Australian Government
Productivity Commission

National Education Evidence Base

Productivity Commission Draft Report

Overview & Draft Recommendations

September 2016

This is a draft report prepared for further public consultation and input. The Commission will finalise its report after these processes have taken place.

An appropriate reference for this publication is:

Productivity Commission 2016, *National Education Evidence Base*, Draft Report, Canberra

Publications enquiries

Media and Publications, phone: (03) 9653 2244 or email: maps@pc.gov.au

The Productivity Commission

The Productivity Commission is the Australian Government's independent research and advisory body on a range of economic, social and environmental issues affecting the welfare of Australians. Its role, expressed most simply, is to help governments make better policies, in the long term interest of the Australian community.

The Commission's independence is underpinned by an Act of Parliament. Its processes and outputs are open to public scrutiny and are driven by concern for the wellbeing of the community as a whole.

Further information on the Productivity Commission can be obtained from the Commission's website (www.pc.gov.au).

Opportunity for further comment

You are invited to examine this draft and comment on it by written submission to the Productivity Commission, preferably in electronic format by 7 October 2016. Further information on how to provide a submission is included on the inquiry website: http://www.pc.gov.au/inquiries/current/education-evidence

The Commission will hold public hearings in Melbourne and Sydney. Further locations may be advised if there is sufficient demand by participants. The final report will be forwarded to the Australian Government in December 2016. Under the *Productivity Commission Act 1998* (Cwlth), the Government is required to table the report in each House of the Parliament within 25 sitting days of receipt.

Public hearing dates and venues

Location	Date	Venue
Melbourne	18 October 2016	Productivity Commission Rattigan Room Level 12/530 Collins Street, Melbourne
Sydney	20 October 2016	Adina Apartment Hotel Fitzroy Room 359 Crown Street, Sydney

Commissioners

For the purposes of this inquiry and draft report, in accordance with section 40 of the *Productivity Commission Act 1998,* the powers of the Productivity Commission have been exercised by:

Jonathan Coppel	Presiding Commissioner
Julie Abramson	Commissioner

Terms of reference

Productivity Commission Inquiry into the National Education Evidence Base

I, SCOTT MORRISON, Treasurer, pursuant to Parts 2 and 3 of the Productivity Commission Act 1998, hereby request that the Productivity Commission undertake an inquiry into the further development of the national evidence base for school and early childhood education.

Background

The Australian Government is committed to working collaboratively with the states and territories to build a world-class education system that equips children to succeed in an increasingly competitive world. Having comprehensive and consistent data that underpins a national evidence base will inform education policy and help improve educational outcomes for children.

While a significant amount of data is currently collected on students, schools and the workforce, data reported nationally is more limited and often inconsistent. Valuable data is also collected outside schools, including in early childhood education and care. Improved access and greater ability to link and analyse national data could enhance the quality and scope of national education evidence that can be used to monitor educational outcomes and inform policy development and evaluation.

Through consultation with states and territories, education authorities and other key stakeholders, this Inquiry will help to identify current investment in national data collection and education evidence, opportunities to collectively invest further, and how we can improve the effectiveness of our investment through a more streamlined, comprehensive and collaborative national approach.

Improving the collection and management of education data in Australia will assist to create a more robust national education evidence base for effective policy and program development to meet our national education objectives and lift our national productivity.

Scope of the Inquiry

The Commission is to provide advice on the refinement of the national approach to collecting and using data for early childhood education and care and schools, and other information as relevant, to improve Australia's educational outcomes.

In undertaking this Inquiry, the Commission should use evidence from Australia and overseas to report on and make recommendations about:

1. The information required to provide a comprehensive evidence base to inform policy development in early learning and school education now and in the future. This includes consideration of current data holdings at a national, state and sectoral level, their effectiveness in supporting educational outcomes, and the long term vision for such educational data holdings.
2. What additional information could be considered and how it might add value to the existing evidence base. This may include data concerning non-cognitive skills, and information from other sectors, including but not be limited to: employment, health, social services, early childhood and higher education.
3. Existing or potential barriers to the sharing of education (and other relevant) data and how these can be overcome. Considerations should include, but not be limited to: privacy concerns, costs, technological capacity, sector-based sensitivities, national and jurisdictional data governance structures and workforce capability.
4. Factors that inhibit access to, and consistency of, education-relevant data to support analysis and evidence-based policy development. Considerations should include, but not be limited to: privacy concerns, legislative and technical frameworks, national and jurisdictional data governance structures, workforce research and analytical capabilities, stakeholder engagement, sector-based sensitivities and implementation timeframes.
5. The role technology and mobile devices can play on the scope, quality and timeliness of data collection and reporting.
6. The costs and benefits of options for improvements to the national education evidence base including the administrative and financial impacts on schools and early childhood education and care providers of any suggested change in data collection practices. Consideration should include what opportunities exist to apply efficiencies to existing data collection.
7. How Australian and overseas governments have approached the use of evidence and sharing data to improve outcomes (in education and non-education sectors) and the potential benefits and challenges of adopting these practices in the Australian education context.

Process

The Commission is to undertake a public consultation process, including holding hearings, inviting key stakeholder and public submissions, and releasing a draft report.

The final report should be provided within nine months of receipt of these terms of reference.

SCOTT MORRISON
Treasurer

[Received 11 March 2016]

Contents

The full report is available from www.pc.gov.au

OVERVIEW

Key points

- Notwithstanding substantial increases in expenditure on education over the past decade, national and international assessments of student achievement in Australia show little improvement and in some areas standards of achievement have dropped.
- Monitoring outcomes, performance benchmarking and competition between schools alone are insufficient to achieve gains in education outcomes. They must be complemented by the use of data and evidence to identify, and then apply, the most effective programs, policies and teaching practices.
- A national education evidence base is broader than a national data repository and requires two key capabilities:
  - a 'top-down' capability, for monitoring, benchmarking and assessing performance in achieving objectives at all levels of the system, as well as promoting transparency and accountability, and informing resource allocation
  - a 'bottom-up' capability that evaluates the effectiveness in education policies, programs and teaching practices, enabling systematic identification of ways to improve student achievement.
- There is much education data collected, imposing a substantial compliance burden across schools and ECEC services. This burden can be reduced by collecting data more cost-effectively and making better use of it.
  - Access to, and sharing of, data can also be improved through changes to privacy protections and processes for collecting, sharing and linking of data.
- There are some gaps in existing data collections. But the largest gap of all is in the evaluation of policies, programs and teaching practices in Australian schools and ECEC services to identify what works best, for whom and in what circumstances.
  - Without improving and applying evidence to policy making and teaching in schools and classrooms, there is a substantial risk that increased resourcing of schools will continue to deliver disappointing outcomes.
- The Australian, state and territory governments must take a shared and cooperative approach to developing a high-quality and relevant Australian education evidence base. There are already effective arrangements for monitoring and performance reporting. With respect to implementing the bottom-up capability, governments should:
  - put in place a new Education Agreement (building on previous agreements) that defines the objectives of, and framework for, commissioning and applying evaluative research about what works best
  - assign an institution to be responsible for the implementation of the evaluative research framework, which is accountable to, and funded by, all governments
  - specify the assigned institution's governance arrangements, functions and operations.

