ECONOMIC SIGNIFICANCE OF INDEPENDENT SCHOOLS TO THE WESTERN AUSTRALIAN ECONOMY

A REPORT PREPARED FOR THE ASSOCIATION OF INDEPENDENT SCHOOLS OF WA
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Client Contact:	Valerie Gould
Project Manager:	Ashley Page
Email:	ashley.page@aecgroupltd.com
Telephone:	07 3831 0577
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EXECUTIVE SUMMARY

BACKGROUND

The Association of Independent Schools of Western Australia (AISWA) is the peak body representing Independent Schools in Western Australia (WA). AISWA represents more than 150 schools (covering more than 175 campuses) in WA, with over 71,200 student enrolments in 2015. Membership encompasses schools of many different types, sizes and educational philosophies. AISWA provides a wide range of services and support to its member schools contributing to the high quality of education provided by the Independent Schools sector of WA.

AISWA engaged AEC Group Pty Ltd (AEC) to analyse and quantify the important contribution Independent Schools make to WA in terms of their contribution to WA Gross State Product (GSP), employment and household incomes; the savings they deliver to governments and therefore tax payers; and the economic value that flows from the enhanced education outcomes achieved by Independent School students.

In undertaking the analysis, AEC used Input-Output modelling techniques within an economic significance framework. This is a recognised and standard modelling approach to assess the economic contribution of an existing industry. Verified data from AISWA for 2015 was used (the most recent year that validated data was available) as well as published financial year data from the Australian Bureau of Statistics (ABS) and other agencies to produce the estimates in this report for the 2014-15 year.

KEY FINDINGS

Economic Contribution of Independent Schools

In 2014-15 Independent Schools in WA represented by AISWA:

- **Contributed approximately $2.74 billion to WA Gross State Product (GSP)** through direct and flow-on contributions. This accounted for 1.1 percent of the total contribution to GSP by all industries in WA for the year. Of note:
    - Independent Schools' total contribution to GSP was **comprised of more than $1.28 billion directly** through activities such as operations and capital expenditure of Independent Schools, and **more than $1.45 billion through flow-on demand for goods and services** by Independent Schools for the delivery of their education services (e.g. utilities, teaching materials, equipment), subsequent flow-on production-induced activity for the production of these goods and services, and household consumption from Independent School employees.
    - The direct contribution of Independent Schools was greater than the contribution of key WA industries such as air (and space) transport, basic chemical manufacturing, automotive repair and maintenance, and accommodation (including all hotels, motels, serviced apartments, caravan parks and other accommodation establishments).
- **Made significant contributions to the local and regional economies in which they operate**. For example, including direct and flow-on activity, Independent Schools contributed:
    - $2.31 billion to Greater Perth Gross Regional Product (GRP) (1.6 percent of total Greater Perth GRP for the year), $1.34 billion in incomes (or 2.0 percent of total Greater Perth), and approximately 14,700 full time equivalent (FTE) jobs (or 1.7 percent of total Greater Perth employment) in 2014-15.
    - 15 percent or more of total economic activity (i.e. GRP, incomes and employment) in three LGAs within Greater Perth in 2014-15 (Claremont, Mosman Park and Peppermint Grove).
    - Over five percent of total economic activity in the LGAs of Armadale and South Perth.
    - Approximately two percent or more of total economic activity in the LGAs of Gosnells, Joondalup, Kalamunda, Melville, Mundaring, Rockingham, Serpentine-Jarrahdale, Stirling, Swan and Wanneroo.
    - $421.4 million (or 0.4 percent) to regional WA GRP, $235.8 million (or 0.9 percent) to incomes, and approximately 2,850 FTE jobs (or 0.9 percent of total employment).

- **Supported jobs for more than 17,500 full-time equivalent (FTE) employees**, which equated to around 1.5 percent of total jobs in WA. This was comprised of 9,592 direct FTE employees at Independent Schools and approximately 7,955 FTE jobs supported through flow-on activity. This represents one full-time job for every 4.1 students enrolled at Independent Schools. By comparison, the contribution of Independent Schools to employment was greater than the contribution to WA employment made individually by each of the industries of postal and courier delivery services, accommodation, air (and space) transport, and iron and steel manufacturing.
- **Contributed approximately $1.58 billion in employee wages and salaries**, which represented approximately 1.7 percent of total wages and salaries paid to workers in WA. Approximately $938.1 million was paid by Independent Schools directly to school employees, representing approximately 76.5 percent of total Independent Schools' operational expenditure for the year. This is reflective of the large labour component in service delivery and the important role Independent Schools play in providing jobs and incomes to WA. It is worth noting that **jobs in WA Independent Schools are predominantly highly skilled, service sector positions, which are key to growing the WA economy**. A further $56.9 million in employee wages and salaries was contributed through capital works and expenditure of overseas students and approximately $580.4 million was also paid to workers as a result of flow-on activity.

Savings to Governments and Tax Payers

There were more than 71,200 school children in WA enrolled in Independent Schools in 2015 that were entitled to, but did not take up a place in a government school. In 2014-15, WA Independent Schools **saved the Australian and WA Governments approximately $991.2 million in expenditure**. This comprised $794.8 million in recurrent education costs and $196.4 million in infrastructure costs, representing a significant and ongoing saving to tax payers.

The Economic Value of Enhanced Education Outcomes

Enhanced educational outcomes provided by Independent Schools can be linked to an estimated **contribution to growth in WA GSP of around $252.1 million in 2014-15**.

The quality of learning and teaching provided by WA Independent Schools support students in achieving excellent outcomes across a range of educational measures:

- Students attending Independent Schools are estimated to have contributed to an increase of approximately 6 points in the mean PISA test score for the WA's overall student body in 2012. Whilst this is only an indicative estimate, based on national data from ACER (2013), it is reflective of the enhanced education outcomes supported by Independent Schools.
- Australian Independent Schools recorded a mean PISA test score of 559 for scientific literacy, 551 for reading literacy and 541 for mathematical literacy (ACER, 2013). These scores were well above the overall mean PISA test scores for all Australian schools, as well as the OECD average.
- More than half of the top 20 best performing schools in all domains tested in the National Assessment Program – Literacy and Numeracy (NAPLAN) tests were from the Independent School sector in 2016 for both Year 9 and Year 7 students.
- The Independent Schools sector had weighted averages more than 20 points above government schools and 10 points above Catholic schools for Year 9, 7, 5, and 3 students in each domain tested in the NAPLAN tests.
- In 2016, 22 of the top 50 median Australian Tertiary Admission Rank (ATAR) scores for WA schools were achieved by Independent Schools. The ATAR is an assessment used to rank school-leaving university applicants.

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1. INTRODUCTION

1.1 BACKGROUND AND PURPOSE OF THE REPORT

Independent Schools are autonomous education providers and are not run by government. They have earned a reputation for providing high quality education services and are a vital part of the Western Australian (WA) education system serving a wide range of communities, including some of Western Australia's most remote and disadvantaged Indigenous communities, communities in regional towns and diverse communities in Perth.

The Association of Independent Schools of Western Australia (AISWA) is the peak body representing Independent Schools in Western Australia. AISWA is a non-profit body whose members are not-for-profit Independent Schools located in WA. It provides a wide range of services to member schools and administers and manages a range of government funded programs for WA Independent Schools.

AISWA represents more than 150 schools (covering more than 175 campuses) in WA, with over 71,200 student enrolments in 2015. Membership encompasses schools of many different types, sizes and educational philosophies. AISWA provides a wide range of services and support to its member schools contributing to the high quality of education provided by the Independent Schools sector of WA.

AISWA engaged AEC Group Pty Ltd (AEC) to analyse and quantify the important contribution Independent Schools make to WA in terms of their contribution to WA Gross State Product (GSP), employment and household incomes; the savings they deliver to governments and therefore tax payers; and the economic value that flows from the enhanced education outcomes achieved by Independent School students.

1.2 SCOPE OF THE REPORT

1.2.1 Geographic Scope

The scope of this report covers the economic significance of Independent Schools to WA. Modelling was also undertaken to assess the economic contribution of Independent Schools to regional and local economies, across all local government areas (LGAs) as well as State and Federal Electorates.

1.2.2 Independent Schools Sector

For the purposes of this report, the Independent Schools sector is considered to include all member schools represented by AISWA. In 2015, more than 71,200 students were enrolled at the 151 member schools, representing approximately 17.0 percent of WA's total student body.

1.3 METHODOLOGY

1.3.1 Measuring the Economic Contribution of Independent Schools

The estimates in this report were produced using Input-Output transaction tables and models developed by AEC, within an economic significance framework. This is a recognised and standard modelling approach to assessing the economic contribution of an existing industry.

Verified data from AISWA for 2015 was used (the most recent year that complete and validated data was available) to produce the estimates in this report. Other data sources used include State and National Accounts and industry specific Australian Bureau of Statistics (ABS) and other agency data. The significance model was developed based on a 2013-14 Input-Output transaction table from the Australian Bureau of Statistics, which was then 'rebased' to 2014-15 using available data from the Australian Bureau of Statistics to be in line with AISWA data.

The Input-Output significance model was used to produce estimates of the direct and flow-on contributions of Independent Schools to the WA economy.

Measures used in this report include Gross State Product (GSP), Gross Value Added (GVA) activity, employment, and income (i.e. wages and salaries).

Appendix A presents a detailed description of the methodology. **Appendix B** provides definitions and explanations of the terms and measures used.

1.3.2 Quantifying the Savings to Tax Payers from Independent Schools

Estimates of tax payer savings were developed across two key components:

- Cost savings in terms of recurrent education costs, including expenditure on user costs of capital.
- Cost savings in terms of contributions made by parents to capital infrastructure and improvements.

