

Evaluation of a competency-based admissions process in a multi-institutional CDT

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Dr Rachael Miles



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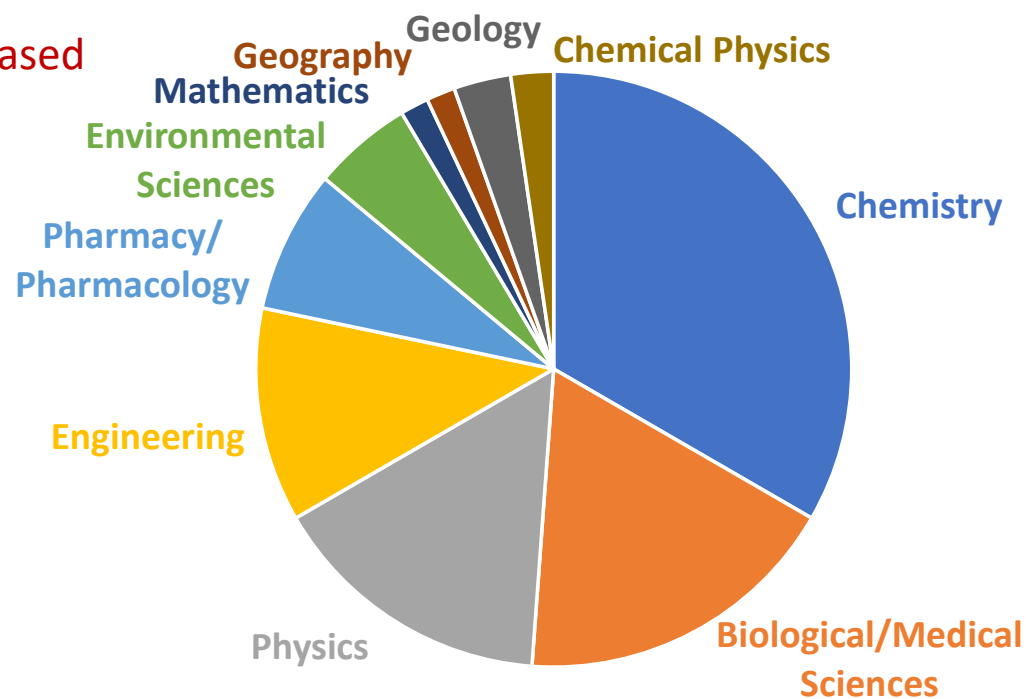


Prof. Jonathan Reid



Who are we?

- The **EPSRC Centre for Doctoral Training (CDT) in Aerosol Science** is a partnership between **9 UK institutions** and **90+ industrial and public sector partners**.
- Established in 2019 to deliver **comprehensive and broad-based training** in aerosol science
 - 4-year **cohort-based training and research** PhD
 - 129 postgraduate researchers (PGRs) enrolled since 2019
 - PGRs have a wide-range of undergraduate backgrounds
- Recruitment is **managed centrally** through the CDT team
 - **Aim to attract a diverse range of applicants** (all aspects of diversity)
 - **Maintain that diversity** throughout the recruitment pipeline



Undergraduate disciplines of cohorts 1-7 (n = 129)

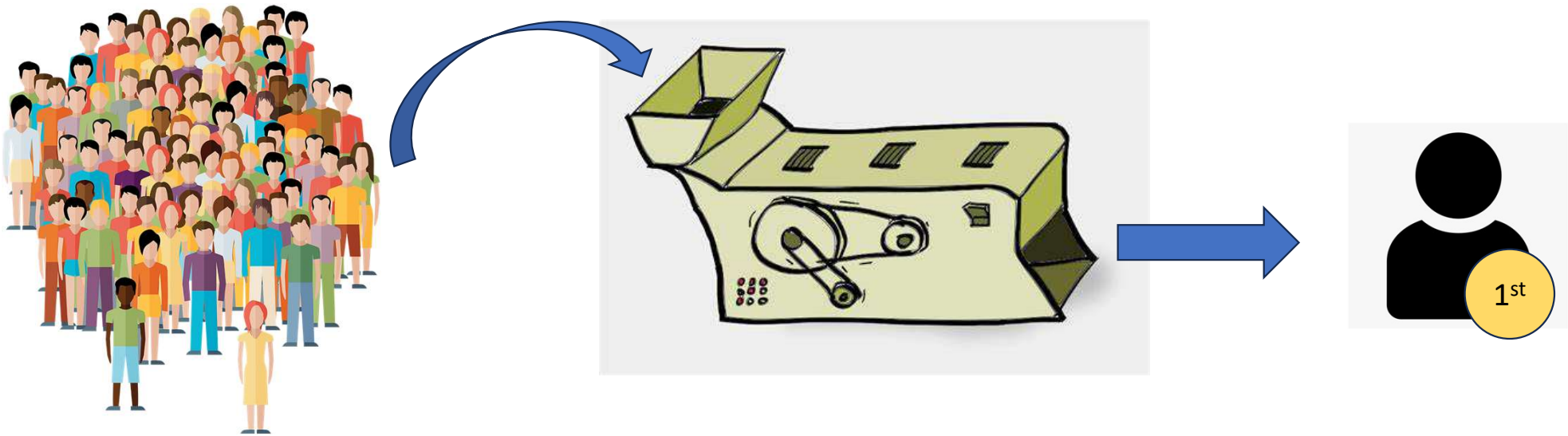


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The idealised recruitment process