Overview

Early childhood education and care (ECEC) and school education bear on the wellbeing and quality of life of young Australians as well as on the capabilities and productivity of Australia's future labour force. Recognising this, Australian governments have committed to national education goals that emphasise the importance of excellence and equity in Australia's education system. Like other developed nations, Australia has sought to achieve these goals through increased investment in education and by implementing reforms focused on monitoring, performance benchmarking and reporting against national standards.

However, these reforms have not achieved the desired gains in education outcomes. Australian students' performance on national and international student assessments has stalled or, in some cases, declined. Australia is not alone in this regard. Other countries have also substantially increased their investment in education, and emphasised targets, accountability and transparency, with the aim of driving improved outcomes through competition between schools. Yet these efforts have not seen commensurate improvement in metrics of student achievement (for example, mathematics, figure 1).

There is a growing consensus that increased resourcing and an accountability focus, alone, are insufficient to achieve gains in education outcomes. Adopting and applying an evidence-based approach to education policy and teaching practices is what drives a better allocation of resources and improved outcomes.

What has the Commission been asked to do?

The Australian Government has asked the Commission to investigate the further development of a national education evidence base. The task is to consider the case for, and specific nature of, a national evidence base for use in informing policy development and improving education outcomes in early childhood and school education.

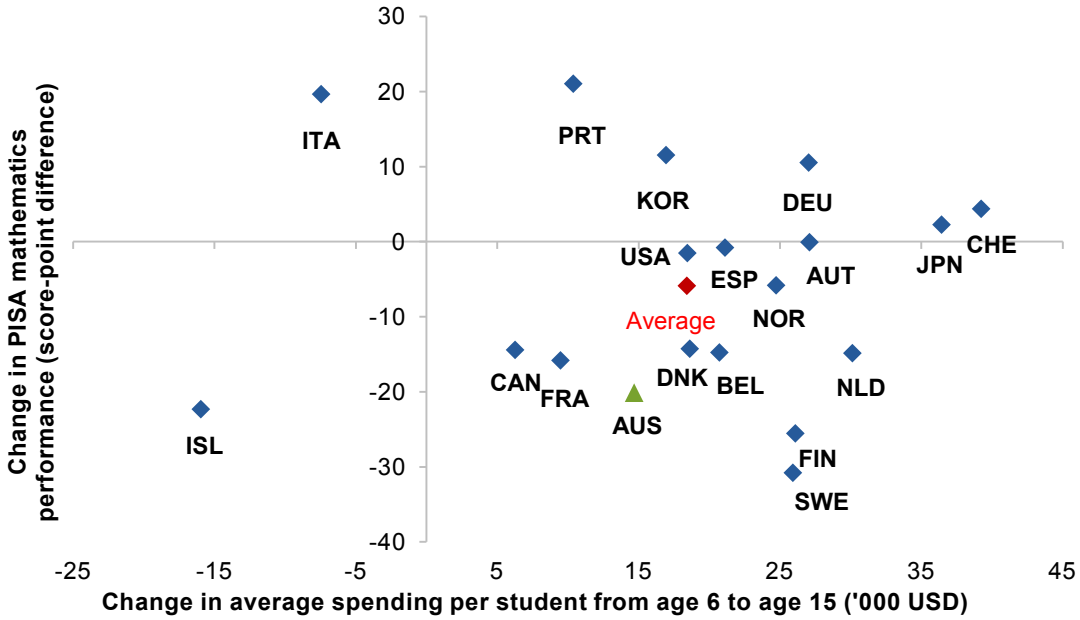
The Commission has set out a framework for how to improve Australia's evidence-based education policy capability and embed evidence-based decision making in education policies, programs and teaching practices. The Commission has not reviewed the education evidence base itself. Judgments or analyses about 'what works best' in education practice are beyond the scope of this inquiry.

Specifically, the Commission has assessed and made recommendations about: the information required to provide a comprehensive evidence base; data collections that would add value to the evidence base; addressing barriers to the sharing of education data;

factors that inhibit access to and use of data; and the role that technology can play. The Commission has looked at these issues through the lens of their costs and benefits.

Figure 1 **Increased resourcing has not delivered commensurate improvements in student achievement**

