

Imperial College London



Research
England



Understanding ECR Career Perceptions

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POSTDOC AND FELLOWS DEVELOPMENT CENTRE

Tailored support and development for postdocs, fellows and clinicians

HARRISON NETWORK

Understanding ECR Career Perceptions

A report for the Postdoc & Fellows Development Centre, Imperial College
Elizabeth Adams, Harrison Network

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EXECUTIVE SUMMARY

This project set out to consider the factors influencing the career perceptions of Imperial ECRs, and what practical steps might be taken to encourage a balanced view of the range of opportunities that are out there. Surveys, interviews and focus groups with a range of stakeholders identified that confidence in job-seeking strategies is low. The barriers perceived by ECRs, when considering non-academic roles, include a lack of knowledge of what roles exist (or would suit them) as well as a lack of networks.

The majority of recommendations focus on support for self-reflection and network building. However, the wider structures surrounding postdocs also need to make it easy for support to be accessed by time-pressured and stressed individuals, with appropriate 'nudges' from departments and PIs. The work of the PFDC was highly praised by many individuals across the College and therefore the recommendations in this report are focussed on building on these already excellent foundations and ensuring that good practice, policies and resources are well communicated, implemented and monitored.

BACKGROUND

Leaving academia is [sometimes perceived as a failure](#). This project aimed to understand whether this is true at Imperial and what should be done to achieve a balanced view of the value of all the career options open to researchers. In response to the Government's [R&D People and Culture Strategy](#), [Research England awarded Imperial £950K](#) to support efforts in enhancing research culture. As part of this, the [PFDC](#) contracted Elizabeth Adams (Harrison Network) to undertake a project with the aim of understanding the factors influencing Imperial ECR career aspirations, focusing on:

- Why leaving academia is perceived (by some) as a "failure".
- The language used when someone is moving away from an academic career path.
- How the perception of failure affects individuals' mental health due to the expectations/pressures that are placed upon them by others/themselves.
- Whether Imperial perpetuates the view of "failure" when researchers leave academia.
- How to manage expectations so that it is not assumed that an Early-Career Researcher (ECR)'s career path is pre-determined to remain in academia.
- How the Personal Review and Development Plan (PRDP) process could be adapted to encourage more positive conversations/attitudes towards alternative career paths.
- The perception on current interventions, both at the College and in the wider HE context.
- Relevant and appropriate interventions to issues that are raised.

PROJECT METHODOLOGY

This project involved:

- A literature review of sector-wide initiatives to ascertain trends and possible recommendations.
- 10 one-to-one interviews with staff identified by the PFDC, including: 2 PFDC Champions (academics with a remit to champion postdocs and fellows within their department), 3 current ECRs and 2 former ECRs now working in Industry, a Graduate School representative, a Head of Department and a Vice-Dean for Research.
- 3 focus groups: 1 x PGRs (4 participants); 2 x current ECRs (3 and 7 participants)
- Participation in a Concordat Implementation and Planning Group Meeting (to hone survey questions) and a Postdoc and Fellow Champions meeting (to review recommendations)
- Two surveys: one of current Imperial ECRs (87 responses) and one of former Imperial ECRs (37 responses).

This mixed methods approach aimed to gather a range of perspectives, as well as review current practice to support ECR career exploration. Findings were shared at a short workshop with representatives from across the College, to generate and test out:

- Evidence-based recommendations of how the identified gaps could be addressed
- Suggestions for how these initiatives could be developed and incorporated into the current PFDC provision or lead to new College-led, or faculty/department-led initiatives.
- Alignment of the proposals with the [Imperial Values](#).

REVIEW OF CURRENT PRACTICE (LITERATURE & OTHER INSTITUTIONS)

This section of the report provides a brief overview of current careers literature and ECR careers support in other Higher Education Institutions, to help us understand:

1. Whether the situation, culture and influences at Imperial are similar to those experienced by other organisations when it comes to postdoc career decision making.
2. Where additional information, support or other interventions might be useful for Imperial postdocs who are exploring, identifying and evaluating future career opportunities.

3.1 Influences on postdoc career decision making

Limited research has been carried out on the career aspirations or the career destinations of UK postdocs in the UK. Therefore, it is likely that postdocs are making choices and assumptions based on patchy or flawed data, with little exposure to non-academic careers information and potentially falling into what has been termed a 'holding pattern' ([Sauermann 2016](#)).

A diagram of destinations of Doctoral Researchers ([Royal Society, 2010](#)) is frequently cited to demonstrate the lack of likelihood of progressing to academic careers, with arrows indicating that fewer than 0.5% of PhD students will become Professors. However, this diagram was based on data which was notoriously scarce for PhDs. Postdocs may also question its validity >12 years on, within the context of their own Institution (i.e. is it more likely that Imperial postdocs will progress to academic careers?) and their own situation. Even if hard data is presented at the outset of a postdoc, there will be those who aren't yet ready to believe it applies to them or to take proactive steps towards making a personal transition ([Hancock 2019](#)). Who shares this information is also important; it can be demoralising if it is shared by a PI (even if well-intentioned), as it might be assumed that they are hinting you aren't suited to academia. A neutral individual may be preferred.

Although obtaining robust data on post-PhD employment seems attractive, there are many challenges with gathering this data and with its utility if career destinations are shifting rapidly – many roles which we see postdocs commonly move into didn't exist 10-15 years ago (e.g. Ux; data science or AI, medical liaison, researcher development...).

Current postdocs have made the majority of their career decisions during times of uncertainty, either financial, or during the pandemic. The recent spotlight on negative aspects of research culture (e.g. bullying, hyper-competition and poor work-life balance), as well as strike action, might make academia feel less attractive as a proposition. Change in other sectors, such as increased flexible working (previously a unique attraction of research roles), may also prove influential.