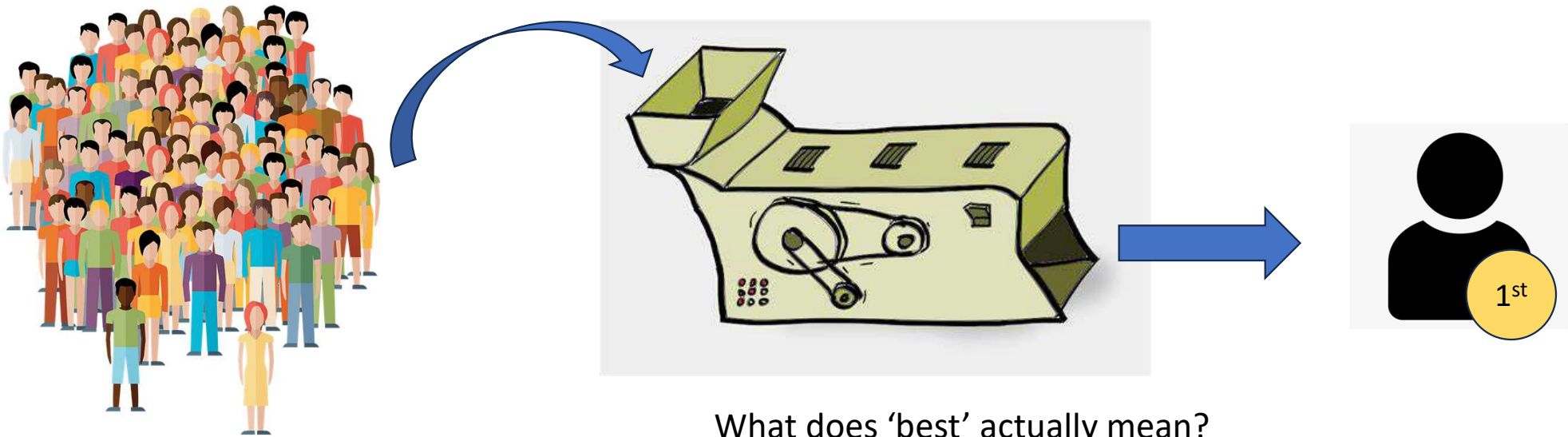


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inclusive
The ~~idealised~~ recruitment process



Are our applicants really diverse?

What does 'best' actually mean?

What evidence are we using to measure 'best'?

How can we ensure the process is equitable?