2003 to 2012, selected OECD countries

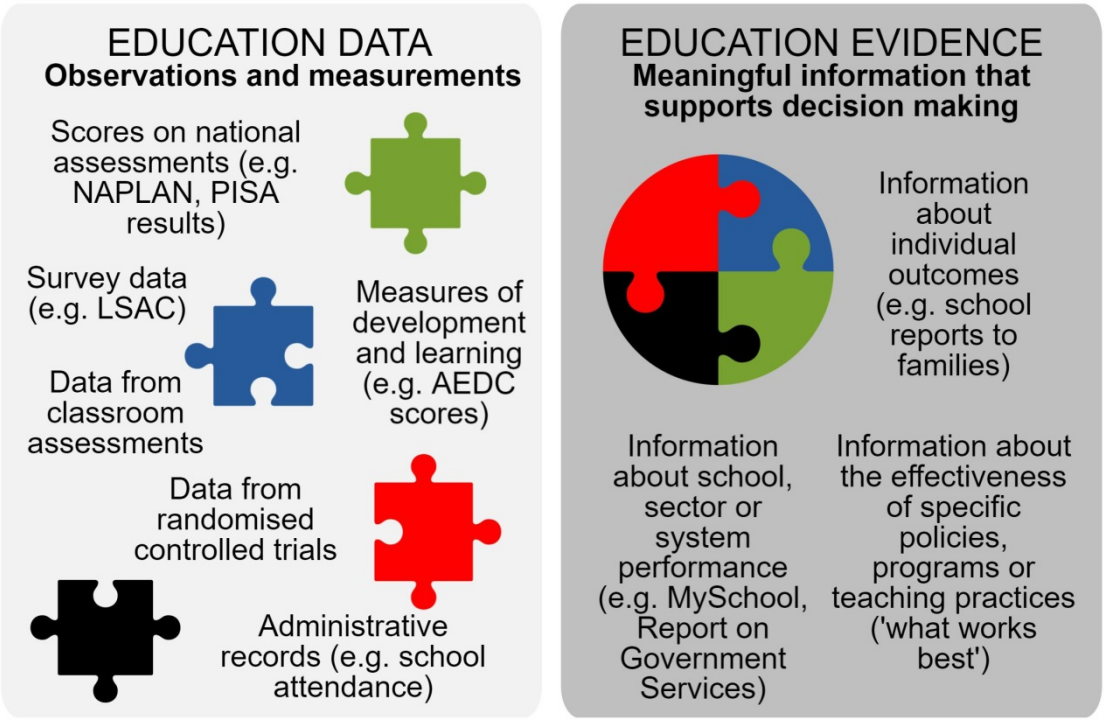


What is a national education evidence base?

A national education evidence base supports the monitoring of progress against education objectives, the identification and diagnosis of problem areas, and the development of ways to improve ECEC and school education outcomes. It is also essential for promoting transparency and accountability by those responsible for policy formulation and its implementation in schools and ECEC settings.

An effective national education evidence base is more than a simple accumulation of data in a single collection or data 'warehouse' (figure 2). It should support decision makers at all levels of the education system (national, jurisdictional, schools and ECEC services, teachers) to make informed choices about programs, policies and practices. The overarching policy objective is to improve education outcomes in a cost-effective manner.

Figure 2 **Distinguishing between data and evidence**

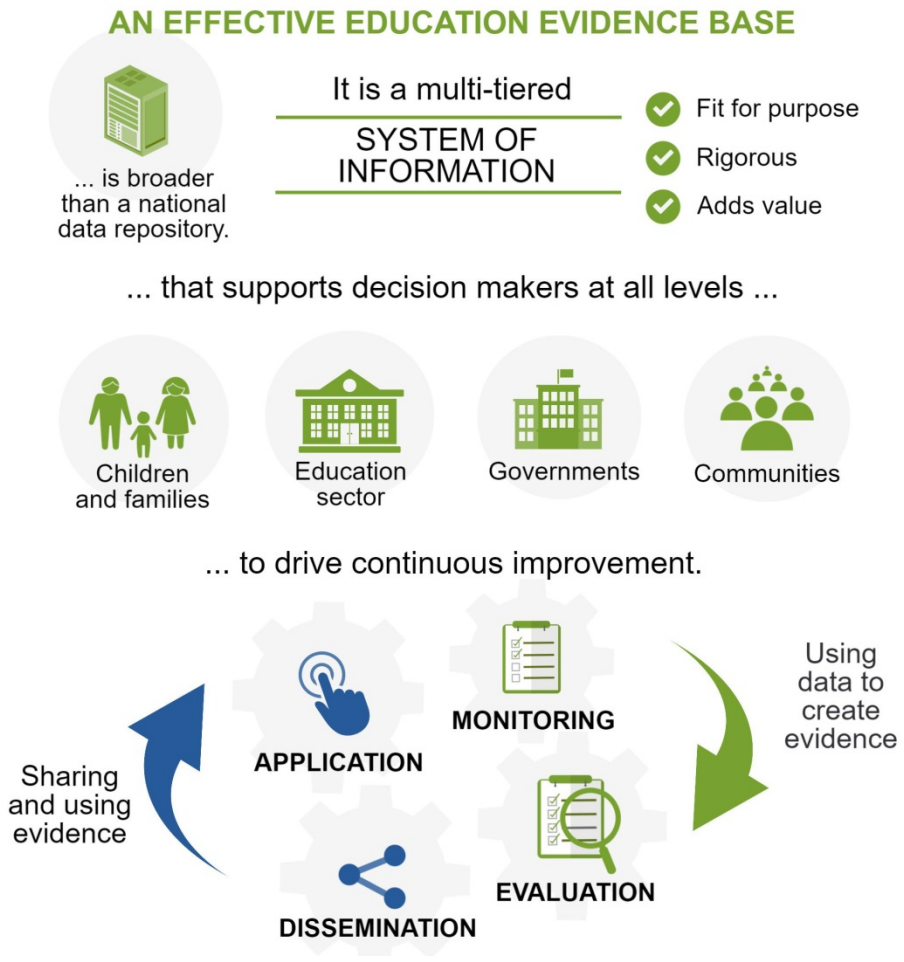


A framework for furthering the education evidence base

The Commission's framework for assessing the requirements for a national evidence-based education policy capability is outlined in figure 3. In supporting the further development of a national education evidence base, governments should be guided by principles. Specifically, the national evidence base should:

- meet the varied needs of decision makers at all levels of the education system
- provide high-quality data and evidence to inform decisions
- drive improved student achievement through four interconnected processes — monitoring of performance, evaluation of what works best, dissemination of evidence and application of that evidence by educators and policy makers
- generate benefits in excess of the costs incurred in collecting and processing data and in creating, sharing and using evidence.

