



Scottish Funding Council
International Benchmarking
August 2020

Contents

We have benchmarked performance in 5 higher and further education systems: Australia, Singapore, Sweden, Ontario (Canada) and Germany

This report is organised in three parts:

- 1 **Major insights** form the analysis and **questions for the SFC to consider** in the next stage of its review
- 2 Detailed **cross-system benchmarking** in several selected domains
- 3 **System-level profiles**, given further contextual and background information on each system

A limited set sources and references are shown in on each page. Attached to this report is an appendix given the full list of sources used. For Sweden and Germany, benchmarks drawn from available English-language material except where noted.

Part 1: Major insights and questions to consider

Summary: Questions from international benchmarks to consider in the next phase of the review

Participation

- Is it sensible for Scotland define an overall target for HE enrolment? (See: *Singapore*)
- What are the right criteria to regulate entrance into higher education, especially professionally focused education? (See: *Sweden*)
- Is it sensible for SFC to incentivize HE-level modules that don't lead to a full degree? (See: *Sweden*)
- What more can Scotland do to encourage widening participation? For example, should it be a priority to tackle fear of student debt in disadvantaged groups and their parents/families? (See: *Germany*)

System Management

- To what extent should funding be tied to delivery of outcomes (e.g. completion)? (See: *Sweden*)
- Would a form of Strategic Mandate Agreement enhance the ability of the Scottish system to deliver improved outcomes? (See: *Ontario*)
- Would a cross-institution measure of learning quality be beneficial for Scotland? (See: *Ontario*)
- To what extent should institutions get additional funding for high priority subjects— either because of rurality, or because of a priority need? (See: *Australia*)
- How far should research funding be focused towards strategic national priorities? (See: *Singapore*)
- To what extent should SFC incentivise transition to digital teaching and learning? (See: *Germany*)
- What role could employers play in governing and leading the FE sector? (See: *Germany*)

Pathways

- How far, and in what ways, should the system be focused on lifelong learning? Should SFC incentivize employers to act as training providers? (See: *Singapore*)
- To what extent should institutions' funding be tied to the creation of effective institution-employer partnerships? (See: *Australia*)
- Does Scotland do enough to incentivize employer-led apprenticeships? (See: *Ontario*)



4 important features of Australia's HE/FE system

Note: Features based on 2020 'Reform Package' policy announcement – not currently in operation

Dedicated funding for employer partnerships

New funding stream incentivising institutions to set up new industry partnerships

- “NIPLF.... [will] incentivise work-integrated learning, such as internships, advanced apprenticeships pilots...”

Design of funding yet to be finalised – but direction is towards including performance-based funding

Additional funding for rural and remote HE/FE

Extra funding increases to allow rural institutions to increase enrolment

- 3.5% boost to funding, vs. 2.5% or 1% in metro areas

One-off A\$5k grants to students from rural areas to allow them to relocate to metropolitan universities, reducing dropout after school

- “A\$159.m over four years for Tertiary Access Payments”

Targeted investment in high priority courses

New funding stream to provide additional places in high-priority courses or areas

- “300 new places in 2021... 900 in 2024”

Not clear how this new funding will be allocated to institutions or courses – suggestions around ‘city deals’ or bespoke (non-formula) for funding for specific institutions

Transparent and objective funding

Clear and objective rationale for differential levels of government subsidy and student contribution for different courses

- “Analysis of the public and private benefits provides an indicator of the expected marginal and private returns to be gained by a student choosing one course of study compared to another”

Questions for Scotland to consider

- To what extent should some portion of institutions' funding be tied to the creation of effective institution-employer partnerships?
- To what extent should institutions get additional funding for high priority subjects – either because of rurality, or because of a priority need?



3 important features of Singapore's HE/FE system

Government sets and works to deliver enrolment target¹

Government sets a national enrolment target – and allocates sufficient places to allow it to be delivered

- In 2020, CER achieved 40% enrolment target – now targeting 50%, with extra uplift comprised principally of adult learners

As in other countries, there was concern about resulting graduate unemployment – does not seem to have been borne out by the data

Active interventions to encourage life-long learning^{2,3}

Concerted effort to encourage life-long learning, and to move away from 'frontloading' education. In practise, this looks like a focus on enabling adults to gain skills whilst employed:

- Employers able to be accredited as recognised training providers for FE-level skills
- Micro-credentials for on the job employer learning
- Extensive information on skills and career pathways

Recognised by UNESCO as a leading example of adult learning

Focused research funding towards national priorities⁴

Government has identified a limited numbers of research sectors or cross-cutting themes where it believes it has a **competitive advantage, or where research is essential for the national interest.**

- All gvt research spending is focused on these priority sectors⁴
- No detailed public information identified about how these priorities were chosen.

Questions for Scotland to consider

- Is it sensible for Scotland define an overall target for HE enrolment?
- How far, and in what ways, should the system be focused on life-long learning? Should SFC incentivise employers to act as training providers?
- How far should research funding be focused towards a strategic national priorities?

¹The Straits Times; ² Ministry of Manpower of Singapore; ³ UNESCO; ⁴ Singapore's National Research Foundation – (see appendix page 33 for full links)



3 important features of Sweden's HE/FE system

Some performance-based funding at undergraduate¹

Institutions funded on a mixed formula based on both student enrolment and credit-attainment

- “Government funding...is based on the number of enrolled students ...and the higher education credits they attain..”

Possibly – an attempt to incentives institutions to boost completion rates which are low against international standards²

The formula to calculate this funding does not appear to be in the (English language) public domain – might be worth further investigation

‘Many roads into higher education’¹

Concerted effort to encourage students to access higher education in different ways.

In particular:

- Few academic qualifications required to enter advanced (professional) degrees – school level qualification sufficient³
- Distance learning (DL) is used as a tool for widening participation in underrepresented groups , esp. regional participation, women and first-generation students²
- Freestanding HE courses often taken without intention to graduate or a pathway to a qualification but to gain specific skills/knowledge⁴

Significant investment in research pipeline¹

Funding for post-graduate and research has expanded significantly

- In the 2008–2018 period funding for research and PhD programs grew 29% while for Undergrad and Grad grew 10%

No national framework identified for allocating this funding

- “The funding for research and third-cycle education that HEIs receive directly from the Government are in the form of a block grant that may be used freely within different fields of research.”⁵

Questions for Scotland to consider

- To what extent should funding be tied to delivery of outcomes (e.g completion rates)?
- What are the right criteria to regulate entrance into higher education, esp. professionally focused education?
- Is it sensible to incentivize HE-level modules that don't lead to a full degree?

¹ Swedish Higher Education Authority (UKA) – 2019 Status Report; ² Swedish Higher Education Authority (UKA) – Website - (see appendix page 33 for full links)



3 important features of Ontario's HE/FE system

See also page 11 on Ontario's proposed differentiation framework

Strategic Mandate Agreements (SMAs) used to regulate sector

All universities and colleges agree SMA with government on 3-year cycles defining strategic priorities for each university¹

2017-2020 SMA cycle did not tie funding to delivery of outcomes. Instead, was used as a **transitional period to build consensus on suitable performance metrics and to develop a performance-based funding agreement**²

Plan to introduce outcome-based funding from 2020 has been delayed due to COVID-19 – see page 11

Government-run standardised assessment of HE quality³

Government funds HE Quality Council to deliver an **ongoing benchmarking test of literacy, numeracy and problem solving**

Test taken at start and end of HE for a representative sample of students, **measuring value-add and progress at an institution level**

Future work planned to link survey data to other government administrative data, including tax data, **allowing long-run tracking of labour-market returns**

Employer-led apprenticeship program

Employers encouraged to participate in apprenticeship program. Participation encouraged both through labour-market restrictions (apprenticeships compulsory in certain sectors) and by financial completion bonuses¹

Government supporting apprenticeships through digital infrastructure including planning efforts to streamline application process and online learning support¹

Questions for Scotland to consider

- Would a form of Strategic Mandate Agreement enhance the ability of the Scottish system to deliver improved outcomes?
- Would a cross-institution measure of learning quality be beneficial for Scotland?
- Does Scotland do enough to incentivise employer-led apprenticeships?