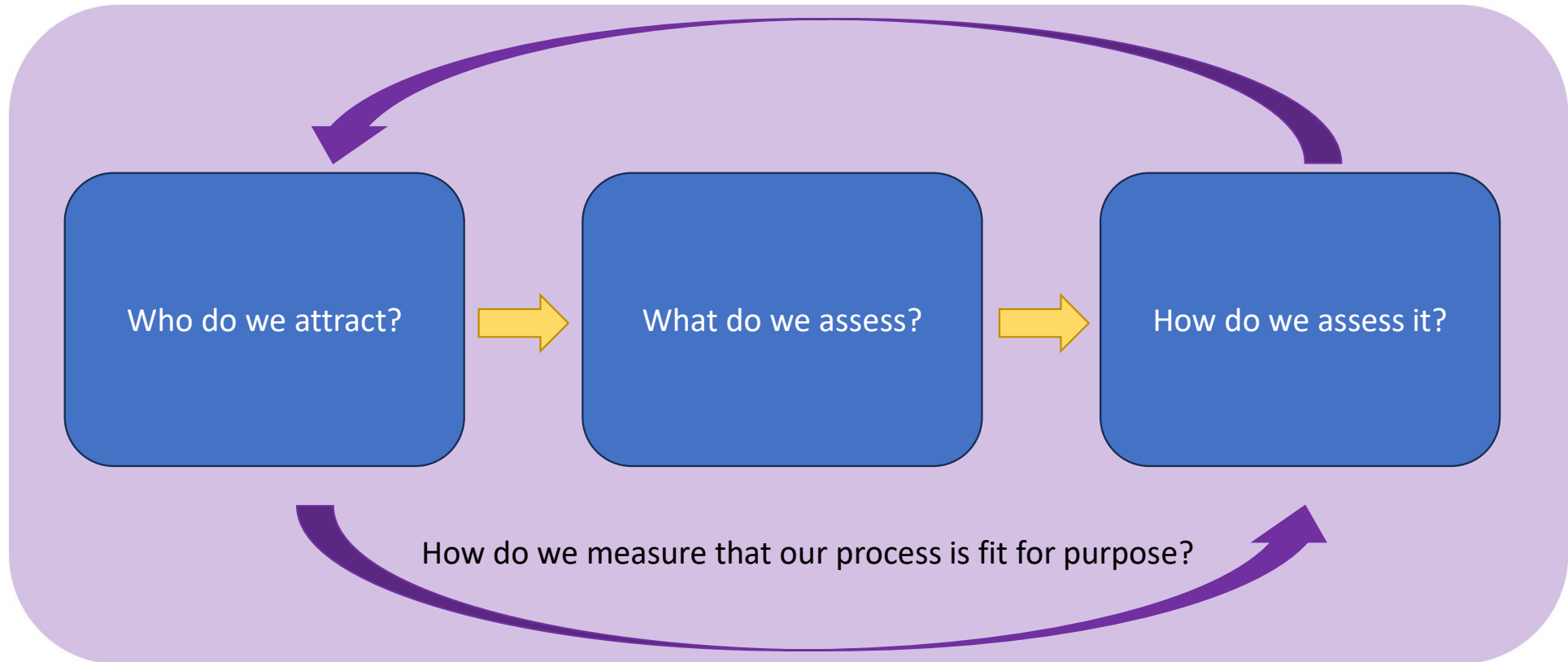


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Developing an inclusive recruitment process

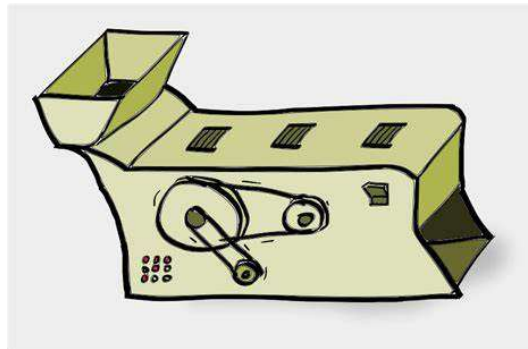


Developing an inclusive recruitment process

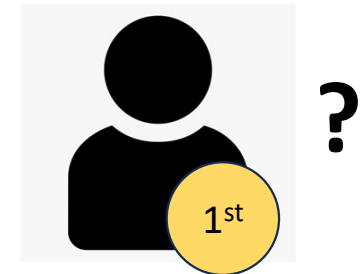
Finding talent: Attracting a diverse range of applicants



Equitable recruitment: Shortlisting and interviews



Monitoring and Reporting: Ensuring processes are fit for purpose

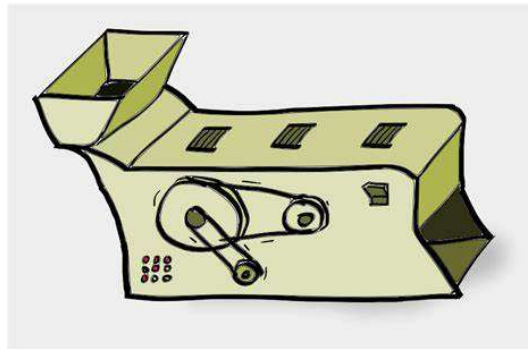


Developing an inclusive recruitment process

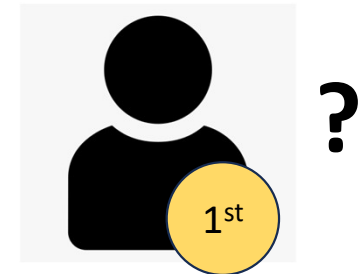
Finding talent: Attracting a diverse range of applicants



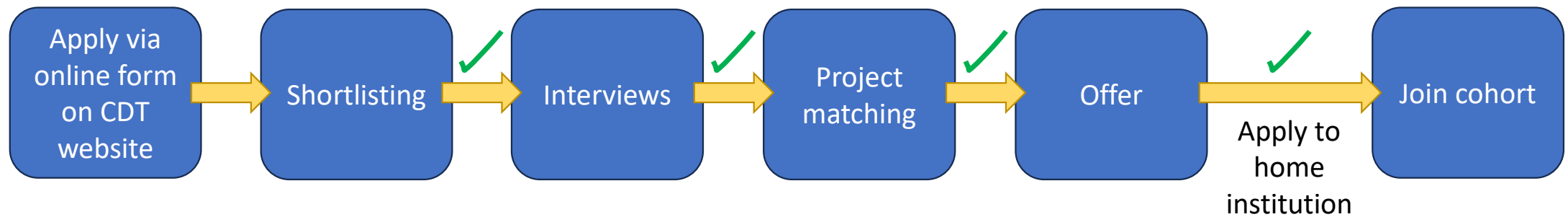
Equitable recruitment: Shortlisting and interviews