To identify the cost savings in recurrent education costs, data from the Productivity Commission's Report on Government Services (Productivity Commission, 2016) regarding average Commonwealth and WA Government expenditure per government school student in 2014-15 was used and applied to the number of Independent School students. This was then compared to data from AISWA (unpublished(1)) regarding the level of government funding received to provide a net difference in government funding required if Independent School students were enrolled in government schools.

To estimate the capital cost saving, school income data from the Independent Schools Council of Australia (ISCA, 2015) was analysed to determine the total amount and proportion of capital contributions made by parents and the community to WA Independent Schools.

1.3.3 Identifying the Benefits of Independent Schools' Enhanced Education Outcomes

Desktop research was undertaken to review academic studies, reports and the latest industry discourse on the enhanced educational outcomes provided by Independent Schools. This included a review of the academic benefits as well as the vocational, social and interpersonal development of students. It also examined AISWA school programs focusing on teacher quality and the provision of education services by Independent Schools' in servicing the full spectrum of Australian society.

The enhanced educational outcomes provided by Independent Schools have a beneficial economic impact for WA. Estimates of the benefits Independent Schools provide to WA GSP are estimated using the difference in PISA scores between Australian Independent Schools and government schools and research identifying a relationship between education performance and economic growth (using PISA scores).

2. CONTRIBUTION TO THE WA ECONOMY

This chapter describes the economic contribution of Independent Schools to the WA economy. It includes estimates of direct and flow-on contributions to other industries where relevant. The approach used in identifying the economic contribution, and measures used, are detailed in **Appendix A**.

2.1 DIRECT CONTRIBUTION OF INDEPENDENT SCHOOLS TO WA

Independent Schools directly contributed to the WA economy through their provision of education services to more than 71,200 full time equivalent (FTE) students in 2015.

In providing these services, Independent Schools:

- Undertook operating activities and expenditure, including:
    - Employing staff, such as teaching staff, administrative/ clerical staff, and operations and maintenance staff.
    - Generating turnover (or revenue), including revenue from student fees and charges, income from excursions/ trips, and private and government grants and funding.
    - Purchasing goods and services for operational activities, for example on education/ class materials, and building and grounds maintenance.
- Made capital purchases and expended money directly on items such as land acquisition, building/ facility construction and other capital purchases.

Independent Schools also contribute to the WA economy through the attraction of fee-paying overseas school students. These students would otherwise not be expected to live in WA during the course of their studies and provide additional economic benefits through their discretionary expenditure.

In addition to overseas students, domestic boarding students also contribute to the local economies in which they are staying. However, the activity of domestic boarders has been excluded as boarding students with a usual place of residence elsewhere in WA represent a transfer of activity from one WA locality to another, rather than generating an overall increase in economic activity in WA. Living expenses of interstate boarding students does provide an increase in WA economic activity that wouldn't otherwise occur, however, there was insufficient data available to identify the total number and expenditure of interstate boarders. Interstate boarders have therefore been excluded from the assessment. The effect of this exclusion will be to underestimate the value of the Independent School sector in WA, but this is expected to be quite small.

Estimates of the direct economic activity associated with each of the operational activities and capital expenditure of Independent Schools, as well as overseas student expenditure, are outlined below separately.

Operational Activities

Independent Schools in WA generated approximately $1.45 billion in turnover and spent approximately $288.5 million on goods and services for operational activities in 2014-15 (the majority of their expenditure is on labour). Subtracting Independent Schools' operational expenditure from turnover provides an estimate of the value Independent Schools' operational activities added to the WA economy in 2014-15. This equates to approximately $1.16 billion in gross state product (GSP) directly contributed by Independent School operations.

Independent Schools employed 9,067 FTE staff in 2014-15 comprised of:

- 164 FTE principals.
- 5,636 FTE general teaching staff.
- 233 FTE administrative/ clerical services staff.
- 2,442 FTE building operations and maintenance staff.
- 592 FTE specialist support staff.

Staff at Independent Schools were paid a total of around $938.1 million in wages, salaries and other compensation in 2014-15. This equates to an average expenditure on salary and wages of approximately $103,500 per FTE employee. As the majority of this expenditure was on teaching staff it highlights the sector's focus on the provision of high quality educators.

Capital Expenditure

Independent Schools spent $239.5 million on capital expenditure in 2014-15, including $187.4 million for land and buildings works/ acquisitions and $52.1 million in purchases of other capital items. Capital expenditure was allocated to relevant Input-Output transaction tables as outlined in Table 2.1. Whilst this is expected to vary year to year, it is provided as an indicative estimate for this study.

Table 2.1. Capital Expenditure of Independent Schools by Industry, 2014-15

Expenditure Item/ IO Industry	% of Expenditure Item	Estimated Capital Expenditure ($M)
Land and Buildings Capital Expenditure	**-**	**$187.4**
Non-Residential Building Construction	70%	$131.2
Heavy and Civil Engineering Construction	30%	$56.2
Other Capital Expenditure	**-**	**$52.1**
Wholesale Trade	100%	$52.1

Note: Totals may not sum due to rounding.
Source: AISWA (unpublished(1)), AEC.

In estimating the direct economic contribution of this capital expenditure, standard Input-Output production functions for the industries outlined in Table 2.1 were assumed, using a WA transaction table developed as outlined in **Appendix A**. Based on these production functions, Independent Schools' capital expenditure is estimated to have directly generated the following economic activity for WA businesses in 2014-15:

- $115.2 million in GSP.
- $54.6 million in incomes.
- 482 FTE jobs.

Overseas Student Expenditure

Independent Schools attract international students to study in WA in a range of individual or group programs. Independent Schools received $6.8 million in revenues from overseas students in 2014-15, through student fees and charges as well as for boarding. Overseas students also spend money in the broader WA economy (i.e. outside of expenditure for school tuition and boarding).

Information identifying the expenditure of overseas students in the broader WA economy is not available. In order to develop an indicative estimate of their expenditure on goods and services, data from the ABS (2015) regarding expenditure of international school students on tuition fees compared to goods and services was used. This data indicates around 55 percent to 60 percent of overseas school student expenditure between 2000 and 2014 was on goods and services, compared to 40 percent to 45 percent on tuition fees.

The above estimates include overseas students at all schools, not just Independent Schools. For the purposes of this assessment a more conservative 50 percent of overseas Independent School student expenditure has been assumed to be for tuition fees and boarding (with the remainder on goods and services). This equates to Independent School overseas student expenditure on goods and services, other than tuition and boarding, in the WA economy of $6.8 million in 2014-15. Expenditure of overseas students on tuition and boarding is not included in this section as this represents revenue of Independent Schools and is therefore already captured within the operational activity of Independent Schools estimated above.

To allocate expenditure on goods and services to Input-Output industries, average expenditure splits from the most recent household expenditure survey (ABS, 2011a) was used and allocated to the most relevant Input-Output industry. Expenditure on education and housing costs were excluded, as this expenditure is already accounted for in tuition fees and boarding. A summary of expenditure by overseas students is presented in Table 2.2.

Table 2.2. Expenditure on Goods and Services by Independent School Overseas Students, 2014-515

IO Industry	% of Expenditure	Estimated Expenditure ($M)
Retail Trade	60.7%	$4.2
Accommodation	1.7%	$0.1
Food and Beverage Services	7.4%	$0.5
Road Transport	0.6%	$0.0
Rail Transport	0.1%	$0.0
Water, Pipeline and Other Transport	0.0%	$0.0
Air and Space Transport	2.0%	$0.1
Postal and Courier Pick-up and Delivery Service	0.2%	$0.0
Motion Picture and Sound Recording	0.2%	$0.0
Broadcasting (except Internet)	0.6%	$0.0
Internet Services, Publishing and Broadcasting, and Data Processing	0.9%	$0.1
Telecommunication Services	3.7%	$0.3
Auxiliary Finance and Insurance Services	6.4%	$0.4
Rental and Hiring Services (except Real Estate)	2.3%	$0.2
Professional, Scientific and Technical Services	1.1%	$0.1
Building Cleaning, Pest Control and Other Support Services	0.3%	$0.0
Public Administration and Regulatory Services	0.7%	$0.1
Health Care Services	3.6%	$0.2
Heritage, Creative and Performing Arts	0.8%	$0.1
Sports and Recreation	1.5%	$0.1
Other Repair and Maintenance	0.3%	$0.0
Personal Services	1.3%	$0.1
Other Services	0.7%	$0.1
Total	**100%**	**$6.8**

Source: ABS (2015; 2011a), AISWA (unpublished(1)), AEC.

In estimating the direct economic contribution of this expenditure on goods and services by overseas students, standard Input-Output production functions for the industries outlined in Table 2.2 were assumed, using a WA transaction table developed as outlined in **Appendix A**. Based on these production functions, expenditure on goods and services by Independent School overseas students is estimated to have directly generated the following economic activity for WA businesses in 2014-15:

- $4.2 million in GSP.
- $2.4 million in incomes.
- 44 FTE jobs.

Summary of Direct Contribution of Independent Schools to WA

A summary of the direct economic contribution of Independent Schools to the WA economy in 2014-15 is presented in Table 2.3. In total, Independent Schools directly contributed approximately $1.28 billion to WA GSP.

Importantly, Independent Schools are largely a labour driven service provider, directly supporting 9,592 FTE jobs in 2014-15. Around 76.5 percent of total operational expenditure by Independent Schools in 2014-15 was spent on staff wages and salaries ($938.1 million), with a further $56.9 million in incomes delivered through capital expenditure and expenditure of overseas students. These incomes represented approximately 78.0 percent of

Independent Schools' total direct contribution to GSP. This is indicative of the important role Independent Schools play in providing jobs for WA workers.

