EDUCATION FOR A CHANGING WORLD

Policy Reform and Innovation Strategy

POLICY REFORM AND INNOVATION STRATEGY

Context

Education for a Changing World seeks to explore and influence the policies and reforms to ensure education best prepares young people to successfully navigate a more complex world and the future they face.

There's been much written about the profound impact that technological advances will have on the way we live and work. Developments in automation and new frontiers in artificial intelligence (AI) are predicted to fundamentally alter the nature of society and work by 2040.

The kindergarten students who entered the school gate for the first time this year will be graduating 13 years later into a world profoundly altered by rapid and significant global trends. These students and the 8 million young people estimated to finish school over the next two decades will be the citizens and economic contributors of 2040. While it is difficult to imagine the world and the way we will work in 2040 and beyond, it is this world for which these students must be prepared.

Developments in AI are one of a number of interrelated 'megatrends' changing the nature of the labour markets in Australia and across the world. This includes the implications of ageing populations, offshore outsourcing and the need to lift productivity to sustain high standards of living. Many experts are concerned that a number of advanced economies appear to be trending toward increasing intergenerational income inequality at a time when younger generations are facing a labour market with less permanency or certainty in opportunities.

Over the past 20 years, Australia has successfully ridden waves of global economic upheaval with a resilience and optimism that has been the envy of many. High quality education and training has resulted in significant boosts to productivity and the development of a skilled workforce that has been able to adapt to the changing nature of work.

This positions Australia well to transition to an innovation economy and reap the benefits of unprecedented technological advances. International research suggests that AI has the potential to double annual economic growth rates in many developed countries by 2035 – if they have the skills and innovation agenda in place to support this.

The profound changes ahead demand an education approach that will provide young people with enduring capabilities and skills to shape and harness the opportunities of technological change. This starts with the educational foundations of strong literacy and numeracy, and goes well beyond these skills to the deeper,

enduring 'thinking skills' that enable and sustain access to knowledge. The next wave of education reform will need to lift the bar higher and make education 'smarter' to ensure that today's students have the capabilities and confidence required to navigate an increasingly complex world.

We must move swiftly and effectively, with purpose and focus, to identify effective education reforms. Each year of learning makes a significant contribution to a student's education and the 13 years from kindergarten through Year 12, whilst but a fraction of a student's life, set the foundation both for success beyond and for the continuous learning he or she will need over the course of a lifetime.

Education for a Changing World will seek to address key questions that face education in the 21st Century, including:

- If we need to lift the skill level of all students, what changes might need to be made to **curriculum** and **assessment?**
- If we expect tomorrow's students to be able to know more, learn more and do more, what does this mean for **supporting teaching and teachers?**
- If innovation is critical to Australia's future, how can we introduce and support greater **innovation within education?**
- If the classroom alone cannot deliver all of the learning a well-prepared student needs and learning will occur over a lifetime, how can we best deliver new opportunities for students in **partnership with schools?**

Education for Changing World is intended to ensure our education system is one where:

- Children and young people gain the knowledge and skills necessary to fully engage in and shape a 21st century of opportunity, complexity and challenge
- Teachers and school leaders have the skills, knowledge and support to best prepare students for lifelong engagement with learning
- Education itself welcomes, tests and develops innovative approaches to learning.

Education for a Changing World operates across both policy and practical dimensions, anchored on three core elements:

1. **Embedding a structured and effective innovation system**
2. **Shaping NSW and Australian education policy**
3. **Leading edge experimentation and delivery**

1. Embedding a structured and effective innovation system

The Education for a Changing World initiative has a strong focus on innovation in education itself, combining new ways of learning and teaching with retention of well-proven, enduring elements of schooling.
The Catalyst Lab Innovation Program provides focus, structure and resources to build innovative educational opportunities through:

- Identifying, shaping and developing new educational approaches, particularly through 'bottom-up' processes that value new voices and emphasise pace, rigour and impact
- developing capacity building resources to support, embed and extend proven methodologies that drive an innovation culture and the benefits of new ideas
- developing strategic partnerships and strong collaboration with schools, stakeholders, experts and business partners to bring the best informed and most creative minds to solving challenges

