# Bridging the Professional Services/Academic gap

Creating a hybrid Academic/Professional structure for research IT professionals at UCL (and where you are!)

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# About ARC

- ARC is new hybrid academic/professional services department spun out of ISD (central IT) at UCL – a little over 100 staff total and growing.
- Dual reporting at Director level (Professional Services and Academic).
- One PS director and three academic associate directors.
- Responsible for “Research IT” services provided centrally at UCL.
- Research “staff scientists”.
- Researchers (inc. PI on grants).
- Teaching.

# The challenges

- UCL previously had no concept of a department in PS that does research:
  - Do we give or take overheads?
  - How do we bend finance/project process/HR/procurement to our will so that we can be effective researchers?
  - How do we give staff meaningful progression so that we retain staff if they are trapped in the PS “you are hired into a role and never progress” HR process?
  - Can we stop people being turned into managers to go up grades?
- How do we balance service provision with research/teaching work?
  - Still challenging but we’re working on it!
- Will we ever have a part of a building which is ARC?

# The opportunities

- We can design how Research IT professions work!
- Lots more options for satisfying work:
  - Teaching
  - Research
- Direct experience in teaching and research can inform the design of systems.
- Central IT/Finance's new rules mean we can hire enough people to staff the department!

# The core problem

**Junior Research IT Professional:**

- Handles support board
- Does some basic software installs
- Helps install hardware
- Learning on the job
- Primary editor: Notepad++, Nano, VS Code(?)
- Writes code: Python

This job is great, much better than doing a postdoc!

# The core problem

**Research IT Professional:**

- 2nd/3rd Line
- Expert at getting difficult software to work.
- Designs hardware deployments.
- Researches complex problems and invents solutions
- Primary editor: Vim or Emacs
- Writes code: Fortran/C++/Cuda…

Oh god please don't promote me – I want to keep doing technical work

# The core problem

**Senior Research IT Professional:**

- Attends governance meetings
- “Negotiates” with vendors and other “senior stakeholders”
- Line management
- Has vast wealth of experience that is rusting through lack of use
- Primary editor: **Microsoft Word**
- ~~Writes code~~: **Microsoft Excel**

My life is pain, and I don’t know how I got here.

# The core problem

- The vast, overwhelming majority of people who want to do “Research IT” want to do (and are good at) technical work and don’t want to become “mediocre managers” to progress. *(I may be projecting here a bit)*