Table 2.3. Direct Contribution of Independent Schools to WA, 2014-15

Economic Contribution	Gross State Product ($M)	Incomes ($M)	Employment (FTEs)
Operational Activity	$1,162.8	$938.1	9,067
Capital Expenditure	$4.2	$2.4	44
Student Expenditure [(a)]	$115.2	$54.6	482
Total Direct Contribution	**$1,282.2**	**$995.0**	**9,592**

Notes: Totals may not sum due to rounding. (a) For overseas students only.
Source: ABS (2016a; 2015; 2011a), AISWA (unpublished(1) and unpublished(2)), AEC.

2.2 FLOW-ON CONTRIBUTION OF INDEPENDENT SCHOOLS TO WA

The flow-on (or indirect) contribution of Independent Schools to WA has been estimated using Input-Output models, as outlined in **Appendix A**. In undertaking the modelling, direct operational activity, capital expenditure and expenditure on goods and services by overseas students outlined in section 2.1 was allocated to relevant industries in the Input-Output model:

- For operational activity, this process is based on estimating the inter-industry purchases of goods and services by Independent Schools, which was done using financial data for Independent Schools (AISWA, unpublished(1)) broken down to 114 Input-Output industries using the structure for the "Primary and Secondary Education Services (incl Pre-Schools and Special Schools)" industry.
- For capital expenditure and expenditure on goods and services by overseas students, standard industry purchasing patterns were applied for expenditure by industry outlined in Table 2.1 and Table 2.2.

The above process provides the multipliers used for estimating type I flow-on activity (or production induced impacts).

Financial data for Independent Schools (AISWA, unpublished(1)) was also used to estimate the total purchases of Independent School services by households. This is used in developing multipliers for estimating type II flow-on activity (or household consumption induced impacts).

In total, Independent Schools are estimated to have contributed approximately $1.45 billion to WA GSP through flow-on activity in 2014-15, including both production induced (type I) and consumption induced (type II) impacts (Table 2.4). Flow-on activity supported nearly 8,000 FTE jobs in WA in 2014-15, paying $580.4 million in wages, salaries and other employee compensation for the year.

Table 2.4. Estimated Flow-On Contribution of Independent Schools to the WA Economy, 2014-15

Economic Contribution	Gross State Product ($M)	Incomes ($M)	Employment (FTEs)
Production Induced (Type I Flow-On) Contribution	$238.9	$122.2	1,510
Consumption Induced (Type II Flow-On) Contribution	$1,214.4	$458.3	6,446
Total Flow-On Contribution	**$1,453.3**	**$580.4**	**7,955**

Notes: Totals may not sum due to rounding.
Sources: ABS (2017a, b and c; 2016a, b and c; 2013; 2011a), AISWA (unpublished(1) and unpublished(2)), AEC.

2.3 TOTAL CONTRIBUTION OF INDEPENDENT SCHOOLS TO WA

Including direct and flow-on activity, Independent Schools are estimated to have contributed approximately $2.7 billion to WA GSP in 2014-15, representing 1.1 percent of the total contribution to GSP by all industries in WA for the year. For every dollar of gross product directly produced by Independent Schools (through operational activity, capital expenditure and overseas student expenditure), an additional $1.13 is produced elsewhere in the WA economy through supply chain and household consumption impacts.

Activities of Independent Schools also supported more than 17,500 FTE jobs in 2014-15, including direct and flow-on activity, paying almost $1.6 billion in total employee compensation. This equated to 1.5 percent of total jobs and

1.7 percent of total employee compensation in WA in 2014-15. It is worth noting that jobs in WA Independent Schools are predominantly highly skilled, service sector positions. These jobs contribute to skilling the future of WA not only by educating students but also by employing people in a highly skilled service industry where the majority of expenditure is spent on employing WA residents. Approximately 76.5 percent of operational expenditure at Independent Schools is allocated to staff salaries.

Table 2.5. Estimated Direct and Flow-On Contribution of Independent Schools to the WA Economy, 2014-15

Economic Contribution	Gross State Product ($M) [(a)]	Incomes ($M)	Employment (FTEs)
Values			
Direct Contribution	$1,282.2	$995.0	9,592
Production Induced (Type I Flow-On) Contribution	$238.9	$122.2	1,510
Consumption Induced (Type II Flow-On) Contribution	$1,214.4	$458.3	6,446
Total Contribution	**$2,735.5**	**$1,575.5**	**17,548**
Percent of WA Total Economy			
Direct Contribution	0.5%	1.0%	0.8%
Production Induced (Type I Flow-On) Contribution	0.1%	0.1%	0.1%
Consumption Induced (Type II Flow-On) Contribution	0.5%	0.5%	0.5%
Total Contribution	**1.1%**	**1.7%**	**1.5%**

Notes: Totals may not sum due to rounding. (a) The percent contribution presented is reflective of the contribution of Independent Schools as a percent of total contribution to GSP by all industries in WA. Non-industry based contributions to GSP (e.g. taxes and subsidies on products levied on households rather than industry) are not included in this percent estimate.
Sources: ABS (2017a, b and c; 2016a, b and c; 2013; 2011a), AISWA (unpublished(1) and unpublished(2)), AEC.

2.4 REGIONAL CONTRIBUTION OF INDEPENDENT SCHOOLS

Independent Schools are key contributors to many of the largest local and regional economies in WA, providing high quality education options in many of the most populous areas of WA. They are also key education providers to some of WA's indigenous and remote communities. The contribution of Independent Schools in some regions is greater proportionally than to WA as a whole.

The majority of WA Independent Schools are located in the Greater Perth region[1], where the vast majority of the State's economic activity occurs. Approximately 82.5% of Independent School students in 2015 were enrolled at Independent Schools in Greater Perth, and these schools contributed more than 80 percent of total Independent Schools economic activity within WA in 2014-15. Including direct and flow-on activity, Independent Schools contributed:

- $2.31 billion to Greater Perth Gross Regional Product (GRP) (1.6 percent of total Greater Perth GRP for the year).
- $1.34 billion in incomes (or 2.0 percent of total Greater Perth).
- Approximately 14,700 FTE jobs (or 1.7 percent of total Greater Perth employment) in 2014-15.

Three LGAs within Greater Perth recorded a contribution to GRP, incomes and employment from Independent Schools of 15 percent or more in 2014-15 (Claremont, Mosman Park and Peppermint Grove). The LGAs of Armadale and South Perth recorded over five percent contributions by Independent Schools to these economic measures, while the LGAs of Gosnells, Joondalup, Kalamunda, Melville, Mundaring, Rockingham, Serpentine-Jarrahdale, Stirling, Swan and Wanneroo all recorded contributions of approximately two percent or more.

Independent Schools are also important contributors to regional WA, contributing $421.4 million (or 0.4 percent) to regional WA GRP, $235.8 million (or 0.9 percent) to incomes, and approximately 2,850 FTE jobs (or 0.9 percent of total employment). Outside of Greater Perth, the most significant contributions of Independent Schools were in the:

[1] For the purposes of this study, regions have been defined based on Australian Bureau of Statistics Statistical Divisions using aggregates of local government areas (ABS, 2011b). The Greater Perth region has been defined as encompassing the same geography as the Perth Statistical Division.

- South West region, where Independent Schools contributed $221.7 million (or 1.2 percent) of GRP, $130.3 million (or 1.6 percent) of incomes, and approximately 1,500 FTE employees (or 1.4 percent of employment). The contribution of Independent Schools within the South West region was strongest in the LGAs of Busselton, Capel, Mandurah and Murray.
- Lower Great Southern region, where Independent Schools contributed $58.2 million (or 1.6 percent) of GRP, $32.9 million (or 2.3 percent) of incomes, and approximately 400 FTE employees (or 1.7 percent of employment). The contribution of independents schools within the Lower Great Southern region was strongest in Albany LGA.
- Kimberley region, where Independent Schools contributed $59.1 million (or 1.1 percent) of GRP, $26.1 million (or 1.6 percent) of incomes, and over 350 FTE employees (or 1.8 percent of employment). The contribution within the Kimberley region was strongest in the Derby-West Kimberley LGA.

2.5 COMPARISON WITH OTHER INDUSTRIES

Economic modelling presented in the sections above highlights the important contribution Independent Schools in WA make to the WA economy. The significance of this contribution to the WA economy can best be outlined through comparisons with other, recognisable WA industries.

The following sections present comparisons of the direct contribution Independent Schools make to the WA economy against other industries modelled within the significance model developed for this project.[2] This section only presents the **direct** contribution of Independent Schools compared to the **direct** contribution of other industries. Flow-on contributions cannot be presented as this would introduce double counting across WA economic activity (as flow-on contributions of Independent Schools represent direct activity of the industries it purchases from, and vice versa).