Figure 3 **An education evidence base**

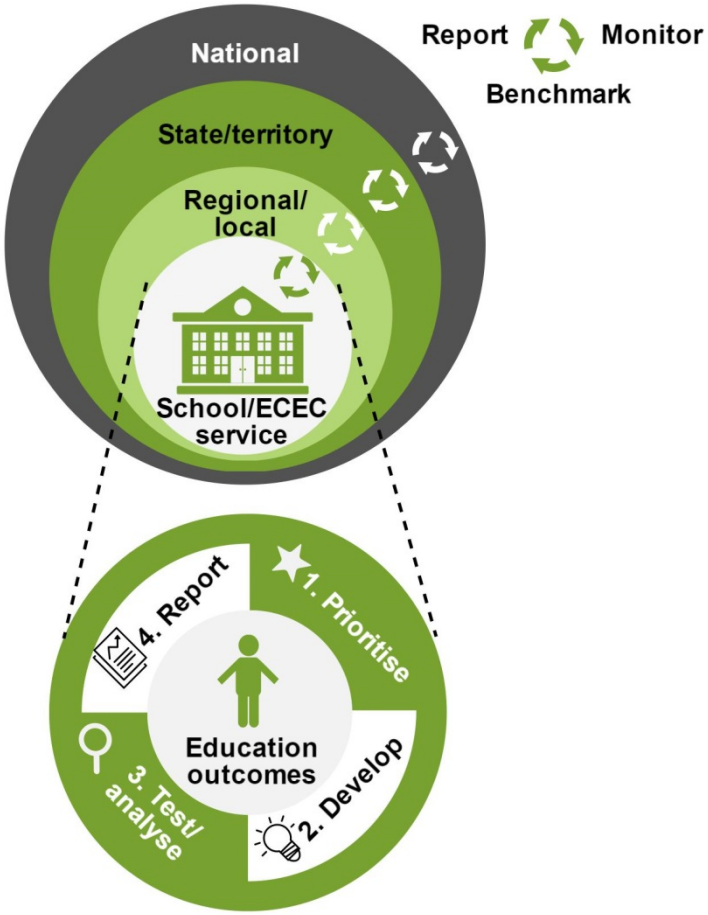


Central to this framework is the importance of complementing 'top-down' monitoring and performance benchmarking of the education system with 'bottom-up' evaluation of what works best in education policies, programs and teaching practices (figure 4).

Monitoring and benchmarking promote transparency and accountability about how the education system has performed in light of the resources invested in it, as well as guiding resource allocation. Monitoring is an essential first stage in an evidence-based approach to improving education outcomes. Without good measures of progress towards stated objectives — and benchmarks against which to interpret this progress — it is not possible to assess robustly the efficacy and cost-effectiveness of policy interventions or school programs. That is, monitoring complements, and is a precursor to, effective evaluation.

However, top-down monitoring and benchmarking alone are insufficient to drive improvements in education outcomes. Measuring and monitoring performance does not automatically lead to insights as to what policy and practice can do to help students to learn better, teachers to teach better, and schools to operate more effectively.

Figure 4 **Top-down and bottom-up processes are essential and complementary**



Research has found that only a small share (typically about 20 per cent) of variation in individual student outcomes is explained by differences between schools. The majority (about 80 per cent) is explained by differences between students within schools. Furthermore, there is a substantial body of evidence suggesting that teachers have the greatest impact on student performance outside of students' own characteristics, and that directing attention to higher quality teaching can have large positive effects on outcomes across the board. All of this suggests that looking within the classroom, particularly at teaching practices, can be more effective at providing insights into how to improve education outcomes across schools and students.

Evaluation plays a crucial role in identifying which teaching practices and school programs are the most effective and offer the best value for money in terms of improving outcomes. This requires creating high-quality evidence on what works to improve education outcomes, while meeting the needs of educators in applying education evidence.

Existing data should be collected and used more effectively

All Australian governments invest considerable effort and resources in collecting data on ECEC, schools and external influences impacting on education outcomes. For example, there are national ECEC collections that contain administrative data on: children, staff and ECEC providers; child development at age five; ECEC service quality; and the ECEC workforce. In the school sector, there are national data collections that include data on all students, staff, schools and student outcomes. Collections on external influences on outcomes include health, social services, and demographic and labour force data. The potential of these collections is not being fully realised.

Data linkage can leverage the value of existing data

Data linkage is a key area in which greater value could be drawn from existing data holdings. Data linkage leverages the value of existing education (and other) data for evidence-based education policy and teaching practice. It can enable a more comprehensive understanding of the factors that contribute to education outcomes, and can also support the targeting of education interventions to specific groups in the population, such as students with disability. Almost universally, inquiry participants supported greater linking of data collections to facilitate research and further the education evidence base.

The main impediments to greater use of data linkage are the complexity of the legislative environment governing the management of personal information and a risk-averse culture that has developed among data custodians and ethics approval committees. This culture adds considerably to time delays and costs involved in gaining access to data, and prevents some research proposals from proceeding. The system of data linkage could be improved if linked data were retained by the linking authority.

Privacy provisions should be streamlined

The public interest benefits of allowing greater access to data are substantial, but they need to be balanced against the legitimate risks associated with misuse of that data. However, achieving this balance is hampered by the complexity of the legislative environment governing the use and disclosure of information. There is scope to maximise the usefulness of existing data while respecting the goals of privacy legislation.

Differences in federal and jurisdictional privacy Acts, as well as education Acts impose excessive limits on the ability of education data custodians to release data that contains personal information. These differences can prohibit entire data collections from being accessed or prohibit disclosure of component cohorts of the same dataset.

Several jurisdictions specifically allow the sharing of data with other jurisdictions provided the recipient is subject to the same privacy principles as the originating jurisdiction. This effectively means mutual recognition of privacy laws in 'like' jurisdictions.

However, a lack of uniformity remains in privacy regulation across jurisdictions. Greater uniformity of privacy laws would go some way toward reducing the regulatory complexity that contributes to the risk averse behaviour of data custodians. The Australian and ACT Governments should extend available exceptions to privacy laws to cover public interest research purposes generally. Western Australia and South Australia do not have a legislated privacy regime. These jurisdictions should ensure that their privacy arrangements reflect a similar public interest research exception.

Obtaining prior consent could facilitate greater access to data

Administrative data have often been collected without consent to share or use personal information for another purpose. In this situation, the data custodian is not able to disclose personal information to other entities or researchers. Further, it might not be practical for each researcher to obtain consent to use personal information from each individual for each dataset the researcher is seeking access to. The absence of consent makes it challenging to bring datasets together for research into education.

Processes for collecting personal information should be amended to incorporate formal consent and/or notification features regarding the use and disclosure of personal information at the point of enrolment and at the beginning of survey and other data collections.

Restrictions on access to de-identified data should be removed

Privacy laws do not apply to de-identified data (data that do not contain personal details, such as names and addresses), so data custodians should not use privacy law as a basis for restricting access to such data. Concerns that users of de-identified data will try to re-identify individuals using other data sources could be addressed through a memorandum of understanding between the data custodian and the user that would prohibit such activity as a condition of access. Governments should also introduce clear policy guidelines that place the onus on data custodians to release data unless a privacy (or other) exception can be justified. This would help to make the process of accessing education data more streamlined, transparent and efficient.