Factors involved in postdoc decision making often include:

- Frustration with short term contracts, financial insecurity and the inability to plan ahead
- Unwillingness to relocate for a new contract or job (perhaps with a partner or young family)
- 'Competing clocks': tenure and biological ([De Welde, 2011](#))
- Visa requirements (which might impede taking a lower-paid 'transition' role)
- A passion for research and concern that few areas outside academia are doing that type of research
- Negative views of non-academic jobs, as being less ethical or with less autonomy, freedom or flexibility
- Lack of confidence in transferable skills
- Lack of knowledge of what jobs might be relevant or where to start looking
- Feelings that moving out of academia might be a 'failure' or a 'waste' (either in their own eyes or those of others, including colleagues or family).

Alongside this [range of influences on decision making](#), the number of years since their PhD and where they undertook their PhD (or previous postdoc) are also likely to have a strong impact on career knowledge and perceptions. In the UK, there has been a shift in Doctoral Training to focus on preparing research students for a broad range of destinations, seen notably in UKRI funded Doctoral Training Partnerships. To explore potential changes in perceptions we have included some Doctoral training perspectives in the focus groups and interviews and in our postdoc survey, we asked about length of postdoc and whether aspirations had shifted between the PhD and Postdoc.

After deciding to leave academia, it took me a long time to shake off the singular image that I'd internalised about what a successful research career looks like. The shift in identity and purpose was, at times, painful and isolating. [Carey, 2022](#)

This project asked whether leaving academia is perceived as a failure. It is important to be clear on the distinction between internally perceived 'failure' (i.e. an individual's failure to meet their own standards and expectations) or whether the expectations, reactions and language of others make people feel like a failure. [Van der Weijden, 2016](#) describe postdocs as: 'trapped between their own ambitions and a lack of academic career opportunities'.

3.2 Supporting the transition

Moving from a postdoc position to a new career is a significant transition, with many experiencing a sense of internal conflict or self-doubt, as well as concerns over loss of identity. Helmholtz Career Development Centre held a recent postdoc event on this theme: [Transition possible](#), which focused on broad career

exploration, with speakers from a range of industries and roles. Workshops included: ‘academia: should I stay or should I go?’ and ‘failure as a stepping stone’.

At the University of Liverpool, they are also directly addressing the transition and self-doubt period, offering opportunity to participate in a structured year-long programme ([Prosper](#)), supported by peer and individual coaching as well as workshops and online materials. Coaches guide participants through structured reflection on their career journey, making use of tools such as [Bridges’ Transition model](#) or explicit discussion of [identity](#) and the individual and structural factors influencing career thinking. Suggestions of small actions, such as creating a LinkedIn profile or conducting an informational interview, can act as catalysts for greater confidence and action, moving ECRs away from inaction, without them being feeling they are committing to a ‘high-stakes’ decision. A similar approach blending peer and individual coaching is adopted by the University of Leeds for postdocs with 6-18 months left on their contract, who want to explore their options ([Career Architect](#)) and also in [elite sports](#), which may have many parallels with academia, when it comes to the competitive environment, the strong sense of identity bound up in your career and the need to consider alternative career options.

What can we learn from careers support for Doctoral Researchers?

The UK Doctoral landscape has shifted greatly in the past 10 years, particularly with the advent of Doctoral Training Centres, which are geared towards equipping PGRs for industry. PhD students are likely to be aware of the scarcity of academic careers and considering careers beyond academia as one option. However, many Imperial postdocs will not have had this support in their PhDs and this thinking may be new to them. It can be argued that the situation for postdocs has not moved on in the way that it has for PGRs. The Royal Society ran a series of [roundtable events](#) (2014) for STEMM PhDs. Many of their findings could be relevant to postdocs now:

- Engineering students had more exposure to / awareness of industry
- Students would like partnerships between faculties and careers services for tailored events. They recognised that employers may wish to engage at scale, with researchers from across several institutions at once, requiring cross-institutional collaboration (c.f. [SULSA post-academic careers event](#) run for ECRs across Scotland)
- Students wanted better access to careers information and signposting as well as structural or systematic reminders and guidance to access these.

There has been debate over the terminology to use for ‘non-academic’ careers, to avoid them being immediately understood as negative or inferior. Suggestions include post-academic or alt-academic. The issue is compounded because these are not simply opposites and there are many overlaps, particularly in Government labs or facilities focussed on translational research. Many postdocs also move to ‘[hidden HE careers](#)’: managing research projects, or working in research policy, grants support or researcher development. In such roles, they work very closely with academics and share many cultural norms and ways of working, such as flexibility, conferences and publishing. For the purposes of this study, we defined these as careers outside of research and academic roles in academia.

Different sizes and types of ‘industry’ may also have very different working practices, for example, in [2016, researchers in Austrian biotech start-ups](#) described positive characteristics of their cultures, which they designed to address perceived deficiencies in academia. Equipping researchers to reflect on their values and to seek these out in other organisations, perhaps through undertaking informational interviews or industry mentoring may help to dispel myths that academia is the only place where researchers can find meaningful and stimulating work.

3.3 Recognising and ‘claiming’ skills or experience and matching those to potential jobs

Postdocs often experience difficulties in recognising and articulating their transferable skills. They may also find it difficult to ‘claim’ experiences as their own, perhaps where activities were undertaken as part of a collaboration or informally, where they were not the designated ‘lead’, as frequently occurs in grant writing, peer review and supervision. Imperial is recognised as a sector leader in providing recognition and support for [postdocs who Supervise](#). A similar focus on recognition of the range of contributions to research projects may also benefit ECRs in recognising, articulating and claiming their skills and experience. This might include use of the [CReDIT](#) taxonomy or author contribution statements.