Monitoring and Reporting: Ensuring processes are fit for purpose



Aerosol Science CDT recruitment process

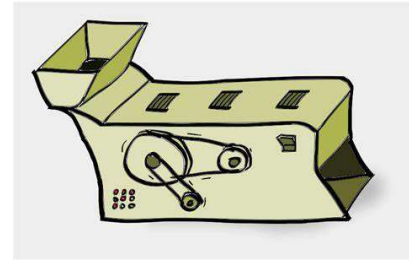


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Shortlisting and interviews



Shortlisting

Apply via
online form
on CDT
website



Shortlisting



- **Independent, blind shortlisting** by CDT Director and Course Manager.
 - **degree subject** (to meet programme requirements)
 - **250-word narrative candidate statement.**

*'Describe the ways in which you feel that your previous experience has prepared you to conduct research in your preferred area(s) with the CDT in Aerosol Science. **You may find it helpful to describe any academic, scientific, paid employment, voluntary and/or other experience.***

This section will be used to guide us in our shortlisting of candidates for recruitment. Please ensure that your response is no more than 250 words, and you answer the question as clearly as you are able.



Shortlisting and interviews

What competencies do we want to assess?

How should we assess those competencies?

Assessed competencies

- Shortlisted applicants complete **two competency-based assessments**.

Technical/research orientation

- Demonstrate mastery home discipline
- Generate hypotheses
- Place results in context
- Critical engagement with results/errors

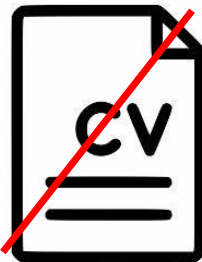
Skills and competencies

- Ability/willingness to reflect
- Show intellectual curiosity
- Honesty
- Collaborate respectfully
- Value difference
- Show initiative
- Display professionalism

Apply via online form on CDT website

Shortlisting

Interviews



Shortlisting and interviews

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Assessed competencies

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Shortlisting

Interviews



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Candidate presentation
+
Questions

Skills and competencies

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- Display professionalism

Reflections on an unobserved team exercise
+
Some questions provided in advance



Shortlisting and interviews

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Assessed competencies

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Shortlisting

Interviews



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Skills and competencies

- Ability/willingness to reflect
 - Show intellectual curiosity
 - Honesty
 - Collaborate respectfully
 - Value difference
 - Show initiative
 - Display professionalism
- All applicants **assessed against the same rubric** - Y, N, U - and **examples of positive and negative indicators provided**.



Shortlisting and interviews

What competencies do we want to assess?

How should we assess those competencies?

Support for applicants

- Information provided on:
 - **assessment format** and **competencies being probed**
 - resources on **presentation skills**
 - interview **questions to prepare in advance**
- Alternative to team exercise for applicants who identify additional needs.

Fairness and transparency

- Assessors given **guidance on unconscious bias/fair recruitment**.
- Female assessor included on panels assessing female applicants.
- ED&I **observer monitors some interviews**.

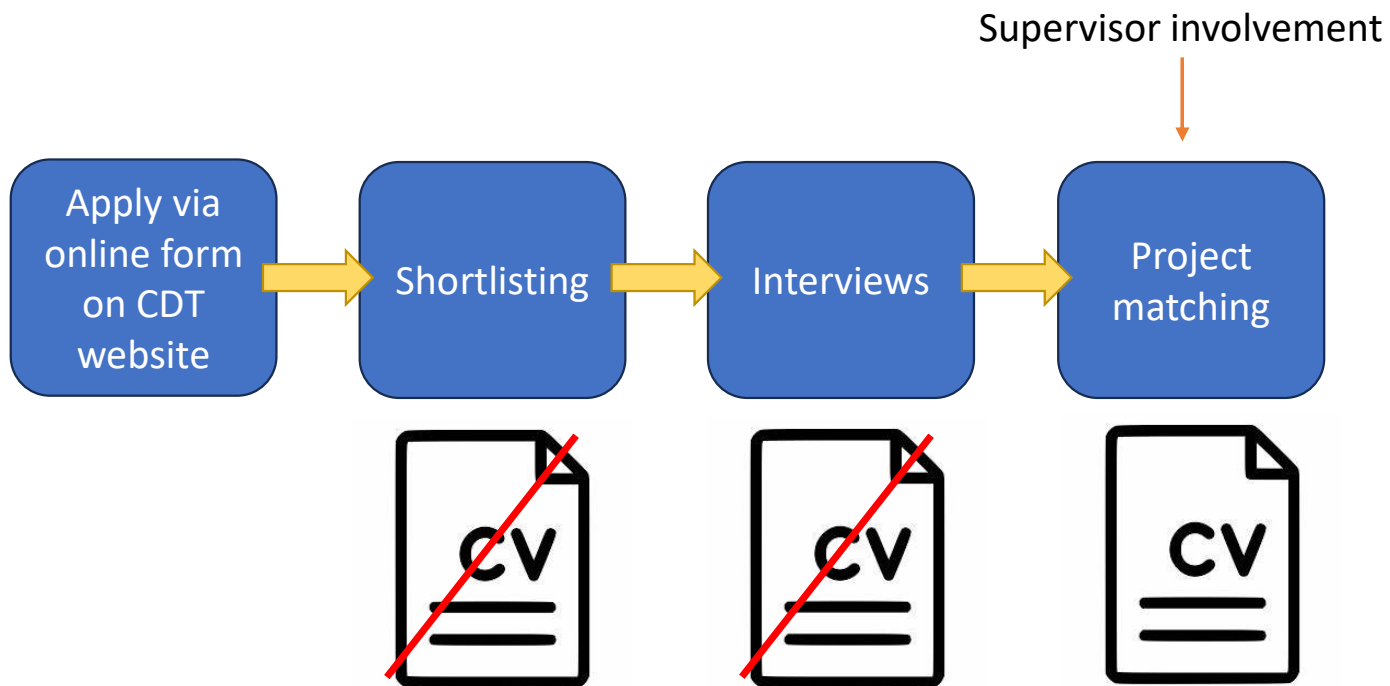
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Shortlisting