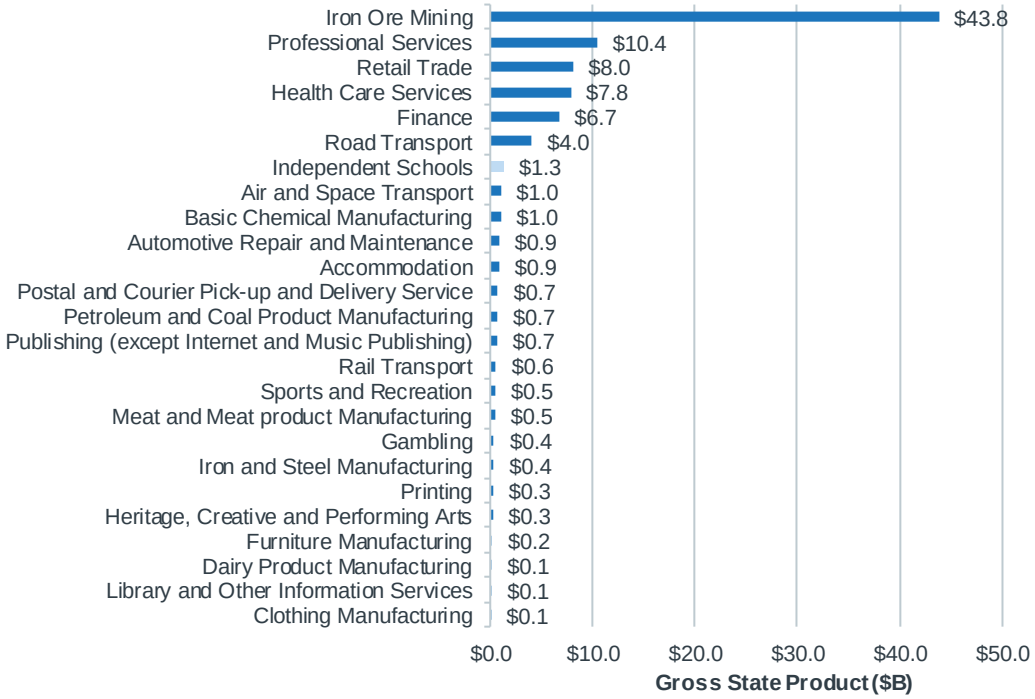
While a total of 115 industries were modelled, including WA Independent Schools, the figures below present comparisons between Independent Schools and a selection of 24 other industries (to provide 25 in total). This was done in order to provide a meaningful and manageable presentation of data. The industries selected provide a cross section ranging in size from some of the largest contributors to the WA economy to some of the smallest.

2.5.1 Gross State Product

Total GSP in WA was $250.4 billion in 2014-15, of which $242.0 billion was contributed by WA industries (with the remainder contributed through various non-industry specific taxes). Of this, Independent Schools directly contributed more than $1.28 billion. This was more than the contribution of key WA industries such as air (and space) transport, basic chemical manufacturing, automotive repair and maintenance, accommodation, and postal and courier delivery services. Overall, Independent Schools ranked 32nd of the 115 industries modelled in terms of contribution to GSP.

[2] A total of 115 industries were modelled – the 114 industries classified in the Input-Output transaction table produced by the ABS (2016a) plus Independent Schools. Additional details are provided in in **Appendix A**.

Figure 2.1. Direct Contribution of Select Industries to Gross State Product, 2014-15 ($ Billion)

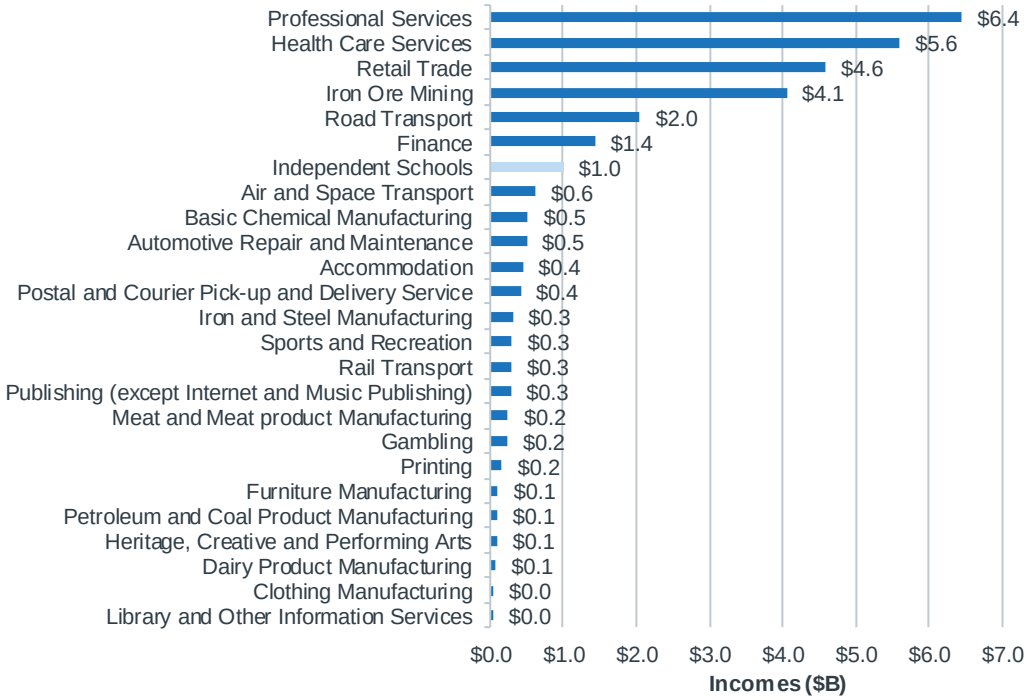


Sources: ABS (2017a, b and c; 2016a, b and c; 2013; 2011a), AISWA (unpublished(1) and unpublished(2)), AEC.

2.5.2 Incomes

Independent Schools contributed nearly $1.0 billion in incomes to WA workers in 2014-15, ranking the industry as the 25th largest contributor overall to WA employee incomes of the 115 industries modelled. Independent Schools provided a greater quantum of incomes to WA workers than industries such as air (and space) transport, basic chemical manufacturing, automotive repair and maintenance, accommodation, and postal and courier delivery services.

Figure 2.2. Direct Contribution of Select Industries to Incomes, 2014-15 ($ Billion)

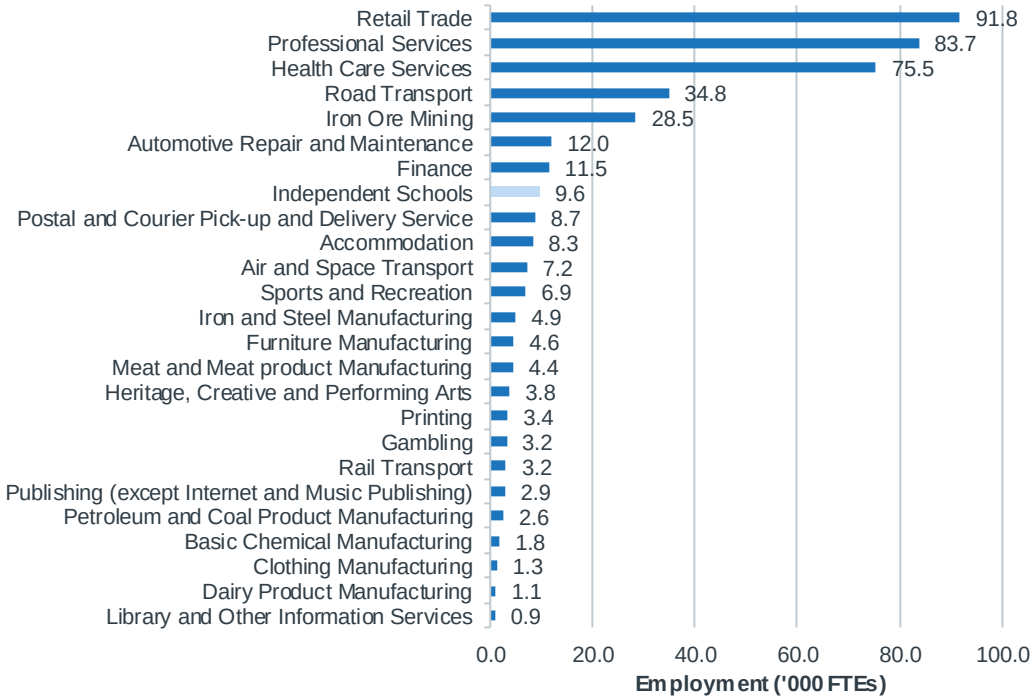


Sources: ABS (2017a, b and c; 2016a, b and c; 2013; 2011a), AISWA (unpublished(1) and unpublished(2)), AEC.

2.5.3 Employment

There were nearly 1.2 million FTE workers in WA in 2014-15, of which nearly 9,600 were employed directly as a result of Independent School activity. Independent Schools were the 29th largest contributor overall to WA jobs of the 115 industries modelled, employing more people than the industries of postal and courier delivery services, accommodation, air (and space) transport, sports and recreation, and iron and steel manufacturing.

Figure 2.3. Direct Contribution of Select Industries to Employment, 2014-15 ('000 FTEs)



Sources: ABS (2017a, b and c; 2016a, b and c; 2013; 2011a), AISWA (unpublished(1) and unpublished(2)), AEC.

3. SAVINGS TO GOVERNMENTS AND TAX PAYERS

This chapter provides an indicative estimate of the savings Independent Schools deliver to WA and federal governments, and therefore tax payers, as a result of the education services they provide to WA students.

Students at Independent Schools are entitled to a place at a government school, however, all Independent Schools in the WA receive a lower rate of government funding per student than government schools. By providing tuition to Independent School students who would otherwise be enrolled in a government school, Independent Schools deliver direct savings to governments, and therefore tax payers.

In estimating the savings generated by Independent Schools, two categories have been examined:

- Cost savings in terms of recurrent education costs, including expenditure on user costs of capital (which effectively refers to the cost for accessing capital assets, and can be considered to encompass the ongoing maintenance and upkeep of school assets).
- Cost savings in terms of contributions made by parents to capital infrastructure and improvements.

