: June 2020' <<https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/jun-2020>>.
3. Screen Australia, Drama Report 2020/21 (2021) <<https://www.screenaustralia.gov.au/fact-finders/reports-and-key-issues/reports-and-discussion-papers/drama-report>>.
4. IGEA, 'Australian Video Game Development: Industry Snapshot FY2019-20' (28 January 2021) <<https://igea.net/2021/01/australian-game-development-industry-counts-185-million-in-revenue/>>.
5. Deloitte Access Economics, 'Economic value of creative businesses in South Australia' (commissioned by Department for Innovation and Skills, August 2021) <<https://innovationandskills.sa.gov.au/creative-industries/about-creative-industries>>.
6. See, e.g., Deloitte Access Economics, 'What are our stories worth? Measuring the economic and cultural value of Australia's screen sector' (commissioned by Screen Australia, 2016) <<https://www.screenaustralia.gov.au/fact-finders/reports-and-key-issues/reports-and-discussion-papers/screen-currency>>.
7. IGEA, 'Australian Video Game Development: Industry Snapshot FY2019-20' (28 January 2021) <<https://igea.net/2021/01/australian-game-development-industry-counts-185-million-in-revenue/>>.
8. Australian Bureau of Statistics, Film, Television and Digital Games, 2015-16, cat. no. 8679.0 (15 June 2017).
9. Ibid.
10. Screen Australia, Drama Report 2020/21 (2021) <<https://www.screenaustralia.gov.au/fact-finders/reports-and-key-issues/reports-and-discussion-papers/drama-report>>.
11. SAFC Annual Report 2019-20 <<https://www.safilm.com.au/corporate-information/>>.
12. Screen Australia, Drama Report 2020/21 (2021) <<https://www.screenaustralia.gov.au/fact-finders/reports-and-key-issues/reports-and-discussion-papers/drama-report>>.
13. Ibid.
14. SAFC Annual Report 2019-20 <<https://www.safilm.com.au/corporate-information/>>.
15. Information provided by the SAFC from Department for Trade and Investment, South Australia: State of Screen Innovation (2021).
16. Ibid.
17. Screen Australia, Drama Report 2020/21 (2021) <<https://www.screenaustralia.gov.au/fact-finders/reports-and-key-issues/reports-and-discussion-papers/drama-report>>.
18. Ibid.
19. Ibid.
20. Deloitte Access Economics, based on survey of 49 screen sector businesses in South Australia fielded by Deloitte Access Economics and SAFC in 2021.
21. Data extracted from BLADE and SABRE by the Department for Innovation and Skills (DIS) and analysed using a methodology developed by Deloitte Access Economics and the Department in Deloitte Access Economics, 'Economic value of creative businesses in South Australia' (commissioned by Department for Innovation and Skills, August 2021) <<https://innovationandskills.sa.gov.au/creative-industries/about-creative-industries>>.