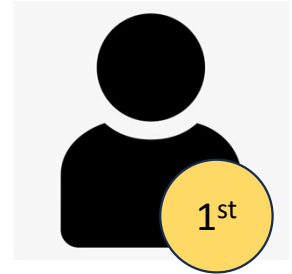
Interviews



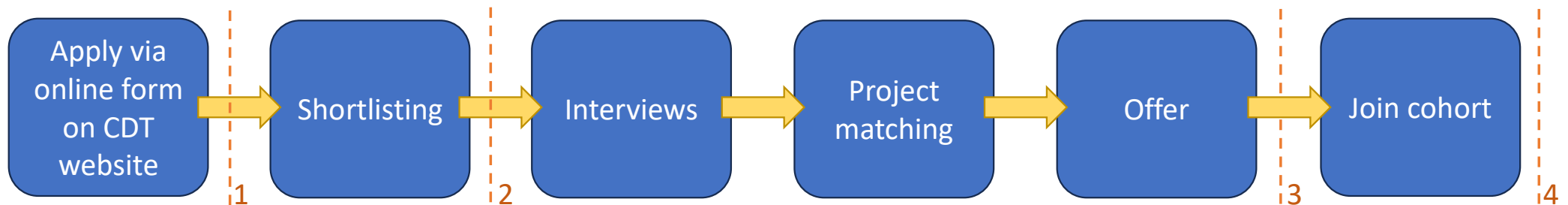
Shortlisting and interviews



Monitoring and reporting



- **Demographic data collected** on: gender identity; gender identity status; ethnic origin; age; disability; sexual orientation; caring responsibilities; socioeconomic status.
- **Data tracked throughout the recruitment 'pipeline'**:
 - application; shortlisted; offered place; joined cohort.
 - **Home and international PGR data treated separately.**
- All shortlisted applicants provided with an opportunity to give **anonymous feedback** on the application process.
- ED&I lead monitors feedback and the demographic data pipeline.



Demographic data monitoring points



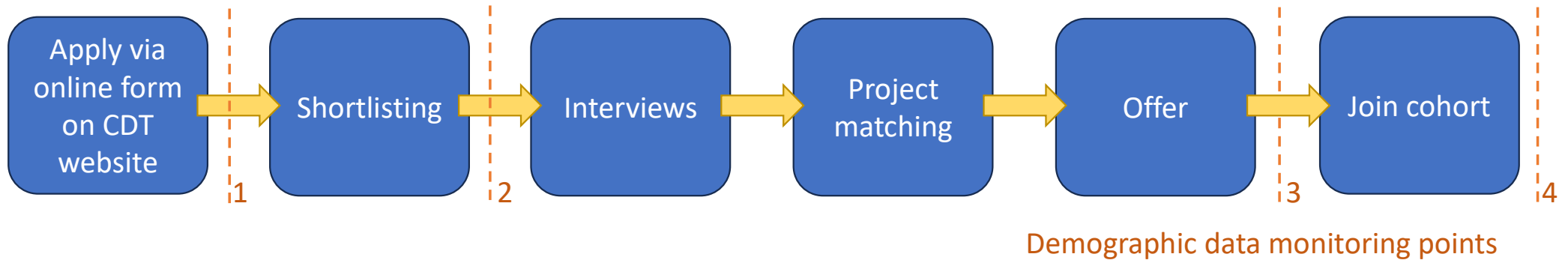
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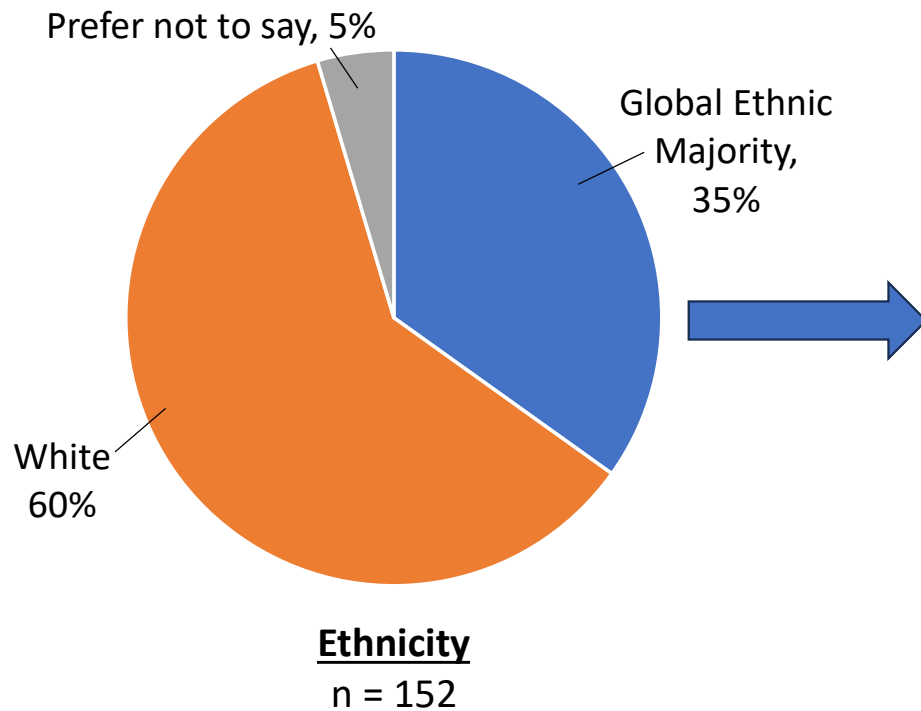