¹ Ontario Government Website; ² Ontario's Ministry of Advanced Education and Skills Development; ³ HEQCO Annual Report – (see appendix page 33 for full links)



3 important features of Germany's HE/FE system

FE system is co-designed and co-owned with employers

FE system is governed by a national-level institute (BIBB). Responsible for strategic direction of the sector, including setting standards on admission to FE, defining standards for qualifications (*Ausbildungsordnungen*) and promoting research and innovation in FE.¹

BIBB board is multi-party: federal, province and local representatives, as well as employer and employee groups.¹

- Similar structures repeated at *Lander*-level, setting up conditions for shared ownership

Focus on 'fear of debt' as a barrier to u'grad participation

Federal government has a policy focus on tackling 'fear of debt' in students from low-income backgrounds:

- "Financial hurdles must not be a barrier to [HE or FE]"²

Tuition fees are currently free in Germany for HE. BA FoG scheme provides **mix of loan and grant to students from a low-income background.**

In 2019, rules on loan repayment were liberalised. Now, **monthly payments are capped** (at E130/month) and **written off after 6.5 years**³

Stimulating and enabling digital teaching/learning in FE

Government providing additional targeted funding to increase the use of digital learning – E152m from 2012-19 including:

- Developing best-practises digital learning materials
- Training programs to upskill teachers on effective digital instruction⁴

In addition, additional E2.75m research funding to proactively identify future digital education needs in a range of sectors and to develop suitable material and qualifications⁴

Questions for Scotland to consider

- What role could employers play in governing and leading the FE sector?
- What more can Scotland do to tackle fear of student debt in disadvantaged groups, including via parents and families?
- To what extent should SFC incentivise transition to digital teaching and learning?

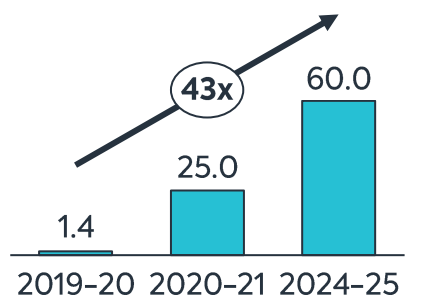
1. BIBB ; 2 BMBF (our translation); 3 BA FoG reform (De.); 4 Berufsbildung 4.0 - (see appendix page 33 for full links)

Selected cross-cutting themes emerging from the research

- **Regional and rural participation:** Australia is encouraging rural participation through creating additional local places with targeted additional funding. Sweden is attempting a similar goal by incentivising new, high-quality digital learning platforms.
- **Widening participation:** Most systems offer some form of additional funding for students from a low-income background, including systems that don't have tuition fees. (e.g. Germany.) Other systems also have additional funding for rural or indigenous students (e.g. Australia).
- **Performance Management:** Ontario is developing a 'hard' performance management system, with funding tied to outcomes-targets. Compare to Australia and Sweden. (*Deep dive:* see page 11 and 12)
- **Managing supply and demand:** Most systems had a similar market-entrance regime, comprised of expert-led assessment and government sign-off. In most systems studied, rules around market-exit are less clearly defined. Similarly, process for mergers/amalgamations tend not to be defined
- **Institutional Autonomy:** Sweden has significantly increased investment in research while granting institutions a high level of autonomy to decide how the funding is spent. By contrast, Singapore has focused its investment spend on a limited number of strategic national priorities.
- **Pathways:** Many countries have a framework that defines equivalency between HE and FE courses. However, it is increasingly clear that the framework alone is not sufficient – Germany is undertaking a research project to better understand the wider contextual factors that enable a FE-HE pathway.
- **Lifelong-learning:** Singapore has developed a focus on accrediting in-work training and learning. Sweden has prioritized creating flexible options for participating in higher education. (*Deep dive:* See page 13 and 14).

Ontario is planning to move to funding institutions largely based on outcomes, rewarding employment, economic and community impact

Note: Implementation of reforms appears to be paused due to COVID-19⁶

Today: funding encourages enrolment growth	Future state: institutions largely funded on delivery of outcomes	Goal: a complementary set of institutions								
<ul style="list-style-type: none"> • Current funding formula rewards enrolment growth¹ aligned with provincial priority of expanding places <ul style="list-style-type: none"> • 15% funding pot theoretically available for new places¹ • Post GFC in 2008/9, challenging fiscal environment limited government's ability to sustain inflationary increases in funding³ • Need for enrolment growth is believed to be reducing demographic pressures has reduced.³ 	<ul style="list-style-type: none"> • In 2013, province launched new performance management framework, including Strategic Management Agreements (SMAs)³ <ul style="list-style-type: none"> • Negotiated between the ministry and HEIs² encouraging HEIs to differentiate their offerings in line with the province's goals³ • In 2013, SMAs limited in scope: only 1.4% of university funding tied to performance². The next round of SMAs will tie 60% of funding to performance by 2025² To be phased in over 5 yrs, gradually increasing 'strength' of the lever⁵ • New SMA's will focus on performance on 10 metrics (from 38 previously) to guide funding² <ul style="list-style-type: none"> • Six metrics relate to skills and job outcomes: graduate earnings, employment, graduation, learning experience, learner skills, plus one institution-defined measure • Four metrics tied to economic and community impact: industry funding, research funding, community/local impact, and one measure set by the inst⁴ 	<ul style="list-style-type: none"> • "Build on and help focus the well-established strengths of institutions, enable them to operate together as complementary parts of a whole, and give students affordable access to the full continuum of vocational and academic educational opportunities"³ <p>Outcomes-based funding⁵ % of university funding (publicly assisted HEIs)</p>  <table border="1"> <caption>Outcomes-based funding data</caption> <thead> <tr> <th>Year</th> <th>% of university funding (publicly assisted HEIs)</th> </tr> </thead> <tbody> <tr> <td>2019-20</td> <td>1.4</td> </tr> <tr> <td>2020-21</td> <td>25.0</td> </tr> <tr> <td>2024-25</td> <td>60.0</td> </tr> </tbody> </table>	Year	% of university funding (publicly assisted HEIs)	2019-20	1.4	2020-21	25.0	2024-25	60.0
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¹ Ontario's Ministry of Training, Colleges and Universities - Overview of the Current University Funding Model; ² Ministry of Colleges and Universities - Annual report 2019-20; ³ Ontario's Ministry of Training, Colleges and Universities - Differentiation Policy Framework for Postsecondary Education; ⁴ University World News; ⁵ CBC Canada; ⁶ Huffington Post (see appendix page 33 for full links)

Other systems have adopted some elements of performance-based funding – but less demanding than Ontario



Australia's new model will reward high performing institutions with funding for expansion¹

New funding reforms plan to tie funding for enrolment growth with performance – potential to add up to 7.5% of HE basic grant amount:¹

- “From 2020, funding for bachelor level places will grow in line with population growth in the 18 to 64-year-old age bracket, with universities able to access this...if they meet specified performance requirements.”²

Graduate employment has double weight vs other performance metrics (inc attrition; student perception of quality, minority participation)¹



Sweden's model is 100% performance-based aiming for decentralization and better use of resources³

Sweden funds using two criteria: enrolment rate and credit-earning rate (a measure of completion)³

- Graduate outcomes such as employment and earnings are not part of Sweden's performance-based funding model

The funding model was designed to **address concerns about inefficient resource use in institutions while still preserving autonomy and trust**³



Performance-based funding is gaining popularity among German federal states⁴

The German HE funding system is **moving towards performance-based funding**, as part of broader move towards **increased autonomy**.⁴

- “The detailed state control exercised by the Länder is increasingly being replaced by the autonomous action of higher education institutions.”⁴

Performance criteria differ between German states but typically include number of students enrolled, total number of graduates and level of external funding attracted for research purposes⁴

¹ Times Higher Education; ² Australian Department of Education Skills and Employment ; ³ Sweden's National Agency for Higher Education; ⁴ Kultusminister Konferenz – (see appendix page 33 for full links)

Singapore has invested in lifelong learning to develop a competitive and career resilient workforce

SKILLSfuture SG

Singapore government aware of need for upskilling

- Significant focus on reducing “frontloading” of education by encouraging adult participation.
 - Government target for 20 percentage point increase in FE/HE participation to be delivered through adult learning¹

“To keep on adapting and advancing, you have to embrace lifelong learning. The old assumptions for many professions, that you must achieve a certain stock of knowledge and skills to see through your career, will have to change. This means that you don't have to frontload education too much.”