Another key challenge for postdocs is finding opportunities which match their skills and experience. This can be supported by online resources, destinations data, events, one-to-one advice and networking. It might be useful to ‘translate’ terminology to make adverts easier to find, as in a University of Cambridge postdoc blog which explores [‘which job title is right for me?’](#). Input on salary expectations and negotiations are also useful.

3.4 PIs and the wider postdoc ecosystem

Their primary point of contact for a postdoc is their PI, who might provide advice or support with funding or Fellowship applications, or access to their networks. Most Institutions have a formal performance and development review, where career conversations are intended to take place. At Imperial, this is known as the PRDP and [postdoc-specific forms and guidance are available](#) to support conversations on development towards career goals. One of the aims of the current project was to elicit whether PRDP supports full exploration of the range of career opportunities open to postdocs, and where it might be strengthened.

However, PIs are time pressured and may feel an inherent conflict between trying to get a project delivered on time and supporting a postdoc who is thinking about leaving. Even if they are keen to support broad exploration, their own experience or knowledge outside of academia is likely to be limited and they cannot be expected to act as careers advisers ([Nowell, 2020](#)).

However, there are clearly some key areas which PIs can address, via PRDP, signposting to resources (such as the PFDC), to help postdocs navigate their new environment, sharing destinations of previous lab members and (importantly) encouraging researchers to prioritise career exploration.

Institutions may wish to reflect on whether PIs are celebrated (and even hired) for how they mentor and support researchers towards a broad range of careers.

‘a PI’s success was often measured largely by the number of trainees that went on to become lead researchers themselves. Now, however, PIs are starting to gain recognition for supporting trainees who go on to other sectors.

“Our perception of success is becoming broader”. [How the career path to principal investigator is narrowing](#) ([nature.com](#))

Many institutions, including Imperial, actively encourage networks between postdocs and industry contacts or former postdocs, whether through careers talks, mentoring or other longer-term approaches. Examples include: the [Wellcome Broadening Horizons](#) cross-sector mentoring, the University of Sheffield VISTA programme and the UKRI Future Leaders Fellowship mentoring which matches Research Fellows with mentors from a range of sectors. These networks (particularly small group discussions might support exploration of organisational culture, for postdocs to gain a better understanding of how the ways of working align to their values). However, issue with ‘alumni’ advice is that it is often curated with the benefit

of hindsight and doesn't always reflect the messiness and conflicting emotions, self-doubt being experienced by current postdocs.

CURRENT PFDC CAREERS SUPPORT

The PFDC provides [comprehensive web-based advice](#) on job-seeking, common career destinations of Imperial postdocs, careers beyond academia and related topics such as how to network. It also offers regular careers-focussed workshops or pop-ups, alumni events and one-to-one appointments (which can range in focus from general job-seeking advice to mock interviews for a specific role or a Fellowship). In addition, the Departmental PFDC Champions/Postdoc Representatives may also run local alumni events or provide a signposting role, perhaps to former postdocs who have moved into industry or to academic staff with industry experience or links. As can be seen from Tables 1 and 2, the majority of one to ones are focused on academic (Fellowship or Lectureship) applications. The careers focused support is complemented by enterprise-support, via workshops and programs such as [Business Plan Basics](#), (Wilbe [Becoming a Science Founder](#), [Techcelerate](#) and [MedTech SuperConnector](#).

General area of advice	Total	%
Fellowship Application	106	31%
UKRI Future Leaders Fellowship	73	21%
Lectureship Application	36	10%
Careers advice	28	8%
CVs/cover letters	28	8%
CV clinics	59	17%
Job Application	13	4%
Other	16	5%

Table 1: 2020/21 1:1 advice interviews

Type of roles applied for	Total	%
Postdoc/Fellowship	34	49%
Lectureship/Professor	24	35%
Scientist/Research	9	13%
Non-academic	2	3%

Table 2: 2020/21 PFDC mock interviews

KEY FINDINGS (SURVEYS, INTERVIEWS & FOCUS GROUPS)

This section brings together some of the key findings from the two surveys (current and former ECRs, 87 and 37 responses respectively) with qualitative data from the interviews and focus groups, to highlight areas where ECRs face challenges in their career development. Survey results by Faculty are available from the PFDC on request and some additional detail has been provided in Appendix I.

- **There were no major demographic differences in the survey data.** No marked gender differences were found (Current ECRs: 51% men; 43% women; 6% blank/prefer not to say. Former ECRs: 40% men; 57% women; 3% non-binary). A larger dataset would be required to fully understand whether differences are masked, due to discipline, number of years of postdoc, gender, disability or other factors. In terms of 'postdoc age' the only difference was found in geographical location becoming slightly more important in career decisions as time went on.

Only three of the current ECRs disclosed a disability. All three were currently exploring non-academic research roles (amongst other roles) and the words they chose to describe academic careers were entirely negative (*Unsustainable, intense, elite, toxic, wasteful & closed, ruthless, nepotism, money-driven*). Whilst outside of the scope of this project, this may be something which the College wishes to focus on more explicitly within a future project.

- **Career aspirations of the respondents changed between their PhD and current postdoc:** 36% of current postdocs had been exploring research careers outside of academia during their PhD (93% were exploring academic careers). During their postdoc, this balance had shifted to 49% exploring research roles outside of academia and 80% exploring academic roles. Responses to this question were similar between Faculties and regardless of how long the respondent had been a postdoc or whether they had caring responsibilities. From the former postdoc survey, interests during the PhD were similar to current postdocs - 86% exploring academic roles and 44% non-academic. This shifted during their postdocs to 44% (academic) and 76% (non-academic research).