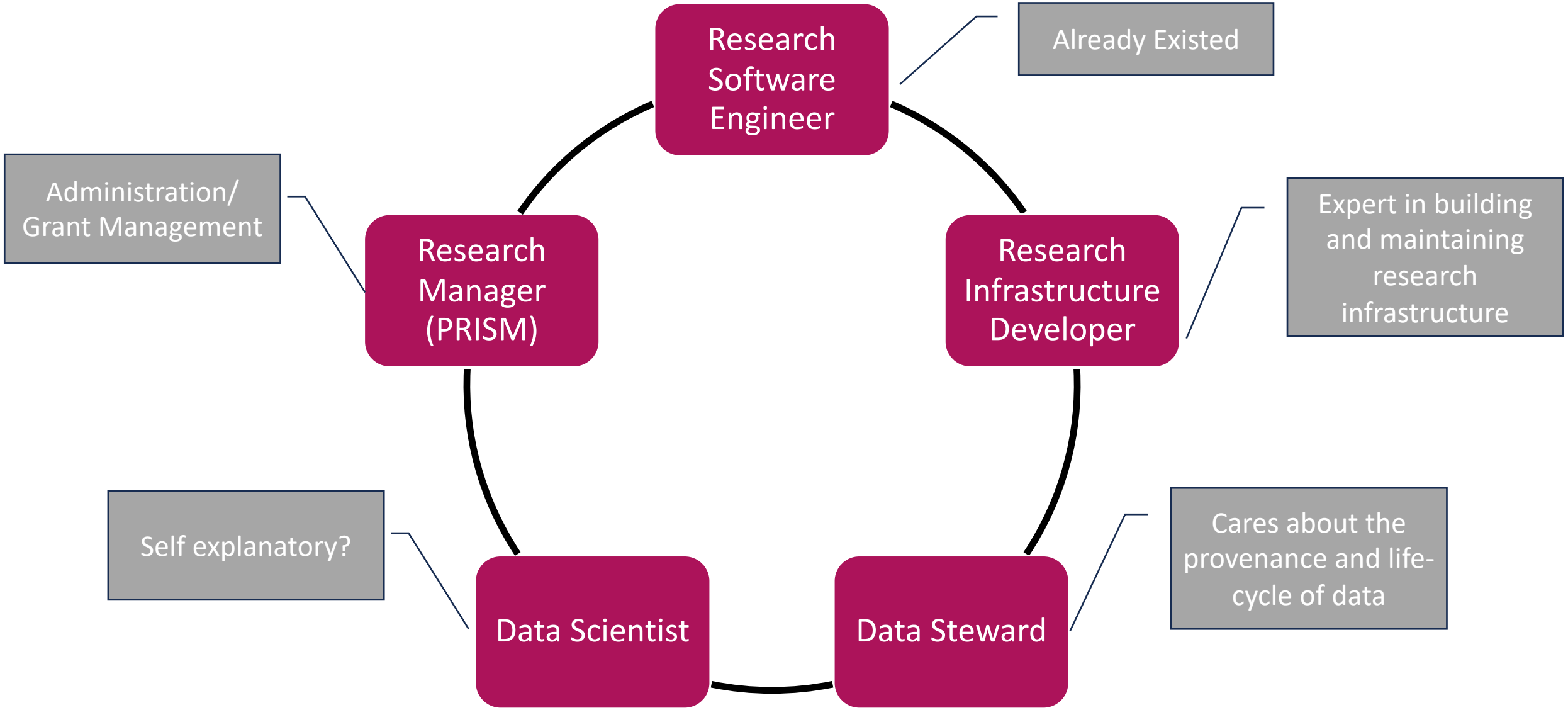
**BUT**

- Professional services structures **ONLY** reward becoming a manager.

