Research Culture:
A Technician Lens

MI TALENT

UKRI Research England

Technician Commitment

Contents

Introduction

The UK higher education (HE) and research technical community is a highly skilled workforce with a diverse range of expertise. Technicians underpin the primary activities of universities and research institutes (RIs), providing the technical excellence essential for research, teaching and knowledge transfer.

Alongside this, many technicians are researchers and teachers in their own right. They play a fundamental role in the development of the technical skills students require to pursue a career in research, academia and/or industry.

Current data, while limited, suggest there are over 30,000 technical staff working in UK universities across a range of job roles and subject disciplines, encompassing medicine, science, IT, engineering and the creative arts, while the Gatsby Charitable Foundation suggests there are between 1.5 and 2.2 million people working in the UK as technicians across a wide variety of sectors and industries.[1]

This report focuses on the technical community working within UK HE and research and explores research culture from a technician perspective.

What is research culture and why is it important?

Research culture is defined by the Royal Society as encompassing "the behaviours, values, expectations, attitudes, and norms of our research communities. It influences researchers' career paths and determines the way that research is conducted and communicated."[2]

Despite the strength and global reputation of the UK's research endeavour, concerns have developed about the current research culture and the impact this could have on researchers, the sector and society. The government estimates a need for 150,000 more people to be working in Research and Development (R&D) by 2030[3] and it is therefore important that research careers are attractive.

[1] Technicians make it happen. See: https://www.technicians.org.uk/faqs (accessed 14 November 2021).

[2] The Royal Society. See: https://royalsociety.org/topics-policy/projects/research-culture/ (accessed 20 July 2022).

[3] BEIS. (2021) R&D People and Culture Strategy People at the heart of R&D. See: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004685/r_d-people-culture-strategy.pdf (accessed 20 July 2022).

"Research culture encompasses the behaviours, values, expectations, attitudes and norms of our research communities. It influences researchers' career paths and determines the way that research is conducted and communicated."

The Royal Society

In 2020, Wellcome published a report "*What Researchers Think About the Culture They Work In*".[4] The report shines a light on challenges in the current research culture that need to be addressed.

Despite the variations in perceptions and experiences of research culture, the report identified a number of common themes. Researchers reported being proud to be part of the research community and the work they do. The report found that research culture was best when it is "collaborative, inclusive, supportive and creative, when researchers are given time to focus on their research priorities, when leadership is transparent and open, and when individuals have a sense of safety and security." However, it was found that cultures were often not exemplifying these ideals, with some researchers describing their current research cultures as "pressured", "stressful", "insecure" and "toxic".

The report found that in some research environments, a focus on quantity over quality is leading to pressure to publish, which can lead to compromised standards. Competition is seen as part of research, but researchers felt that it has sometimes become too aggressive. There were also concerns raised about management in research teams and troubling reports from researchers who had experienced exploitation, discrimination, harassment and bullying.

Alongside this, the Association of Research Managers and Administrators (ARMA) carried out a research culture survey in 2020 to explore the perspectives and experiences of research culture amongst Research Managers and Administrators (RMAs).[5]

This report also found that experiences and perceptions of research culture varied greatly, and that whilst RMAs may feel positive about their teams, they felt a lack of value from senior managers. Further concerns highlighted in this report were a lack of access to opportunities for promotion and progression, and that the skills, experience and expertise of RMAs were perceived not to be valued. RMAs also reported that they had experienced bullying, harassment and discrimination and that there was a lack of support in dealing with such behaviours.

Wellcome identified that issues in research culture have consequences for members of the research community, research and society:

> *"For researchers, poor research culture is leading to stress, anxiety, mental health problems, strain on personal relationships, and a sense of isolation and loneliness at work.*
>
> *For research, the perceived impacts include a loss of quality, with corners being cut and outputs becoming increasingly superficial, problems with reproducibility, and the cherry-picking of results and data massaging.*
>
> *For society, the dangers are seen as loss of talent from the sector and a reduction of real innovation and impact resulting from a narrow set of priorities, as well as a loss of trust from the public."*

The issues identified by Wellcome, ARMA, and in this report, need to be addressed through a collaborative effort involving members from across the research community. As a vital part of the research community, technical voices and concerns need to be included in these conversations and initiatives.

[4] Wellcome (2020). What Researchers Think About the Culture They Work In. See: https://wellcome.org/reports/what-researchers-think-about-research-culture (accessed 20 July 2020).

[5] ARMA (2020). ARMA survey of research professionals See: https://arma.ac.uk/wp-content/uploads/2021/03/ARMA-Research-Culture-Survey-2020.pdf (accessed 20 July 2020).

Who are technicians and what is their role in research?

Technician roles have a variety of job titles and descriptions. Roles range from entry level apprentices or junior technicians to internationally renowned specialised technical experts or senior strategic managers. The skills required for technical roles therefore come at various qualification levels, ranging from entry levels to level 8 (doctorate). The breadth and depth of technical roles and careers make defining the community challenging. An added complication is that technical roles do not always include the term 'technician' in their job title or description.

In 2018, Research Councils UK (now UK Research & Innovation (UKRI)) provided the following definition of 'technology/skills specialists':

> *"Technology/skills specialists maintain and develop new and improved approaches to implement technologies and methodologies to better address research questions. Technology/skills specialists have specialist knowledge and expertise, and they often work as part of coordinated teams spanning different disciplines and geographical centres, which work together to tackle contemporary research questions. May include, but not limited to: data scientists, data engineers, archivists, informaticians, statisticians, software developers, audio-visual technologists, technical professional staff and individuals staffing core facilities, across all disciplines."*
>
> **Research Councils UK (2018)[6]**

This definition conveys the range of disciplines and roles that make up the technical community in research. However, technicians also make considerable contributions to the education and training of students and staff across HE and research.[7] Alongside this, technical staff are involved in health and safety, sustainability, maintenance, infrastructure, people management and much more. This is recognised in UKRI's recently published Technician Commitment Action Plan:

> *"Technicians use their technical expertise and knowledge and their practical, analytical and management skills to make a range of vital contributions to research and innovation, including (but not limited to):*
>
> - *Delivering the goals of a research and innovation project*
> - *Maintaining and developing the environment, standards, resources, materials and facilities needed to deliver research and innovation*
> - *Teaching others in the design, use and analysis of research techniques and methodologies*
> - *Managing budgets, procurement and teams directly associated with research projects, equipment, instruments and research resources"*
>
> **UKRI (2021)[8]**

In this report, we take a broad and inclusive view of the terms 'technician' and 'technical staff' and we recognise and align to existing definitions as outlined above. Rather than contributing a further definition of what we believe constitutes a technical role in HE and research, we acknowledge that technical roles are diverse, multi-faceted and often positioned on blurred boundaries. While our primary focus is technical employees within UK HE and RIs, we have remained inclusive of the technical community across all disciplines and roles. Through our evidence gathering methods, we have sought to engage with anyone who self-identifies as part of the UK technical community.

TALENT and research culture

TALENT is a Research England funded programme which leads and influences change to advance status and opportunity for technical skills, roles and careers in UK higher education and research. This report is part of a series of initiatives which seek to understand the existing culture and raise the profile, opportunity, participation and representation of technical staff. The technical community is integral to the creation of a positive research culture. They are a vital component of the research ecosystem and it is important that the challenges they face are recognised and understood. Technicians also have influential roles on research culture and the research environment.

[6] UKRI. (2020) RCUK Statement of expectations for technology/skills specialists. See: https://www.ukri.org/wp-content/uploads/2020/10/UKRI-071020-StatementOfExpectationsTechnologySkillsSpecialists.pdf (accessed 14 November 2021).

[7] P. A. Lewis and H. Gospel. (2011) Technicians under the Microscope: A Study of the Skills and Training of University Laboratory and Engineering Workshop Technicians. See: https://www.gatsby.org.uk/uploads/education/reports/pdf/he-techn-final-report.pdf

[8] UKRI. (2021) Technician Commitment UKRI Action Plan. See: https://www.ukri.org/wp-content/uploads/2021/02/UKRI-040221-TechnicianCommitmentActionPlan.pdf (accessed 14 November 2021).