Does the inclusive recruitment process meet its aims?

- Aims:
 - **Attract a diverse range of applicants** (considering all aspects of diversity)
 - **Maintain that diversity** at all stages of the recruitment pipeline
- Look at **demographic data for Home/UK fee status applicants** (n = 152)

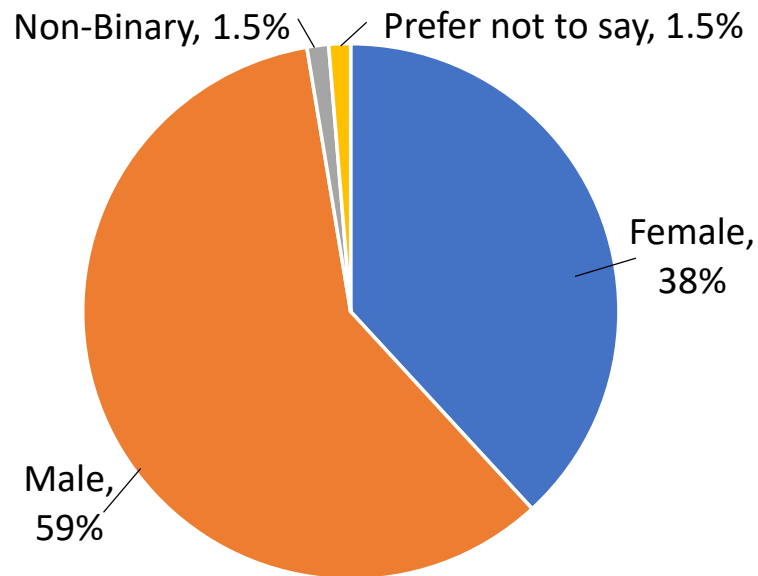


Attracting a diverse range of applicants



Asian <ul style="list-style-type: none"> Asian or Asian-British (Indian) Asian or Asian-British (Pakistani) Asian or Asian-British (Bangladeshi) Any other Asian background 	15%
Black <ul style="list-style-type: none"> Black or Black-British (African) Black or Black-British (Caribbean) Any other Black, African or Caribbean background 	10%
Mixed ethnic background <ul style="list-style-type: none"> Mixed – White and Black African Mixed – White and Black Caribbean Mixed – Asian and White Any other Mixed or Multiple ethnic background 	3.5%
Chinese or British-Chinese	3.5%
Arab	1%
Any other ethnic background	2%

Attracting a diverse range of applicants



Gender identity

n = 152

- **Disability**
 - 11% consider themselves to have a disability
 - 10% prefer not to say
- **Caring responsibilities**
 - 6% indicated caring responsibilities
 - 4% prefer not to say