The PGR group was open to a range of opportunities, seeing a 'fork in the road' ahead. At least one made the decision to undertake a PhD specifically to access specific industry jobs. The Graduate School suggested it is increasingly common to see PGRs with ambitions to move into exclusive and internationally renowned global companies.

- **ECRs have overall low-confidence with job-seeking strategies for both academic and non-academic jobs** They may not be making full use of the range of support options, relying primarily on peers and networks of former postdocs.

28% of current ECRs reported feeling either confident or very confident about job-seeking strategies in academia, and 19% for non-academic roles.

This lack of confidence in job-seeking strategies was particularly acute in the Natural Sciences (Figure 2).

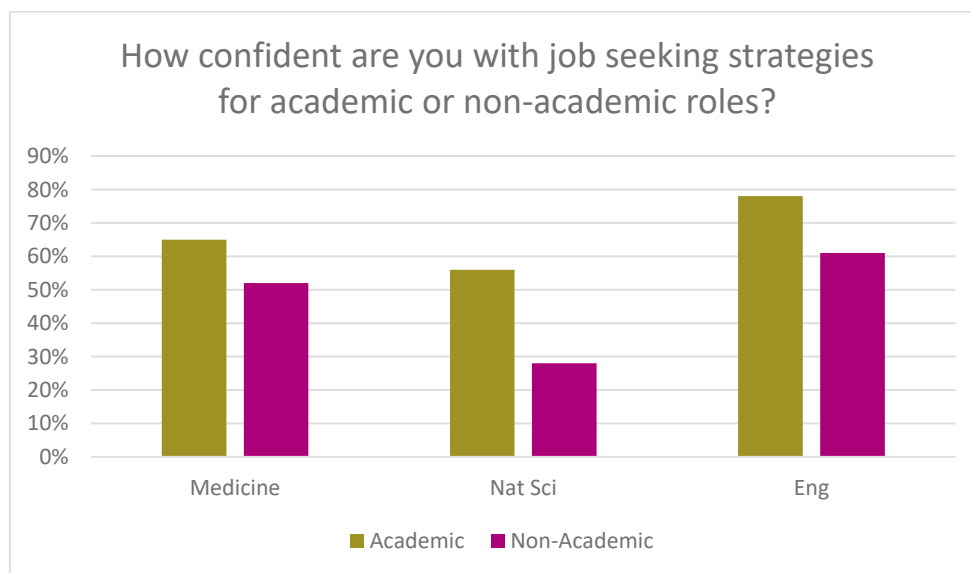


Figure 1 Confidence with job-seeking strategies by Faculty, including where respondents rated their confidence as either a 3, 4 or 5 out of 5

82% of current postdocs had participated in careers workshops over the past year and 32% had taken advantage of a one to one with the PFDC. 59% of former postdocs had received one to one advice from the PFDC (Figure 2).

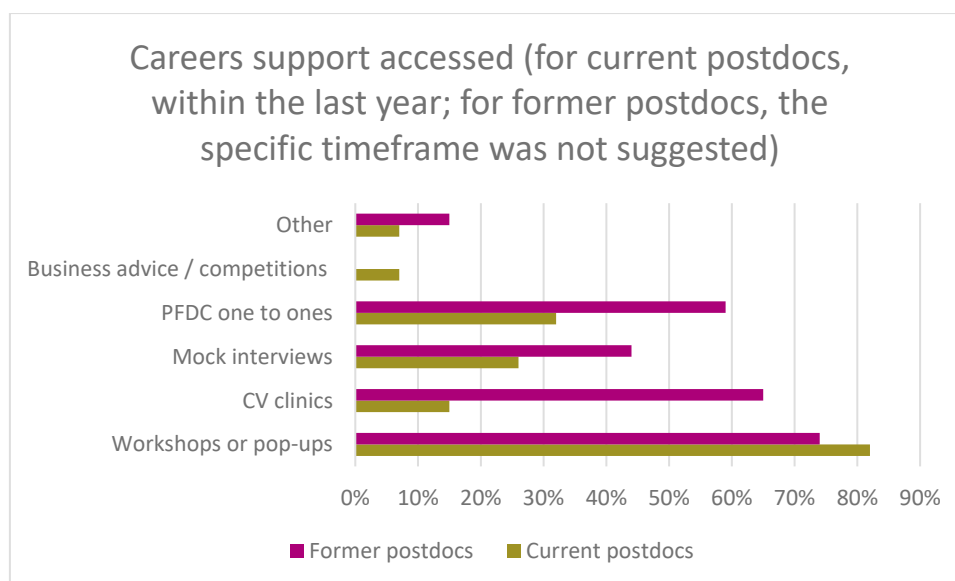


Figure 2

The majority of current postdocs drew on support of peers, former postdocs and the PFDC in career exploration. This was similar for former postdocs but with higher numbers accessing the PFDC and being slightly less reliant on PIs (Figure 3). Where PFDC support had been accessed, ECRs strongly valued this, with many positive comments.