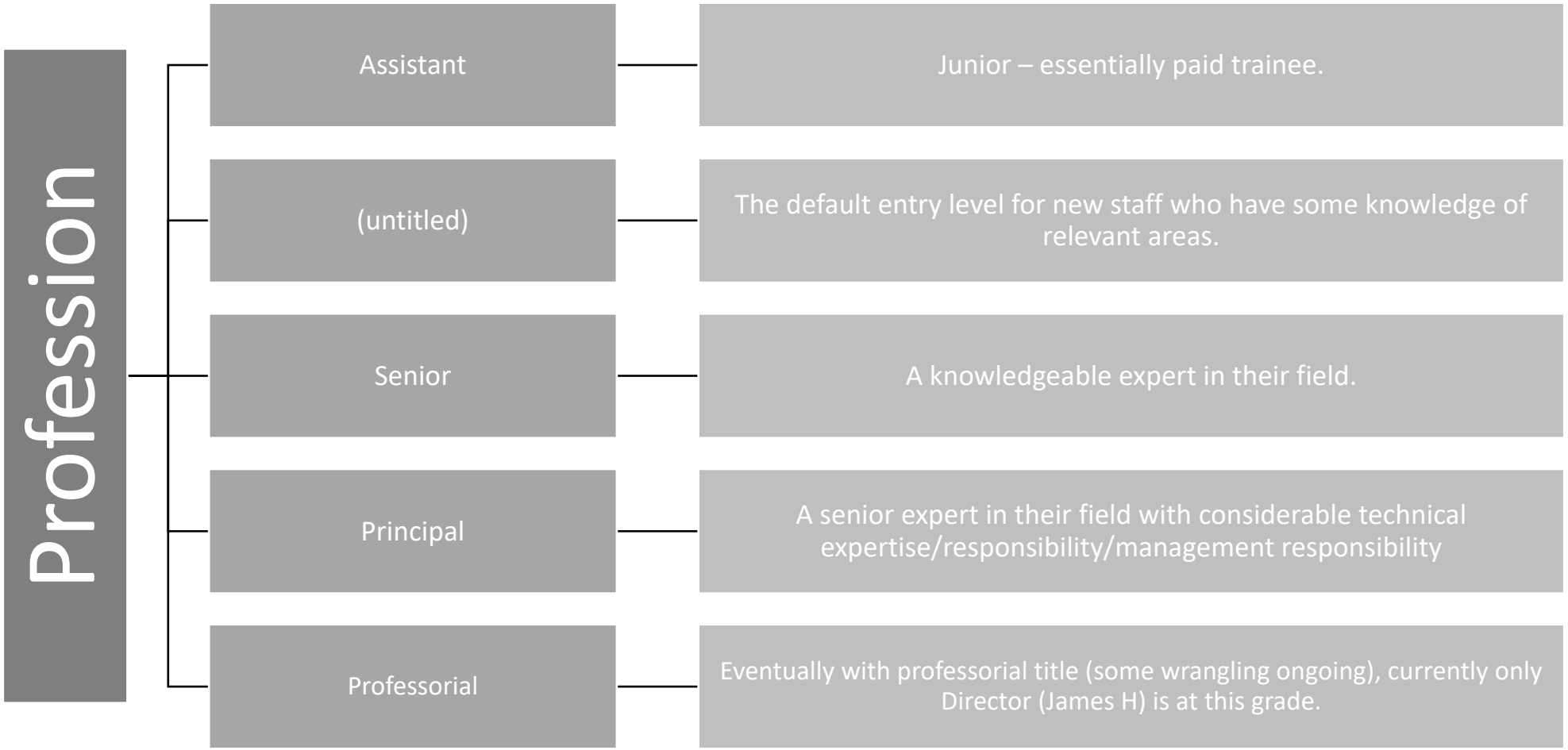
# Goal

*We need to design a professional structure that gives staff seniority due to technical expertise/leadership.*

# The Professions



# Grade Structure (6 → 10)




"I'm a Principal Research Infrastructure Developer. I am Head of Research Computing and Head of Profession for the Research Infrastructure Developers."

# Duties by grade

(note for space reasons these are very summarised as each area is worth a slide in itself!)

- Senior:
  - Technical leadership – design, or service ownership, or delivering technical projects.
  - Teaching/training leadership
  - Line management/MSc supervisor/PhD second supervisor.
- Principal:
  - Strategic leadership – responsible for long term planning for a department, or for a major initiative/external funded project/University Strategy/PI etc.
  - Head of profession.
  - Technical expertise and leadership – e.g. owning a key technical architectural area.
  - “Product” Ownership
- Professorial:
  - National or international leadership.
  - Several or more of the Principal roles.
  - Senior leadership at UCL.

# Promotion

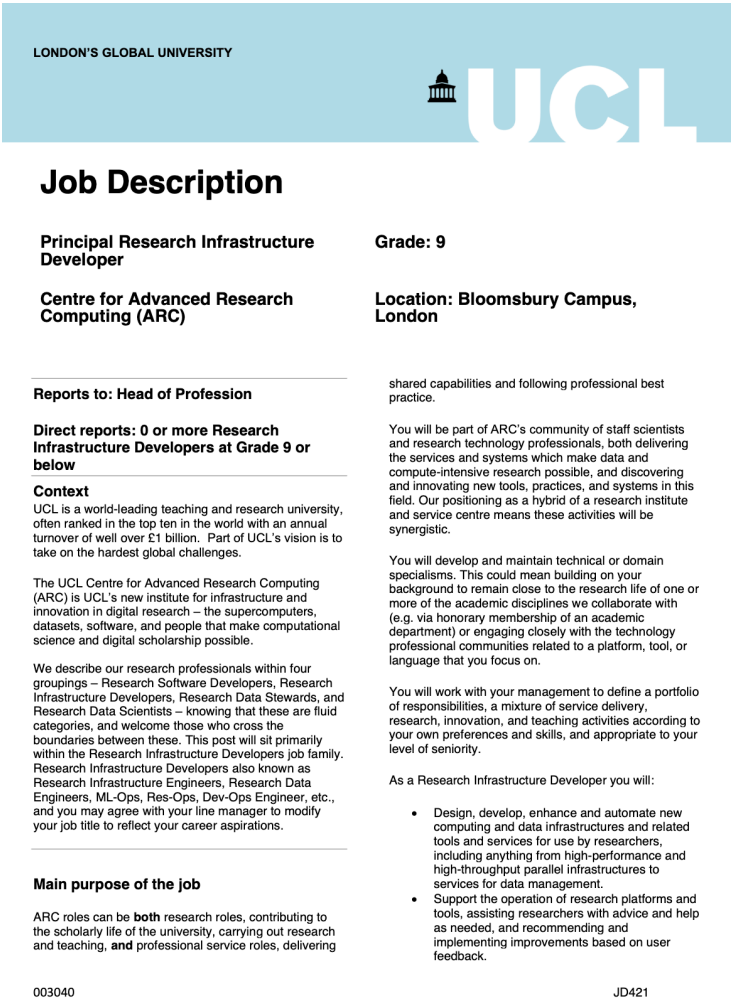
- ~~Academics get promoted! PS staff don't!~~
- Not anymore!
  - Yearly promotions round in the summer:
    - Standardised case format with internal/external references.
    - With or without support of line manager.
    - Much lighter weight than a job application.
    - Promoted "in post" i.e. your post goes up a grade with you in it!
    - Can fall back to a spinal point increase.