Ethics committees sometimes restrict access to de-identified data for research purposes on the basis of judgements about the worthiness of the proposed research. There is no case for restricting access to data on such grounds, as access to de-identified data does not directly involve an intervention with a child or young person.

Where research requires linking of data collections using personal information, or trials involving individual children or young people, ethics committees will still play an important role. However, there is scope to simplify the process. Often it is necessary before a research project can proceed to obtain approval from more than one ethics committee. A national research project may require as many as 20 approvals. The time and costs involved can be high and this is likely deterring research from proceeding. This is another area where a system of mutual recognition of approval decisions by data custodians and ethics committees would make the process of accessing education data faster and less costly.

A register of available datasets and metadata is needed

There is often limited information available to researchers about the contents (data items) of education datasets. Researchers are, therefore, unable to easily determine whether there is a collection that would fit their data requirements.

One way to address this matter is through creation of metadata repositories. An online metadata repository for education data collections could play an important role in bringing education datasets to the attention of researchers and clarifying the information that could be available, particularly in administrative datasets. A good example to draw on is METeOR, the Australian Institute of Health and Welfare's online metadata registry for the health, community services and housing assistance sectors.

A unique (or universal) student identifier might be of value

All Australian governments endorsed the establishment of a unique student identifier in 2009. But to date, there has been limited progress towards this goal. Currently, most jurisdictions use identifiers for different parts of their education systems, but only Victoria and the ACT use a unique identifier across government and non-government schools (ECEC is not covered).

The introduction of a unique (or universal) student identifier could assist in tracking the outcomes of individual children and young people over time as well as across jurisdictions and between government and non-government schools. However, it is not clear whether the benefits of a national identifier would outweigh the costs. Existing jurisdictional identifiers could be used to track young people over time and as they move between school sectors within a state. A national identifier would be beneficial in tracking students across state borders, but fewer than 2 per cent of students move interstate in any year.

The value of a national identifier would be higher if it covered children in ECEC, as data on children in childcare settings are collected by the Australian Government. A national identifier could, therefore, facilitate the sharing of information between ECEC providers and schools. But the costs of administering a system that covered ECEC could be significant.

The Commission is seeking further information on the costs and benefits of moving toward a national student identifier.

Data collection costs could be reduced

There are significant costs to collecting data. Administrative costs are borne by the agencies responsible for aggregating, processing and reporting on data. These costs are often concentrated, so are more visible within the responsible government agencies. Compliance costs are borne by the organisations and individuals, like schools and childcare providers, teachers and parents that supply the data to these agencies. Compliance costs are often hidden and less readily observable because they are spread across a large number of data providers. Data providers are also exposed to the cumulative costs from having to supply data for multiple collections. For example, schools must report on attendance, finance and student background. Compliance costs could be reduced.

Surveys and samples could be used instead of censuses

It is not always necessary to have data on the full population to create robust and informative evidence. Surveys and testing programs administered to samples of students can significantly increase the breadth of information collected and provide for the quality of analysis and evidence required, at lower cost than censuses.

Duplication could be addressed

Duplication in data collection or processing unnecessarily adds to compliance costs for data providers and increases the administration cost of agencies.

Duplication in data provision obligations can occur because departments or governments are unable or unwilling to share the information they gather (or to share information in the form preferred by users of the data). For example, a school may be required to supply information on students with disability to both the Australian Government and to a state government, using different definitions of disability.

Reporting requirements could be changed less frequently

Changes to reporting requirements impose additional compliance costs on those providing data, particularly when these changes are frequent. Education providers upgrade their information systems on regular cycles and vendors incorporate new reporting requirements into their systems. Costs can be reduced by avoiding frequent changes to reporting requirements, and when changes are necessary, by allowing respondents sufficient time to comply with the new reporting requirement.

Smart use of technology can reduce duplication and improve data quality, including timeliness in reporting. Information technologies can also make data collections simpler to use and easier to interpret by educators, parents and the community.

Data quality issues should be considered

Many education data collections have characteristics that might be construed as quality issues (for example, timeliness of release or the accuracy with which concepts are measured), but not all quality issues should, or can, be addressed. Any decision about whether to address a data quality issue should be guided by the following considerations.

- Is there a need to improve the quality of data so it is fit for purpose? The case for addressing a data quality issue is strongest if the data are not fit for the purpose for which they are collected.
- If there is a case to improve data quality, is improvement feasible? Data collectors sometimes have little control over the data provided to them. Parent-reported data on education and occupation collected by schools, for example, are likely to contain many gaps and errors, but there is little that schools can do to address this.
- Could the desired data be obtained using a different approach? Data linkage or new fit-for-purpose collections might be a more effective and efficient way of addressing an issue.
- Would there be a net benefit in improving data quality? Improving data quality is likely to impose costs on those who provide, collect and manage data. The benefits of improving data quality — for example, opportunities for valuable research that would not otherwise be possible — must outweigh these costs.

More work is required to address data gaps

It is not difficult to identify potential candidates for new data collections. But, as noted above, collecting data involves significant costs. In identifying where new collections are warranted, the Commission has focused on areas that have the largest potential to improve national monitoring and evaluative processes, with the ultimate goal of improving education outcomes.

Additional national collections are needed and steps are in train

Additional data need to be collected to support the monitoring of progress against Australia's education objectives, including:

- national measures of student achievement in Year 1, which would facilitate value-added analysis and shed light on the impact of early achievement on later outcomes

- measures of students' non-cognitive capabilities and wellbeing, which would reveal progress in the development of students' social and emotional skills
- more appropriate measures of outcomes for students with disability.

In addition, improved workforce data are necessary to support workforce planning and assessment of the impacts of initial teacher education on classroom readiness and student outcomes.

Steps are in train to address these gaps. The Australian Government has announced that Year 1 assessments will be introduced nationally. The Australian Curriculum, Assessment and Reporting Authority is working to include assessments of personal and social capability in the National Assessment Program, and is collaborating with states and territories to better measure student wellbeing and engagement. The Nationally Consistent Collection of Data on School Students with Disability may assist teachers in monitoring progress and in responding to the needs of students with disability. And the Australian Institute for Teaching and School Leadership is working on a national minimum dataset that will provide more comprehensive and continuous data on school teachers.

Furthermore, systematic and consistent measures of childhood development would assist in monitoring whether the Early Years Learning Framework is achieving its objectives. The Commission is seeking further information on whether the Australian Early Development Census is fit for this purpose.