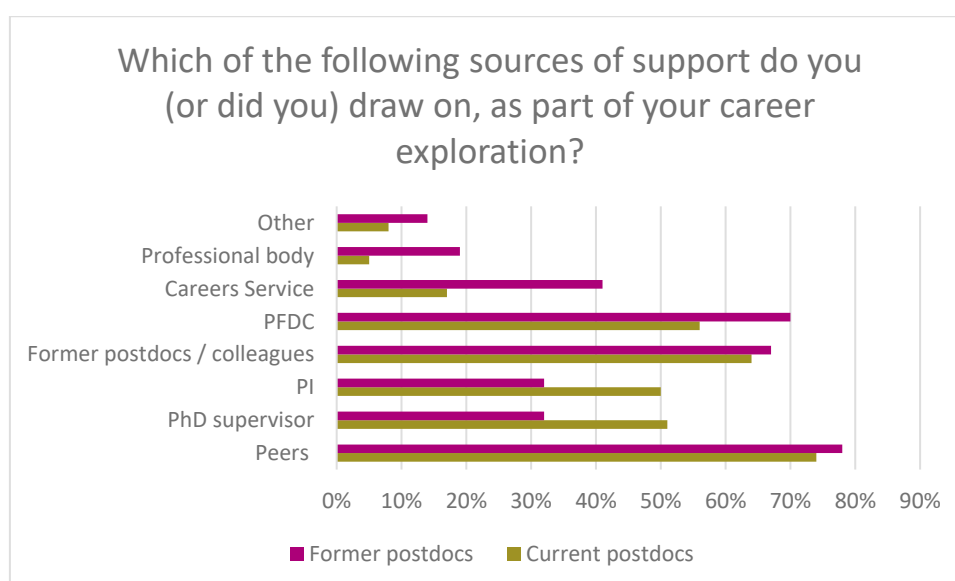


Figure 3

The visibility of postdocs moving to industry, and varying levels of industry experience are also likely to play a factor in career confidence. 78% of current postdocs reported seeing others from their departments moving on to academic roles, whilst 95% reported seeing others move to non-academic roles. Only 1% reported seeing others starting a business. 60% of current ECR respondents from Engineering reported 'often' seeing others move to non-academic roles (as opposed to just 'occasionally, which was offered as an option in the survey), compared with only 28% from Natural Sciences often seeing colleagues move to non-academic roles. 61% of current ECRs in Engineering had experience working with industry compared with 33% in Natural Sciences.

Of the respondents with experience with industry, 60% were actively exploring research roles outside of academia and 34% felt confident in job-seeking strategies for non-academic roles. For

those with no experience with industry, only 41% were actively exploring non-research careers and only 6% were confident about job-seeking outside of academia.

In general, the postdoc focus group were not positive about current career or next steps, with low awareness of the options open to them.

Factors identified as influencing postdoc thinking on next steps:

- A desire for greater stability (overwhelmingly the most common)
- Financial security, children, pensions, healthcare
- Working hours and work life balance
- Number of years postdoc (time limit for Fellowships or for academic roles in home country)
- Location – getting to live near a partner or not wanting to move out of London after having come here alone and building a network
- Visas (with one individual explaining that a 2-3 month contract is not long enough to sort out a visa. It requires someone in HR who is very committed to helping sort this and can cause long delays. This also makes moving to non-academic jobs difficult as they may not be at right salary point/ open to non-UK visa holders)
- Political and economic situation (e.g. Ukraine limiting relocation options)

Some felt they had already made decisions which disadvantaged them for academic careers, such as a project with industry where they couldn't publish, not moving institutions (*'loyalty is not rewarded'*) or being in a smaller research group, with time taken up being a 'lab manager' without enough time for your own projects and career. Several participants talked about Imperial failing to invest in retaining postdocs: *'Imperial doesn't root for its internal candidates'*. Postdocs may benefit from having the redeployment scheme explained to them, although one participant was sceptical this mechanism was ever actually used.

- **ECRs don't feel PRDP is the right place to discuss non-academic careers or job-seeking.** The timing may also be wrong for short-term contracts (i.e. you could wait 18 months, or have it right at the end of your contract) and the forms themselves are perhaps more oriented to supporting someone who already has concrete career goals. More than one participant suggested the need for a neutral person and that an annual opt-out meeting with the PFDC would encourage better career exploration.

63% of current postdocs said they'd discussed academic careers at PRDP; 23% discussed non-academic careers.

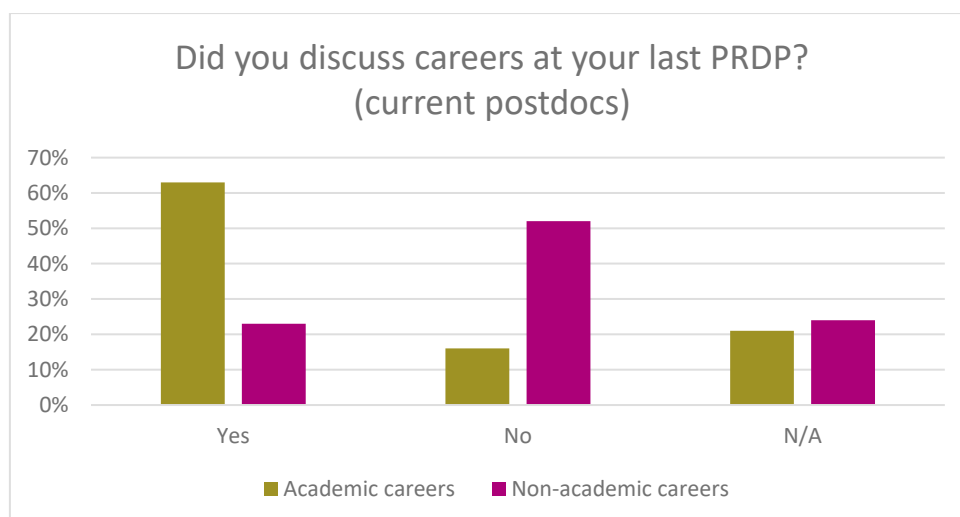


Figure 4

Current postdocs felt that they could be more open about their career aspirations if they were solely considering academic careers. 50% of those who reported that they were considering a variety of options (i.e. academic and not-academic) felt they could be open about this, compared with 71% for those considering only academic roles. This varied across Faculties (Figure 5).