Singapore's Education Minister Ong Ye Kung¹

SkillsFuture – a “whole society movement” towards lifelong learning

- Established in 2014, SkillsFuture Singapore is a statutory board under the Ministry of Education.²
- Primary focus: to engage employers and employees to value lifelong learning and build practical skills³
- Wide range of stakeholders (employers, associations and unions) co-designed program³

Headline objectives:⁴

- Helping individuals make **well-informed choices** in education, training and careers
- Developing an **integrated, high-quality system of education and training** that responds to constantly evolving industry needs
- Promoting employer recognition and career development based on **skills and mastery**
- Fostering a **culture that supports and celebrates lifelong learning**

Examples of initiatives offered by SkillsFuture²

SkillsFuture focuses on a range of audiences (students, adult learners, employers and training institutions).

- Credit to upskill Singaporeans aged 25 and above offered financial vouchers to be taken in upskill and reskilling courses. Citizens aged 40–60 are entitled to 2x credit vs. younger beneficiaries
- Advice and information: Government-run workshops to encourage upskilling. Detailed government website setting out career pathways
- Employers as training providers National credential system for employers to deliver accredited FE training for recent (<5 yr) non-HE graduates. Costs part-met by government

1 Straits Times 2 SkillsFuture Website; 3 Singapore's Ministry of Manpower; 4 UNESCO; (see appendix page 34 for full links)

As in 2008, Sweden is using the COVID-19 pandemic to focus on reskilling and upskilling its workforce

More Swedes are enrolling in university and in training¹

- In March, Sweden announced **9.3k new training places focusing in retraining citizens that lost their jobs in the pandemic** – 6k starting in the summer

Swedish Universities have received a **record number of applications to start studies in the autumn, up 13% vs. previous year**

- **Demand for digital learning has been growing**, before the pandemic a quarter of Sweden's HE student body was registered for at least one distance course²

“People understand that you need to invest in yourself if you lose your job ... we have a big open system that you can come back to.”¹

Marita Hilliges, Secretary-General of the Association of Swedish Higher Education Institutions

Rapid training and reskilling programmes are addressing labor shortages in high-need areas³

Effective coordination among private sector organizations and universities has allowed hundreds of laid-off workers to be rapidly retrained with new skills

- Rapid reskilling programs only last a few days (3–4 days long) – typically in applied, practical subjects
- Growth sectors (e.g. health, edu) absorbed workers from travel and hospitality sectors
- Existing skill sets of employees were considered (e.g. flight attendants with basic medical training and service skills were reskilled to support nurses and doctors)

*“Our Swedish system can be very slow, ... With this unique situation at hand, I hoped things might be different this time around. And they were. **What helped us was to pilot quickly. Rather than going broad at once, we started small, showed that it (the re-skilling) could work and got some learnings for how to do it better the next time around.**”³*

Fredrik Hillelson, CEO at Novare Human Capital, a Swedish HR company

¹Times Higher Education; ² UKA; ³ Harvard Business Review (see appendix page 34 for full links)

Part 2: Detailed benchmarking

Benchmarks organised around seven key questions

	Key Question	Detailed questions to explore
Participation	Overall student numbers – <i>does the system limit overall student numbers in some way?</i>	If so how? Is there a cap on student numbers? How is the cap decided – overall and for individual institutions? What happens to institutions that over or under-recruit? How is this managed over time? How does the system respond to student choice? How is any cap monitored and updated to take account of student preferences?
	Access and Widening Participation – <i>does the system incentivise the participation of certain historically disadvantaged groups of students?</i>	If so which ones? What mechanisms does it use to manage this? e.g. outcome targets/agreements, higher rates of funding for different groups? How well do these mechanisms work – what are the recent trends in participation? What are the consequences/penalties for institutions that don't improve e.g. do they lose ability to charge fees/increase their overall student numbers?
System Management	Link to national priorities – <i>are specific funding tools used to incentivise specific national-outcomes or areas of focus?</i>	Are particular courses or areas of study funded differently? If so how are these areas identified e.g. link to national/country priorities for economic growth, views of employers. Should you protect subjects with low demand that are deemed nationally important e.g. languages, Arabic or Russian which might have national security interests?
	Performance Management – <i>Does the system manage institutional performance for outcomes?</i>	How does the system fund institutions? How does the system manage providers for 'quality'/outcomes? Does the system set explicit funding arrangements/targets that are linked to delivery of outcomes? What rewards/penalties are there for non-compliance?
	Market entrance and exit – <i>Are there provisions for managing effective market entrance and exist?</i>	What tools (legislative, funding, regulatory) does the system funder have to regulate market entry/exit? How actively are these tools used? Does the funder play a role in encouraging collaboration and mergers between struggling institutions? Does the provider have a strategy for its desired system?
Pathways	Pathways between FE and HE – <i>does the system allow learners to move seamlessly between different types of provision?</i>	Can learners accumulate credit towards their degree/qualifications from different institutions at different times? What are the barriers to doing this in practice and how does the system remove those barriers e.g. common curriculum, approach to teaching and learning etc?
	Links with Employers – <i>are institutions incentivised to work with employers?</i>	Are there any requirements around employer involvement? Is there specific funding to support this work? Are employers directly involved in the design and delivery of certain types of qualifications? How much of a focus does the system have on Apprenticeships and are there pathways to Higher Level Apprenticeships?






Headline benchmarks *Supporting detail and evidence on following pages*

Key Question	Australia	Singapore	Sweden	Ontario	Germany
Overall student numbers – <i>does the system limit overall student numbers in some way?</i>	Essentially – envelope for funded places	Yes and participation target	Essentially – envelope of total funding	Essentially – envelope for funded places	Limited – ‘open enrolment’ tradition
Access and Widening Participation – <i>does the system incentivise the participation of certain historically disadvantaged groups of students?</i>	Yes – rural and aboriginal	Yes – low income	No evidence – gvt support appears universal	Yes – low income	Yes – low income
Link to national priorities – <i>are specific funding tools used to incentivise specific national-outcomes or areas of focus?</i>	Yes – primarily to labour market needs	Yes –for key research topics	No – decisions devolved to institutions	Yes – to fund inc. enrolment in key subjects	Yes – targeted in ‘clusters of excellence’
Performance Management – <i>does the system manage institutional performance for outcomes?</i>	Limited – focus on information collection	Limited – focused on pvt institutions.	Some – process for monitoring HEI self-evaluation	Yes , – planned reforms will increase	Yes – although some variation b/Länder
Market entrance and exit – <i>are there provisions for managing effective market entrance and exits?</i>	Yes – statutory regulator	Yes – statutory regulatory for pvt sector.	Yes – statutory regulatory	Yes – statutory regulator	Yes – statutory regulator
Pathways between FE and HE – <i>does the system allow learners to move seamlessly between different types of provision?</i>	Partially – not clear how effective in practice	Limited: focused on in-employment learning	Yes – including pathways into higher HE	Partially – not clear how effective in practice	Partially – not clear how effective in practice
Links with Employers – <i>are institutions incentivised to work with employers?</i>	Yes – through dedicated funding	Not directly – gvt focuses on provides information	Not directly – but employers part of HE reg.	Not directly – gvt focuses on measuring employability	Yes - especially in FE where employers are v. engaged

Overall student numbers – does the system limit overall student numbers in some way?