Methodology

This report was informed by desk research, surveys and focus groups. The surveys and focus groups engaged with technical staff, academic and professional services staff, and students across the UK.

Survey of UK technical staff

A national online survey of UK technical staff was launched in February 2021, remaining open for 4.5 weeks. The survey was used to inform this report and the TALENT Commission Report.[9] The survey comprised 60 questions and took approximately 20 minutes to complete, covering a range of topics. 10 of these questions were related directly to research culture and were asked only to those respondents who were involved in research activities. The survey garnered 1766 usable responses from respondents across 90 different UK universities and 16 UK research institutes. Respondents were from a range of subject disciplines, including science, engineering and the creative arts. While open to all technical staff in the UK, the majority of respondents were from higher education institutions (90%), with fewer from research institutes (9%) or other institutions (1%).

Survey of students and non-technical staff

Following the national survey of UK technical staff, a shorter online survey of UK students and non-technical staff was launched in summer 2021 to explore how non-technical staff and students perceived the role and value of technicians within their places of work and/or study. The survey comprised 16 questions, took approximately eight minutes to complete, and garnered 1026 usable responses. Respondents covered a range of role types and discipline areas.

Online focus groups

Following the national survey of UK technical staff, a series of nine focus groups were held with UK technical staff in July 2021 to further explore a range of themes raised within the survey. Key themes explored included value, visibility, recognition and representation of technical staff within UK HE and research. Each focus group (four to seven participants) lasted approximately 90 minutes. 44 participants took part across nine groups, representing 24 universities and RIs, including representatives from a range of discipline areas.

The remainder of this report is structured in sections aligned to key themes that arose from our research findings, split broadly into perceptions of research culture, experiences of research culture, opportunities in research, and changing research culture. Perceptions of research culture considers technicians views on the current, and their ideal, research culture. Experience of research culture covers value and recognition, relationships and interactions with other categories of staff, team inclusion, wellbeing, and quality and integrity in research. Opportunities in research considers career progression and professional development, grants, planning research projects and other opportunities in research teams. Changing research culture looks at suggestions from technical staff on how to improve research culture.

[9] MI TALENT (2022). The TALENT Commission: Technical skills, roles and careers in UK higher education and research. See: https://www.mitalent.ac.uk/theTALENTcommission. (accessed 20 July 2022).

Perceptions of research culture

Perceptions of the current research culture

Wellcome identified that perceptions of research culture were influenced by many different factors from individuals' experiences and situations and that they tended to differ at a team level, rather than at an institutional or subject level. It was therefore anticipated that a range of perceptions would be found in the technical community as well.

When asked about their overall perceptions of research culture in the survey of UK technical staff, most respondents indicated that the research culture fostered by their teams and institutions was positive (56% and 61% respectively). Only a minority suggested the research culture was negative, however, 36% and 32% indicated neutrality with regards to this question. These results suggest there is room for improvement to establish positive research cultures, and to ensure that technical staff feel the relevance of these cultures to them and their place in initiatives for improvement.

Delving further into perceptions of research culture, respondents were asked to give 3 words to describe the current research culture where they work and were then asked to indicate whether these words were positive, negative or neutral.

Figure 1: Words technical staff use to describe the research culture where they work.

Source: Survey of UK Technical Staff 2021: Which three words would you use to describe the current research culture where you work, based on your experiences as a technician / technical role-holder? *n = 1766.*

Emerging themes included words such as "demanding", "pressured" and "stressful". This was mentioned by 12% of a randomly selected sample (n = 629). This was followed by "disorganised and uncertain" (10%), "supportive and friendly" (9%), "undervalued and not recognised" (8%), and "elitist and hierarchical" (8%).

Respondents to both the Wellcome and ARMA surveys were asked a similar question and a number of common responses can be seen, in particular "collaborative", "competitive", and "supportive", which further strengthens the suggestion made in the ARMA report that there are shared experiences across the research community.

Collaborative Supportive Interesting

Top 3 positive words used

Undervalued Underfunded Pressured

Top 3 negative words used

Theme	%
Demanding / pressured / stressful	12%
Disorganised / uncertain	10%
Supportive / friendly	9%
Undervalued / not recognised	8%
Elitist / hierarchical	8%
Collaborative	6%
Important / valued	6%
Innovative / progressive / forward-thinking	5%
Underfunded / under-resourced	5%
Interesting / engaging	5%
Inclusive / diverse	4%
Positive / good / excellent	3%
Competitive	3%
Challenging	3%
Varied / dynamic	2%
Exciting	2%
Academic	2%
Changing / developing	2%
Rewarding / fulfilling	2%
Community / teamwork	2%
Professional	1%

Figure 2: Thematic grouping of words technical staff use to describe their current research culture.

Source: Survey of UK Technical Staff 2021: Which three words would you use to describe the current research culture where you work, based on your experiences as a technician / technical role-holder? (n = 629).

When respondents were asked to indicate the sentiment behind the words they provided, a slightly higher number of positive words were identified than negative words (48% and 40% respectively). Despite the balance being marginally in favour of positive words, which is encouraging, the proportion of negative words used highlights areas that need addressing.

Positive words included “collaborative”, “supportive”, “inclusive” and “friendly”. “Challenging” and “competitive” were also indicated as being positive by some respondents, suggesting the technical community is happy with a manageable element of this in their working experiences.

The negative words identified included “undervalued”, “underfunded”, “hierarchical”, “pressured”, “competitive”, “exclusive” and “stressful”.

Alongside these open responses, in order to explore technicians’ views in relation to some specific ways researchers have described their current and ideal research cultures, survey respondents were asked to indicate the extent to which they agreed that the research culture in their workplace could be described as pressured, diverse, inclusive, isolating, creative, competitive and collaborative.

A slim majority of participants agreed that the research culture in their workplaces was creative, collaborative, and diverse (57%, 52% and 52% respectively). More respondents also agreed that the culture was inclusive than disagreed with this description (40% v 21%). More disagreed than agreed that their workplace cultures were isolating (37% v 21%).

Whilst there are some positives here, it bears highlighting that just over a fifth of respondents found the culture isolating and lacking in diversity. Furthermore, more respondents agreed the culture was pressured than not (48% v. 14%) and more agreed it was competitive than not (33% v 20%), which reflects the views of the wider research community.