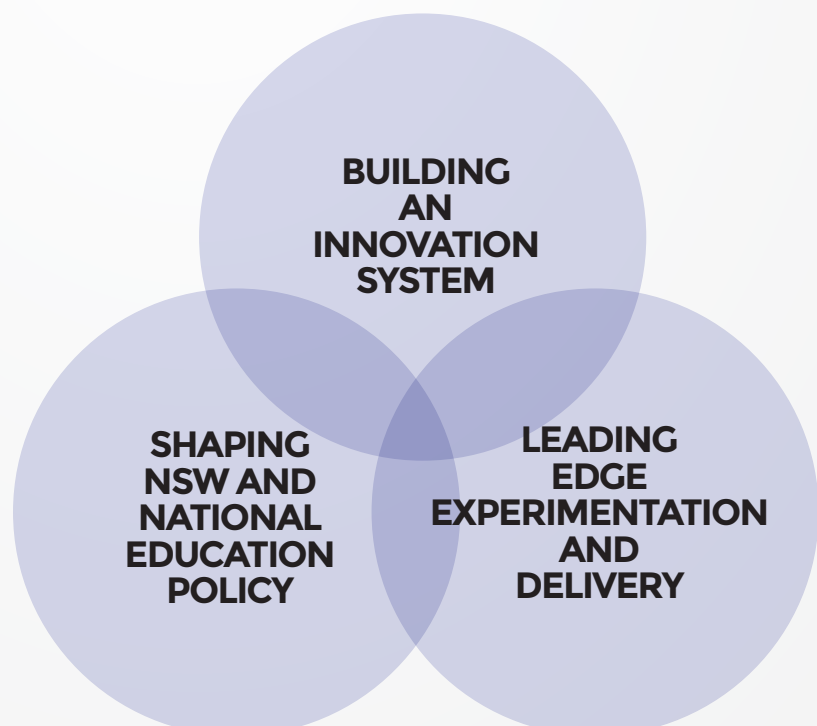### 2. Shaping NSW, national and global education policy

A key element of Education for a Changing World is to help shape NSW and Australian education directions by bringing high quality thinking, insight and evidence to better understand and solve modern educational challenges – not only by reviewing evidence of what is known but also by embracing the possibilities of pioneering ideas and how they can work in practice. This work involves:

- Commissioning insight, research and commentary from diverse perspectives to cast a wide net for ideas and build an inclusive community of reform
- Shaping practical solutions in curriculum, assessment, teaching and educational delivery systems together with schools
- Bringing resources, including through partnerships, to assist implementation of new approaches

3. Leading Edge experimentation and delivery

Whilst Education for a Changing World will focus primarily on significant, scalable innovations and reforms connected to 21st Century learning, it also has the capacity to contribute to particular priorities where next generation responses may be warranted. Working closely with colleagues and partners to bring expertise where requested to help solve particular challenges, a number of priorities already have been identified including:

- Pilots to innovate elements of STEM education
- Student voice in teaching, learning and assessment (with Strathfield network)
- Assessment approaches that allow students to demonstrate deeper learning
- Partnership with Educational Services to improve reporting to parents
- Environmental Education and Zoo Education Centres Network Sustainability Challenge

BUILDING AN INNOVATION SYSTEM

SHAPING NSW AND NATIONAL EDUCATION POLICY

LEADING EDGE EXPERIMENTATION AND DELIVERY

Thinking Skills and Capabilities

If literacy and numeracy are essential for students to access learning, there is a separate, wider set of capabilities – or thinking skills – that create access to knowledge. These thinking skills provide enduring 'habits of mind' and learnable capabilities that enable students to understand, probe, deeply consider and apply the curriculum in the immediate schooling context and in their wider social, economic and civic engagement. Importantly, these thinking skills also set the stage for a lifetime of learning, agency and mastery.