22. Information provided by the South Australian Film Corporation.
23. Ibid.
24. Australian Bureau of Statistics, Film, Television and Digital Games, 2015-16, cat. no. 8679.0 (15 June 2017).
25. IGEA, 'Australian Video Game Development: Industry Snapshot FY2019-20' (28 January 2021) <<https://igea.net/2021/01/australian-game-development-industry-counts-185-million-in-revenue/>>.
26. Ibid.
27. Australian Bureau of Statistics, Film, Television and Digital Games, 2015-16, cat. no. 8679.0 (15 June 2017).
28. Including all activity taking place within South Australia by screen production businesses which are headquartered in South Australia, as well as businesses which are headquartered outside of the state but also undertake activities in South Australia. However, production by these businesses which takes place interstate is not included.
29. Deloitte Access Economics, 'Economic value of creative businesses in South Australia' (commissioned by Department for Innovation and Skills, August 2021) <<https://innovationandskills.sa.gov.au/creative-industries/about-creative-industries>>.
30. SAFC, Australia-first rebate for video game development now open as SAFC launches new suite of programs <<https://www.safilm.com.au/latest-news/australia-first-rebate-for-video-game-development-now-open-as-safc-launches-new-suite-of-programs/>>.
31. NewZoo, 'The World's 2.7 Billion Gamers Will Spend \$159.3 Billion on Games in 2020; The Market Will Surpass \$200 Billion by 2023' (8 May 2020) <<https://newzoo.com/insights/articles/newzoo-games-market-numbers-revenues-and-audience-2020-2023/>>.
32. Information provided by the SAFC from Department for Trade and Investment, South Australia: State of Screen Innovation (2021).
33. The indirect economic contribution does not include induced effects (also known as Type-II analysis) such as household consumption by employees in the screen sector.
34. Screen Australia; IBIS World; Australian Bureau of Statistics, Film, Television and Digital Games, 2015-16, cat. no. 8679.0 (15 June 2017).
35. Australian Bureau of Statistics, Film, Television and Digital Games, 2015-16, cat. no. 8679.0 (15 June 2017).
36. IGEA, 'Australian Video Game Development: Industry Snapshot FY2019-20' (28 January 2021) <<https://igea.net/2021/01/australian-game-development-industry-counts-185-million-in-revenue/>>; Australian Bureau of Statistics, Film, Television and Digital Games, 2015-16, cat. no. 8679.0 (15 June 2017).
37. Compared to Deloitte Access Economics, 'Economic contribution of South Australia's screen production' (commissioned by the South Australian Film Corporation, March 2019). Results are inflation-adjusted to 2019-20.
38. Australian Bureau of Statistics, Film, Television and Digital Games, 2015-16, cat. no. 8679.0 (15 June 2017).

A.1. Economic contribution studies

Economic contribution studies measure the contribution to gross state product (GSP) or gross domestic product (GDP) and employment arising from activity in a particular industry or firm in a historical reference year.

This report considers the **direct and indirect economic contribution** of screen production and game development expenditure in South Australia, measured using the economic concept of **value added** and **full-time equivalent (FTE) employment**.

Value added is the sum of the returns to primary factors of production, namely labour and capital, that are directly engaged by a business to produce output. As shown in Figure A.1, value added comprises the sum of:

- an industry's **gross operating surplus (GOS)** (typically represented by earnings before interest, taxes, depreciation, and amortisation (EBITDA))
- **labour expenses** associated with employees (i.e. wages, superannuation, and insurance), and taxes paid relating to production (e.g. company tax, payroll tax and land tax)
- net of **government subsidies** received to facilitate that production. In this analysis, state government subsidies paid to firms to facilitate screen production or game development (such as by SAFC) are removed from the value of net production taxes. However, government subsidies flowing into the state from other jurisdictions (such as federal government subsidies administered by Screen Australia) are treated as forming part of business revenue and are included in GOS.

Value added provides an accurate assessment of economic contribution because it only captures the returns to capital and labour inputs associated with a particular business' production activity and excludes the value added by external firms supplying inputs. That is, the concept of value added accounts for the cost of intermediate inputs used during production, thereby avoiding double-counting of economic activity upwards a supply-chain.

The sum of value added of firms or industries within an economy therefore accounts almost entirely for the gross domestic product (GDP) of an economy.