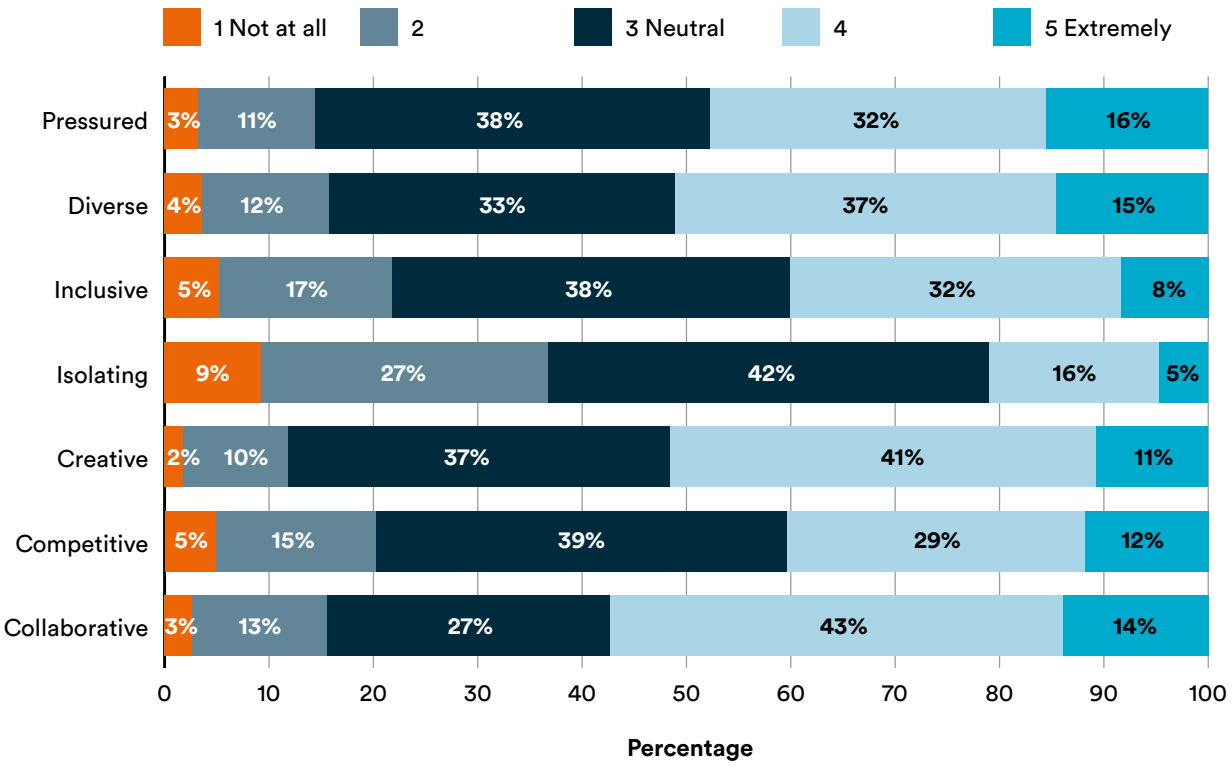

Figure 3: The perspective of technical staff on specific descriptions of research culture.

Source: Survey of UK Technical Staff 2021: To what extent would you describe the research culture in your workplace as... (pressured, diverse, inclusive, isolating, creative, competitive, collaborative) (n=1194, only asked to those involved in research activities)

Ideal research culture

To focus on a vision for a new research culture, respondents to the survey of UK technical staff were asked to describe their ideal research culture using 3 words.

Figure 4: Words technical staff used to describe their ideal research culture

Source: Survey of UK Technical Staff 2021: Which three words would you use to describe your ideal research culture *n = 1766.*

A random sample was coded into themes. 21% of these respondents suggested that the ideal research culture would be inclusive and diverse. Collaborative (16%), supportive and friendly (10%), valued and respected (8%), and innovative, progressive and forward-thinking (7%) were also likely to be mentioned. Many of these ideals were cited when describing current research culture, although to a lesser extent.

Theme	%
Inclusive / diverse	21%
Collaborative	16%
Supportive / friendly	10%
Valued / respected	8%
Innovative / progressive / forward-thinking	7%
Open / transparent	5%
Creative / imaginative	5%
Recognised	3%
Supported / organised	3%
Funded	3%
Teamwork / community	3%
Fair	2%
Positive	2%
Communicative	2%
Respectful	2%
Equal	2%
Rewarding	2%
Exciting	2%
Safe	1%

Figure 5: Thematic grouping of words technical staff use to describe their ideal research culture.

Source: Survey of UK Technical Staff 2021: Which three words would you use to describe your ideal research culture *n = 776.*

While few differences were identified in descriptions dependent on demographic or workplace categories, Health and Safety Technicians were likely to describe their ideal research culture as safe (17%).

21%

said an ideal research culture would be inclusive and diverse

Experiences of research culture

Perspectives and experiences of research culture vary greatly. Within the technical community this is further amplified by the diversity of roles and variety of contributions that technical staff make.

The findings from Wellcome of perspectives and experiences differing from team to team was echoed strongly in the findings that emerged from the survey and the focus groups, with particular regard to how valued, included and recognised technical staff feel. Despite these variations, as in Wellcome's study, common trends can be identified in the experiences of technical staff. Some of these align with those found in the wider research community, and others highlight particular challenges for technical staff.

Some survey respondents who were involved in research commented that they did not have much of a view on research culture due to the nature of the contributions they make, which poses its own challenge in terms of inclusion. When asked about this in the survey of UK technical staff, under a third said they felt included in the research community.

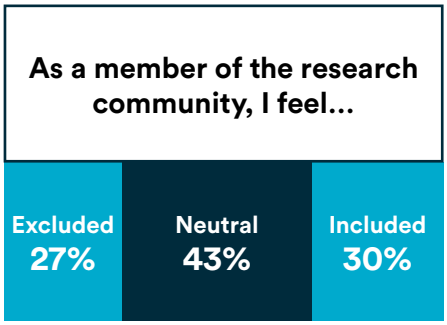

Figure 6: Inclusion of technical staff in the research community.

Source: Survey of UK Technical Staff 2021: Please assign each statement an answer using the sliding scale. (n=1194). *5-point scale, top and bottom boxes grouped.*

Value and recognition

Despite their vital role, the technical community has frequently been described as an "invisible workforce" and are a relatively understudied occupational group in higher education and research, both in the UK and globally. Since its launch in 2017, the sector's Technician Commitment has generated significant momentum and galvanised activity to ensure increased visibility, recognition, career development and sustainability of technical skills, roles and careers across the 100+ signatory and supporter institutions.[10]

Universities and research institutes have published plans to meet the Technician Commitment's core aims and institutional activity is beginning to show evidence of positive change. The initiative has actively encouraged and supported collaborative activity and regional consortiums and networks have taken the opportunity to work together to advance the culture for the technical community.

This is positive progress, but there is still much to do.

Throughout the survey and focus groups, technical staff reported feeling undervalued and not recognised for their work. This influences many aspects of technicians' working lives including their place in research teams, their relationships with other staff and their wellbeing.

Value

When technical staff were asked how valued they felt their contributions to research activities were by different groups they worked with, the majority of respondents to the survey of UK technical staff reported feeling valued by their technical colleagues, managers, postgraduate students, and academic colleagues with very low numbers reporting feeling undervalued by these groups.

Just under half of the survey respondents (49%) reported feeling valued by undergraduate students, with 10% reporting feeling undervalued by them, although this is likely indicative of the interactions they have with these students. Just under a fifth (19%) reported feeling valued by other staff, and a quarter (25%) reporting feeling undervalued by them.

The picture of how valued technicians feel by senior leaders in their institutions and organisations was not quite as positive, with 29% reporting feeling valued by this group and 31% feeling undervalued by this group. Likewise, 38% reported feeling undervalued by national policy makers, with 4% feeling valued by them.

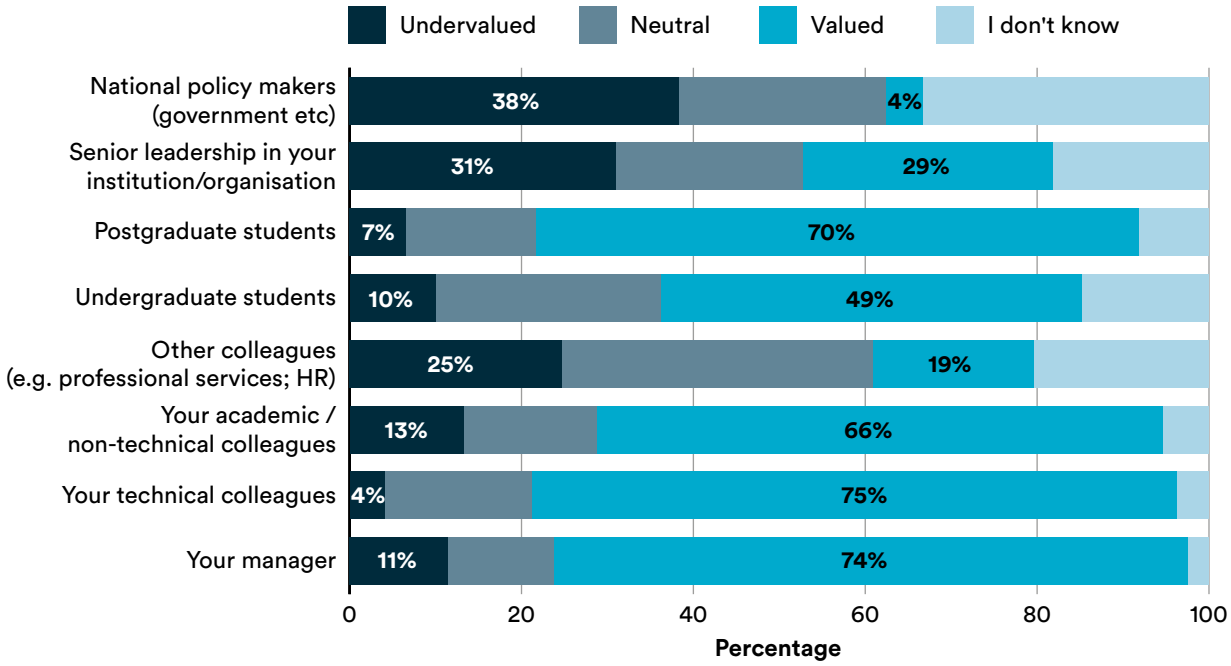

Figure 7: How technical staff perceive their contributions to research are valued by others.