- Not just ARC! Central IT are doing this too!
- In 2022 we did our first promotion round and promoted 8 people.
- In 2023 we promoted 7 people.

# Rolling recruitment

- Rather than having specific posts people are recruited into, we have rolling advertisements for all professions and grades and ”good people are appointed at the appropriate grade and developed”.
  - Don’t miss people because jobs are over/under-graded.
  - Don’t miss people because they apply to the wrong profession.
  - Direct application through LinkedIn is possible (no more ROME).

Actually a bit of a fudge underneath to keep HR + finance + the law happy.



LONDON'S GLOBAL UNIVERSITY

UCL

## Job Description

**Principal Research Infrastructure Developer**

**Grade: 9**

**Centre for Advanced Research Computing (ARC)**

**Location: Bloomsbury Campus, London**

**Reports to: Head of Profession**

**Direct reports: 0 or more Research Infrastructure Developers at Grade 9 or below**

**Context**

UCL is a world-leading teaching and research university, often ranked in the top ten in the world with an annual turnover of well over £1 billion. Part of UCL's vision is to take on the hardest global challenges.

The UCL Centre for Advanced Research Computing (ARC) is UCL's new institute for infrastructure and innovation in digital research – the supercomputers, datasets, software, and people that make computational science and digital scholarship possible.

We describe our research professionals within four groupings – Research Software Developers, Research Infrastructure Developers, Research Data Stewards, and Research Data Scientists – knowing that these are fluid categories, and welcome those who cross the boundaries between these. This post will sit primarily within the Research Infrastructure Developers job family. Research Infrastructure Developers also known as Research Infrastructure Engineers, Research Data Engineers, ML-Ops, Res-Ops, Dev-Ops Engineer, etc., and you may agree with your line manager to modify your job title to reflect your career aspirations.

**Main purpose of the job**

ARC roles can be **both** research roles, contributing to the scholarly life of the university, carrying out research and teaching, **and** professional service roles, delivering shared capabilities and following professional best practice.

You will be part of ARC's community of staff scientists and research technology professionals, both delivering the services and systems which make data and compute-intensive research possible, and discovering and innovating new tools, practices, and systems in this field. Our positioning as a hybrid of a research institute and service centre means these activities will be synergistic.

You will develop and maintain technical or domain specialisms. This could mean building on your background to remain close to the research life of one or more of the academic disciplines we collaborate with (e.g. via honorary membership of an academic department) or engaging closely with the technology professional communities related to a platform, tool, or language that you focus on.

You will work with your management to define a portfolio of responsibilities, a mixture of service delivery, research, innovation, and teaching activities according to your own preferences and skills, and appropriate to your level of seniority.

