



Sources	Institution of Mechanical Engineers	Date	September 2021		
Potential scale of impact	Certainty of outcome	Impact horizon			
★★★★★	★★★★★	H1	H2	H3	
<p>The <a href="#">Global Engineering Capability Review</a>, a report commissioned by the Royal Academy of Engineering and Lloyd’s Register Foundation, has highlighted the widespread need for “higher quality engineers” - individuals whose skills have been honed through a combination of formal education, training and professional development.</p> <p>In January 2021, UK government released its <a href="#">Skills for Jobs</a> white paper, an England focussed blueprint for reforms to post-16 technical education designed to boost national productivity. The document noted a “significant shortage” of technician-level STEM skills in the UK which it attributed to “a lack of people leaving education with high-quality technical skills over the last 20 years”. To remedy this, the Department for Education suggests that employers should have a hand in designing “almost all” technical further education courses by the end of the decade.</p> <p>However, an over-emphasis on specific technical competencies, rather than broader critical thinking or problem-solving abilities, could also be detrimental to the engineering workforce. This is especially true in an era of rapid technological change and automation.</p> <p><a href="#">Professor Mohamed Abdel-Maguid</a>, dean of the Faculty of Science, Engineering and Social Sciences at Canterbury Christ Church University, recommends that educators focus on equipping students with transferable abilities as opposed to transient skills. The latter can be acquired through practice, he explains, while the former constitute “transformations in the person” so that they can consistently deliver desired outcomes and create impact.</p> <p>“If you go back in history, the focus was on enduring and transferable skills – and transient skills were picked up,” he says. “Then, after the standardisation of the Industrial Revolution, the focus moved away from this holistic approach and towards specific, siloed jobs. We’re starting to miss that holistic engineer, the one that can tackle unfamiliar problems.”</p> <p>Effectively tackling future engineering challenges will mean knowing how to manipulate the tools of the day. In the past, engineers were perhaps required to know how to use a press or a specialised drill. But, as many manual tasks become automated, humans will have to use their creative and critical thinking skills to add value in other areas. Programming languages, rather than physical materials, are the key building blocks of Industry 4.0.</p>					