If so how? Is there a cap on student numbers? How is the cap decided – overall and for individual institutions? What happens to institutions that over or under-recruit? How is this managed over time? How does the system respond to student choice? How is any cap monitored and updated to take account of student preferences?

Major insights






	Australia	<ul style="list-style-type: none"> • Finite number of government ['Commonwealth'] places – given in form of cash funding envelope (incl. post-grad and pre-bachelors). Places allocated to institutions, places traded between them (incl at a discount), money follows student.¹ • Significant short-run expansion planned: extra 39k places by 2023, 100k by 2030. Additional 1-3.5% per-pupil funding uplift, plus CPI-indexing to retain real value of each place¹
	Singapore	<ul style="list-style-type: none"> • Government sets national HE target: 'Cohort Participation Rate', 40% achieved in 2020.² • Large expansion planned of adult learning – new target of 50% to be achieved from adult ed • Places are allocated to institutions by the Ministry of Education – no publicly available information identified on the formula or process used for doing so.
	Sweden	<ul style="list-style-type: none"> • Parliament sets an annual maximum budget for each HEI, calculated on dual basis of student enrolment and completion rates. Not identified public information on how these student numbers were originally set.³ • Institutions awarded funding as cash and able to redistribute between programs and FTEs.³
	Ontario	<ul style="list-style-type: none"> • Government caps total funding and allocates to institutions. Today, allocations largely (75%) on basis of historic student enrolment levels, 15% funding to support additional enrolment growth in priority subjects. 4% allocated on basis of 'quality and performance'.⁴ • Moving to 'differentiated model' with funding tied to quality and performance measures.⁵
	Germany	<ul style="list-style-type: none"> • Open enrolment – universities inform government of projected enrolment volumes⁶ • Nationwide quotas in selected courses (e.g. med, vet) – entrance regulated by independent government agency. Universities have power to set local rules on entrance⁶ • 'Higher Education Pact' to fund expansion of places: 760k new places between 2017-2020⁶

1 Australia Department of Education; 2 Singapore Ministry of Education; 3 Sweden's National Agency for Higher Education (UKA); 4 Ontario Ministry of Training, Colleges and Universities – Funding model; 5 Ontario Ministry of Training, Colleges and Universities – Differentiation Policy; 6 The Education System in the Federal Republic of Germany 2016/2017 (KMK) – (see appendix page 34 for full links)
Delivery Associates

Access and Widening Participation – does the system incentivise the participation of certain historically disadvantaged groups of students?

If so which ones? What mechanisms does it use to manage this? e.g. outcome targets/agreements, higher rates of funding for different groups? How well do these mechanisms work – what are the recent trends in participation? What are the consequences/penalties for institutions that don't improve e.g. do they lose ability to charge fees/increase their overall student numbers?

Major insights






	Australia	<ul style="list-style-type: none"> • Additional per-pupil funding for institutions in rural areas to increase number of places¹ • New Tertiary Access Payment (A\$5k) direct to rural and remote students to cover costs of relocation to university. Must be taken directly after school and for full-time study¹ • Extra funding for rural indigenous learners (target: 1.7k extra by 2024)¹ • No additional government funding for students with a low-income background¹⁰
	Singapore	<ul style="list-style-type: none"> • Government provides top-up ('enhanced') bursaries on a sliding scale for low income families: up to 95% of fees for FE (75% for HE). Open for part time as well as full time study.² • Money follows student, not via institution²
	Sweden	<ul style="list-style-type: none"> • Participation in higher education is largely determined by parental education levels – and by immigration status. Migrants arriving after 7 have noticeably lower participation rates³. • Government funding appears universal – no evidence identified of additional support to target groups¹¹ • Recent growth in digital education as an attempt to stimulate regional access to HE⁴
	Ontario	<ul style="list-style-type: none"> • Government provides free tuition for low income students through Student Assistance Program. However, this program has high deadweight cost and little impact on HE enrolment⁵ • Quality Council maintains research program on barriers to HE/FE.⁶ In particular, the headline price of a degree has been identified as a barrier for low-income disadvantaged groups⁷
	Germany	<ul style="list-style-type: none"> • No tuition fees for students – paid from federal funds. Government provides additional living stipend (BAFöG) for students from low-income families. 50% grant/ 50% loan.⁸ • Recent efforts to reduce repayment burden – and tackle 'fear of debt'. Loan repayment capped at E130/month and written off after ~6.5 yrs⁹

¹ Australian Dept of Education; ² Gov.sg; ³ UKA – Swedish Higher Education Authority – 2019 Status Report ; ⁴ UKA – Swedish Higher Education Authority – Digital Education; ⁵ HEQCO – Canadian Postsecondary Performance: Impact 2015; ⁶ HEQCO – Annual Report; ⁷ HEQCO - Website; ⁸ BAFoG ; ⁹ BAFoG reform ; ¹⁰ Australian Government – Support for Students ; ¹¹ UKA – Swedish Higher Education Authority – Cost of Studying -- (see appendix page 34 for full links)

Link to national priorities – are specific funding tools used to incentivise specific national-outcomes or areas of focus?

Are particular courses or areas of study funded differently? If so how are these areas identified e.g. link to national/country priorities for economic growth, views of employers. Should you protect subjects with low demand that are deemed nationally important e.g. languages, Arabic or Russian which might have national security interests?

Major insights






	Australia	<ul style="list-style-type: none"> Primarily focused on labour market outcomes. Government funding varies between courses, based on employment (both overall and employability at a professional level) and completion¹ Small additional targeted fund (300 place in 2021) for 'local needs and national priority courses' which potentially could include (e.g.) strategic languages –details not yet public¹ Some attempts to fund specific skills: A\$3.7m funding for 'advanced apprentices' associate degree teaching advanced niche manufacturing skills¹
	Singapore	<ul style="list-style-type: none"> Research funding is focused towards four national 'strategic technology domains' – areas where government assesses that Singapore has a competitive advantage or a strategic imperative² Have not identified any public information suggesting how research funding or places are allocated to specific public universities, courses or priorities.
	Sweden	<ul style="list-style-type: none"> Devolved: limited evidence of a national policy on target outcomes or areas of focus.³ HEIs 'are to adjust their educational offerings, based on demand from students and labor market needs' but no public information identified suggesting how they conduct this. Government reports on employment ('establishment in labor market') at a national level³
	Ontario	<ul style="list-style-type: none"> Additional central funding (4% total, 2015) for expansion of high priority subjects, including medicine/nursing, teaching and graduate research.⁴ Insts allocated funding envelopes for additional places based on historical and capacity data. Funds issued once students enrolled⁵
	Germany	<ul style="list-style-type: none"> Government research funding concentrated towards 57 specific project-based research topics ('Clusters of Excellence)with additional funding for specific research universities ('Universities of Excellence').⁶ Government fellowship for high potential young academics⁷ E550m fund for stimulating transfer partnerships with local employers, esp. in small/mid insts⁷

¹ Australia Department of Education; ² Singapore National Research Foundation; ³ UKA – Swedish Higher Education Authority; ⁴ Ontario Ministry of Training, Colleges and Universities; ⁵ Ontario Operating Funds Distribution Manual; ⁶ German Research Council Research in Germany ; ⁷ The Education System in the Federal Republic of Germany 2016/2017 (KMK) – (see appendix page 35 for full links)

Performance Management – does the system manage institutional performance for outcomes?