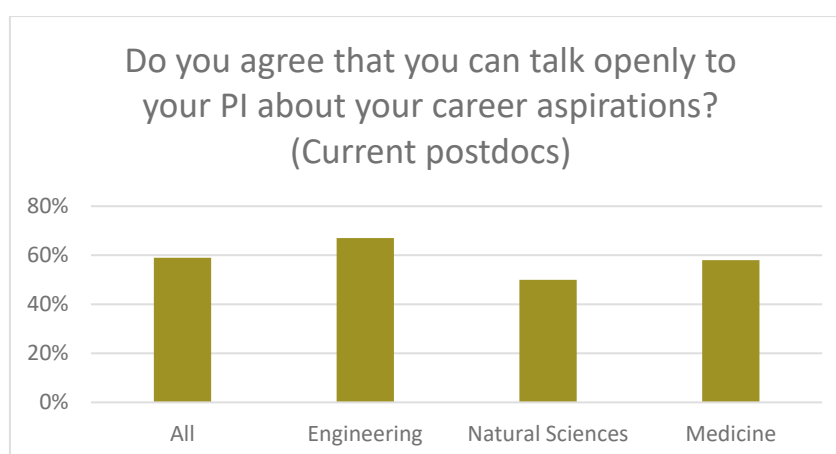


Figure 5

51% of former postdocs had talked about non-academic roles as part of PRDP and the same number agreed they could be honest with their PIs about their career aspirations.

'I don't think that's a good idea. Although my line manager is open-minded, it would harm my chances of an academic job, I'd look like I wasn't committed'
Focus group participant on discussion of non-academic careers at PRDP

Focus group participants echoed this unease over talking to their PI about non-academic careers, although one said they were preparing to have this conversation as part of PRDP and felt their PI would be 'surprised but open to it'. Very few of the focus group participants had undertaken a PRDP. It was suggested that targeting new PIs to help them understand the purpose of the PRDP might be helpful, as well as equipping postdocs to prepare for it and 'know their rights'. Participants felt pressure to focus (in the PRDP) only on academic careers and that if they mentioned other options

their PI might then not invest as much in their development. *'I don't think my PI would be willing to discuss this'*. A PFDC Champion suggested asking PIs at recruitment for examples of how they've supported careers.

There was a recognition that early conversations with your PI are crucial while job-searching as this is a significant time investment and it would be a *'superhuman expectation'* to think that a postdoc can do that in their last six months whilst also being fully dedicated to the project. Participants wanted PIs to have better awareness and empathy in relation to the postdoc situation, things like them having lives and partners, not being able to afford a house in London, worries over paying the rent at the end of their contract, and be better equipped to discuss sensitive topics, and to be more proactive over open discussion about end of contracts.

At a recent Imperial careers event for postdocs, one of the panellists suggested being aware of who *'has skin in the game'* of you leaving, advising that, whilst undertaking interviews, you needed to surround yourself with people who were positive about the transition. It must be recognised that PIs might be inherently conflicted in the role of providing a sounding board for career discussion and that there will always be power dynamics at play and limitations on how PRDP might be used to support career exploration. Many participants reflected on how PIs may not have the knowledge to support exploration outside of academia but that they may be helpful in signposting to support or sharing networks.

- **Work-life balance and satisfaction were the most important career success criteria for both current and former ECRs** (Appendix I). When asked to provide their own success criteria in the survey, current ECRs listed a *'permanent position'*, *'lecturer'* and *'stability'*, with former ECRs listing *'career progression'* or *'development'*. Words relating to being paid (including financial / salary) were used by both survey populations but slightly more often for the former ECRs. For many respondents (in both populations) the emphasis was on sufficient and fair recompense for the work being put in, and not having to be reliant on always finding new money.
- **Many ECRs don't feel equipped to comment on what 'industry' careers might be like.** Where they did comment, they thought they might be less exciting than academic roles, but with better pay, working conditions and progression. When asked to describe academic or non-academic roles, both current and former ECRs used significantly more positive words to describe non-academic careers than academic. (Table 1 and Appendix I). ECRs from outside of Engineering had very little experience working with industry and would like greater opportunity to build networks with industry and alumni, perhaps through mentoring, consultancy or secondments.

'non-academic careers are a blur'
'the big unknown'

Table 1 Categorisation of words used to describe academic and non-academic roles (from both surveys). Respondents were asked to provide three words describing either academic or non-academic roles, which were then grouped as positive, negative or neutral. Note that the word *'competitive'* was assumed to be negative.

		Positive	Negative
Current postdocs	Academic roles	31%	46%
	Non-academic roles	59%	21%
Former postdocs	Academic roles	19%	56%
	Non-academic roles	86%	21%

Participants were comfortable with the use of the term 'non-academic' careers, although a few noted that it fails to communicate the breadth of opportunities and one suggested that the term 'post-academic' demonstrates how you are building on solid foundations from a postdoc. The type of industry was also felt to be important, with interviewees suggesting that start-ups were likely to be seen as a more positive and exciting destination rather than '*dirty money*' (the perception regarding larger corporations and the oil industry). A postdoc who had moved to industry felt it was perceived as '*the dark side*'. This view, however, was not shared by all and a current postdoc talked about the exciting nature of research being conducted in industry, suggesting that whilst some of the 'later-career' academics may still hold views that industry isn't a good destination, this wasn't shared by early and mid-stage academics.

