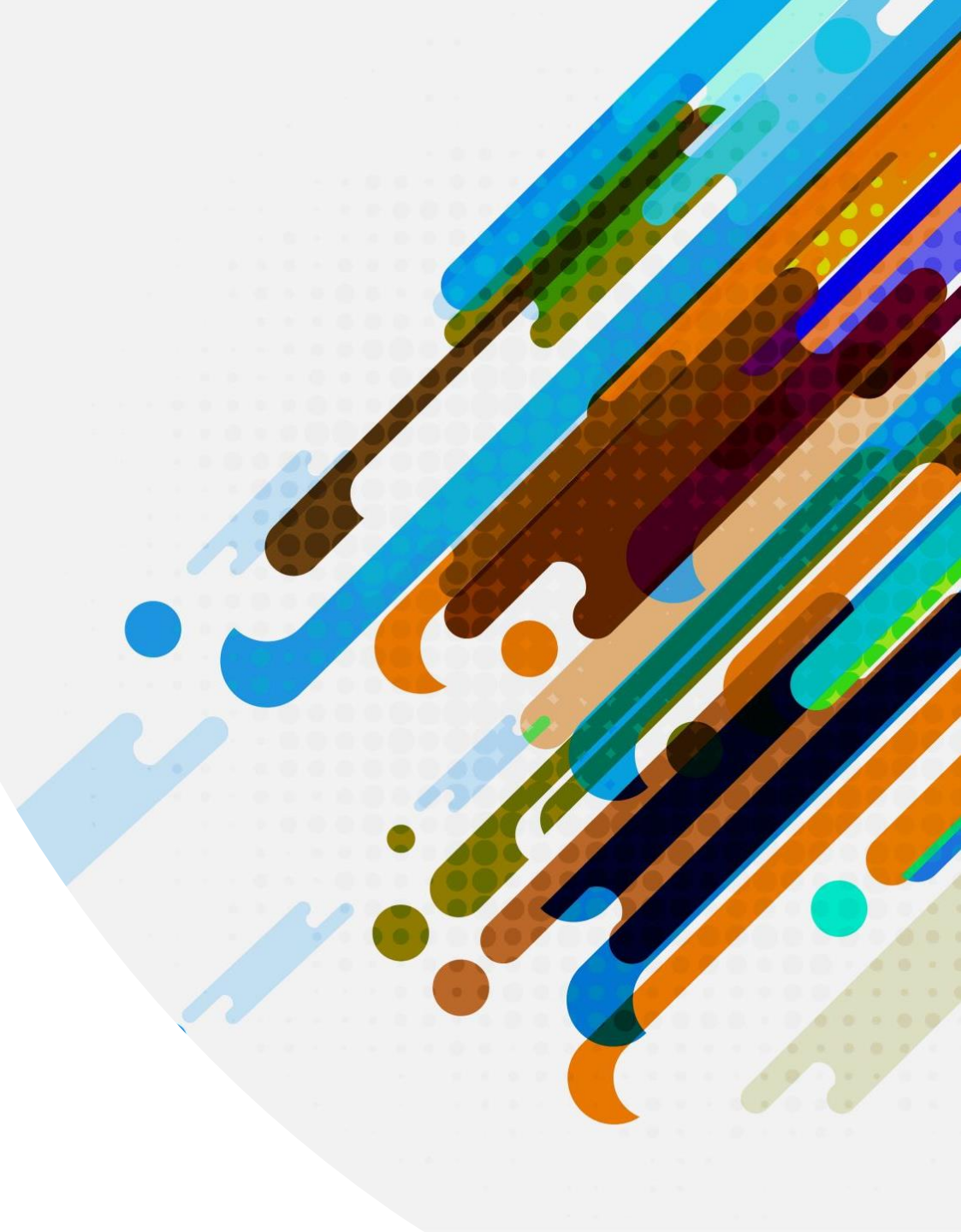
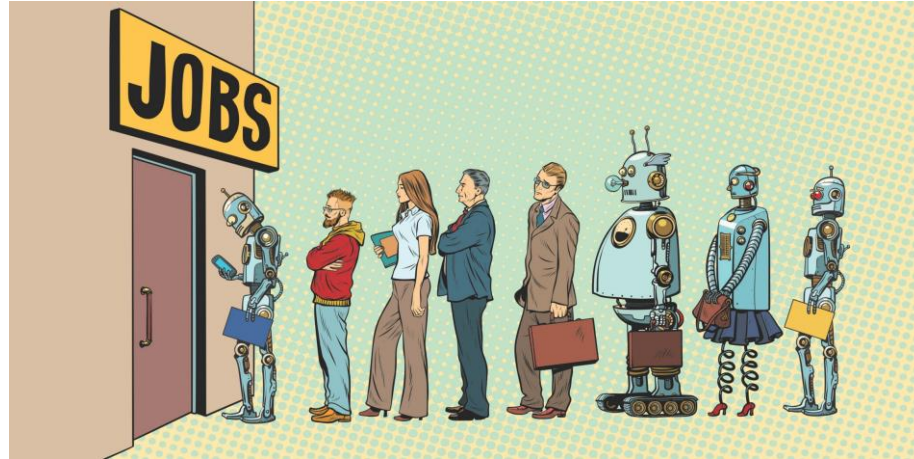