Source: TALENT Survey of UK Technical Staff 2021: To what extent do you feel your contributions to research activities are valued by the following groups? n = 961-1187. N/A has been removed.

[10] Technicians Make it Happen. See: https://www.technicians.org.uk/technician-commitment (accessed 14 November 2021).

Technical staff were also asked how valued they felt as a member of the research community on a sliding semantic scale. 37% of respondents suggested they felt valued as a member of the research community, compared to 27% who did not feel valued. Research Technicians were more likely to report feel valued (46%), compared to Teaching Technicians (19%) and those with a dual role (28%). Respondents who had been in a role for 2 years or less were likely to feel valued (48%), compared to those more established.

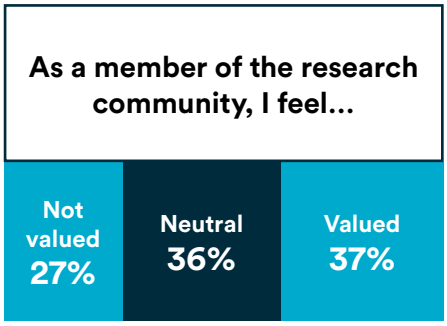

Figure 8: How valued technical staff feel as a member of the research community

Source: Survey of UK Technical Staff 2021: Please assign each statement an answer using the sliding scale. (n=1194). *5-point scale, top and bottom boxes grouped.*

When colleagues of technical staff and students were asked how valuable they felt the contribution of technical staff to research was, overall, this was positive. Through both unprompted and prompted questions about the contributions of technical staff there is a sense of what they value.

In an open question asking them to describe technical staff and the work they do, there was a clear focus on technicians in support rather than delivery roles across the responses. 32% of respondents mentioned that technicians support research activities, and 28% mentioned that they support teaching activities. 26% of respondents reported technicians working with equipment, resources and facilities.

As well as general comments reporting 'support in research activities' (19%) and 'support in teaching activities' (13%), there were detailed responses that captured specific aspects of this support.

Within research activities, respondents reported that technicians / technical staff were seen as:

- Having specialist knowledge and expertise (8%).
- Giving advice and guidance on research (3%).
- Solving problems (3%).
- Providing continuity in changing environments (2%), where many are on fixed-term contracts

Those who felt that technicians supported research by *doing* research mentioned them:

- Running experiments (2%).
- Performing data collection (2%).
- Assisting in data analysis and interpretation (1%).

This question also prompted responses with value statements such as essential, highly skilled, knowledgeable. There were also many statements that acknowledged that technical staff are often unrecognised for their work.

> *"Usually helpful, highly skilled, competent, seriously underpaid, mostly frustrated."*
>
> **Researcher, Survey of non-technical staff and students 2021**

> *"The backbone of chemistry research. They do essential work both in teaching and research and get very little credit."*
>
> **Academic staff, Survey of non-technical staff and students 2021**

> *"Imperative to the functioning of a healthy department. Without these people, the research culture is compromised. For example, my university has not replaced technical staff when leaving, and as a result, during the pandemic with a shift to online working, we had one dedicated IT technical specialist, creating a bottleneck for both teaching and research."*
>
> **Academic staff, Survey of non-technical staff and students 2021**

> *"Vital - we would not be able to run laboratories (teaching and research) without our technical staff. The support they provide in equipping, maintaining and running laboratory spaces for all users is simply essential. Beyond the laboratory, our technical staff provide additional support for our school including procurement, IT, health and safety roles and are generally just wonderful people to have as colleagues. In particular their work in the past year has been exceptional."*
>
> **Academic staff, Survey of non-technical staff and students 2021**

> *"They are all very helpful and knowledgeable about their jobs. They can often tell me where I've gone wrong with my methods as well as offering ideas and understanding the subject itself."*
>
> **Undergraduate student, Survey of non-technical staff and students 2021**

In a prompted question about the contributions of technical staff, which listed several activities that are part of technical roles including supporting and delivering research and teaching, health and safety activities, management, and pastoral care, 91% selected supporting, and 37% delivering, research activities as being part of technicians' roles.

Non-technical staff and students were also asked about how valuable they feel these contributions are. 55% of respondents found technicians' contributions to supporting research activities very valuable (giving them 10 out of 10). Fewer respondents felt contributions to delivering research was very valuable (24%). Professional services staff were significantly more likely than those in other roles to find technicians' contributions to delivering research activities very valuable, with 36% scoring this 10. However, academic staff were significantly less likely to score the value of contributions to delivering research activities seven or more (47%).

Those who interacted with technicians daily were significantly more likely to value their contributions to delivering and supporting research activities, scoring this 7 or more suggesting that those with a greater understanding of technical work value their contributions more.

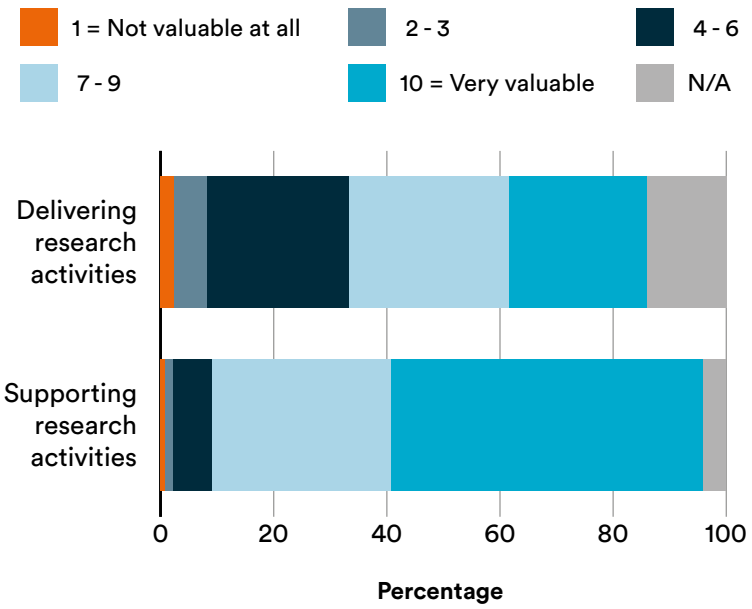

Figure 9: How valued non-technical staff and students find the contribution of technical staff to delivering and supporting research activities.

Source: Survey of non-technical staff and students 2021: On a scale of 1 to 10 how valuable do you think technicians' and/or technical staff members' contributions are in the following areas? N=1026.

Overall, staff and students appear to value the contributions that technical staff make. This is very positive. There is, however, a clear discrepancy between how valuable staff and students say technical staff are, and how valued technical staff feel. Despite the small sample size, the survey of staff and students gives an idea of how some people feel towards, and their perceptions of, technical staff. A caveat is that it is unlikely that those that who do not place as much value on technical staff would engage with a survey about the value of their contributions.

Recognition

Recognition can take many forms, both formal and informal. An important means of recognition in research is appropriate attribution and credit for contributions to outputs. The Wellcome report identified that some researchers, particularly early career and Black, Asian and minority ethnic researchers, had their work credited to more senior colleagues. A lack of recognition for research contributions was also highlighted by technical staff.

Technical staff were asked to indicate their level of agreement with the statement "Technical staff are usually credited appropriately for their contribution to research and/or research outputs". Only 23% agreed with this statement; 64% disagreed – including 28% who strongly disagreed.