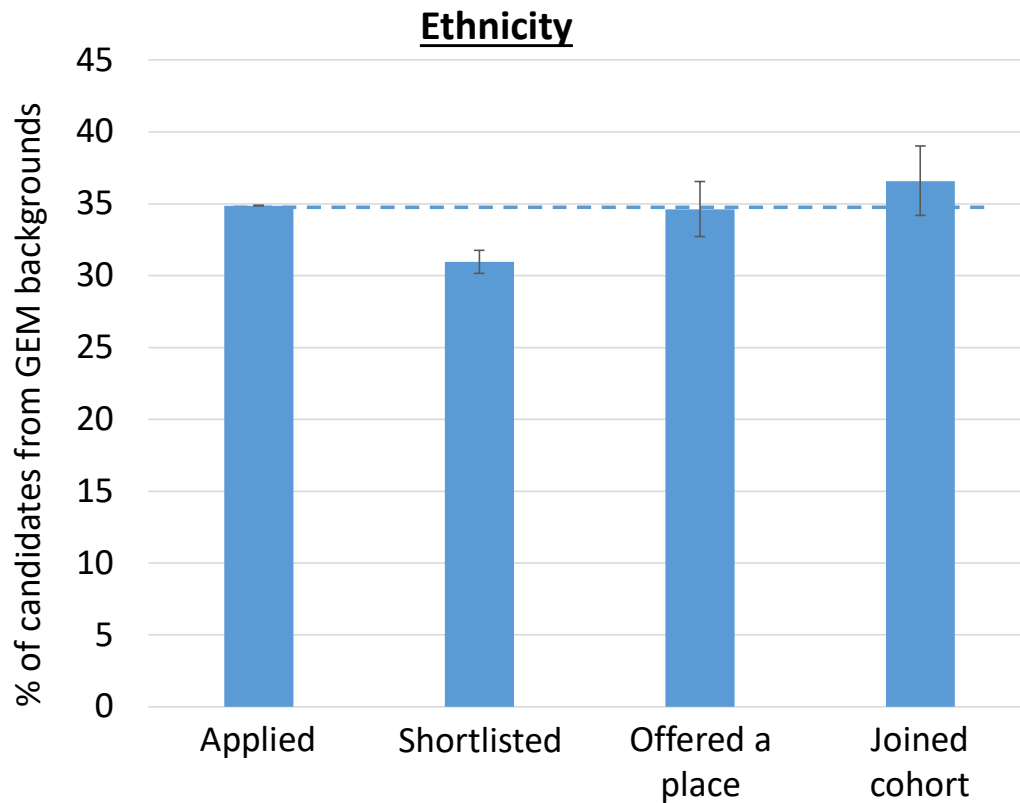
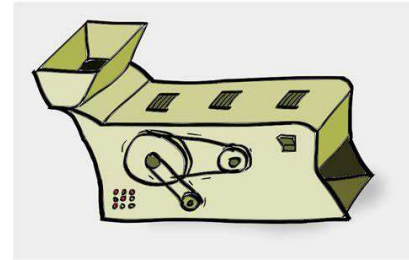


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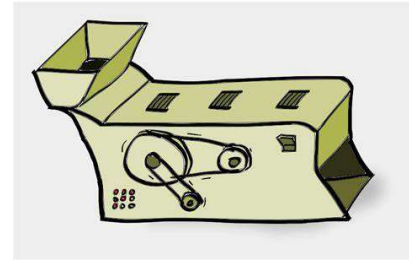
Stability through the recruitment pipeline



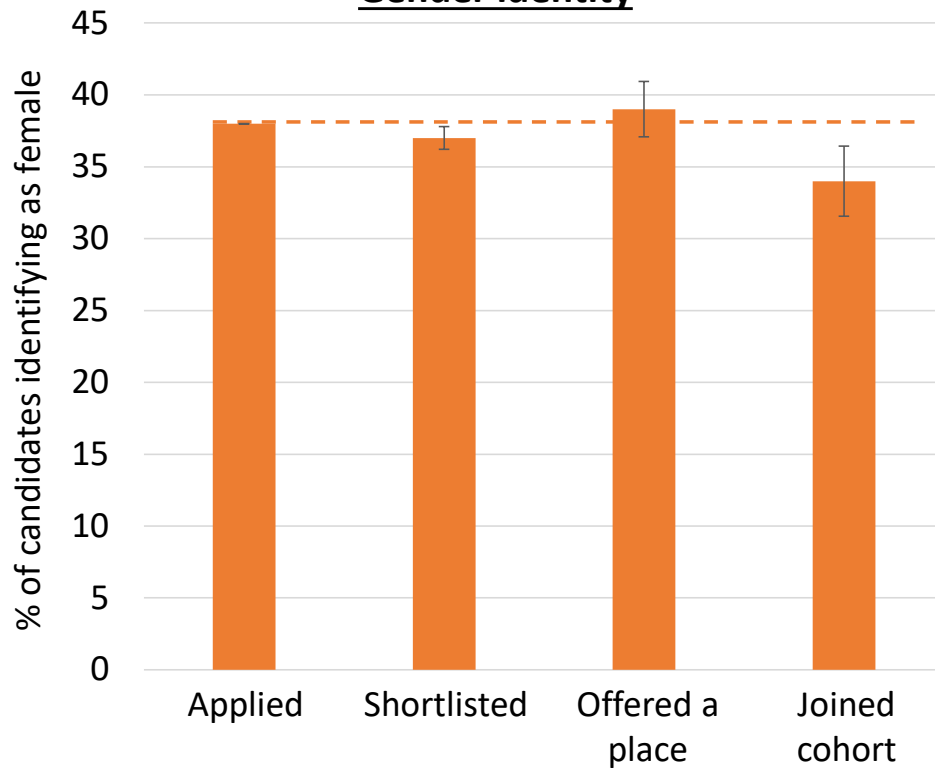
- Error bars indicate the impact of a change in the number of candidates by +/- 1