Pupils' Career Aspirations and Job Automation Risks




Technological Advances and Work Tasks




- Advances in mobile robotics and machine learning
- Automation of routine and some non-routine manual and cognitive tasks
- For example: reviewing legal documents and driving vehicles
- Occupations requiring creativity and social intelligence at lower risk
- High risk for manual labour roles and low skill/wage jobs across multiple sectors
- Production, transportation, construction, office and admin support, sales

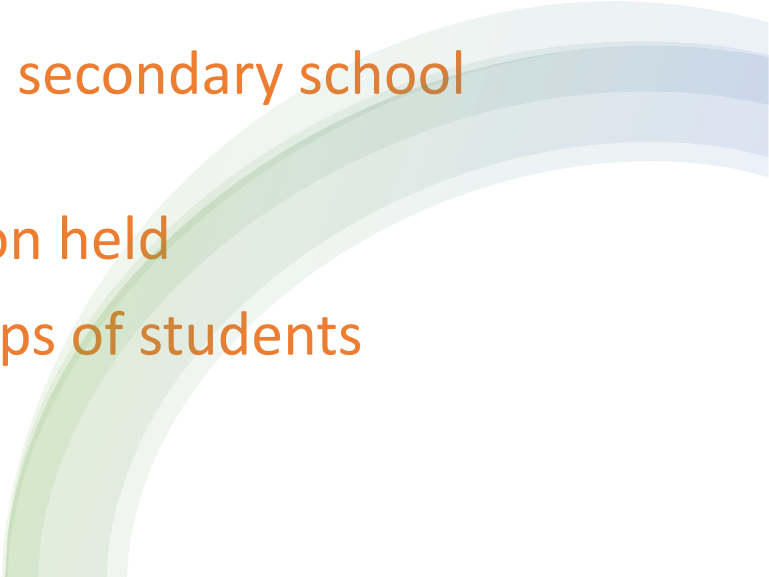
Uncertainties in Predicting Job Automation

- Models include subjective assessments by technology experts
 - Uncertain technological adoption time lags
 - Difficulty predicting and accounting for changing economic variables
 - Unknown creation of new jobs relative to automated jobs
 - What can we reasonably assume about future job automation?
 - Exact number of automated/created jobs too difficult to quantify
 - Reasonable certain types of jobs at higher risk (i.e. manual labour/lower skill roles)
 - Other types at lower risk (e.g. creative and social intense roles)
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Occupational Pursuit Risks

