News release

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Young workers face increased challenges in an age of automation

PwC Young Workers Index 2017

- *Findings show potential US$1.2 trillion boost to OECD economies in the long term through improving young workers' skills, enrolment in education and job opportunities.*
- *Switzerland, Iceland and Germany are the top ranked OECD economies in PwC's Young Workers Index for second year in a row based on a range of employment, education and training indicators.*
- *Across OECD countries, around 20%-40% of existing jobs for young workers could be at risk of automation by the early 2030s, but new technologies will also boost productivity and wealth, and create many new jobs.*
- *Enhanced vocational training and particularly STEM skills are needed to make young people adaptable enough to thrive in an increasingly automated world.*

Findings published in the *PwC Young Workers Index 2017* compare levels of participation in employment, education and training of 16-24 year olds across 34 OECD countries. The report also considers what policy lessons can be learnt from the top performers and focuses in particular on the longer-term challenges and opportunities posed by automation.

Across the OECD, findings from the study include:

- The proportion of young workers not in education, employment or training (NEET) is back down to its pre-crisis levels of around 17% on average across the OECD. However, youth unemployment levels remain high in many countries, notably in Southern Europe.
- On average, students from lower socioeconomic backgrounds are three times more likely not to achieve a baseline level of proficiency in science.
- This disparity is especially pronounced for young men with low education levels, who could face risks of automation of up to 50% by the early 2030s, as compared to only around 10% for both male and female university graduates.
- Reducing NEET levels across OECD countries to the same level as Germany, one of the top performers in the index, could boost total OECD GDP by around US$1.2 trillion in the long term.

John Hawksworth, PwC UK Chief Economist comments:

> "Automation through technologies like AI and robotics will boost productivity and wealth, and so create many new opportunities for young people with the right skills.
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> "However, our analysis also shows that many young people with lower education levels—and particularly young men in sectors like retail, transport and manufacturing—could face major challenges from automation if they do not upgrade their skills over the course of their careers. A focus on providing young people with the right education and vocational training will be critical to preparing them for the more automated workplace of the future."

Overall, Switzerland, Iceland and Germany hold the top three spots in the PwC *Young Worker's Index*. Countries such as Germany have further improved their already high index scores this year as youth unemployment and NEET rates have fallen further. The US, UK, Czech Republic, Canada and Poland are amongst those countries that have risen in the rankings since last year, as the table below shows.

Ranking				Country	Index score			
2006	2011	2015	2016		2006	2011	2015	2016
1	1	1	1	Switzerland	68.6	70.1	67.7	68.9
5	10	3	2	Iceland	63.2	54.2	63.9	67.1
10	2	2	3	Germany	57.8	65.6	66.1	65.7
4	3	4	4	Austria	64.5	65.2	63.2	62.1
11	9	5	5	Japan	57.5	56.1	62.3	61.3
7	7	8	6	Canada	62.3	58.1	59.7	59.9
2	5	7	7	Denmark	67.3	58.7	59.8	58.8
6	8	6	8	Norway	62.5	57.5	59.9	58.2
3	4	9	9	Netherlands	65.5	63.3	58.2	57.3
14	15	10	10	Estonia	55.3	48.2	56.6	56.9
28	17	16	11	Luxembourg	40.6	46.2	51.7	56.8
12	14	14	12	United States	56.4	49.1	54.6	56.2
20	13	15	13	Czech Republic	50.0	49.5	54.4	55.3
8	6	13	14	Australia	61.7	58.1	55.9	55.2
16	29	11	15	Latvia	52.7	36.5	56.3	55.0
33	23	12	16	Israel	36.1	42.7	56.1	54.5
22	16	17	17	Sweden	45.8	47.4	51.6	52.8
21	**22**	**20**	**18**	**United Kingdom**	**49.4**	**43.0**	**48.9**	**51.2**
15	18	18	19	New Zealand	53.2	46.1	50.2	51.2
13	11	19	20	Finland	55.5	52.4	49.4	51.1
25	25	22	21	Hungary	42.8	38.5	46.3	48.5
29	21	23	22	Poland	39.3	43.9	44.6	46.9
18	19	24	23	Korea	51.1	44.9	42.8	46.7
17	12	21	24	Slovenia	52.3	51.9	48.0	46.6
23	20	26	25	Belgium	45.8	44.4	42.0	43.3
9	31	28	26	Ireland	59.6	31.1	38.7	42.5
26	26	25	27	Chile	41.2	38.3	42.3	42.3
30	30	29	28	Slovak Republic	38.3	33.2	38.5	42.0
27	24	27	29	France	40.7	41.6	40.5	39.9
31	27	30	30	Mexico	37.7	37.6	38.1	38.6
35	32	31	31	Turkey	12.9	27.8	35.4	34.8
24	28	32	32	Portugal	45.2	36.7	31.1	33.9
19	33	33	33	Spain	50.4	25.4	23.9	24.6
32	34	34	34	Greece	36.9	23.8	23.3	23.2
34	35	35	35	Italy	29.9	20.7	12.0	13.8
				OECD Average	**50.0**	**45.9**	**48.4**	**49.2**

PwC Young Workers Index 2017. Sources: PwC analysis of OECD data

In relation to the longer-term challenge of automation, the study finds that young workers who tend to start out in part-time employment within the retail, accommodation and food service industries face relatively high risks of these entry-level jobs being automated by the early 2030s.

By contrast, young workers with strong science, technology, engineering and mathematics (STEM) skills should be less at risk from automation across most OECD countries. STEM-focused sectors remain a relatively small employer of young workers but demand for these skills is rising fast, leading to a skills gap. More needs to be done to address gaps in STEM skills, particularly for young people from more disadvantaged backgrounds, if new digital technologies are not to add to income and wealth inequalities in the long run.

John Hawksworth, PwC UK Chief Economist comments:

"There are lessons to be learned from the top performing countries in our index, such as Switzerland, Germany and Austria with their strong vocational training programmes for young people.

"Countries with strong STEM skills, such as Japan, also perform relatively well in our index and could move further ahead as technological advances put a greater premium on these kinds of skills. Our analysis shows that other countries could make large economic gains from greater investment in these areas."

Notes to Editors

1. Methodology: The PwC *Young Workers Index*, produced by the PwC UK Economics team, is a weighted average of eight indicators, including NEET rates, employment and unemployment rates, incidence of long-term unemployment, school drop-out rates and educational participation rates. The age range covered is generally between 15 and 24, but varies as appropriate by indicator.
   These indicators are normalised, weighted and aggregated to generate index scores for each country. The index scores are rescaled to values between 0 and 100, with the average value across all 34 OECD countries set, by definition, to 50 in 2006. Index scores were also calculated for 2011, 2015 and 2016 (or the closest years for which internationally comparable data were available).
2. Further details of the methodology, including the calculation of potential long-term boosts to GDP from lower NEET rates, is contained in the full report. This will be available from 11 October at www.pwc.co.uk/youngworkers.

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