A new longitudinal cohort of Australian children should be funded

Linking of existing (and new) national data collections could support valuable research, but some questions are more effectively addressed using the more detailed longitudinal data that can be collected in a dataset created for research purposes.

The Longitudinal Study of Australian Children and the Longitudinal Study of Indigenous Children (started in 2004 and 2008, respectively) have yielded insights into children's outcomes. But many of the children in the original studies are now teenagers. Economic and social conditions have changed, as have many policy settings, since these studies commenced. New cohorts need to be recruited periodically to support ongoing analysis of children's outcomes.

Information about external influences

Education outcomes are affected by influences that the education system cannot directly manage, for example, a child's gender and health and the culture of their home learning environment. It is important to take these external influences into account when evaluating the effects of education policies, programs and practices on education outcomes. If data on these influences are not available, valuable insights about how the effects of an initiative

vary for different groups of children (for example, between those from more and less advantaged backgrounds) will be missed. There is also the risk that estimates of the relationship between an initiative and an outcome will be biased.

Much information on external influences is already available from education and administrative datasets and the Australian Census. Where such data are fit for purpose, improved data linkage processes will suffice, leveraging the value of existing collections.

However, there remain some significant gaps. Data are lacking, for example, on the nature of parents' engagement in their child's education, and the culture of the home learning environment. There is merit in collecting these data, but they do not have to be collected for all students. The data considered to be most relevant could be collected for a representative sample of students.

Three evidence gaps need attention

The contribution of early childhood education and care to outcomes

There is a growing body of international evidence on the benefits of quality ECEC, but there is limited evidence for the Australian context. Unknowns include how ECEC attendance affects children's outcomes, including subsequent school achievement, and how ECEC programs benefit different groups of children and families.

These issues could be explored using linked data. The National Early Childhood Development Researchable Data Set being developed by the Australian Institute of Health and Welfare could be fit for this purpose, although development of this resource is currently on hold.

Value-added measures of education outcomes

Point in time measures of student achievement, captured in National Assessment Program — Literacy and Numeracy (NAPLAN) scores for example, do not provide a full picture of the impact that schools have on student learning. Value-added measures are preferred because they take into account two additional aspects of student achievement: progress over time and external influences that schools have little control over. That is, value-added analysis focuses on the value that a school has added to a student's learning, over and above that expected given the backgrounds and prior levels of achievement of students within the school. These measures are a useful starting point for further analysis of high-performing schools to shed light on school effectiveness and build understanding of how to improve education outcomes.

Use of these measures is in its infancy in Australia.

What works best to improve outcomes?

Many of the questions that decision makers in the education system need answers to are descriptive — for example, 'how well are students performing?', 'how are resources distributed?' and 'how many students are undertaking initial teacher training?'. Questions of this type are associated with monitoring and benchmarking, or a top down approach. Answering them typically requires large scale datasets and relatively simple data analysis.

Questions like 'will the things that improve outcomes in this successful school work in other schools?', 'what effect does this program have on student outcomes?' and 'what is the most effective teaching practice for this material?' are causal. High-quality and rigorous assessment of questions like this typically requires a bottom-up approach, using small scale datasets that are often question specific and apply sophisticated research methods.

Some potential targets for this analysis of how best to improve outcomes will be relatively easily identified, such as literacy and numeracy programs or the use of information technologies in the classroom. Others can be uncovered through exploratory analysis of the relationship between an outcome of interest and factors that might affect it, using larger scale datasets.

Whether a relationship is causal can then be tested using appropriate, high-quality, research techniques. The gold standard for these techniques is meta analyses of randomised controlled trials and individual trials. Such approaches are the norm in health research, but they are seldom used in Australian education research.

An example of the insights that this type of evaluation can yield is set out in box 1.

Box 1 Applying randomised trials to evaluate teaching assistants in the United Kingdom

The United Kingdom employs about 255 000 teaching assistants at a cost of over £4 billion a year (or 10 per cent of the education budget). Evidence suggested that they made little difference on average to the attainment of students. But the effects varied between classrooms. In classrooms where teachers and assistants worked collaboratively together the effects were positive. In classrooms where the assistant substituted for the teacher rather than complementing them, students, particularly those from disadvantaged backgrounds, tended to perform worse than peers taught only by a teacher.

Since 2011, the Education Endowment Foundation has run six randomised controlled trials testing the impact of giving teaching assistants quality support and training in delivering structured sessions to small groups or individuals. The results showed that students of the trained teaching assistants made three to four months more progress than students whose assistants were deployed as usual. At relatively little additional cost, teaching assistants who are used effectively can have a marked impact on student learning.

Action is required to improve evidence creation and use

Although there is a large body of education evidence, the body of high-quality evidence relating to the Australian context is very small. Australia needs to invest, particularly in randomised controlled trials, to build the Australian evidence base on what works best to improve education outcomes.

High-quality evidence needs to be created

Cooperative policy leadership is important

Implementation of high-quality research requires cooperative policy leadership by the Australian and state and territory governments. COAG has already recognised the need for cooperative leadership. In the 2013 National Educational Reform Agreement, governments agreed to work together to develop, publish and disseminate evidence on what works best in schools, including by researching, sharing and evaluating improvement and innovation strategies. This agreement needs to translate into action.

Strategically guided research

National research priorities are used in other sectors in Australia. In vocational education and training (VET) the first national research strategy was published in 1997 to ensure the findings of VET research and evaluation can help various stakeholders in the VET system make better decisions, to improve the quality and effectiveness of training. Research funding allocations are still guided by these national research priorities. Similarly, in housing, research priorities guide the research program administered by the government funded Australian Housing and Urban Research Institute.

The Commission supports the development of research priorities in school and early childhood education and care.

Commissioning high-quality research

A rigorous process should be adopted for project selection, including the provision of guidelines to applicants about the nature of research that will be considered. The guidelines should require assessment of initiatives' cost effectiveness. The choice of research projects to build the evidence about what works best to improve outcomes also needs to be prioritised on the basis of cost effectiveness.

Verifying the quality of the research

A range of processes can be used to ensure the findings from completed research are robust. These include independent validation of the findings, peer review of research,

publication of all outputs (irrespective of findings) to enable scrutiny and debate, and the provision of project data for secondary analysis.

Research commissioning bodies in other sectors in Australia, like the National Centre for Vocational Education and Training and the Australian Housing and Urban Research Institute use some of these processes.

Verification should extend to ensuring that research findings from small scale trials apply when initiatives are scaled up.