A.2. Direct and indirect contributions

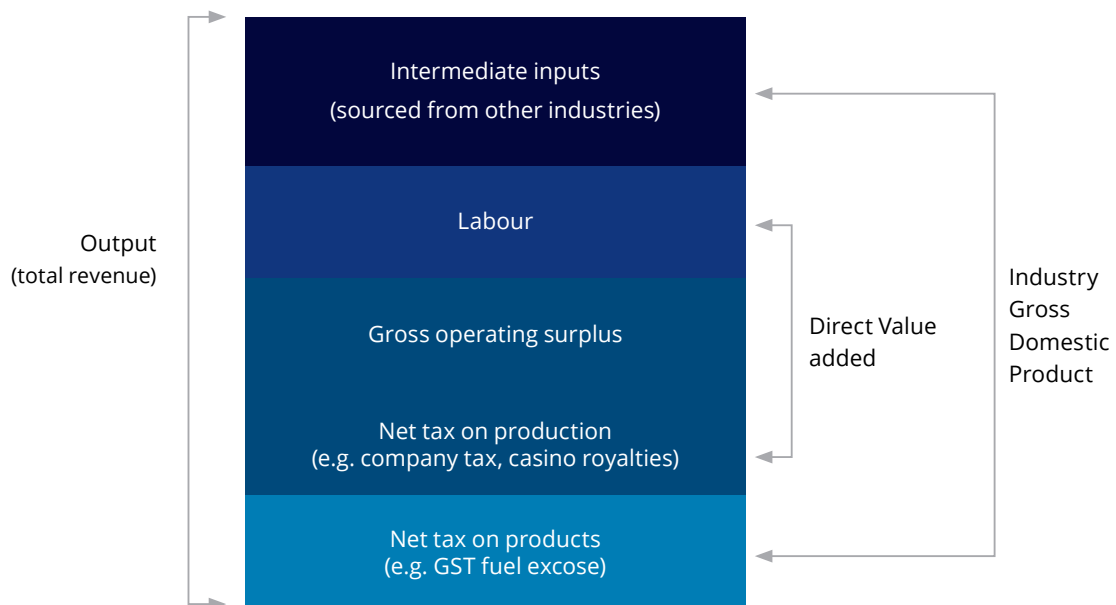
The **direct** economic contribution is a representation of the flow from labour and capital in the company.

The **indirect** contribution is a measure of the demand for goods and services produced in other sectors as a result of demand generated by the screen production industry. Estimation of the indirect economic contribution is undertaken in an input-output (IO) framework using Australian Bureau of Statistics IO tables which report the inputs and outputs of specific sectors of the economy.

The **total economic contribution** to the economy is the sum of the direct and indirect economic contributions.

Other measures, such as total revenue or total exports are useful measures of economic activity, but these measures alone cannot account for the contribution made to GDP. Such measures overstate the contribution to value added because they include activity by external firms supplying inputs. In addition, they do not discount the inputs supplied from outside Australia.

Figure A.1: Economic activity accounting framework



Source: Deloitte Access Economics.

A.3. Limitations of economic contribution studies

While describing the geographic origin of production inputs may be a guide to a firm's linkages with the local economy, it should be recognised that these are the type of normal industry linkages that characterise all economic activities.

Unless there is unused capacity in the economy (such as unemployed labour) there may not be a strong relationship between a firm's economic contribution as measured by value added (or other static aggregates) and the welfare or living standard of the community. The use of labour and capital by demand created from the industry comes at an opportunity cost as it may reduce the amount of resources available to spend on other economic activities. This is not to say that the economic contribution, including employment, is not important. As stated by the Productivity Commission in the context of Australia's gambling industries:

Value added trade and job creation arguments need to be considered in the context of the economy as a whole ... income from trade uses real resources, which could have been employed to generate benefits elsewhere. These arguments do not mean that jobs, trade and activity are unimportant in an economy. To the contrary they are critical to people's well-being. However, any particular industry's contribution to these benefits is much smaller than might at first be thought, because substitute industries could produce similar, though not equal gains.

In a fundamental sense, economic contribution studies are simply historical accounting exercises. No 'what-if', or counterfactual inferences – such as 'what would happen to living standards if the firm disappeared?' – should be drawn from them.

The analysis – as discussed in the report – relies on a national IO table modelling framework and there are some limitations to this modelling framework. The analysis assumes that goods and services provided to the sector are produced by factors of production that are located completely within the state or region defined and that income flows do not leak to other states.