As a Research Infrastructure Developer you will:

- Design, develop, enhance and automate new computing and data infrastructures and related tools and services for use by researchers, including anything from high-performance and high-throughput parallel infrastructures to services for data management.
- Support the operation of research platforms and tools, assisting researchers with advice and help as needed, and recommending and implementing improvements based on user feedback.

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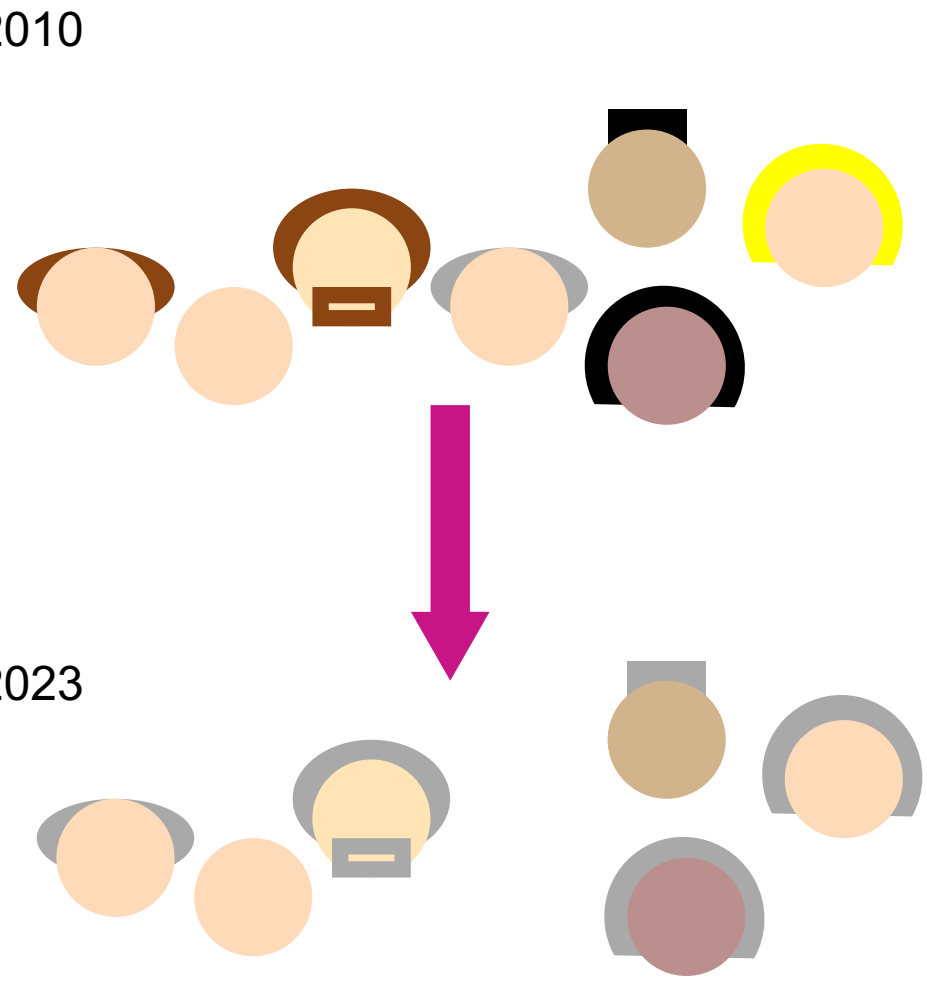
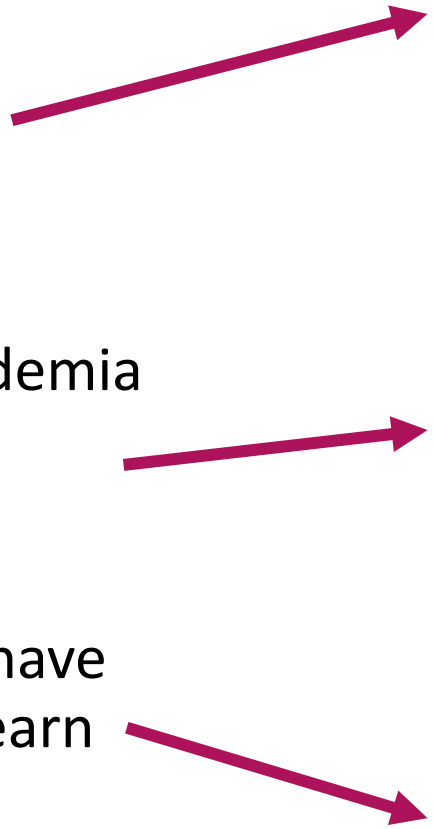
# Creating future employees