‘Technical staff are usually credited appropriately for their contribution to research and/or research outputs’

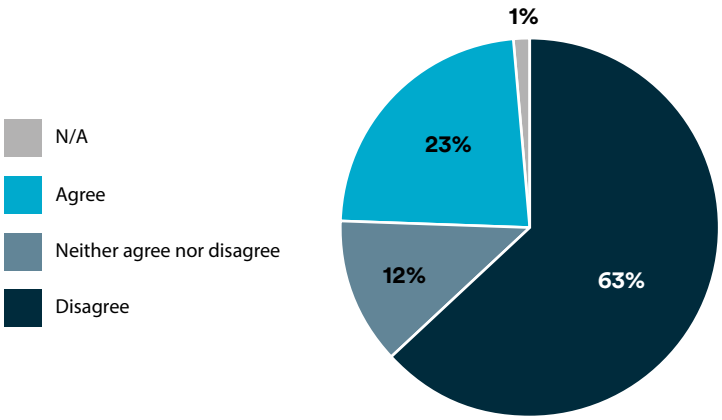

Figure 10: How technical staff feel about accreditation on research outputs.

Source: Survey of non-technical staff and students 2021: To what extent do you agree with the statement *‘Technical staff are usually credited appropriately for their contribution to research and/or research outputs’*. 5-point scale strongly and somewhat grouped. Only asked to those involved in research. N=1194

63%

of technicians and

52%

of non-technical staff and students do not think technical staff are appropriately credited for their research contributions

There was a clear correlation between those who disagreed that technical staff are credited appropriately for their research contributions and those who did not feel valued for research contributions by their colleagues and other stakeholders. 40% of respondents who disagreed with the above statement felt undervalued by senior leaders in regard to their research contributions and 19% who disagreed felt undervalued by academic or non-technical colleagues, demonstrating a clear link between these issues.

There was an awareness amongst academic staff in the survey of non-technical staff and students that technicians are not usually appropriately credited for their contributions to research, with only 20% agreeing that they are appropriately credited, and 52% disagreeing (n=464).

Technical staff were also asked more broadly about the ways in which their work had been recognised, and the ways they felt it should have been, but was not. When looking at the responses from only those respondents who were involved in research, informal praise from managers and colleagues was the most common way that they had been recognised (72% and 75% respectively). Less than half had been acknowledged in a publication or included as an author or co-author (39% and 33% respectively).

“I think another good way of embedding our recognition is you know when there’s a big breakthrough, there’s normally just the academic lead who is kind of showcased, but I think it’s important to start showing the whole team behind that body of work and the technicians to be included in that team that there’s an image to show that these technicians are behind the scenes and we are an important part of, you know, realising some of these outcomes as opposed to showcasing the lead on it who perhaps came up with the concept, but never touched even a pipette.”

Core Facility/Technology Technician, Focus Group July 2021

When considering the ways that technical staff involved in research felt their contributions *should* have been recognised but were not, the highest selected response was role progression or regrading (45%) followed by financial recognition (37%).

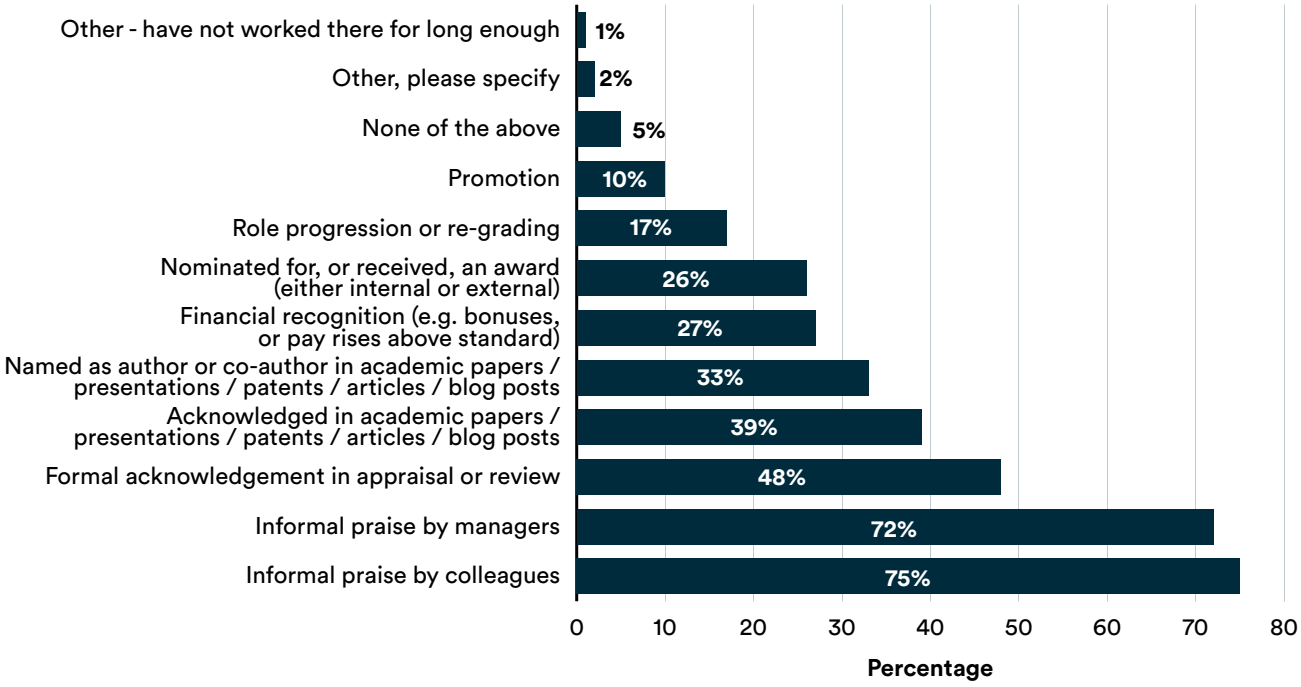

Figure 11: The ways in which technical staff have been recognised in the preceding three to five years.

Source: Survey of non-technical staff and students 2021: In which, if any, of the following ways have your workplace contributions been recognised within the past three to five years? Please select all that apply. Answers from those involved in research activities. N=1180

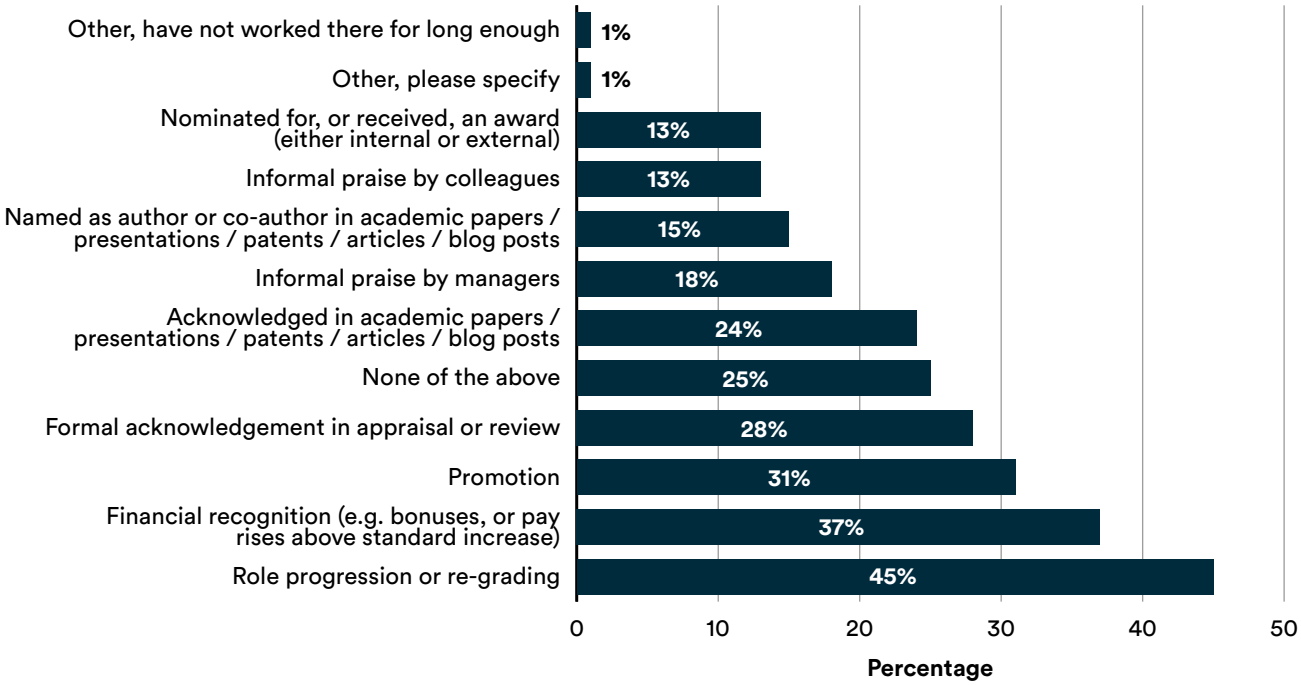

Figure 12: The ways in which technical staff feel they should have been recognised but were not in the preceding three to five years.