Stability through the recruitment pipeline



Gender identity



- Error bars indicate the impact of a change in the number of candidates by +/- 1
- Other protected characteristics:
 - Recruitment pipeline stable for disability
 - Recruitment pipeline stable for sexuality

Recruitment of those with caring responsibilities continues to be an issue



Challenges in process implementation

- Overcoming **academic discomfort** in doing things a 'different' way
 - 'How can I properly judge an applicant without seeing a CV?'
- **Very time intensive**
 - ~70 applicants per year need to complete two assessments with two different pairs of academics
 - Ensuring representation on interview panels can overburden academics from under-represented groups
- **Limitations on the size of demographic data sets**
 - Need to look over multiple years to see statistically significant effects
 - Limits number of interventions (CDT lasts 5 years)
- **Generative AI usage is making it harder to identify potential** in a way it once was
 - Increase in 'identikit' narrative statements written with GenAI
 - Candidates appearing to use GenAI to generate answers to the assessment questions provided in advance
 - Explicit request not to use GenAI added to the application form this year



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But the rewards of the process are clear:

- A **richly diverse PGR community**:
 - PGRs show many markers of diversity (e.g., ethnicity, gender, etc.)
 - PGRs are **alumni of 42 different UK institutions** (43% Russell Group)
 - ~25% of PGRs are **returners to education**
 - ~30% of PGRs are **international students**
- Feedback from unsuccessful 2025 candidate:

“I would also like to take a moment to commend the interview process established by the CDT. The structure of the interviews created an environment that allowed candidates to showcase their true potential. I found the team-based assessment particularly intriguing; it not only demonstrated the CDT's commitment to finding candidates who are genuinely passionate about their field but also fostered a sense of engagement and diversity.”

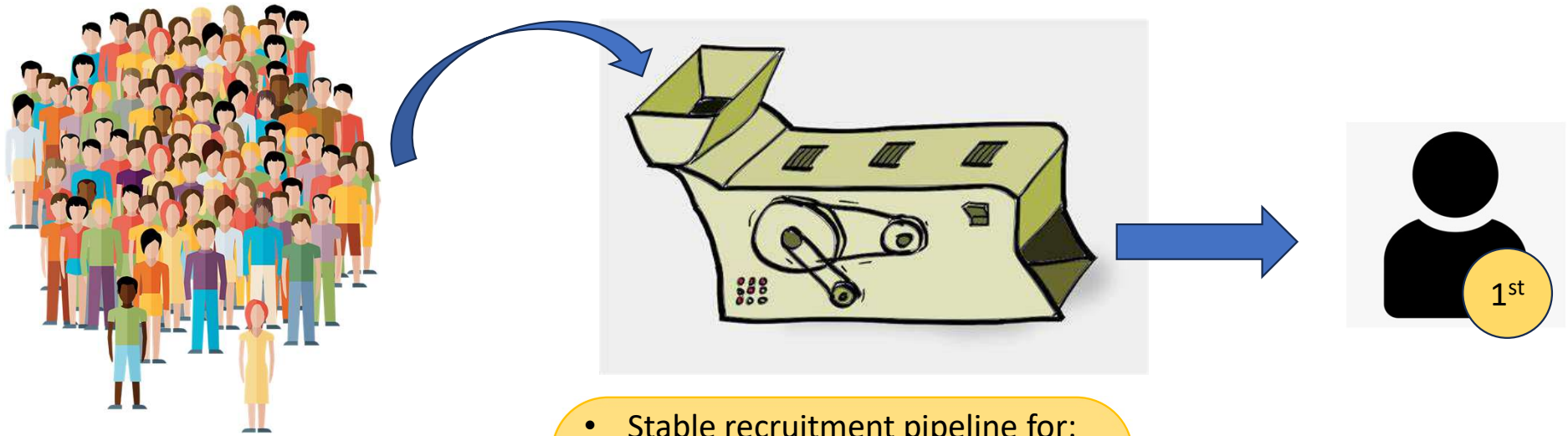


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Summary



- Success in attracting a diverse pool of applicants
- More work to do attracting:
 - Certain ethnic groups
 - Those with caring responsibilities

- Stable recruitment pipeline for:
 - Ethnicity
 - Gender identity
 - Sexuality
 - Disability
- More work to do supporting those with caring responsibilities

- Diverse cohort in more than just protected characteristics
- Positive feedback from applicants



Thank you for your attention!

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