How does the system fund institutions? How does the system manage providers for 'quality'/outcomes? Does the system set explicit funding arrangements/targets that are linked to delivery of outcomes? What rewards/penalties are there for non-compliance?

Major insights






	Australia	<ul style="list-style-type: none"> Statutory requirement¹ for institutions to provide regulator with certain information: financial returns, student and staff data and basic financial data.² Annual graduate survey covering post-study employment and salary.³ Results shared in a student-facing website⁴ New reforms (2020) proposes new funding to be allocated on performance-basis⁵
	Singapore	<ul style="list-style-type: none"> For private institutions: 'Enhanced Regulation Framework' requiring assessments on the basis of financial soundness and quality of provision. In addition, ad-hoc inspections from Government⁶ and graduate survey on employment outcomes.⁷ For government institutions, no publicly information identified on performance management
	Sweden	<ul style="list-style-type: none"> Dual regulation of HE between regulator and individual HEIs – regulator focuses on assessing quality assurance processes and a sampling of qualification quality.⁸ Escalating process for engaging with non-compliant institutions, including external evaluators.⁹ Portion of funding is linked to student completion rates – see page 12
	Ontario	<ul style="list-style-type: none"> Today: limited (<1%, 2015) funding allocated on the basis of achieving target outcomes (e.g. graduate employment at 6 months, 2 yrs). Further funding pot (~4%, 2015) to incentivise publication of key performance information on outcomes, accessibility, accountability.¹⁰ Future state: much larger share of funding will be linked to performance outcomes – see page 18
	Germany	<ul style="list-style-type: none"> Some states starting to adopt some element of performance-related funding, often in exchange for increasing institutional autonomy over day to day affairs and 'global' (non-hypothecated) budgets from government.¹¹ Performance measures vary but typically include a measure of 'on-time' completion¹¹

1 TEQSA Act; 2 TEQSA Information Collection; 3 QILT; 4 Compared Edu; 5 Australia Department of Education; 6 SkillsFuture Enforcement; 7 SkillsFuture Survey; 8 UKA Institutional Reviews; 9 UKA Assessment Panels; 10 Ontario Ministry of Training, Colleges and Universities; 11 The Education System in the Federal Republic of Germany 2016/2017 (KMK) – (see appendix page 35 for full links)

Market exit/entrance– Are there provisions for managing effective market entrance and exist?

What tools (legislative, funding, regulatory) does the system funder have to regulate market entry/exit? How actively are these tools used? Does the funder play a role in encouraging collaboration and mergers between struggling institutions? Does the provider have a strategy for its desired system?

Major insights






	Australia	<ul style="list-style-type: none"> • Statutory regulatory agency, responsible for accrediting new institutions and annual compulsory risk assessments against academic and financial qualities.¹ • Regulator maintains market-exit protections, including contingency planning requirements and operating a fee-protection scheme for international students in case institutions forced to close²
	Singapore	<ul style="list-style-type: none"> • Government regulatory framework for new PEIs. Courses specifically approved and published – not found public info on criteria used³ For private institutions, government maintains two fee protection processes to pressure student fees in case of institutional failure⁴ • For government institutions, no publicly information identified on market exit/entrance
	Sweden	<ul style="list-style-type: none"> • Regulator develops and maintains process for approving new institutions, primarily on the ability to achieve outcomes, but also considering ‘student life’ and ‘working life and collaboration’⁵ • Regulator has power to manage market exit. Publicly available information suggests that the regulator’s focus in on de-recognizing individual courses, rather than entire institutions.⁶
	Ontario	<ul style="list-style-type: none"> • Ministerial consent, informed by a regulator, required for all new institutions at post-secondary level (except degree-awarding universities seeking to expand).⁷ New programs also regulated through quality assurance council with a high (~90%) approval rate.⁸ • Institutions undergo quality audits up to every 8 yrs which must be made public. Publicly available information refers to requirements for an ‘improvement plan’ but no clear process for market exit⁹
	Germany	<ul style="list-style-type: none"> • Federal-level regulatory agency (<i>Akkreditierungsrat</i>) for all HE institutions. New institutions apply to the agency for approval before operating. Operates two regulatory regimes: both program-quality and institution-level quality. 8-yr cycle followed by re-assessment.¹⁰ • No information identified publicly on the consequences of an unsatisfactory assessment.

1 TEQSA; 2 Australian Government; 3 SkillsFuture – TPS; 4 SkillsFuture – Fee Protection; 5 UKA – Swedish Higher Education Authority – Degree Awarding Powers; 6 UKA – Swedish Higher Education Authority – Programme Evaluations; 7 PEQAB; 8 Ontario Universities Council on Quality Assurance – Annual Report; 9 Ontario Universities Council on Quality Assurance – Quality Assurance Framework; 10 Akkreditierungsrat (De.) (see appendix page 35 for full links)

Pathways between HE and FE – Does the system allow learners to move seamlessly between different types of provision?

Can learners accumulate credit towards their degree/qualifications from different institutions at different times? What are the barriers to doing this in practice and how does the system remove those barriers e.g. common curriculum, approach to teaching and learning etc?

Major insights

	Australia	<ul style="list-style-type: none"> Has a national qualification framework and policy (AQF) designed to ensure comparability and facilitate pathways between institutions.¹ Research suggests that AQF is partly successful but barriers exist to using it as a pathway in practice, including lack of engagement from FE sector with the policy intent and inconsistent application amongst HE institutions.²
	Singapore	<ul style="list-style-type: none"> Has a national skills-based qualification (WSQ) designed to recognise and credentialise in-workplace and continuing learning through micro-learning ('bitesize') courses.³ Employers or training institutes can register to offer WSG.⁴ Transfers between FE/HE appear to be possible – relatively little information identified⁷
	Sweden	<ul style="list-style-type: none"> All qualifications built around courses. Well established culture of studying individual courses across different universities without seeking formal qualification.⁵ Access to 'second-cycle' (~professional) qualifications possible for students without a first degree – adult learning and school-level qualifications often sufficient⁵
	Ontario	<ul style="list-style-type: none"> Maintains a province-level qualification work (OQF) with essentially all qualifications mapped onto the framework at different levels.⁶ No information identified on effectiveness of OQF in facilitating pathways between institutions
	Germany	<ul style="list-style-type: none"> Long-run process (ANKOM) to strengthen pathways from FE to HE. Initial work focused on tackling 'hard' barriers: establishing credit-equivalency and entrance requirements.⁸ Later work has focused on tackling 'soft' barriers to entrance: mentoring and coaching, information availability. Some progress has been made – but from a limited starting point.⁹






SFC could consider further research to identify what factors are needed to facilitate pathways between FE/HE. From the benchmarking, a robust qualifications framework seems to be necessary but not sufficient

¹ TEQSA; ² Australian Department of Education Skills and Employment; ³ SkillsFuture – WSQ; ⁴ SkillsFuture – Training Providers; ⁵ Swedish Higher Education Authority (UKA); ⁶ Ontario Qualification Framework; ⁷ SkillsFuture – Landscape; ⁸ BiBB; ⁹ UNESCO (see appendix page 35 for full links)

Link to employers – are institutions incentivised to work with employers?

Are there any requirements around employer involvement? Is there specific funding to support this work? Are employers directly involved in the design and delivery of certain types of qualifications? How much of a focus does the system have on Apprenticeships and are there pathways to Higher Level Apprenticeships?