The IO framework and the derivation of the multipliers also assume that the relevant economic activity takes place within an unconstrained environment. That is, an increase in economic activity in one area of the economy does not increase prices and subsequently crowd out economic activity in another area of the economy. As a result, the modelled total and indirect contribution can be regarded as an upper-bound estimate of the contribution made by the supply of intermediate inputs.

Similarly the IO framework does not account for further flow-on benefits as captured in a more dynamic modelling environment like a computable general equilibrium (CGE) model.

A.4. Input-output analysis

Input-output tables are required to account for the intermediate flows between sectors. These tables measure the direct economic activity of every sector in the economy at the national level. Importantly, these tables allow intermediate inputs to be further broken down by source. These detailed intermediate flows can be used to derive the total change in economic activity associated with a given direct change in activity for a given sector.

A widely used measure of the spill-over of activity from one sector to another is captured by the ratio of the total to direct change in economic activity. The resulting estimate is typically referred to as 'the multiplier'. A multiplier greater than one implies some indirect activity, with higher multipliers indicating relatively larger indirect and total activity flowing from a given level of direct activity.

The IO matrix used for Australia is derived from the ABS 2018-19 IO tables. The industry classification used for IO tables is based on the Australian and New Zealand Standard Industrial Classification (ANZSIC), with 114 sectors in the modelling framework.

Limitation of our work

General use restriction

This report is prepared solely for the use of the South Australian Film Corporation. This report is not intended to and should not be used or relied upon by anyone else and we accept no duty of care to any other person or entity. The report has been prepared for the purpose set out in the engagement letter dated 16 July 2021. You should not refer to or use our name or the advice for any other purpose.



Deloitte Access Economics Pty Ltd
Level 17, 11 Waymouth Street
Adelaide, SA 5000
Australia

Phone: +61 8 8407 7000
www.deloitte.com.au

Deloitte Access Economics is Australia's pre-eminent economics advisory practice and a member of Deloitte's global economics group. For more information, please visit our website: www.deloitte.com/au/deloitte-access-economics

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited ("DTTL"), its global network of member firms, and their related entities. DTTL (also referred to as "Deloitte Global") and each of its member firms and their affiliated entities are legally separate and independent entities. DTTL does not provide services to clients. Please see www.deloitte.com/about to learn more.

Deloitte is a leading global provider of audit and assurance, consulting, financial advisory, risk advisory, tax and related services. Our network of member firms in more than 150 countries and territories serves four out of five Fortune Global 500® companies. Learn how Deloitte's approximately 286,000 people make an impact that matters at www.deloitte.com.

Deloitte Asia Pacific

Deloitte Asia Pacific Limited is a company limited by guarantee and a member firm of DTTL. Members of Deloitte Asia Pacific Limited and their related entities provide services in Australia, Brunei Darussalam, Cambodia, East Timor, Federated States of Micronesia, Guam, Indonesia, Japan, Laos, Malaysia, Mongolia, Myanmar, New Zealand, Palau, Papua New Guinea, Singapore, Thailand, The Marshall Islands, The Northern Mariana Islands, The People's Republic of China (incl. Hong Kong SAR and Macau SAR), The Philippines and Vietnam, in each of which operations are conducted by separate and independent legal entities.

Deloitte Australia

In Australia, the Deloitte Network member is the Australian partnership of Deloitte Touche Tohmatsu. As one of Australia's leading professional services firms, Deloitte Touche Tohmatsu and its affiliates provide audit, tax, consulting, and financial advisory services through approximately 8000 people across the country. Focused on the creation of value and growth, and known as an employer of choice for innovative human resources programs, we are dedicated to helping our clients and our people excel. For more information, please visit our web site at <https://www2.deloitte.com/au/en.html>.

Liability limited by a scheme approved under Professional Standards Legislation.
Member of Deloitte Asia Pacific Limited and the Deloitte Network.