3.1 RECURRENT EDUCATION COSTS

In estimating the recurrent education cost savings delivered by Independent Schools, Productivity Commission (2017) data was used detailing the average recurrent costs to the Commonwealth and WA Governments (including user costs of capital) per government school student. The data indicates approximately $19,745 in government funding per government school student in the WA in 2014-15, with $17,673 in funding per primary school student and $23,723 per secondary school student.

Data from the National Schools Statistics Collection (2015 Commonwealth August Collection) (AISWA, unpublished(2)) indicates there were 71,231 FTE school students at Independent Schools in 2015, of which 36,431 were primary school students and 34,800 were secondary school students. Applying the above average government expenditure per government primary and secondary school student provides an estimate in government funding required for recurrent education if Independent School students were enrolled in government schools of $1.5 billion for the year.

By comparison, Independent Schools received an estimated $674.6 million in combined Commonwealth Government ($468.1 million) and WA Government ($206.5 million) funding for recurrent education expenses in 2014-15 (AISWA, unpublished(1)). This equates to a difference of $794.8 million in government funding received by Independent Schools for recurrent education expenses compared to what governments would pay if Independent School students were enrolled in government schools. This is representative of the savings to tax payers provided by Independent Schools in terms of recurrent education costs.

3.2 CAPITAL EXPENDITURE

Independent Schools provide education facilities and infrastructure that is primarily paid for through private contributions, reducing the overall tax burden on WA households that would otherwise be incurred if all school infrastructure was required to be paid for in full by public funds from the WA and Australian Governments.

Data from the Independent Schools Council of Australia (ISCA, 2015) indicates approximately 82 percent of Independent School capital funding is provided by parents and the community at a national level.

Independent Schools spent $239.5 million on capital expenditure in 2014-15 (AISWA, unpublished(1)). Assuming the national proportion of 82 percent paid by parents and the community is consistent for WA, this would equate to a total of $196.4 million in capital expenditure funded by parents and the community. This is representative of the savings to WA and Australian Governments resulting from private funding for the provision of Independent Schools.[3]

3.3 SUMMARY OF SAVINGS TO GOVERNMENTS AND TAX PAYERS

Independent Schools are estimated to have saved tax payers a total of approximately $991.2 million in 2014-15, through a combination of savings of $794.8 million in recurrent education costs and $196.4 million in capital costs.

[3] Some voluntary contributions by parents and the community for capital development can provide a tax benefit for those individuals. As a result, it is possible the saving to government may be modestly overstated.

4. THE ECONOMIC VALUE OF ENHANCED EDUCATION OUTCOMES

Research by the OECD (2010) indicates that the enhanced educational outcomes provided by Independent Schools can be linked to a contribution to growth in WA GSP of around $252.1 million in 2014-15 (see Appendix C).

Also, the quality of learning and teaching provided by WA Independent Schools support students in achieving excellent outcomes across a range of educational measures:

- Students attending Independent Schools are estimated to have contributed to an increase of approximately 6 points in the mean PISA test score for the WA's overall student body in 2012. Whilst this is only an indicative estimate, based on national data from ACER (2013) (see section 4.1 below for more details), it is reflective of the enhanced education outcomes supported by Independent Schools.
- Australian Independent Schools recorded a mean PISA test score of 559 for scientific literacy, 551 for reading literacy and 541 for mathematical literacy (ACER, 2013). These scores were well above the overall mean PISA test scores for all Australian schools, as well as the OECD average (Table 4.1).
- Only school students in Shanghai-China recorded higher mean PISA scores for scientific and reading literacy than Australia's Independent Schools, while only five countries scored higher mathematical literacy scores (ACER, 2013).
- More than half of the top 20 best performing schools in WA in all domains tested in the National Assessment Program – Literacy and Numeracy (NAPLAN) tests were from the Independent School sector in 2016 for both Year 9 and Year 7 students.
- The Independent Schools sector had weighted averages more than 20 points above government schools (except Year 7 Spelling) and 10 points above Catholic schools for Year 9, 7, 5, and 3 students for most domains tested in the NAPLAN tests in WA.
- In 2016, 22 of the top 50 median Australian Tertiary Admission Rank (ATAR) scores for WA schools were achieved by Independent Schools. The ATAR is an assessment used to rank school-leaving university applicants.

Table 4.1. PISA Scores, Australian Independent Schools versus Australian and OECD Means, 2012

PISA Scores	Science	Reading	Mathematics
Australian Independent Schools Mean	559	551	541
Australian Schools Mean	521	512	504
OECD Schools Mean	501	496	494

Source: ACER (2013)

4.1 CONTRIBUTION TO ECONOMIC GROWTH

Education is a fundamental building block for economic growth. It empowers new generations to build upon the collective knowledge, infrastructure and technology of society, and advance economies and communities through new and innovative practices.

The contribution Independent Schools make to WA economic growth through enhanced education outcomes was estimated based on research by the OECD (2010), which found a causal relationship between academic performance and economic growth (using standardised PISA test scores[4] against economic performance over 40 years across 23 OECD countries), and results of the 2012 PISA scores (ACER, 2013) for Australian Independent

[4] PISA tests 15-years olds on Reading, Mathematics and Science.

Schools compared to Australian government schools[5]. The approach (and findings) to estimating economic growth is presented in **Appendix C**.

Without Independent Schools, it can be indicatively estimated the mean PISA score in WA would have been 6 points lower than that recorded in 2012. Based on the OECD's findings, a 6-point reduction in PISA scores can be equated to a reduction in WA growth of approximately 0.10 percentage points, which is equivalent to approximately $252.1 million in GSP for 2014-15. Whilst this is only an indicative estimate, based on national data from ACER (2013) and OECD research regarding links between PISA scores and economic growth (see **Appendix C** for more details), it is reflective of the enhanced education outcomes supported by Independent Schools.

This economic benefit is estimated to be provided annually by the enhanced education outcomes delivered by Independent Schools. They also deliver legacy benefits with the increased activity and productivity delivered by enhanced education outcomes being carried forward to subsequent years.

4.2 MEASURES OF ACHIEVEMENT

The results achieved by students within Independent Schools in WA is strong evidence of the quality teaching and learning provided by Independent Schools. Year 12 Independent School students had high performances in the following:

- The Australian Tertiary Admission Rank (ATAR) is an assessment used to rank school-leaving university applicants. In 2016, 44 percent of the top 50 median ATAR scores were achieved by Independent Schools (TISC, 2016).
- 24,895 Year 12 WA students took courses toward a Western Australian Certificate of Education (WACE) in 2015 (WA SCSA). Schools were ranked per the number of scores 75+ (Excellent) that were achieved in Stage 3 courses. Of the top 50, 44 percent of the top performances belonged to Independent Schools. Schools were also ranked per the number of scores 65+ (Excellent or High) and of the top 50, half were Independent Schools.[6]
- Just under half (46 percent) of Year 12 students in WA participated in Vocational Education and Training (VET) programs (WA SCSA). Schools were ranked per the proportion of students who completed a VET Certificate II or higher. Of the top 50 achieving schools, 22 percent were independent.[7]

Independent Schools in WA cater for a diversity of students from a range of backgrounds. Whilst variations in academic performance generally relate to individual student characteristics as well as the characteristics of schools and school systems, schools with a high degree of autonomy, such as Independent Schools, generally have been shown to achieve higher levels of performance in academic outcomes, even after adjusting for students' socio-economic background (Woessmann, 2007). The results achieved by all students within WA's Independent Schooling sector is strong evidence of the quality teaching and learning provided by Independent Schools.

Independent Schools in WA are consistently among the top performing schools across all NAPLAN assessment domains, particularly at secondary levels in WA. NAPLAN is the National Assessment Program – Literacy and Numeracy for students in Years 3, 5, 7 and 9. It tests all students in all schools in reading, writing, spelling, grammar, punctuation, and numeracy.

In 2016, WA results showed:

- At least 12 of the 20 best performing schools for Year 9 students were from the Independent School sector for all five domains tested (ACARA, 2016). At least 2 of the top 5 schools were from the independent sector as well across all five domains.
- At least 14 of the 20 best performing schools for Year 7 students were from the Independent School sector for all five domains tested, with at least 3 of the top 5 from the independent sector as well (ACARA, 2016).

[5] Assuming the difference between national Independent Schools and state schools PISA scores applies to WA.

[6] This ranking excluded schools with fewer than 20 FTE Year 12 students or fewer than 50 Stage 3 unit pairs.

[7] This ranking excluded schools with fewer than 20 FTE Year 12 students or fewer than 10 students in VET units.

Table 4.2. Number of Independent Schools with Top NAPLAN Scores by School Year, 2016

Domain	Schools in Top 20	Schools in Top 5
Year 9		
Grammar and Punctuation	14	2
Numeracy	14	2
Persuasive Writing	14	2
Reading	16	4
Spelling	12	3
Year 7		
Grammar and Punctuation	15	4
Numeracy	14	4
Persuasive Writing	14	4
Reading	16	4
Spelling	15	3

Source: ACARA (2016)

Further, WA results showed that:

- The Independent Schools sector had a weighted average more than 20 points above government schools for Year 9, 7, 5, and 3 students in all domains tested (ACARA, 2016).
- The Independent Schools sector had a weighted average more than 10 points above Catholic schools for Year 9 and 7 students in all domains tested and for Year 5 and 3 students in most domains tested (ACARA, 2016).