Major insights

	Australia	<ul style="list-style-type: none"> • Dedicated funding source being established ('NPILF'), specifically to incentivise partnerships between employers and institutions, both student (e.g. internships) and research¹ • Design of fund not yet fixed – likely to be a challenge-fund structure, with institutions bidding for money, and with performance accountability
	Singapore	<ul style="list-style-type: none"> • Government maintains public-facing 'skills framework', providing integrated information on sector-specific skills, training needs and pathways in granular detail (example)² • Employers can choose to have their in-work training and skilling certified through the qualification framework.³
	Sweden	<ul style="list-style-type: none"> • No information identified suggesting that institutions receive financial or practical incentives to build partnerships with employers for specific courses or programmes. • Employers participate in quality assurance routines: at least one employer representative participates in HE performance assessment panels.⁴
	Ontario	<ul style="list-style-type: none"> • No information identified suggesting institutions receive financial or practical incentives to build partnerships with employers. Apprenticeship scheme is entirely run by private sector, regulated by government, without HE/FE involved.⁵ • Graduate employability currently used as performance metric⁶
	Germany	<ul style="list-style-type: none"> • Central federal board regulating vocational education. "Whenever major decisions on structure and substance have to be taken, such decisions are reached in a joint effort by Federation and Länder, employers and employees"⁷ • Local chambers define FE qualifications, including core content, with local employer orgs⁸

¹ Australia Department of Education; ² Singapore Government – Skills Framework; ³ Singapore Government – for training organizations; ⁴ UKA; ⁵ Ontario government; ⁶ Ontario Ministry of Training, Colleges and Universities; ⁷ KMK; ⁸ OECD (*see appendix page 36 for full links*)

Part 3: System profiles

System performance in selected KPIs by country

	Australia	Singapore	Sweden	Ontario	Germany	Scotland	
Input	Tertiary enrolment rate¹ (From age 19 to age 20)	49%	n/a	19%	43%*	24%	40.3% ²
	Enrolment in HE/FE by SES (% of domestic students, local definition of low SES)	17% ³	33% ⁴	23% ⁵	40% ⁶	n/a	16% ¹³
	Average expenditure per pupil¹ (£k,PPP)	13.7	n/a	18.2	16.2*	13	n/a ^{***}
	Govt Expenditure on tertiary education⁷ (% gvt total spend on education)	27%	35%	24%	36%*	26%	25% ¹⁴
Throughput	Pupil: teacher ratio⁷ (tertiary education)	22 ^{8**}	13	12	9*	8	n/a ^{***}
	Some element of course online (% all students, HE)	23% ²	n/a	25% ⁹	20% ^{10*}	n/a	n/a
	Bachelor's completion rate¹ (Theoretical duration plus 3 years – full time students)	70%	n/a	56%	48% ^{**}	80% ^{**}	n/a ^{***}
Output	Educational attainment, at least completed post-secondary⁷ (% of population 25+)	48%	56%	33%	66% ¹¹	36%	49% ¹⁵
	Educational attainment, at least Bachelor's or equivalent⁷ (% of population 25+)	32%	32%	24%	26%*	25%	28% ¹⁵
	# Universities in top 100¹² (QS Global World Ranking 2021)	7	2	2	1	3	3

Exchange rate: 1 USD = 0.76 £

1 OECD; 2 SFC ; 3 Australian Department of Education Skills and Employment ; 4 Gov.sg; 5 UKA – Status Report; 6 Ontario Universities; 7 UNESCO; 8 Australian Department of Education Skills and Employment ; 9 UKA – Website; 10 Canadian Distance Learning Association; 11 HEQCO; 12 QS World University Ranking 2021; 13 Scottish Government; 14 European Commission; 15 Scotland Census (see appendix pages 36–37 for full links) *Datapoints reflect Canadian statistics, not specific to Ontario ** Additional considerations on detailed sources page 34

***Data for Scotland not available



Australia: System profile

Basic Data	<p>Population: 25.3 million residents¹</p> <p>GDP: 1.06 £ trillion¹</p> <p>Type of government: federal parliamentary democracy under a constitutional monarchy; a Commonwealth realm²</p>
Demography	<p>Life-expectancy at birth: 82.7 years (vs high-income countries 80.2 years)¹</p> <p>Human development Index: 0.938 (world rank 6th)³</p> <p>Fertility rate: 1.7 (births per woman)¹</p> <p>Aboriginal and Torres Strait Islander people (minority population): 2.8%⁴</p>
Student body	<p>Total number of students: 1.5 million (headcount) 1 million (FTE)⁷</p> <p>Undergraduates as % of all students: 75%⁷</p> <p>Aboriginal or Torres Strait Islander as % of all students: 1.3%⁵</p> <p>Enrolment of people in regional and remote first reported address: 20.6 %⁵ of domestic undergraduates</p> <p>International students as % of all students: 28%⁵</p>
Higher Education supply	<p>Low social economic status: 17.3% total domestic onshore students⁵</p> <p>Number of HEIs: 172 institutions, including 43 universities, 88% public⁶</p>

Exchange rate: 1 USD = 0.76 £

1 World Bank Open Data; 2 CIA; 3 United Nations; 4 Australian Bureau of Statistics ; 5 Australian Department of Education Skills and Employment - 2018 Student summary tables; 6 Australian Department of Education Skills and Employment - 2018 List of higher education institutions; 7 TEQSA (see appendix page 37 for full links)



Singapore: System profile

Basic Data

Population: 5.7 million residents¹

GDP: 0.28 (£, trillion)¹

Type of government: Parliamentary republic²

Demography

Life-expectancy at birth: 83 years (vs high-income countries 80.2 years)¹

Human development Index: 0.935 (world rank 9th)³

Fertility rate: 1.14 (births per woman)¹

Race and ethnicity: Chinese 74.3%, Malay 13.4%, Indian 9%, other 3.2%²

Student body

Total number of students: 173,000 (70,000 in universities and other in other post-secondary institutions)⁴

International students as % of all students: 10%⁵

Low social economic status: ~33% of students benefit from additional government bursaries available for Singaporean students from low to middle-income households⁵

Higher Education supply

Number of HEIs: 35 institutions; 19 colleges; 5 Polytechnique; 3 Institutes of Technical Education; 2 Arts Institutions; 6 National Universities⁶

Exchange rate: 1 USD = 0.76 £

1 World Bank Open Data; 2 CIA ; 3 UNDP; 4 Ministry of Education – Education Statistics Digest 2019; 5 Gov.sg; 6 Ministry of Education – Post Secondary Education Brochure (see appendix page 37 for full links)



Sweden: System profile

Basic Data	<p>Population: 10.3 million residents¹</p> <p>GDP: 0.40 (£, trillion)¹</p> <p>Type of government: parliamentary constitutional monarchy²</p>
Demography	<p>Life-expectancy at birth: 82.5 (vs high-income countries 80.2 years)¹</p> <p>Human development Index: 0.937 (world rank 8th)³</p> <p>Fertility rate: 1.76 (births per woman)¹</p> <p>Ethnic groups: Swedish 80.9%, Syrian 1.8%, Finnish 1.4%, Iraqi 1.4%, other 14.5% (indigenous Sami people are estimated to number between 20,000 and 40,000)²</p>
Student body	<p>Total number of students: 405,500⁴</p> <p>Undergraduates as % of all students: 73%⁴</p> <p>Enrolment of individuals whose parents has less than upper-secondary education: 23% (vs 67% whose parents had at least a three-year post-secondary education)⁴</p> <p>International students as % of all students: 9%⁴</p>
Higher Education supply	<p>Number of HEIs: 48 HEIs; 16 universities; 13 university colleges; 5 Art, Design and Music Academies; 14 Other independent education providers⁴</p>