Source: Survey of non-technical staff and students 2021: In which, if any, of the following ways do you think your workplace contributions should have been recognised in the past three to five years, but weren't? Answers from those involved in research activities. N=1180

Relationships and interactions with other staff

Delivering quality research often requires diverse teams offering a range of skills and expertise. In higher education, technical staff typically work alongside academic staff providing technical expertise in research and teaching. Despite these seemingly close working relationships and the need for collaboration on projects, this research demonstrated a clear lack of parity of esteem for the differing contributions.

Throughout the survey and the focus groups, technical staff commented on the ingrained negative attitudes that some people have towards their technical colleagues. It is felt that there is an "us and them culture" and a hierarchy, which impacts the way that technical staff are treated in their teams and, more widely, institutions. Much of this was felt to derive from a lack of understanding and respect of technical staff and many suggested that developing a better understanding of technicians and their contributions would help, as would including technical staff in decision-making. Non-technical staff also mentioned the "us and them culture" typically in the context of wanting it to end, with recognition that it comes from both sides.

Technical staff are also often managed by non-technical staff, including principal investigators (PI) for research projects. If these managers and PIs do not have a good understanding of technical roles, or worse, do not respect them, this will have a significant impact on relationships, wellbeing, and support. Training for managers and non-managing PIs about technical staff and their roles may help this.

> *"[One thing to improve research culture would be] management training for all senior research staff, clearer line management/ supervision structure and processes and a better awareness among academic colleagues about grades and experience of technical colleagues. No one is 'just a technician'. A better, more transparent, career structure. Equivalent pay for experience and expertise."*
>
> **Research Technician, Survey of UK Technical Staff March 2021**

> *"[One thing to improve research culture would be to] end the elitism at the managerial level within institutions. Democratise the management structure and take representatives from more areas of the staff than just senior academics to faculty boards and senate positions."*
>
> **Teaching Technician, Survey of UK Technical Staff March 2021**

Following the findings of both the Wellcome and ARMA reports about bullying and harassment, as well as anecdotal evidence from technical staff about poor treatment by other members of staff, technical staff were asked in the survey of UK technical staff about witnessing and experiencing bullying and harassment in research environments. Just under half of the respondents (45%) had experienced or witnessed bullying. Unsurprisingly, respondents who had experienced bullying or harassment themselves were significantly likely to have used a negative word to describe research culture (37%), compared to those who had not experienced this (28%).

Respondents were more likely to have witnessed bullying of another member of technical staff (25%), than a non-technical staff member (17%). A quarter of respondents had experienced bullying or harassment themselves (25%). While significant differences could not be established due to sample size, respondents with a Black (31%) or Asian background (33%) were more likely to have experienced this than those from a White background (24%).

Those who had experienced or witnessed bullying and/or harassment were given the opportunity to share any additional details about their experiences if they wished. While responses provided were sensitive, an overview of comments and themes is outlined in figure 13.

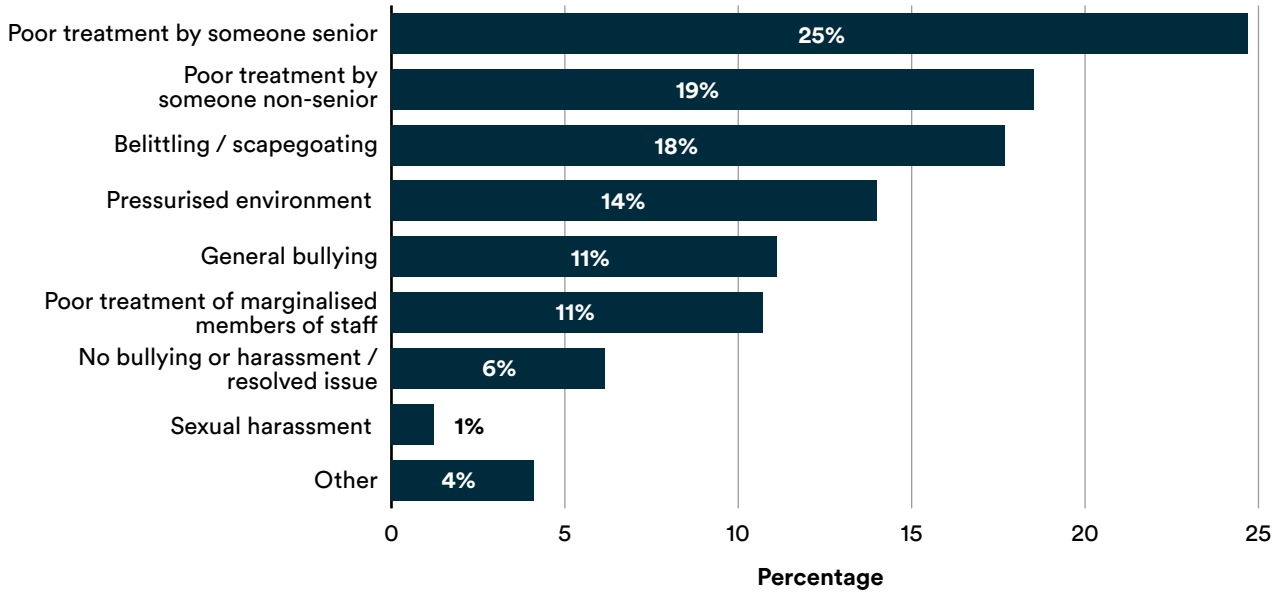

Figure 13: Details of bullying and harassment witnessed or experienced by technical staff

Source: Survey of non-technical staff and students 2021: Please use this space if you would like to share any further details on bullying and/or harassment in the research community. n = 243. Open question, coded.

Reflecting on the perceived issues around hierarchy and ingrained attitudes towards technical staff, it is perhaps unsurprising that a quarter of these respondents had witnessed or experienced poor treatment from someone senior.

"In my experience bullying is very common within research communities. I have personally experienced bullying based on my role as just a 'technician'. I have also seen staff bullied to the point of serious health issues."

Core Facility/Technology Technician, Survey of UK Technical Staff March 2021

"Academic staff can be very condescending and insulting to technical staff as they aren't seen to be on the same 'level'."

Research Technician, Survey of UK Technical Staff March 2021

"Academics being dismissive of technical staff and their contribution, even directly to them. You are seen as 'just the technician'."

Core Facility Director, Survey of UK Technical Staff March 2021

Bullying and poor treatment of technical staff was also reported as being shown though exclusion from tasks and opportunities, scapegoating when things went wrong, and being given tasks that their colleague just did not want to complete.

"In a previous group, years ago, I experienced bullying. I have been presented to people as somehow 'different' to the rest of the team. I have been asked to do only research tasks knowing they would not lead to publications. When I had the opportunity to do something that could be publishable, I was asked to stop and someone else took the lead."