Developing capacity in quality research

The limited research activity on what works best to improve outcomes in the Australian context suggests that Australia will need to foster research capacity in high-quality education research. Strategies should be put in place to build this capacity.

Applying high-quality evidence

Disseminating research findings

In order for research to impact decision makers in the education system, findings have to be disseminated (distilled and communicated) effectively. Vast quantities of information are available through the internet. Identifying high-quality research and the key findings from that work is a challenge for many decision makers. To address this, a central repository of trusted, high-quality evidence, including resources to support practitioners, is needed.

The US Institute of Education Sciences manages a repository of this type — the What Works Clearinghouse. The Clearinghouse reviews research on policies, programs, practices and products in education. High-quality evidence is summarised in effectiveness ratings for different interventions and practice guides.

The Commission supports a central clearinghouse for high-quality guidelines and advice for education professionals.

Evidence must influence practice

Simply creating evidence and making it available to education professionals is not enough. Evidence only leads to improved education outcomes if it is used to inform decision making and changes the behaviour of practitioners.

Internationally, concerns that evidence does not sufficiently impact decision making has prompted research on how to mobilise knowledge and translate evidence into policy and practice. In 2014, for example, the UK Government allocated £1 million to the Education Endowment Foundation for research into how high-quality evidence is most effectively

translated into changes in the classroom. Similarly, in the United States, the Carnegie Foundation is investing in ways of improving the use of, and culture of using, evidence in education settings.

Research effort needs to be focused on how evidence can most effectively be translated into changes in practice in Australia. Better understanding of what works best to improve research impact will likely have widespread implications for the way researchers communicate their findings, educators are trained, the professional development of educators during their careers, and how education policy is designed. It will also help ensure that spending on both education and education research is cost-effective and efficient.

Governance and institutional arrangements matter

The framework set out above for further developing a national education evidence base is not the end of the journey. Effective governance and institutional arrangements are important to create strong incentives for delivery on the goals.

Such arrangements do this by ensuring that responsibility for the functions and tasks associated with implementing the framework are clearly assigned, thereby promoting accountability. The discussion here relates to the bottom-up framework. Effective arrangements, undertaken by ACARA, for top-down monitoring are already in place.

The Australian, state and territory governments should lead the way

The Australian, state and territory governments should take a shared and cooperative approach to policy leadership to get the greatest benefits possible from implementation of the framework for a national education evidence base. All governments should agree to drive the implementation of the framework.

A new Education Agreement is needed

In Australia's federated system, the funding and delivery of education services are dispersed between the tiers of government. It is important, therefore, that all governments commit to implementation. This could be demonstrated through a new national Education Agreement, which would build on prior agreements. In doing so, governments should apply principles for good governance (box 2).

Box 2 **Principles of good governance**

Accountability and responsibility

Accountability is achieved when decision makers are assigned functions and held responsible for their decisions and actions and submit themselves to external scrutiny. It is important that all parties have clearly defined roles and a clear understanding of their responsibilities.

Governments can contribute to improved accountability by:

- setting clear policy objectives
- providing policy guidelines and defining the functions of the agency or entity responsible for delivering on the national education evidence base framework.

Transparency

Transparency is required so that the community can determine whether they have confidence in the decisions and actions taken by governments and public sector agencies in relation to the national education evidence framework. Transparency is already an important element of the recent reforms to education, including Smarter Schools National Partnerships, National Curriculum, National Assessment Program for Literacy and Numeracy, and MySchool.

Capability

Government entities require appropriate resourcing and capability to carry out their functions effectively (this includes financial resources and suitably skilled staff).

Through a new agreement, the Australian, state and territory governments should provide explicit policy direction defining the:

- objectives
- nature of the research to be undertaken in the bottom-up evaluation of what works
- evidentiary standards or frameworks to be applied, including assessment of cost effectiveness
- translation of evidence into guidelines accessible by schools, early childhood education and care services and teachers.

The Australian, state and territory governments should also request the Education Council to:

- assign an institution to be responsible and accountable for implementation of the functions set out above and in Draft Recommendation 7.2
- specify the assigned institution's governance arrangements, functions and operations
  - including a responsibility for promoting a culture of using the evidence base by policy makers and educators.

The Australian, state and territory governments would collectively own or oversee, and resource the assigned institution, ensuring that it has the capability to undertake its functions.

Proposed institutional design and functions

The Commission is proposing a governance and institutional framework drawing on those observed internationally, including the UK Education Endowment Foundation and the US Institute of Education Sciences. The proposed governance arrangements of the bottom-up institutional role are as follows.

- The institution would be accountable to, but operate at arm's length from, the Education Council (all education ministers).
- It would be an independent statutory authority or company (or contained within one).
- It would have an independent board, with board members appointed by the Education Council through a transparent selection process.
- It would enable direct involvement by non-government schools and ECEC services.
- The Education Council would have veto power in the selection of research projects, but would use this transparently.

The institution would be responsible for the following functions:

- selection and funding of proposals for evaluation, through competitive tendering
- commissioning independent reviews of research findings
- ensuring required standards of evidence are maintained in evaluations and reviews
- translating research findings into guidelines and sharing them with schools, ECEC services, teachers and policy makers
- supporting knowledge mobilisation and encouraging teaching professionals, schools, teacher training institutions and policy makers to use the evidence to inform their decisions
- keeping researchers informed about potentially useful administrative and other datasets.

The institution would operate with open and transparent processes, including:

- publishing its work
- consulting on research priorities and methods of operation
- releasing data from evaluations, for secondary analysis by other researchers.

The institution would not do research or evaluation on its own account. It would run a competitive process to award grants to others who put forward proposals that pass guidelines. Research proposals could come from diverse sources, such as schools, ECEC services, research institutes, local governments, community and charitable organisations. The institution would also contract others to do independent and rigorous reviews of the research.

These institutional arrangements could leverage the work of other research institutions (such as university institutes and Social Ventures Australia).

The Commission has identified three broad options as to where the institution might be 'housed':

- incorporating it into an existing institution
- creating a separate government owned institution
- creating a new, privately run institution through a competitive tender process, similar to the way in which the UK Education Endowment Foundation was established.

Each of these options is likely to have strengths and weaknesses. Some key considerations in assessing these options include the level of independence from governments and their departments (including the potential for 'de-politicising' the evaluation process), the scope for operational efficiencies, and the capacity to leverage funding by other research institutions. With respect to the option of incorporation into an existing institution, consideration would have to be given to the changes required to the charter and governance arrangements of that organisation.