Exchange rate: 1 USD = 0.76 £

1 World Bank; 2 CIA; 3 United Nations; 4 UKA – 2019 Status Report (see appendix page 37 for full links)



Ontario: System profile

Basic Data	<p>Population: 14.7 million residents¹</p> <p>GDP: 0.45 (£, trillion)¹</p> <p>Type of government (Canada): federal parliamentary democracy (Parliament of Canada) under a constitutional monarchy; a Commonwealth realm²</p>
Demography	<p>Life-expectancy at birth: 82.4 (vs high-income countries 80.2 years)¹</p> <p>Human development Index: 0.929³</p> <p>Fertility rate: 1.4 (births per woman)¹</p> <p>Ethnic groups: 29% of Ontario's population identify as a visible minority. South Asian, Chinese, Black and Filipino– c. three-quarters (73.2%) of visible minorities⁴</p>
Student body	<p>Total number of students: 515,000⁵</p> <p>Undergraduates as % of all students: 87%⁵</p> <p>Indigenous students: 1.2%⁵</p> <p>International students as % of all students: 12%⁵</p> <p>Students from low income households as % of all students: 40%⁵</p>
Higher Education supply	<p>Number of HEIs: 45 publicly-assisted HEIs, consisting of 21 universities and 24 colleges⁶</p>

Exchange rate: 1 USD = 1.32 CAD; 1 USD = 0.76 £

1 Statistics Canada; 2 CIA; 3 Global Data Lab; 4 Ontario – Ministry of Finance; 5 Ontario Universities; 6 Ontario Government (see appendix page 37 for full links)



Germany: System profile

Basic Data	<p>Population: 83 million residents¹</p> <p>GDP: 2.8 (£, trillion)¹</p> <p>Type of government: federal parliamentary republic²</p>
Demography	<p>Life-expectancy at birth: 80.9 years (vs high-income countries 80.2 years)¹</p> <p>Human development Index: 0.939 (world rank 4th)³</p> <p>Fertility rate: 1.57 (births per woman)¹</p> <p>Ethnic groups: German 87.2%, Turkish 1.8%, Polish 1%, Syrian 1%, other 9%²</p>
Student body	<p>Total number of students: 2.84 million (in Higher Education)⁴</p> <p>Total number of apprentices: 1.32 million⁴</p> <p>Higher education graduates attaining master's degree: 27.2%⁴</p> <p>Enrolment of residents with migration background: “young foreigners are three times less likely to achieve a higher education entrance qualification”⁵</p> <p>Proportion of international students among new students : 18.4%⁵</p>
Higher Education supply	<p>Number of HEIs: 428 HEIs; 227 Universities of Applied Sciences; 181 Universities⁴</p>

Exchange rate: 1 USD = 0.76 £

1 World Bank; 2 CIA; 3 United Nations; 4 German Federal Ministry of Education and Research; 5 Authoring Group Educational Reporting – Education in Germany (see appendix page 37 for full links)

Appendix: Sources

Detailed sources (1/5)

PART 1 – MAJOR INSIGHTS AND QUESTIONS

Page 5 – 4 important features of Australia’s HE/FE system

[Australian Department of Education, Skills and Employment – Job Ready Graduates](#), pages 12, 15, 19 25, 29

Page 6– 3 important features of Singapore’s HE/FE system

1 [The Straits Times – Planning for University needs rethink](#), January 2020

2 [Ministry of Manpower – Refreshed Continuing Education and Training \(CET\) Masterplan](#)

3 [UNESCO – Lifelong learning in transformation: promising practices in Southeast Asia](#), 2017

4 [National Research Foundation – RIE 2020 Plan](#)

Page 7 – 3 important features of Sweden’s HE/FE system

1 [UKA – Swedish Higher Education Authority – 2019 Status Report](#), pages 11, 29 56, 57 58

2 [UKA – Swedish Higher Education Authority – Admission to Higher Education](#)

Page 8 – 3 important features of Ontario’s HE/FE system

1 Ontario Government Website; [Strategic Mandate Agreements](#); [Apprenticeships](#); [Digital Learning](#)

2 [Ontario’s Ministry of Advanced Education and Skills Development – Transitioning to Strategic Mandate Agreement 3 for Ontario Universities and Colleges](#)

3 [HEQCO Annual Report](#), page 12

Page 9 – 3 important features of the German HE/FE system

1 [BIBB](#), page 38

2 [BMBF](#) (our translation)

3 [BAFoG reform](#) (De.)

4 [Berufsbildung 4.0](#), pages 9 and 7

Page 11 – Ontario is planning to move to funding institutions largely based on outcomes, rewarding employment, economic and community impact

1 [Ontario’s Ministry of Training, Colleges and Universities – Overview of the Current University Funding Model](#), page 6

2 [Ministry of Colleges and Universities – Annual report 2019-20](#) – section on Strategic Mandate Agreement

3 [Ontario’s Ministry of Training, Colleges and Universities – Differentiation Policy Framework for Postsecondary Education](#), pages 1, 2, 17

4 [World University News – Ontario to introduce performance-related funding of HE](#), May 2019

5 [CBC Canada – Funding for Ontario colleges and universities to be tied to ‘performance outcomes](#), April 2019

6 [Huffington Post – Ontario Puts Off Controversial Post-Secondary Funding Conditions](#), May 2020

Page 12 – Other systems have adopted some elements of performance-based funding – but less demanding than Ontario

1 [Times Higher Education – Australian performance-based funding system ‘a game of chance’](#), October 2019

2 [Australian Department of Education Skills and Employment; Performance-Based Funding for the Commonwealth Grant Scheme](#)

3 [Sweden’s National Agency for Higher Education – The Current Swedish Model of University Governance](#), pages 29–32

4 [Kultusministerkonferenz – The Education System in the Federal Republic of Germany 2016/2017](#), page 89

Detailed sources (2/5)

Page 13 – Singapore has invested in lifelong learning to develop a competitive and career resilient workforce

1 [The Straits Times – Planning for university places needs rethink](#), January 2020

2 [SkillsFuture Singapore](#) sections on [WSQ](#); [SkillsFuture Advice](#) and [SkillsFuture Credit](#)

3 [Ministry of Manpower, Refreshed Continuing Education and Training \(CET\) Masterplan](#)

4 [UNESCO – Lifelong learning in transformation: promising practices in Southeast Asia](#), pages 49-51

Page 14 – As in 2008, Sweden is using the COVID-19 pandemic to focus on reskilling and upskilling its workforce

1 [Times Higher Education – Sweden boosts university places as pandemic spurs rush to reskill](#), May 2020

2 [UKA – Distance Learning in Swedish Higher Education](#)

3 [Harvard Business Review – How Reskilling Can Soften the Economic Blow of Covid-19](#), June 2020

PART 2 – DETAILED BENCHMARKING

Page 18 – Overall student numbers

1 [Australia Department of Education – Job Ready Graduates Discussion Paper](#), pages 10- 11

2 [Singapore Ministry of Education – Singapore’s University Landscape](#)

3 [UKA – Swedish Higher Education Authority – 2019 Status Report](#), pages 10- 11

4 Ontario Ministry of Training, Colleges and Universities; [Overview of the Current University Model](#);

5 Ontario Ministry of Training, Colleges and Universities [Differentiation Policy Framework for Postsecondary Education](#)

6 [The Education System in the Federal Republic of Germany 2016/2017 \(KMK\)](#), pages 85, 87, 161-163

Page 19 – Access and widening participation

1 [Australia Department of Education – Job Ready Graduates Discussion Paper](#), pages 28-30;

2 [Gov.sg – Financial support for Singaporean students at every stage of education](#)

3 [UKA – Swedish Higher Education Authority – 2019 Status Report](#), pages 20-30

4 [UKA – Swedish Higher Education Authority – Digital Education](#)

5 [HEQCO – Redefining Access to Postsecondary Education](#)

6 [HEQCO – Annual Report](#)

7 [HEQCO – Canadian Postsecondary Performance: Impact 2015](#)

8 [BAFoG introduction](#)