The word failure wasn't mentioned in the focus groups (although there were references to being *overqualified* for industry positions and having '*wasted*' your time if the role you move into doesn't require such high levels of education or have as high a salary). It did, however, come up in the later stages of some interviews, with one interviewee describing how postdocs are stoical and patient in the face of long-term challenges and failed experiments, suggesting that they might internalise a feeling of failure, as they strongly value not giving up. They went on to add that the competitive environment at Imperial compounds this, as you are giving up on '*competing in the grand arena*'.

A former postdoc (now in industry) described being told by a PI that '*only failures leave academia*' as if by leaving you were demonstrating you lacked '*grit*' and were '*giving up*', with those who stayed earning a '*badge of honour*'. Another reported colleagues being '*shocked*' when they left, as they were regarded as the lab manager, and so good at lab work. Their advice to others would be to 'leave sooner' (although acknowledging that having 'stuck it out' helped them gain British Citizenship, which opened up more doors).

One interviewee described the '*prestige*' of Imperial which might lead you to pass up opportunities elsewhere (several interviewees described feeling '*lucky*' or privileged to be given this opportunity) and that ECRs need to be aware that it's unlikely they will get a job at Imperial. They felt support for the emotional side of the transition was important, overcoming imposter syndrome and not feeling like you'd let down those who had given you opportunity, mentored or sponsored you (noting that such sponsorship and development opportunities were distributed unevenly, often with a gender-bias). Another interviewee described how leaving their publications out of their CV (for a non-academic job) *hurt*, as these were the *blood, sweat and tears* from their postdoc.

- **Perceived barriers to moving to non-academic roles included: loss of academic freedom (59%), lack of knowledge (59%) and lack of contacts (61%).** Geographical location appeared to be much less of a factor (22%). Some felt they would be '*wasting*' their academic experience and that they should continue to demonstrate '*grit*' and persevere with searching for academic roles. Only a small number talked about leaving in terms of failure.

One focus group participant suggested that the pandemic has changed perceptions of academic careers – where previously, flexibility was seen as a major attraction, this is now available in other sectors, whilst the constant virtual meeting culture developing in academia means you only ever get to do your research in the evening.

Several participants had made attempts to find industry jobs, struggling with a lack of feedback when unsuccessful, not finding jobs in the current economic climate, being unable to match their experience to jobs or clearly express their motivations for the move in an interview. This was

echoed by one of the careers panel speakers who said it was important to be able to talk positively about why you want a job ‘*without that shadow*’ from your postdoc.

- **The main barriers to progressing in academic careers were felt (by current ECRs) to be geographical location (56%) and lack of contacts (58%).** Competition and lack of posts as well as own track record were added in the comments as important factors. As ‘postdoc age’ (years post-PhD) increases, geographical location became a greater barrier with 67% of those >5 years postdoc identifying it as such, compared with 57% for the survey population (but noting small sample size of 42).

CONCLUSIONS

Overall, the evidence collected through survey, interview and focus groups did not suggest that moving to a non-academic role is universally or immediately understood at Imperial as ‘a failure’.

There are likely some individuals who believe that, and perhaps a persistent feeling that ‘*others probably believe this*’ but this appears to be changing for early-career academics, as well as there being differences across disciplines and for different types of ‘industry’ destinations. The PhD student focused group appeared to be very open to a variety of career destinations.

There is however a strong culture of competition and wanting to excel, which may lead to some internalising feelings of failure in terms of meeting their own expectations. The word failure was not used at all in the free text survey question (which asked for three words to describe non-academic careers) and although it came up eventually in interviews and focus groups, it was not an immediate response.

In general, postdocs reported feeling relatively able to talk openly to others about their career aspirations, particularly in engineering. However, this didn’t carry through to the actual numbers who did so in their PRDP, perhaps not feeling their PI was best placed to support them in not academic careers but also through not wanting to jeopardise future funding, if they were still undecided. Overall, the clear message from the focus groups and interviewees was that, at the moment, the PRDP is not an appropriate tool for discussions about alternative careers, as people do not feel able to be honest and they also do not always take place early or regularly enough.

The most common perceived barriers to moving to non-academic jobs included:

- Lack of knowledge of roles
- Lack of contacts
- Concerns over loss of academic freedom and flexibility.

There is an important role for Departments within Imperial in harnessing their own industry contacts and alumni networks to address some of these barriers within a local context and celebrate the diverse range of career paths open to postdocs.

Overall, the work of the PFDC was highly praised by survey and focus group respondents alike, with many suggesting that it needs to be more visible and better communicated, and that all postdocs should have an interview with someone from the PFDC who ‘*has their back*’.

Survey respondents and interviewees referred often to the environment of high-stress and competition at Imperial. In general, the language used to describe non-academic careers was mostly positive and, although

postdocs who are leaving academia may feel a personal sense of loss and that they haven't made their original career goals, there wasn't strong evidence that they felt they would be considered a failure for leaving.

However, if someone is experiencing extreme stress and working long hours in a very competitive environment, potentially with external factors (finances, young families, visas, or the political situation) they may be lacking the space and resilience to undergo a career and mindset transition. This raises an important question around how Imperial can meaningfully support the mental health of researchers during this transition phase, particularly as the majority may be new to the UK and be far from other support networks. A key recommendation of this report is therefore to support the transition space (*'don't want to be a PI? What else is out there?'*) via explicit discussion of transitions, self-awareness and peer coaching.

AREAS FOR ACTION

This section outlines potential actions for Imperial to carefully evaluate within its own culture and context, and also in light of the following:

1. Postdocs are normally in precarious employment with high workloads. Suggested actions for the postdocs must be extremely easy to access and undertake. Efforts should be placed on the supporting structures and surrounding eco-system, notably the PI and expectations for how they support the careers of others.
2. Imperial already has many good practices and policies in place and the most crucial thing might be to place effort behind their communication, implementation and monitoring, rather than introducing new actions, which dilute efforts.