The Commission is seeking further information about the strengths and weaknesses of its proposed institutional and governance arrangements.

Draft recommendations, findings and information requests

DRAFT FINDING 1.1

Notwithstanding substantial increases in expenditure on education over the past decade, national and international assessments of student achievement in Australia show little improvement and in some areas standards have dropped.

DRAFT RECOMMENDATION 2.1

In supporting the further development of a national education evidence base, governments should be guided by the following principles.

The national education evidence base should:

- meet the varied needs of decision makers at all levels of the education system
- provide high-quality data and evidence to inform decisions
- drive improved student achievement through four interconnected processes — monitoring of performance, evaluation of what works best, dissemination of evidence and application of that evidence by educators and policy makers
- generate benefits in excess of the costs incurred in collecting and processing data and in creating, sharing and using evidence.

DRAFT FINDING 2.1

National level data play a key role in top-down monitoring, benchmarking and accountability processes, but are insufficient to achieve improved outcomes. They need to be complemented by a bottom-up approach that generates evidence about what works best, for whom and in what circumstances.

DRAFT RECOMMENDATION 3.1

In assessing whether to improve the quality of existing education data, governments should examine whether:

- there is a need to improve the quality of the data so it is fit for purpose
- data quality improvements are feasible given the context of data collection
- other options are available
- the benefits of improving data quality exceed the costs.

INFORMATION REQUEST 3.1

The Commission seeks comment on whether the Australian Early Development Census could be used to monitor progress against Australia's early learning objectives.

DRAFT RECOMMENDATION 3.2

The Australian Government should request and sufficiently fund the agencies that conduct the *Longitudinal Study of Australian Children* and the *Longitudinal Study of Indigenous Children* to establish new cohorts of children at regular intervals.

DRAFT FINDING 3.1

Ongoing initiatives should help to fill many of the identified data gaps.

- The Australian Government's proposal for a national Year 1 assessment should help to better assess performance of early school skills and to identify students who need early intervention.
- Work by the Australian Curriculum, Assessment and Reporting Authority, the Victorian Curriculum and Assessment Authority and relevant research institutes should help to improve methods and metrics for measuring non-cognitive outcomes.
- The *Nationally Consistent Collection of Data on School Students with Disability* should help to improve the monitoring of outcomes of students with disability.
- The development of a national minimum teacher dataset by the Australian Institute for Teaching and School Leadership should help to support workforce planning and assessment of initial teacher education.

DRAFT RECOMMENDATION 3.3

Australian, state and territory governments should support greater use of value-added measures of education outcomes.

INFORMATION REQUEST 4.1

The Commission seeks further information on:

- *the costs and benefits of moving toward a national student identifier (compared to jurisdictional systems)*
- *the feasibility of using the unique student identifier system used in the vocational education and training sector to deliver more comprehensive student coverage*
- *the costs and benefits of children in the early childhood education and care sector being covered by the same identifier as school students.*

DRAFT RECOMMENDATION 4.1

Agencies responsible for collecting education data should review and adjust their procedures to reduce the administration costs and the compliance burden on respondents, including by:

- to the greatest extent possible, collecting sample, rather than census data
- removing duplication in data collection and processing
- avoiding frequent changes to reporting requirements, but when changes are necessary, allowing sufficient time for respondents to comply with the new requirements.

DRAFT FINDING 5.1

There is a considerable amount of education and other relevant data already collected, but there are impediments to its access and use.

INFORMATION REQUEST 5.1

The Commission invites participants to comment on the operation of the section 95 guidelines in health research and lessons for other forms of research including education.

DRAFT RECOMMENDATION 5.1

Agencies responsible for education data collections should amend their processes for collecting personal information from parents/guardians to incorporate formal consent and notification procedures regarding the use and disclosure of personal information at the initial point of collection.

DRAFT RECOMMENDATION 5.2

The Australian Government should amend the *Privacy Act 1998* (Cwlth) to extend the arrangements relating to the collection, use or disclosure of personal information without consent in the area of health and medical research to cover public interest research more generally.

DRAFT RECOMMENDATION 5.3

The ACT Government should enact in its privacy law an exception to cover public interest research. In Western Australia and South Australia where there is not a legislated privacy regime, their privacy arrangements should reflect a similar public interest research exception.

DRAFT RECOMMENDATION 5.4

The Australian, state and territory governments should pursue legislative consistency in education and related Acts regulating the use and disclosure of education information, and amend legislation so that it is aligned with the intent of general privacy laws.

DRAFT RECOMMENDATION 5.5

The Australian, state and territory governments should introduce policy guidelines which place the onus on data custodians to share data unless a privacy (or other) exception can be justified.

INFORMATION REQUEST 5.2

The Commission invites participants to comment on the operation of mutual recognition in the health area and any lessons it provides for education research.

DRAFT FINDING 6.1

The system of data linkage could be improved if linked data were retained by the linking authority.

DRAFT RECOMMENDATION 7.1

The Australian, state and territory governments should ensure that an online metadata repository for education data collections is created. The approach used by the Australian Institute of Health and Welfare could serve as a model.

DRAFT RECOMMENDATION 7.2

The Australian, state and territory governments should pursue a national policy effort to develop a high-quality and relevant Australian evidence base about what works best to improve school and early childhood education outcomes. In particular, five activities need to be supported:

- development of research priorities
- commissioning of high-quality education research
- adoption of rigorous research quality control processes
- dissemination of high-quality evidence
- development of researcher capacity.

DRAFT RECOMMENDATION 8.1

The Australian, state and territory governments should task the COAG Education Council to provide explicit policy direction through a new Education Agreement, which would build on prior agreements and define the:

- objectives
- nature of the research to be undertaken in the bottom-up evaluation of what works
- evidentiary standards or frameworks to be applied, including assessment of cost effectiveness
- requirement for translation of evidence into guidelines accessible by schools, early childhood education and care services and teachers.

They should also request the Education Council to:

- assign an institution to be responsible and accountable for implementation of the functions set out above and in Draft Recommendation 7.2
- specify the assigned institution's governance arrangements, functions and operations
  - including a responsibility for promoting a culture of using the evidence base by policy makers and educators.

INFORMATION REQUEST 8.1

The Commission seeks further information about the strengths and weaknesses of its proposed institutional and governance arrangements.