9 [BAFoG reform \(De\)](#)

10 [Australian Government – Support for Students](#)

11 [UKA – Swedish Higher Education Authority – Cost of Studying](#)

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Page 20 – Link to national priorities

1 [Australia Department of Education – Job Ready Graduates Discussion Paper](#), pages 15, 21-21, 35;

2 [Singapore National Research Foundation – RIE2020 Plan](#)

3 [UKA – Swedish Higher Education Authority – 2019 Status Report](#), page 45

4 Ontario Ministry of Training, Colleges and Universities; [Overview of the Current University Model](#);

5 [Ontario Operating Funds Distribution Manual](#) – note: info from 2009/10

6 [German Research Council Research in Germany](#)

7 [The Education System in the Federal Republic of Germany 2016/2017 \(KMK\)](#), page 87

Page 21 – Performance management

1 [TEQSA – Tertiary Education Quality and Standards Agency Act 2011](#)

2 [TEQSA – Information Collection](#)

3 [QILT- Graduate Employment](#)

4 [Compared. Edu](#)

5 [Australia Department of Education – Job Ready Graduates Discussion Paper](#), page 25

6 [SkillsFuture – Enforcement Action](#)

7 [SkillsFuture – Private Education Institution Graduate Employment Survey 2017/18](#)

8. [UKA – Swedish Higher Education Authority – Institutional reviews of the HEIs' quality assurance processes](#)

9 [UKA – Swedish Higher Education Authority – Assessment Panels](#)

10 Ontario Ministry of Training, Colleges and Universities; [Overview of the Current University Model](#);

11 [The Education System in the Federal Republic of Germany 2016/2017 \(KMK\) – Summary](#)

Page 22 – Market exit/entrance

1 [TEQSA – How does TEQSA monitor risks to students?](#)

2 [Australian Government – Tuition Protection Service](#)

3 [SkillsFuture – Permitted Courses Offered by PEIs](#)

4 [SkillsFuture – Protection of Course Fees](#)

5 [UKA – Swedish Higher Education Authority – Guidelines for Degree Awarding Powers](#)

6 [UKA – Swedish Higher Education Authority – Programme evaluations](#)

7 [Postsecondary Education Quality Assessment Board](#)

8 [Ontario Universities Council on Quality Assurance – Annual Report 2018 – 2019](#), page 13

9 [Ontario Universities Council on Quality Assurance – Quality Assurance Framework](#) Part 4

10 [Akkreditierungsrat \(De.\)](#)

Page 23 – Pathways between HE and FE (continues on the next page)

1 [TEQSA – Australian Qualifications Framework](#)

2 [Department of Education Skills and Employment – Credit pathways in VET and Higher Education](#)

Detailed sources (4/5)

Page 23 – Pathways between HE and FE

- 3 [SkillsFuture – Singapore Workforce Skills Qualifications \(WSQ\)](#)
- 4 [SkillsFuture – For Training Providers](#)
- 5 [UKA – Swedish Higher Education Authority – Higher Education in Sweden](#)
- 6 [Ontario Qualification Framework](#)
- 7 [SkillsFuture – Singapore Education Landscape Overview](#)
- 8 [BiBB- Boosting permeability between vocational training and higher education](#)
- 9 [UNESCO – Germany RVA case study in education](#)

Page 24 – Link to employers

- 1 [Australia Department of Education – Job Ready Graduates Discussion Paper](#), page 24
- 2 [Singapore Government – Skills Framework](#).
- 3 [Singapore Government – for Training Organisations](#)
- 4 [UKA – Swedish Higher Authority – Assessment Panels and experts](#)
- 5 [Ontario – Hire an apprentice](#)
- 6 Ontario Ministry of Training, Colleges and Universities; [Overview of the Current University Model](#)
- 7 [The Education System in the Federal Republic of Germany 2016/2017 \(KMK\)](#), page 38
- 8 [OECD – A Skills beyond School Review of Germany](#)

PART 3 – SYSTEM PROFILES

Page 26 – System performance in selected KPIs by country

- 1 OECD: [Tertiary enrolment rates](#) – Table B1.1; [Completion rate](#) – Table B5.1 (note: Canadian number reflects only the theoretical duration of the program; German number uses cross-cohort methodology); [Average expenditure per pupil](#) – Figure B1.2
- 2 Information provided by the SFC through email on August 11th 2020
- 3 [Australian Department of Education Skills and Employment – 2018 First half year student summary tables](#)
- 4 [Gov.sg – Financial support for Singaporean students](#)
- 5 [UKA – Higher Education Institutions in Sweden – 2019 status report](#), pages 30
- 6 [Ontario Universities – By the numbers](#)
- 7 UNESCO Institute for Statistics, retrieved from World Bank Open Data; [expenditure on tertiary education](#); [pupil:teacher ratio](#); [educational attainment, at least completed post-secondary](#); [educational attainment, at least bachelor's](#); most recent data points available for each jurisdiction;
- 8 [Australian Department of Education – 2019 Staff Appendix 2 – Student Staff Ratios](#) – Student staff ratios (EFTSL/FTE) – Academic Staff (note: academic staff:student ratio may be more comprehensive than teacher:student ratio)
- 9 [UKA – Distance Learning in Swedish Higher Education](#)
- 10 [Canadian Digital Learning Research Association – Tracking Online and Distance Education in Canadian Universities and Colleges](#), page 27
- 11 [HEQCO – Annual Report 2017-18](#), page 9

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12 [QS World University Rankings 2021](#)

13 [Scottish Government Fair Access to Higher Education: progress and challenges](#)

14 [European Commission – Funding in Education](#)

15 [Scotland Census – National Records of Scotland Table DC5102SC – Highest level of qualification by sex by age](#) (Level 2, 3 and 4 considered for at least post-secondary)

Page 27 – Australia System Profile

1 World Bank Open Data: [population](#), [GDP](#), [life expectancy](#); [fertility rate](#);

2 [CIA – The World Factbook, Australia](#)

3 [United Nations – Human Development Reports, Australia](#)

4 [Australian Bureau of Statistics – Aboriginal and Torres Strait Islander Population – 2016 CENSUS data summary](#)

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7 [TEQSA – Statistics report on TEQSA registered higher education providers 2019, pages 3 and 4](#)

Page 28 – Singapore System Profile

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4 [Ministry of Education – Education Statistics Digest 2019](#) pages 17–21

5 Gov.sg: [international students](#); [financial aid](#)

6 [Ministry of Education – Post Secondary Education Brochure](#), pages 3, 7, 11, 15, 19

Page 29 – Sweden System Profile

1 World Bank Open Data: [population](#), [GDP](#), [life expectancy](#); [fertility rate](#);

2 [CIA – The World Factbook, Sweden](#)

3 [United Nations – Human Development Reports, Sweden](#)

4 [UKA – Higher Education Institutions in Sweden – 2019 status report](#), pages 26, 30, 42, 83

Page 30– Ontario System Profile

1 Statistics Canada: [population](#); [GDP](#); [life expectancy](#); [fertility rate](#)

2 [CIA – The World Factbook, Canada](#)

3 [Global Data Lab – Subnational Human Development Index](#)

4 Ontario Ministry of Finance: [ethnic groups](#); [population totals](#)

5 [Ontario Universities – By the numbers](#)

6 [Ontario.ca – College and University Strategic Mandate Agreements, 2017–2020](#)

Page 31 – Germany System Profile

1 World Bank Open Data: [population](#), [GDP](#), [life expectancy](#); [fertility rate](#)

2 [CIA – The World Factbook, Germany](#)

3 [United Nations – Human Development Reports, Germany](#)

4 [Federal Ministry of Education and Research – Education and Research in Figures 2019](#), pages 5, 45 and 52

5 [Education in Germany 2016](#), pages 10 and 19