- HPC community is small and is not growing.
  - Same people flit about between universities and vendors.
  - Cloud companies make things worse.
  - All getting older and greyer as we approach retirement.
  - No new blood.



# Creating future employees

- Multi-track approach:
  - Get involved in undergrad teaching -> build skills academically
  - Run apprenticeships -> academia is not the only route into becoming a “research IT professional”
  - Recruit skilled people who have the right attitude and can learn



Teaching course in “Data Engineering” with CS

Two apprentices started in September 😀😀

Grade 6 “entry” level posts with learning on the job

# Lessons learned

- Changing the behaviour of the wider organisation is hard:
  - “Unorganised passive resistance” – other PS depts agree to things in principal but do not actually change behaviour:
    - Some things are working well after hard battles (HR/Recruitment, Finance, Procurement) – others are not (Estates).
    - Requires endless persistence to follow up and make sure changes are made.
  - Achieving change requires more admin support than you can possibly imagine:
    - Several full-time staff handle the organisational interface layer between ARC and the rest of UCL and they are over-worked.

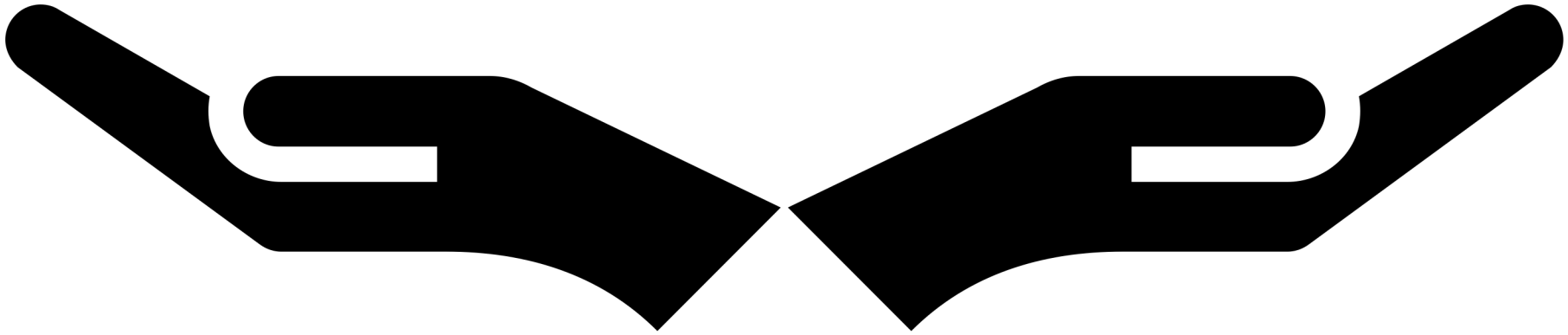
# Lessons learned

- Staff abused by multiple previous re-orgs view all change with suspicion:
  - Initially there was a gap between new and existing staff in willingness to seize opportunities from the change – this is improving.
  - Related to this: existing staff who were hired to be professional IT staff may not actually want to be researchers!
    - Need to make sure promotions + grading scheme understands + rewards excellence in this area too!

# Lessons learned

- Recruiting at scale is hard:
  - At least three admin staff helping from HR + ARC.
  - All “Product Owners” involved in shortlisting.
  - Interview panel requirements.

- “General” JDs are very wide and can turn off candidates.

# Offer of support

- We think this is a great model for how to run the “career management” part of running a research IT department.
- We haven’t got all the rough edges sanded off yet (e.g. hiring fudges).
- We want to spread this practice to other institutions and are happy to come and discuss what we did with your senior managers/finance/HR/whoever to help make the case.