Table 4.3. Difference in NAPLAN Weighted Average Scores by School Year, 2016

Domain	Difference between Independent and Government Schools	Differences between Independent and Catholic Schools
Year 9		
Grammar and Punctuation	32	19
Numeracy	32	17
Persuasive Writing	45	15
Reading	37	17
Spelling	25	12
Year 7		
Grammar and Punctuation	41	20
Numeracy	33	18
Persuasive Writing	42	13
Reading	37	16
Spelling	27	13
Year 5		
Grammar and Punctuation	35	17
Numeracy	25	14
Persuasive Writing	25	4
Reading	34	16
Spelling	22	7
Year 3		
Grammar and Punctuation	32	20
Numeracy	26	20
Persuasive Writing	21	3
Reading	35	18
Spelling	22	12

Source: ACARA (2016)

5. CONTRIBUTION TO THE COMMUNITY

Independent Schools are important hubs within their local communities and significant contributors to the economic, social and cultural lifeblood of the towns and cities they operate in. Western Australia's Independent Schools serve a wide range of communities, including some of Western Australia's most remote and disadvantaged Indigenous communities, communities in regional towns and diverse communities in Perth. In addition to providing students with a high quality education, Independent Schools also play an essential role in teaching students about values such as respect, tolerance and acceptance as well as how to be active, informed and responsible citizens.

The following case studies provide profiles of some of Western Australia's Independent Schools, highlighting the diversity in the Western Australian Independent School sector.

Alta-1

Alta-1 College is a registered, multi-sited school, with metropolitan and regional campuses that has been providing an alternative education to school students who are marginalized by mainstream education, and are therefore at educational and emotional risk, with an enrolment approaching 500 plus students in 2017.

While most Alta-1 campuses offer senior school programs for 15-19 year olds leading to WACE completion, a growing number deliver programs designed to meet the needs of middle school-aged students (12-14 years). The ConnectEd program takes our distinctive brand of recovery education combined with face to face pastoral support to young people with diagnosed (mental) health issues causing them to be home bound and unable to attend a physical campus.

Alta-1 provides a learning environment for students who want to engage in the process of change. We work hard to help our students build real and healthy relationships with their teachers, mentors and peers. We develop emotional, social and spiritual pathways that assist students navigate through life as well as growing the academic skills of our students.

Alta-1 aims can be summarised as follows:

- provision of alternative education programs that utilise supportive communities for young people at risk;
- provision of socio-emotional educational processes to address and prevent negative issues experienced by young people at risk; and
- use of inclusive and wellness processes to develop a sense of self-worth and identity for young people.

As part of the Alta-1 recovery model of education, students complete activities designed to lead them through a socio-emotional developmental process involving the following stages:

- Belonging. The student is integrated into a caring community that allows him/her to become connected.
- Healing. The units of study facilitate a process whereby the student needs to face the issues that are impeding his/her personal development.
- Restoration. The student has the opportunity to re-build his/her life and become a better person.
- Identity Formation. The student develops a new understanding of his/her self-worth and relationship to family, church and the wider community.
- Purpose-Driven. The adoption of a beliefs and values system and the development of identity provide reasons and motivation to engage in life.

Beehive Montessori School

The Beehive Montessori School is one of the oldest Montessori Schools in Perth. It started in 1977 with less than 20 children in an old Church hall. Today the Beehive is situated in purpose built premises beside the sea in Mosman Park and has more than 220 children. The school consists of 10 classrooms, four of 3 to 6 year olds, three of 6 to 9 year olds, two of 9 to 12 year olds and one of 12 to 15 year olds. It also has an educational support unit for children with special needs.

The design of the school reflects the Montessori prepared environment. Each area is fully equipped with Montessori materials and a Montessori trained teacher. The specially designed equipment is beautifully made from predominantly natural materials; some of them are purchased and some are made by the teachers themselves.

The school's aim is to educate the whole child within a Montessori environment by respecting individual differences in order to foster an enjoyment of learning and a sense of community responsibility. This means focussing on their

academic achievement, social development, emotional resilience, physical growth and spiritual or moral development. The school achieves its mission by offering Montessori education that has been based on the developmental needs of children and adolescents.

John Wollaston Anglican Community School

John Wollaston Anglican Community School, a co-educational day school with approximately 1,030 students Pre-Kindergarten to Year 12, is a school of The Anglican Schools Commission (Inc). Located in the south eastern outer metropolitan corridor of Perth, in the foothills of the Darling Range in Camillo, the School has grown out of farmland in 1988 to be the well-equipped educational facility that it is today.

The school has purpose built facilities including an Early Learning Centre, Learning Enrichment Centre, Year 7 Transition Centre, theatre, gymnasium, a Technology Centre and Visual Arts studios that provide first class resources for our students. A new facility, known as The Commons, is home to the English, Health, Humanities, Languages and Mathematics learning areas.

In 2015 Telethon Speech and Hearing Centre established an outpost at John Wollaston, a first for Anglican schools in WA. This outpost, which is staffed by specialist Teachers of the Deaf and Education Assistants, caters for students with moderate to severe hearing impairment. The school is proud of its Anglican ethos and whole school approach to learning.

The committed staff seek to prepare all students for a meaningful and rewarding role in the community through the pursuit of personal excellence and the provision of a full and broad education, based on strong academic and Christian principles. The Core Values of Respect, Responsibility, Honesty and Commitment, along with a focus on academic excellence, strong co-curricular programme and pastoral care system, underpin the school's Mission Statement.

The school helps students discover their passion and direction in life and make a positive contribution in the world. This in turn reflects the commitment to an holistic education. The school offers learning enrichment through their Learning Support and Gifted and Talented programmes and provide opportunities for students to aim for a wide range of destinations including tertiary institutions, apprenticeships and the workforce.

The aim to develop the whole child is also evident in the special co-curricular programmes such as equestrian pursuits and rowing/kayaking (taking advantage of the international standard rowing course, Champion Lakes, which is within walking distance of the School). The school offers a large number of opportunities for student leadership and encourages all students to develop these skills.

The school has special pastoral care programmes, including unique Encounter experiences tailored for each age group, that highlight the belief that school should be a place where children can feel safe, happy and connected, and have the chance to build their resilience and self-esteem. The Primary School is an accredited International Baccalaureate Organisation Primary Years Programme World School. The focus on Inquiry Learning embodies the student-centred approach to education across the School.

Lance Holt School

Lance Holt School is an independent community school of 120 students. It provides inquiry-based learning for our students from Three Year Old Kindy to Year 6 in a co-educational, non-denominational, non- competitive environment.

Founded in 1970 by educational innovator Lance Holt, the school has a strong ethos of non-competitive learning, respect for children and a holistic approach to education. Family involvement is an integral part of school life including an open-classroom approach and annual whole-school camps. The school staff work in partnership with families to ensure students achieve their educational potential through rich learning experiences in a nurturing and caring school community.

Uniquely located in a heritage building in the historical West End of the Port of Fremantle, the school is a short walk to the beach and park and has long-established links with the local community, including the nearby University, TAFE, Maritime Museum, Fremantle Library, Art Galleries and the Spare Parts Puppet Theatre.

The Western Australian Curriculum and Early Years Learning Framework underpin the learning programs, with a

focus on excellence in literacy and numeracy. The school also provides specialist programs in Arts Education, Physical Education and Italian. Lance Holt School has participated in National Initiatives including: Values Education, KidsMatter, Sustainability Education and the Studies of Asia.

Our vision for Lance Holt School is to construct a community of learners who are recognised as compassionate community members and innovative thinkers.

Margaret River Independent School

The Margaret River Independent School was initially established as Nyindamurra Family School in 1982. It is located in a beautiful bush setting in the south west of WA. MRIS aims to provide a nurturing environment that fosters the development of Lifetime Learning skills. The environment enables each child to reach their full potential academically, creatively, socially and emotionally thus catering for the whole child.

The school offers programs for children from Kindergarten to Year 6. MRIS Kindy/Pre provides children with a secure and creative environment in which they can explore and learn through spontaneous play. In the Primary years the aim is to instil a sense of self-esteem and promote a mature attitude to study that will carry the child through the more rigorous demands of secondary school.

The school's teachers follow a Whole School Development Plan which addresses the 8 learning areas of the WA Curriculum. MRIS is extremely proud of the professional quality of its Visual Arts, Music and Drama teachers. Over the last 28 years MRIS has incorporated many innovative programs into its curriculum, e.g. production of a book on local flora. Parents play and integral part in sustaining the infrastructure of the school. This Family-School Partnership is vital for the school's continuing success.

Quintilian School

The Quintilian School is an independent, co-educational, secular school, established in 1975. The school is managed by the School Council with significant input from both parents and teachers. Quintilian offers primary education from Pre-kindergarten to Year 6. The current enrolment is approximately 260.

Quintilian is a community school where there is a direct partnership between the parents and teachers in the education of the children. A warm, caring environment is created where each child is valued and each child is known as an individual. The relationship between the teacher and the student is seen as vital if learning is to be maximised.

A holistic view of education underpins the school's approach and we want to develop a child in the areas of academics, creativity, social skills, community responsibility, health and fitness. Real life experiences enhance the learning process and children need to go out and view the real world as much as possible. A child centred approach is fundamental to the school. More information can be found at the school website.

Scotch College

Scotch College is a modern and progressive independent school for boys from Years 1 - 12. For over one hundred years the School has been providing an intellectually and personally challenging program whilst remaining in touch with its traditions. The College's Vision is to be "A Learning community with an international standard of excellence". To this purpose the International Baccalaureate programmes have been integrated into the School's curriculum, making Scotch College the first school in Western Australia to offer all three IB programmes. The College is also a member of the worldwide Round Square group of schools.

In order to meet the changing needs of the school's students, the School has a revised calendar with students in Years 9 and 12 commencing the academic year in October. This provides a significantly longer period of study to prepare for the Year 12 final examinations and a closer alignment to the northern hemisphere academic year.