A workshop (with representation from the PFDC, postdoc reps and enterprise / graduate school staff) was used to reflect on the findings from this project and put forward key areas for action, as outlined below.

OVERARCHING ACTIONS

- 1.1 Where resource is limited, target action towards the Natural Sciences, where career confidence is lowest, with perceived lesser existing opportunity to interact with industry.
- 1.2 Put effort behind existing good practice, such as the '10 days a year' and ensure these are well communicated, implemented and monitored.
- 1.3 Communications is a key challenge due to the high number of new postdocs each year and dedicated support is likely to be needed for this.

SUPPORTING SELF-REFLECTION, TRANSITIONS AND CAREER MANAGEMENT SKILLS

Quick wins:

- 2.1 PFDC to highlight that part of the 10 days a year of professional development might be spent on self-reflection ('taking stock'), signposting to resources to support reflection on values and strengths.
- 2.2 PFDC to offer online resources which support conducting informational interviews.

Longer term / more resource required:

- 2.3 PFDC to support peer coaching (over ~6 months, for those <18 months before end of contract) to support career exploration and personal transitions (including the emotional and mental health impacts of these). This might include discussion of: personal values and motivations, identity, push and pull factors for leaving academia, building networks and peer-led mock interviews.
- 2.4 PFDC to offer every postdoc an annual career planning / reflection one-to-one with the PFDC on an opt-out basis, starting from 6 months in (end of probation).

SUPPORTING ECRs TO BUILD NETWORKS**Quick wins:**

- 3.1 PFDC to create a former postdoc ('alumni') LinkedIn group.
- 3.2 PFDC to make better use of existing events, such as the PhD careers fair and improve communication of consultancy-style opportunities available through ICON and policy influencing via The Forum.

Longer term / more resource required:

- 3.3 Departments to celebrate the diverse range of successful careers that their postdocs go on to, providing opportunities for current postdocs connect with former postdocs or industry partners via webpages, LinkedIn, events, employer-led mock interviews, or mentoring.
- 3.4 Include explicit discussion of career values and working cultures within Departmental alumni events, as well as timelines from application to start date and how to negotiate salaries (or know what to expect, if salary isn't provided in the advert).

THE ROLE OF PIS AND THE WIDER SYSTEM**Quick wins:**

- 4.1 Departments to be more proactive in their communications, setting out expectations for ECRs to engage in professional and career development activities, also embedding support for the careers of ECRs within discussions of the Imperial values.
- 4.2 Departments and PIs to ensure new researchers have access to appropriate mentors (from academia and outside)
- 4.3 Departments and PIs to ensure new researchers have access to a buddy from another research group or department (drawing on their own networks of collaborators and former postdocs or alumni).

Longer term / more resource required:

- 4.3 Imperial to consider how recognition / value of PI support for postdoc careers might be embedded into recruitment and recognition processes (e.g. promotions or appraisal).
- 4.4 College to assess how redeployment policy is being communicated to ECRs

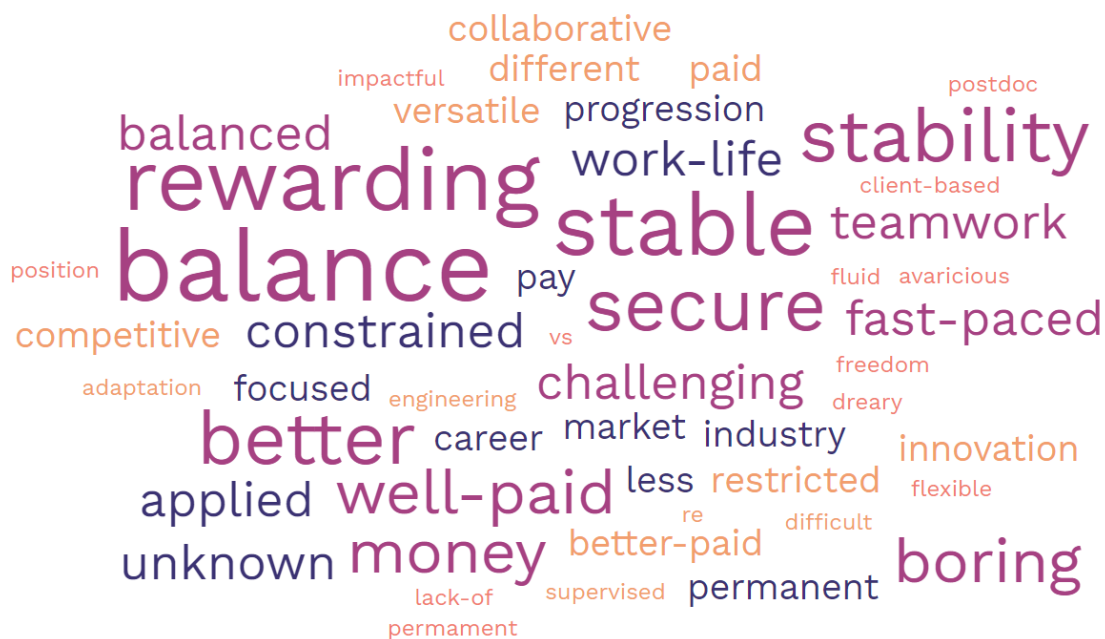




Figure 9 Former postdocs: 3 words to describe non-academic careers

A large orange circle is centered on the page, containing contact information.

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POSTDOC AND FELLOWS DEVELOPMENT CENTRE

Tailored support and development for postdocs, fellows and clinicians