Research Technician, Survey of UK Technical Staff March 2021

Some respondents recognised that poor treatment was structural in origin and stemmed from the pressures that researchers are put under and that negative behaviours snowballed as a result. These pressures need to be addressed to improve the culture for the whole research community.

Team Inclusion

Despite playing an important role in research teams both through supporting and delivering research, many technicians report that they do not always feel included in these teams.

In the focus groups and open survey questions, a lack of inclusion in the planning phases of projects was particularly emphasised. Participants thought this was a reflection of technical contributions and expertise not always being valued and recognised. In addition to a lack of recognition, technical staff relayed that not being included often led to issues such as technical aspects of projects not being considered which could have a knock-on effect for the project, the staff involved, budgets and workloads. Furthermore, where these considerations were not taken into account prior to projects starting, when technical staff later raised concerns, they were then viewed as being difficult and causing obstacles, contributing to negative perceptions. Other comments included the recognition that technical staff can be innovators as well, included in publications, and that some would like to be included in the supervision of students given their knowledge and expertise.

> *"[One thing to improve research culture would be] to be included at the start and being a full member of the group."*
>
> **Core Facility/Technology Technician, Survey of UK Technical Staff March 2021**

82%

of academics agreed that technicians are a vital part of the research team

When academic staff who work with technicians were asked about technicians' contributions to research, 82% of academics agreed that technicians are a vital part of the research team, with 59% strongly agreeing. This aligned with unprompted perceptions around technicians and their work being 'vital' and 'essential'. Despite this, under half (44%) of academics agreed that they usually include technicians in the planning phase of research projects. Again, responses to this survey were most likely to come from academic staff who value their technical colleagues' contribution. There appears to be an imbalance between how included technicians feel and how important academic staff report they are. This should be addressed to ensure technical staff feel included and motivated, which will benefit the workplace and its culture.

Communication was also highlighted as an important area needing improvement. This was identified at many different levels – from better communication in research teams through to communication from senior management and leaders with technical staff. Many respondents also highlighted the need for better communication between technical teams.

Wellbeing

These experiences, working practices, and environments have an impact on technicians' wellbeing. Just under half of respondents believed the wellbeing of technical staff was important to the wider research community (48%). Disabled respondents were less likely to believe it was important (42%), than their counterparts (50%). Respondents based at a university were less likely to recognise wellbeing as being important to the wider research community (47%), than those at a research institute (63%).

There were a number of responses to the open questions in the survey that indicated more could be done in this area. These responses were typically linked to workloads, staff levels, working extra hours and the expectations placed on staff. This was often linked to the previous issue of technical staff not being included in planning and the subsequent impact on their work. Comments also suggested that this extra work and responding to unreasonable demands was just expected of technicians, and a number said they felt they were seen more as a resource than as a valuable member of the team.

> *"[One thing to improve research culture would be to have] group meetings with other technicians who are often collaborators, so that we can each be clear of what everyone does and also avoid making unreasonable demands".*
>
> **Research Technician, Survey of UK Technical Staff March 2021**

> *"[One thing to improve research culture would be to] include [technicians] more in decision making and anything else that directly impacts them. We are an active participant of a team, not just someone who is to be ordered around"*
>
> **Research Technician, Survey of UK Technical Staff March 2021**

In the focus groups and the open questions, technical staff emphasised the potential benefits of establishing technical networks and communities to provide support and opportunities, and to help technical staff who may feel isolated in their roles.

> *"It is often very isolating working as a research technician in my department. No community for technicians exists, and I am still yet to get to know other technicians in the department after working in my current position for over 2 years. There should be a group for technicians to be able to discuss their roles with each other and be able to relate to them."*
>
> **Research Technician, Survey of UK Technical Staff March 2021**

Quality and integrity in research

Research culture impacts how research is carried out and poor research culture has been found to lead to lower quality research and research integrity not always being upheld. As well as this, narrow funding conditions have been felt to impact creativity. These are issues that may initially be seen as less of a concern for technical staff than for academic staff. However, technical staff can be researchers in their own right and are often involved in running experiments and data analysis. To explore technicians' views on research culture and integrity, they were asked to indicate their level of agreement with a series of statements related to this.

Nearly a third of respondents (31%) agreed that the quantity of work compromises the quality of research outputs. 29% agreed that there was pressure to produce particular results, whilst 27% agreed that health and safety was deprioritised in favour of other tasks. Technical Managers were significantly likely to agree with the latter statement (38%), as were those working at universities (29%) compared to research institutes (13%). Respondents who agreed with this statement were also likely to describe research culture as disorganised.

27%

of technicians surveyed agreed that health and safety is deprioritised in favour of other tasks

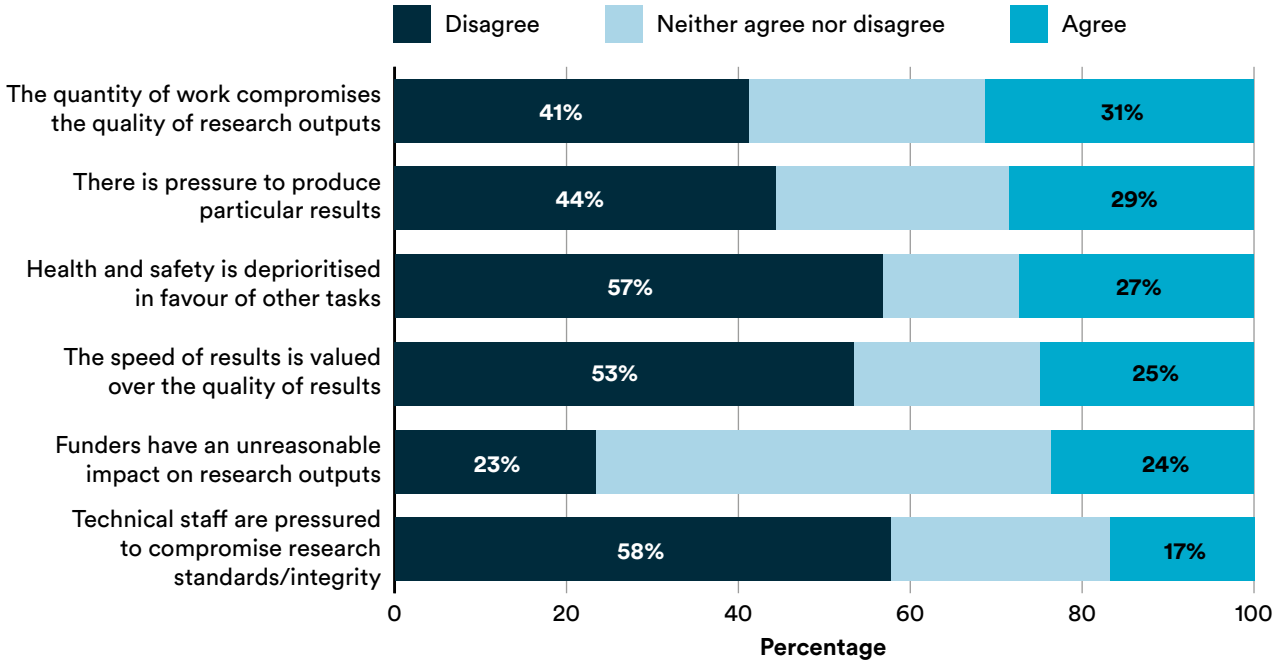

Figure 14: Experiences of technical staff relating to research quality and integrity

Source: Survey of non-technical staff and students 2021: Thinking about research conducted by technical staff at your current workplace, to what extent do you agree or disagree with the following statements? *n = 985 – 1131. N/A removed. 5-point scale somewhat and strongly grouped. Only asked to those involvement in research activities.*

Overall, respondents were unlikely to agree that technical staff are pressured to compromise research standards/ integrity (17%). However, 28% of engineering specialists agreed with this statement. This discipline was also likely to agree that speed of results was valued over the quality of results (35%) suggesting there are discipline specific environments in which this is more of an issue for technical staff.

Respondents were given the opportunity to provide any further comments on research culture or integrity if they wished. Figure 15 outlines the common themes from these comments. These included unrealistic expectations placed on technicians and compromising quality or health and safety.