Information Learning Technologies are an integral part of Teaching and Learning supported by the 1:1 devices, iPad years 1 to 4 and laptop programme years 5 to 12. Scotch College is a Learning community, which empowers students to achieve their potential and become engaged in the global community. The School's innovative approach to implementing learning technologies in the curriculum centres on extending the individual learner beyond the school day, and providing access to collaborative learning resources and an embedded 21st Century skills curriculum. While the School's vision is to focus on excellence in academic performance, the Mission is "To

develop boys of character with a strong self-understanding, a passion for sustained learning and spiritual inquiry who will become valued members of the global community". A vibrant and growing Arts programmes, quality sporting competitions and facilities, inclusive leadership programmes for senior boys and a significant community and service programme are all areas where boys can achieve their potential. The School has a wide range of co-curricular activities to choose from, and Scotch boys are encouraged to develop into mature young men. The College also offers a boarding programme with excellent facilities and caters for approximately 170 boys from around Australia and overseas.

Strelley Community School

Strelley Community School established in 1976, is proud to be the oldest continually operational Independent Aboriginal Community School in Australia. The school, situated in the Pilbara region of Western Australia, comprises of two remote campuses: Strelley, located 60km east of Port Hedland and Warralong, located 160km south-east of Port Hedland, between the Shaw and DeGrey Rivers.

Strelley Community School is a community school in the true sense of its name with high community support and guidance in every aspect of the school's operation.

The school offers learning programs from Pre-Kindergarten to Year 12, with 88 students currently enrolled. The students in the school are all of Indigenous descent and are all English as a Second Language learners, drawn from a language background that is predominantly Nyangumarta. The school values and promotes the cultural heritage of its students. The teaching of the student's home language, Nyangumarta, is embraced within the school and an extensive collection of Nyangumarta resources has been created and developed during the school's operation to capture and preserve the Nyangumarta language, culture and traditions.

The school's curriculum employs learning, teaching and assessment programs that provide each student with opportunities to demonstrate the learning outcomes identified in the Australian Curriculum, WA Curriculum, and the Early Years Learning Framework. The delivery of the school's curriculum endeavours to be rich and varied, and provides all students with a learning environment which is supportive, stimulating and encourages student participation, growth and development.

As exposure to Standard Australian English in the student's home environment is minimal, the school places high emphasis on English Literacy learning in all of its programs. The use of ICT also features heavily within all school programs with a current emphasis in all year levels on Multi-media Pathways primarily through Film-making and Movie Production.

Woodbury Boston Primary School

Woodbury Boston Primary School is a small independent school situated halfway between Albany and Denmark, on the South Coast of WA. Founded in 1980, the school is deliberately small in size, allowing each child to be treated as an individual. Students are treated with dignity, kindness and respect, and are expected to treat those around them the same way.

The school is situated in a beautiful bush setting, amongst the karris and with a creek on the boundary. The school playground is adventurous, with cubbies, rope swings and trees to climb.

The teachers follow the WA Curriculum; however it is delivered to the children in accordance with the aims of empowering and respecting the children. The students are grouped into multi-age classes, which allow children of the same age to work at different levels as they need. Mixed age classes also support current educational thinking, as the children can work at their own level of readiness in all learning areas, whilst still being encouraged to extend beyond these levels when ready.

Camps and other regular off-campus activities are important parts of the school's annual program, helping the children develop resilience and independence. These include a whole-school camp for students, staff and other family members, held at the beginning of the year. This camp is important in helping the school community to develop, and is enjoyed by all who attend. There is also an annual sailing camp, and the major Quest camp for the senior students, a huge adventure promoting increased leadership skills and personal growth. Other activities include surfing and ocean awareness lessons, canoeing expeditions and regular Out and About days, where the whole school visits Albany or Denmark for a variety of educational experiences.

Music, drama and the arts are regularly enjoyed at school. Visiting music specialists teach a variety of musical instruments, and music is treated as intrinsic to everyday life. The student-produced dramatic productions are a joy to behold, and the whole-school concert is a highlight of the school calendar.

Parents are welcomed as part of the school community. They are respected as the most powerful educational influence in the life of the child. Parents are welcome in the classroom, and are encouraged to stay in close contact with the teaching staff.

Woodbury Boston Primary School provides a comfortable, exciting and nurturing environment in which to meet the individual needs of each child. The school enhances the challenge and excitement of learning – the emphasis is on experiencing learning as fun.

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APPENDIX A: SIGNIFICANCE ASSESSMENT METHODOLOGY

The economic significance estimates in this report are produced using Input-Output transaction tables and models developed by AEC for the purposes of this assessment, combined with data from a range of sources, including State and National Accounts data, other industry data from the ABS, and data on AISWA member schools from AISWA. The Input-Output models were used to produce estimates of the direct and flow-on contribution of AISWA schools to the WA economy in terms of output, gross product, gross value added activity, employment and income (i.e., wages and salaries).

OVERVIEW OF IO MODELLING

Input-Output (IO) analysis demonstrates inter-industry relationships within an economy, depicting how the output of one industry is purchased by other industries, households, the government and external parties (i.e. exports), as well as expenditure on other factors of production such as labour, capital and imports. IO analysis shows the direct and indirect (flow-on) effects of one industry on other industries and the general economy. As such, IO modelling can be used to demonstrate the economic contribution of an industry on the overall economy and how much the economy relies on this industry or to examine a change in final demand of any one industry and the resultant change in activity of its supporting industries.

IO ASSUMPTIONS

The key assumptions and limitations of Input-Output analysis include:

- The inputs purchased by each industry are a function only of the level of output of that industry. The input function is generally assumed linear and homogenous of degree one (which implies constant returns to scale and no substitution between inputs).
- Each commodity (or group of commodities) is supplied by a single industry or sector of production. This implies that there is only one method used to produce each commodity and that each industry or sector has only one primary output.
- The total effect of carrying on several types of production is the sum of the separate effects. This rules out external economies and diseconomies and is known simply as the additivity assumption. This generally does not reflect real world operations.
- The system is in equilibrium at given prices. This is not the case in an economic system subject to external influences.
- In the static input-output model, there are no capacity constraints so that the supply of each good is perfectly elastic. Each industry can supply whatever quantity is demanded of it and there are no capital restrictions. This assumption would come into play depending upon the magnitude of the changes in quantities demanded.

Despite these limitations, IO techniques provide a solid approach for taking account of the inter-relationships between the various sectors of the economy in the short-term and provide useful insight into the quantum of final demand for goods and services, both directly and indirectly, generated by an industry.

SIGNIFICANCE ASSESSMENT VERSUS IMPACT ASSESSMENT

The framework employed in significance assessment **differs from that employed in economic impact analysis** in that economic significance assessment primarily seeks the contribution of an existing industry as opposed to the impact of a "stimulus" in a particular industry or in several industries (West, 1993). The usual approach of comparing what the economy would be with and without the industries whose contributions are to be assessed does not work because the inter-relationship between industries means whether or not the industries to be assessed exist, there will still be demand for their outputs (e.g., a complete vehicle needs tyres so that whether or not the entire tyre manufacturer is closed down, the car manufacturer's demand for tyres still exists). From a modelling stance, this

problem is solved by assuming that demand for outputs of the industries to be assessed will instead be met by imports.

MODEL DEVELOPMENT

The models used in this assessment are derived from sub-regional transaction tables developed specifically for this project. The process of developing a sub-regional transaction table involves developing regional estimates of gross production and purchasing patterns based on a parent table, in this case the 2013-14 Australian transaction table (ABS, 2016a).

Estimates of gross production (by industry) in the study areas (WA, each LGA and each State and Federal Electorate) were developed based on the percent contribution to employment (by place of work) of the study area to the Australian economy (ABS, 2013), and applied to Australian gross output identified in the 2013-14 Australian table.

Industry purchasing patterns within study areas were estimated using a process of cross industry location quotients and demand-supply pool production functions as described in West (1993).

In addition to the general limitations of Input-Output analysis, there are two other factors that need to be considered when assessing the outputs of sub-regional transaction table developed using this approach, namely:

- It is assumed the sub-region (ACT) has similar technology and demand/ consumption patterns as the parent (Australia) table (e.g. the ratio of employee compensation to employees for each industry is held constant).
- Intra-regional cross-industry purchasing patterns for a given industry vary from the national tables depending on the prominence of the industry in the regional economy compared to its input industries. Typically, industries that are more prominent in the region (compared to the national economy) will be assessed as purchasing a higher proportion of imports from input industries than at the national level, and vice versa.

Input-Output tables utilise an aggregated system of industry classifications based on the ANZSIC system. In total, the 2013-14 Input-Output tables produced by the ABS (2016a) define 114 distinct industries. In assessing the contribution of AISWA schools, the activities of AISWA schools were extracted from its relevant Input-Output aggregated industry – “Primary and Secondary Education Services (incl Pre-Schools and Special Schools)”.

The separation of AISWA schools from the “Primary and Secondary Education Services (incl Pre-Schools and Special Schools)” Input-Output industry was based on financial and employment data provided by AISWA (unpublished(1) and unpublished(2)). This process resulted in separate AISWA schools and non-AISWA schools components of the “Primary and Secondary Education Services (incl Pre-Schools and Special Schools)” in the Input-Output transaction table, to facilitate the economic significance assessment of AISWA schools in isolation. Once the transaction tables were complete, the significance model were developed through the development of coefficients as per West (1993).

