Summary of evidence

A report by the Aspen Task Force on Learning and the Internet published in 2014 identified three essential literacies for the digital age: digital literacy, media literacy, and social-emotional literacy. This list of competencies roughly aligned with four “types of intelligence” put forward in 2016 by Klaus Schaub, founder of the World Economic Forum, as key to success in what Schaub characterised as the coming Fourth Industrial Revolution. This revolution is to be marked by the convergence of various emerging technologies including artificial intelligence (AI), advanced robotics, and the Internet of Things (IoT). Within it, the potential exists for the physical, digital, and biological worlds to become increasingly fused, causing rapid change to the fundamental ways in which we live, work, and relate.

The UK government can prepare for the risks and opportunities implied by this or an analogous future in two steps. First, ensure that world-class STEM training is made accessible to a diverse set of candidates in the UK, including via introductory curricula on probability, databases, and neural networks in primary and secondary school, as well as via funded conversion masters on AI that facilitate transitions from the social sciences, natural sciences, and humanities. Second, and more broadly, ensure that four varieties of intelligence are fostered in both formal and informal educational settings to counteract the social and political upheaval that would accompany the sort of change Schaub forecasted: contextual intelligence (i.e. data literacy), emotional intelligence (i.e. social and emotional literacy), physical intelligence (i.e. health and wellness), and creative intelligence (i.e. self-actualization). This list consolidates the proposals of the Apsen Task Force, Schaub, and other similar groups.

The value of the first three varieties of intelligence is increasingly self-evident. In the United Kingdom, 17% of the population lack basic digital skills (White, 2017). Only 9% have heard of ‘machine learning’ (Ipsos Moritz, 2017). Alongside this, the percentage of jobs at risk of automation for young workers aged 16-24 ranges from around 20-40% (PwC Young Workers Index, 2017). A 2017 OECD report suggested that only 11% of adults worldwide are currently above the skill level in literacy and numeracy that AI is close to reproducing. To address this gap, government should invite students of all ages to rapidly prototype new civic and educational institutions such as citizen juries, digital field hearings, local e-government programming projects, and personalized government representatives. Such mechanisms, if scaled, could allow the general populace to learn about, engage with, and benefit from the digital systems and AI they intersect with. Similarly, the ever-increasing growth of the mental health movement underlines the need for a more rich social and emotional education in primary, secondary, and postsecondary settings. Novel solutions could be prototyped in this area as well, such as the use of intergenerational mentors and dialogues. Attention should also be paid to platform company’s use of predatory design mechanisms, which prey on and serve to normalize short attentions spans (Time Well Spent, 2018).

Lastly, on the topic of creative intelligence, it is important to note that this is a risk in overfitting the UK’s education system to the perceived needs of an emerging technology industry like AI. Diversity of
experience and expertise, be it artisanal or otherwise, is a major contributor to successful innovation. In the 1950-60s, the UK computer industry suffered greatly as a result of computer programming being purposefully re-framed as a ‘masculine’ activity, which pushed out a generation of expert female programmers (Hicks, 2017). An equivalent error could be made today. To ensure an inclusive and prosperous future, different varieties of intelligence should be embraced and nurtured like biodiversity. Since research shows “a key determinant of motivation is autonomy,” the realities of ownership in this new economy should also be laid bare (Barton, 2018). It may be, for instance, that data-trusts are a desirable alternative to data-ownership, which might serve only to exacerbate income inequality if used as the norm in this new economic landscape.