

## Ringling the Alarm on Education

**Summary:** The Fourth Industrial Revolution (4IR) and the new technologies and developments it brings means that the jobs as we know them may no longer exist, and we are still not in a position to know what will replace them. This presents numerous challenges for educators; how can they prepare for the unknown? Many experts have already begun to tackle this question, and to pave the way for an educational system that is agile enough to keep pace with the 4IR.

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In 2017, Dell Technologies and the Institute for the Future released *Realizing 2030*, a report that explores the next era of human-machine partnerships. Notably, their research found that an estimated [85 percent of jobs in 2030 haven't been invented yet](#). Moreover, the pace of change will be so rapid that people will learn “in-the-moment” using new technologies such as Augmented Reality and Virtual Reality, and the ability to gain new knowledge will be more valuable than the knowledge itself. So, how can the education system best prepare for the unknown?

The Fourth Industrial Revolution (4IR) is characterised by a fusion of technologies that are blurring the lines between the digital, biological and physical spheres. Bringing new innovations like Artificial Intelligence (AI), autonomous vehicles, 3D printing, robotic automation, blockchain, etc., the 4IR has had and will continue to have a significant impact on the way we live and do business. But it is not only businesses that must keep up.

In the Economist's [Automation Readiness Index](#) report, Elizabeth Fordham, senior advisor for global relations in the OECD's Directorate for Education and Skills, states that, “Traditionally technologies have automated a range of tasks that humans might not have wanted to do or might not have defined them as humans. AI and robotics, however, are starting to automate higher order, non-routine tasks, some of which require critical thinking and creativity.”

Unfortunately, the report has found that many countries have yet to address the impact of automation through educational policy. It highlights the importance of education related to STEM (science, technology, engineering and mathematics) and of so-called soft skills, which allow workers to trade on their uniquely human capabilities, but most countries have not done much to prepare future workers through school curricula or through teacher training.

In an article in [The Guardian](#), Natalie Brett, head of London College of Communication and pro vice-chancellor of the University of the Arts, London, echoed similar sentiments but focused on the importance of soft skills: “Since technology is driving these changes, there's an assumption that the government should keep focusing on STEM subjects... In the meantime, ‘soft skills’ – which are already disadvantaged by the term's connotations – are being relegated even further down the pecking order in terms of curriculum must-haves. This is a mistake.” And indeed it is. A 2017 [survey](#) by the National Association of Colleges and Employers found that “ability to work in a team” was the most commonly desired attribute of new college graduates, followed by communications skills. Both of these were more important than problem-solving, analytical and quantitative skills, and so clearly need to be made a priority in education.

In addition to prioritising soft skills, the aforementioned report in The Economist also indicates that lifelong learning is becoming a rich area of experimentation, and governments have already picked up on this. For example, Singapore is experimenting with funding “individual learning accounts”, which adults use to support training courses throughout their lives. In Germany, the Federal Ministry of Labour and Social Affairs is exploring a comparable scheme, as well as a modified form of “employment insurance” to fund skills upgrading throughout people’s lives.

Vocational training is also important, and needs to evolve in line with the developments of the 4IR. In answer to this, the UAE Ministry of Higher Education has added Vocational Training to its scope, with several specialised institutions having been opened and practical learning methods being continuously promoted. Meanwhile, according to The Economist report, the vocational and technical education system of Germany, South Korea and Singapore are leading models that other economies are following, but should focus on skill sets across the occupational scale (rather than only low-skills occupations).

Of course, even considering the development of soft skills and other initiatives, there is still a need for specificity. For example, Stanford online education spinout [Udacity](#) launched a [self-driving car engineering nanodegree](#) in 2016; for US\$2,400, the course takes students through key aspects of using AI to process images and sensor data from a self-driving car. In less than 24 hours since the course’s launch, Udacity had over [30,000 people](#) across the globe wanting to take it. Notably, the course has no academic institutions involved in it– instead, students get assigned industry mentors from the likes of Mercedes, BMW and Uber. Along a similar note highlighting the need to forge practical connections between prospective employers and students, the [Chartered Management Institute](#) reports that 85 per cent of business managers believe that work experience should be embedded into courses to maximise the development of relevant skills.

Ultimately, our world and job markets are transforming at such a rapid pace that we do not yet know the full extent of it. No matter what path is chosen to integrate 4IR into education, it is clear that institutional agility is becoming increasingly important. By incorporating blended learning and ensuring its availability for different skill sets and different points in a person’s career, we might just be able to keep up.