SIGNIFICANCE ASSESSMENT APPROACH

Contribution to WA

The significance assessment is initially undertaken for the 2013-14 financial year to be consistent with the Input-Output transaction tables utilised. These estimates are then “rebased” to 2014-15 values using:

- Data from the National and State Accounts (ABS, 2016b) to identify growth between 2013-14 and 2014-15 in gross product and gross value add for each industry of the economy.
- Data on the value of building work done (ABS, 2017a) and the value of engineering construction work done (ABS, 2017b) to estimate the proportion of overall construction sector growth attributable to building construction versus engineering.
- Data on labour productivity increases (ABS, 2016c) to identify changes in productivity per employee for each industry between 2013-14 and 2014-15. These estimates were then applied to 2014-15 production (estimated above) to identify 2014-15 employment for each industry.

- Estimates of incomes in 2014-15 were obtained assuming that the relationship between income and output in 2013-14 remains constant, which is consistent with the stylised fact of cost shares of output being close to constant over the long-term.

Data Consistency

Data provided regarding Independent School revenues, expenditure and employment are for the 2015 calendar year. However, the Input-Output models and GSP data used are compiled and presented by financial years. While it is acknowledged there is a discrepancy in data sets, Independent Schools data was assessed and compared against 2014-15 economic data, and has been reported as reflecting the economic contribution of Independent Schools in 2014-15 throughout the report.

Contribution to WA Regions

Regional allocation of the direct and flow-on effects is performed as follows:

1 Individual Input-Output transaction tables and significance assessment models were developed for each LGA and State and Federal Electorate (as described in the "Model Development" section of this Appendix). This approach produces regional estimates of direct and flow-on Independent School contributions assuming each region operates in isolation, and therefore does not account for any inter-regional flow-on relationships.

2 To account for inter-regional flows of demand for goods and services between regions, the difference between the total WA flow-on effects and the sum of flow-on effects for each region by industry (the "inter-regional" flow-on effects) has been redistributed to each region based on the proportion that each region contributes to total WA activity in each industry (i.e., if the Perth LGA accounts for 50 percent of total WA output in retail trade, then 50 percent of the inter-regional retail trade flow-on effects have been allocated to Perth LGA).

In undertaking modelling for State and Federal electorates, while expenditure and employment data was available and used from AISWA, other data required to undertake economic modelling for State and Federal Electoral divisions was not available from the Australian Bureau of Statistics. To undertake analysis for the State and Federal Electorates correspondence files (based on population counts) between State/ Federal Electorates and both Statistical Area 2 (SA2) and LGA geographic boundaries from the Australian Bureau of Statistics (ABS, unpublished) were utilised to convert ABS data at the SA2/ LGA geography to State/ Federal Electorates. All estimates of Independent School activity at the State and Federal Electorate level are therefore subject to a softer confidence due to any inconsistencies introduced by transforming data using these correspondence files.

APPENDIX B: MEASURES USED IN MODELLING

The contribution of Independent Schools to the WA economy is estimated across the following three key measures:

- **Gross Product**: Refers to the value of all outputs of an industry *including* taxes/ subsidies on its final products after deducting the cost of goods and services inputs in the production process. Gross State Product (GSP) is the measure of a State's total gross production.
- **Incomes**: Measures the level of wages and salaries paid to employees of each industry.
- **Employment**: Refers to the part-time and full-time employment positions supported by an industry, and is expressed in terms of full time equivalent (FTE) positions[8].

Two additional measures are also referenced:

- **Industry output** (or turnover): Refers to the total dollar value of all goods and services produced during the year. This measure overstates the true economic contribution of the industry as it double counts the value of material and services inputs used in the production of an industry's goods and services.
- **Gross Value Added** (GVA): Refers to the value of output after deducting the cost of goods and services inputs in the production process. Value added thereby defines the true net contribution. It is a similar measure to gross product, but *excludes* taxes/ subsidies on final products.

The economic contribution is measured in terms of:

- **Direct impacts**, which represents the economic activity of the Independent Schools themselves, as well as activity from their capital expenditure and from overseas student expenditure.
- **Flow-on impacts**, which comprise the effects from direct expenditure on goods and services by Independent Schools and overseas students, as well as the second and subsequent round effects of increased purchases by suppliers in response to increased sales. Flow-on impacts are disaggregated to:
    - **Production Induced (Type I)**, which represent the production induced support activity as a result of expenditure by Independent Schools and overseas students on goods and services, and subsequent round effects of increased purchases by suppliers in response to increased sales.
    - **Household Consumption Induced (Type II)**, which represent the consumption induced activity from household expenditure on goods and services resulting from wages and salaries being paid to Independent School employees and those within the Independent Schools' supply chain.

[8] Where one FTE equates to one person employed full time for a period of one year.

APPENDIX C: CONTRIBUTION TO ECONOMIC GROWTH

The enhanced educational outcomes provided by Independent Schools have economic impacts for WA. Estimates of the contribution to economic growth by Independent Schools in WA were developed using research findings from the OECD (2010) and differences in PISA scores that can be attributed to Independent Schools per data from ACER (2013).

The approach used is consistent with that applied by Oxford Economics (2014) in their study of the contribution of Independent Schools to the British economy.

ACADEMIC PERFORMANCE AND ECONOMIC GROWTH

Research by the OECD (2010) found a relationship between academic performance and economic growth. The study, which examined standardised PISA test scores[9] against economic performance over 40 years across 23 OECD countries (including Australia), found that a one standard deviation increase in PISA scores (which equates to 100 points on the PISA scale) correlates with a 1.74 percentage point increase in GDP growth.

This relationship was used to identify the contribution of Independent Schools in WA to economic growth, by identifying the enhanced academic performance of Independent Schools compared to government schools.

DIFFERENCE IN PISA SCORES

Results of the 2012 PISA scores (ACER, 2013) show students from Australian Independent Schools on average recorded higher PISA scores than students from Australian government schools in each category (reading, mathematics and science), by an average score of around 54 points.

However, it is important to recognise the effect that family and socio-economic background have on student performance. ACER present PISA scores accounting for variance in socio-economic background, and found Australian Independent Schools outperformed government schools by around 34 points on average across reading, mathematics and science.

In estimating the benefit to economic growth derived from Independent Schools, the difference in PISA scores of 34 points has been used to ensure results are not influenced by variance in socio-economic background of students between Independent Schools and government schools.

Table C.1. Difference in PISA Scores, Australian Independent Schools and Government Schools, 2012

PISA Scores	Reading	Mathematics	Science	Average
Base Scores	56	52	53	54
Adjusted for Socio-Economic Background	37	35	30	34

Source: ACER (2013).

In assessing the contribution of Independent Schools in WA to economic growth, the difference in PISA scores (accounting for socio-economic background) between Australian Independent Schools and government schools has been assumed to also apply in WA.

[9] PISA tests 15-years olds on Reading, Mathematics and Science.

OVERALL INCREASE IN WA PISA SCORES BY INDEPENDENT SCHOOLS

Without Independent Schools, it can be assumed the 71,231 students enrolled at Independent Schools would otherwise be educated in the WA government school system. Based on ACER (2013) findings, it can further be assumed that the PISA scores received by these students enrolled at Independent Schools in WA would otherwise be approximately 34 points lower on average if they were enrolled in government schools.

Independent Schools in WA account for an approximate share of 17.0 percent of the total student body in WA. It can thereby be estimated that if Independent School students in WA were enrolled at government schools, it would result in 17.0 percent of the overall student body in WA receiving a PISA score 34 points lower than was actually recorded in 2012 (or alternatively, by having Independent Schools, PISA scores received were 34 points higher than they would have otherwise been in 2012 for 17.0 percent of the overall student body in the WA).

Without Independent Schools, the mean PISA score across all students in WA can therefore indicatively be estimated to have been approximately 6 points lower than that recorded in 2012 (i.e., 34 points multiplied by 17.0 percent of the overall student body in the WA). Whilst this is only an indicative estimate, based on national data from ACER (2013), it is reflective of the enhanced education outcomes supported by Independent Schools.

CONTRIBUTION TO ECONOMIC GROWTH

OECD's research findings regarding the change in economic growth of 1.74 percentage points for every 100 point increase on the PISA scale, combined with an estimated overall difference in the mean PISA score of 6 points as a result of WA Independent Schools, suggests that without Independent Schools economic growth in WA would be approximately 0.10 percentage points lower.

WA recorded Gross State Product of $250.4 billion in 2014-15 (ABS, 2016b). A reduction in economic growth of 0.10 percentage points is equivalent to approximately $252.1 million in GSP for 2014-15. This economic benefit is estimated to be provided annually by the enhanced education outcomes delivered by Independent Schools. Even if the enhanced outcome was half that indicatively estimated above, it would still represent a significant contribution to GSP each year.

Independent Schools also deliver legacy benefits with the increased activity and productivity delivered by enhanced education outcomes being carried forward to subsequent years.

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BRISBANE
Level 5, 131 Leichhardt Street
Spring Hill QLD 4000
Australia
T: +61 (0)7 3831 0577

MELBOURNE
Level 13, 200 Queen Street
Melbourne VIC 3000
Australia
T: +61 (0)3 8648 6586

SYDNEY
Level 14, 25 Bligh Street,
Sydney NSW 2000
Australia
T: +61 (0) 2 9283 8400

BANGKOK
2024/129-130 Sukhumvit 50
Prakanong Klongtoey,
Bangkok, Thailand 10260
T: +66 2 107 0189

DARWIN
Level 1, 48-50 Smith Street
Darwin NT 0800
Australia
T: 1300 799 343

PERTH
Level 2, 580 Hay Street
Perth WA 6000
Australia
T: +61 (0) 8 6555 4940

TOWNSVILLE
233 Flinders Street East
Townsville QLD 4810
Australia
T: +61 (0)7 4771 5550

SHANGHAI
46F Hongkong New World Tower
300 Huahai Road Central
200021 China
T: +8621 6135 2310

aecgroupltd.com

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