- Automation-related changes anticipated to manifest over next two decades
 - New occupational pursuit risks for children and young people
 - Coincide with key educational and career decision making milestones
 - Risks pursuing or obtaining occupations at high risk of automation
 - Includes suboptimal uses of time, resources, mental capacities, and/or unemployment
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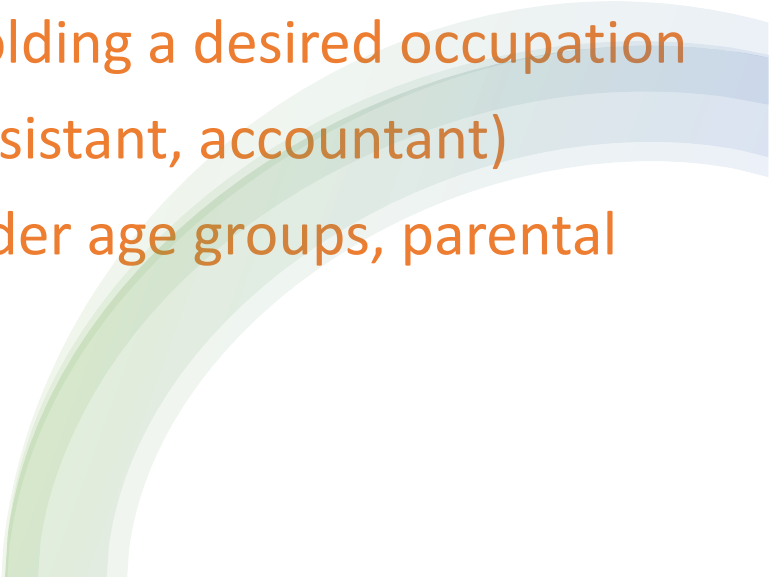
Career Aspirations as Predictors of Career Pursuits

- Teenagers' career aspirations significantly related to occupational attainment in 30s
 - ($R = 0.5-0.6$)
 - Aspirations related to subject, extracurricular, and career-related activities
 - Career aspirations of children are less stable and predictable at individual level
 - Aggregate/group aspirational changes between primary and secondary school
 - Unsubstantial
 - Largely predictable in terms of type(s) of career aspiration held
 - Potential to estimate occupational pursuits risks across groups of students
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Study Methodology

- To investigate job automation-related occupational pursuit risks
 - Disparities across groups of primary and secondary school students
 - UK and multinational
 - Secondary data analysis
 - Large survey data provided by Education and Employers
 - 11,800 British primary school pupils' aspirations
 - Over 7000 international respondents across 20 countries
 - Large survey data of 10,000+ secondary school pupils
 - Compared against probabilities of automation of 800 occupations
 - ANOVA, group proportions, country means, SDs, *R*
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Study Results

- Most primary and secondary school pupils hold low-risk aspirations
 - (age 7 = 10%; age 17 = 25%)
 - Careers in sport, art, entertainment, education and healthcare most common
 - Statistically significant differences across groups:
 - Gender, socio-economic status, ethnicity, having a parent holding a desired occupation
 - High risk aspirations (driver, mechanic, trades, retail sales assistant, accountant)
 - Higher proportion of boys, lower socio-economic groups, older age groups, parental occupation
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Interpreting the Results

- Gender risk disparities due to average differences in people vs. things
 - Higher proportion of females aspiring to social intense occupations
 - Creative roles more gender balanced
 - STEM preference differences
 - Average educational attainment vs. outcome expectations
 - Lower socioeconomic groups tend toward
 - Automatable lower wage/skill occupations (e.g. administrator vs. manager)
 - Small differences at primary level increase at secondary level
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Interpreting the Results

- Pupils with a parent holding desired career more likely to hold high risk aspiration
 - Support and collaborate with parents to highlight automation risks
 - Increasing proportions of pupils adopt higher risk aspirations in secondary school
 - Transition from historically unrealistic to more realistic careers in adolescence
 - Increasing knowledge of conventional careers and wider range of jobs
 - Career aspirations in adolescence harder to influence
 - Prior processes of circumscription
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Implications: Preparing for the Future of Work

- Early intervention in primary school likely important
 - Learning nuanced (low and high status) occupational pursuit risks/opportunities
 - Recognise average differences across different groups - useful teaching heuristic
 - Preparing for a generic, unpredictable work future?
 - General skills (e.g. metacognition, collaboration, critical thinking, digital literacy)
 - Or, preparing for a future with more probable features (common types of work)?
 - Domain-specific knowledge is essential for general skills and specialised work
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