Many 21st century skills have been identified as important but some are especially crucial for a future of AI and complex global change:
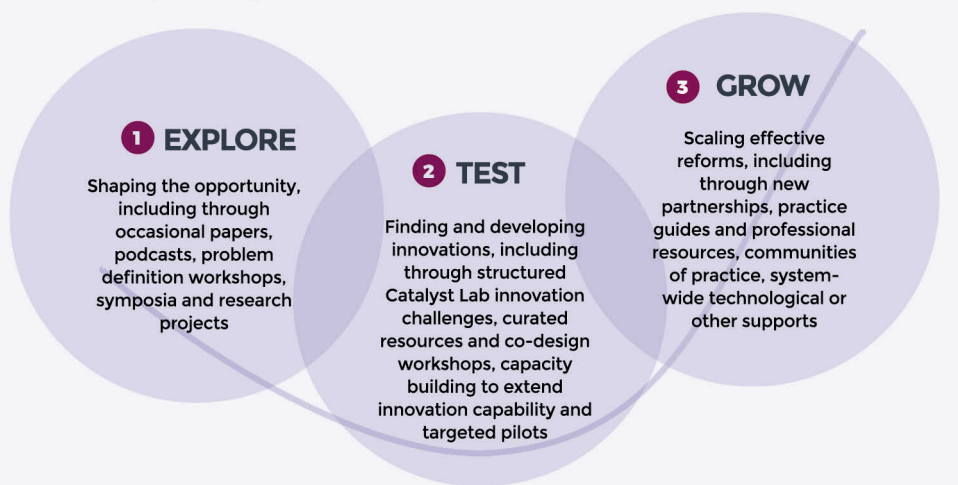
- **Critical thinking** – critical thinking skills support the development of all other 21st century skills. They are developed by combining rigorous content study with well-disciplined skill development and focused attention to the constellation of capabilities that comprise critical thinking, such as analysis, hypothesis, creativity, problem solving, collaboration, empathy and self-awareness.

- **Computational thinking** – all students need a higher-level understanding of computational concepts and the ability to understand and evaluate information delivered in multiple formats and through new technologies. This is much broader than coding and computer science, and extends to deeper cognitive skills such as abstraction and logic, and is applicable across all kinds of disciplines from maths and science to creative arts and the humanities. Understanding the building blocks of computation will enable students to critically engage with technology.

- **Ethical reasoning and citizenship** – students increasingly need to understand and navigate the moral and ethical impacts that artificial intelligence (and other global challenges) will have on our lives, such as the use of big data in real world decision making. Sophisticated teaching approaches to developing student ethical reasoning skills, including through philosophy and a modern articulation of global citizenship, can open new frontiers for teaching and learning.

New Approaches to Learning

- **Applied learning** – By applying knowledge and skills to solve real problems and engaging in meaningful experiences both in the classroom and beyond, students are able to demonstrate mastery in new ways, translate

Common elements

The Education for a Changing World themes integrate work across innovation, policy and educational practice. Each area will have a set of common elements, including:

1 EXPLORE

Shaping the opportunity, including through occasional papers, podcasts, problem definition workshops, symposia and research projects

2 TEST

Finding and developing innovations, including through structured Catalyst Lab innovation challenges, curated resources and co-design workshops, capacity building to extend innovation capability and targeted pilots

3 GROW

Scaling effective reforms, including through new partnerships, practice guides and professional resources, communities of practice, system-wide technological or other supports

their learning to real life and increase their motivation to learn. This includes a wide range of strategies, including integrating real life problems into existing subjects, student internships, work-portfolio assessments, and can be supported by new technologies and industry and community partners. Determining when and how to deploy high quality applied learning tools and building the necessary skills is essential.

- **Technology-enabled personalisation** – AI technologies have the potential to support the unique role of the teacher, through enabling personalised learning and individual student progress and helping address access and equity challenges faced by many students. They also can support teachers by reducing administrative burden. However, given the risks, including

ownership of student data, the education community needs to own and shape how technology is used through demanding appropriate safeguards and inclusive governance of use in schools.

- **Integrated extra-curricular activities** - Students learn and apply many crucial skills outside the classroom - for example through sport, cultural and artistic work and community activities. These help develop the 'whole student' and qualities such as confidence, empathy, resilience and tolerance. School and community expectations are increasingly focusing on this broader view of what a 'good' education looks like, and an integrated approach will help deliver consistent benefits across the whole school system.