Technical staff reported that there were sometimes unrealistic expectations placed on them. This was particularly so in terms of the timescales they were given to produce equipment or carry out procedures. Some respondents attributed this to funders not understanding the time projects take, but also to their colleagues not understanding how long technical work may take. As discussed earlier in this report, this could be mitigated by the inclusion of technical colleagues in the planning stages of projects.

"Often time scales are insufficient to produce the quality of equipment required so compromises have to be made to meet deadlines."

Support Technician, Survey of UK Technical Staff March 2021

"The drive for research has not taken into account the time and resources required from a technical perspective."

Research and Teaching Technician, Survey of UK Technical Staff March 2021

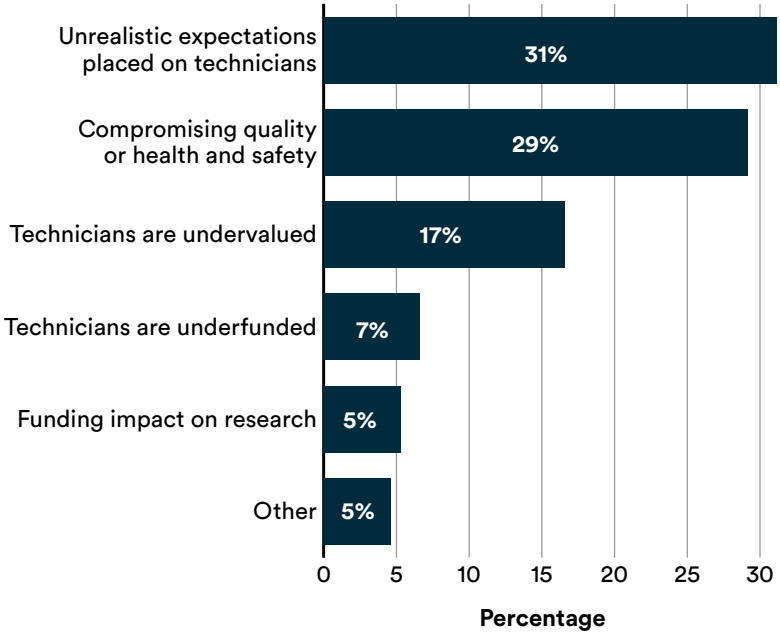

Figure 15: Further details on experiences relating to research quality and integrity

Source: Survey of non-technical staff and students 2021: Please use this space if you would like to share any further details of your experiences or observations relating to this topic. *n = 151. Open question, coded. The remaining percentage was made up of responses that were unable to provide more detail.*

As well as timescales being underestimated, technical staff often find giving the time needed difficult as they have many competing demands on their work time. A number of respondents also reported on factors which impacted wellbeing. For example, that technical staff numbers were low making it difficult to find cover if needed, which in some cases resulted in the technician working long hours. Other comments related to a lack of investment in equipment which technical staff are expected to manage and work with. The added pressures of experiences such as these can impact their wellbeing and work/ life balance, as they have to give more time to ensure the quality in their work.

"Our facility success is measured mainly by throughput. There's a focus in committee meetings on the number of projects completed, not the quality of the research contributions. Our remit is quality research and results, but that tends to happen in spite of, rather than due to, the way we are managed. Too few resources are available to do a good job of health and safety documentation and procedures in a timely manner, and to do proper lab book documentation and sample metadata record keeping and traceability. There's a big effort to do this, but not enough of us to do it, and it tends to get deprioritised."

Core Facility/Technology Technician, Survey of UK Technical Staff March 2021

"Departments are often underfunded. If you don't have big grants, you have no money to produce quality data. There are not enough technicians and appropriate training to look after specialist equipment. This often affects the quality of results and limits research. Pressure to deliver results fast but with limited resources is immense. Research technicians often do not have work-life balance because they have to spend more time in labs trying to produce data using old and often broken equipment...."

Research Technician, Survey of UK Technical Staff March 2021

"Research is conducted in a manner that expects the results, without sufficient investment or care for the methods/facilities that support it. Technical staff are expected to compensate for the shortcomings and are constantly trying to manage expectations. Work is often produced by the technical staff that exceeds the quality that should be achievable with the supplied facilities/ equipment but is simply seen as 'what is to be expected'. There is little, to no communication amongst researchers and their supervisors about procedures involving/what services are offered by technical staff, meaning the technicians often have to pick up the shortfall/perform tasks that aren't a part of their job. People in the department are regularly expected to perform tasks in a way that compromises safety in order to produce the desired outcomes. Those involved in managing the health and safety of the department are often met with a lot of resistance from those it inconveniences when trying to improve it."

Support Technician, Survey of UK Technical Staff March 2021

There were a number of comments relating to health and safety procedures, and it is evident that the COVID-19 pandemic had a significant impact on this. Some techncial staff reported that corners were cut on health and safety. Others who had moved from industry into higher education commented on the perceived "laxer" approaches to following health and safety procedures in the latter. There were a number of respondents who highlighted that health and safety not being compromised was often due to the technician enforcing the regulations and practices despite what they were being asked or expected to do. This then led to poor treatment of the technician and being seen as an obstacle to research, rather than a member of the team carrying out an essential task.

"Health and safety can come second if it means teaching could be affected. Something I do NOT agree with."

Core Facility/Technology Technician, Survey of UK Technical Staff March 2021

There were a number of respondents who said they could not comment as they were not conducting research themselves, and others who expanded on this to say that even if not directly affected, they saw the effects of a negative research culture on their colleagues.

Some comments made it clear that compromised research standards were dependent on the research team the technician worked in, rather than it being a more general widespread issue. In terms of pressure felt by technical staff, this was defined by some as being self-imposed to ensure quality of work rather than coming from a team or institutional culture whereas others commented that pressure may result from research teams being disorganised.

There were a number of responses that were positive about their experiences of research culture in regard to research standards and integrity, with some commenting they had never witnessed compromised standards, or that their workplace focuses on quality in research.

"My current workplace is very good at emphasising quality of results over quantity and are realistic about timings - the main issues come from other researchers or from funding bodies."

Research Technician, Survey of UK Technical Staff March 2021

"We have never been asked to work with anything we felt uncomfortable with. If we don't feel like we have the manpower to fit something in, we are able to refuse and rearrange work to suit us. We are never pressured to do things below our standards and with that respect for us we in turn always do our best to fit in as much as we can and help out to the best of our ability."

Animal Technician, Survey of UK Technical Staff March 2021

Opportunities in research

Research and higher education institutions offer dynamic places to work for their staff, who should have access to opportunities to develop their skills and advance their careers. Moreover, technicians need to remain technically competent in their roles and therefore the opportunity to develop and update skills should be integral to their roles.

The TALENT Commission report identified that there are many challenges for technical staff in terms of developing and advancing in their careers, and that opportunities available to other members of the research community can be less accessible to them.

Career progression and professional development

When asked a series of statements about their attitudes towards technical careers, only 19% of respondents to the survey of UK technical staff, who were involved in research activities, said they could see a clear career progression pathway available to them. The lack of career progression opportunities also came up many times in the open questions and focus groups, with particular reference to technical careers not progressing beyond certain levels. This presented an inequitable experience in comparison to other job families. Other challenges raised by participants included a lack of specialist technical roles existing, the need to move into management roles to progress and the potential loss of skills and knowledge this causes.

Other statements showed some negative views towards opportunities available to technical staff as only 30% agreed that they were positive about the career opportunities available to them and only 26% agreed there were flexible options open to them in their technical careers.

However, there were a number of positives as well. 81% of these survey respondents said they were proud to be a member of the technical community, 69% would recommend their workplace to others and 67% would recommend a technical career. The majority also hoped the remainder of their careers would be with their current employer and in the technical profession (54% and 58% respectively).

Given these positive statements, and the pride and fulfilment technical staff get from their work, institutions should work to support their development and careers so that these staff are retained and their skills, knowledge and expertise are not lost.

48% of respondents to the survey of UK technical staff who were involved in research activities had considered leaving the technical profession in the preceding three years. The most common reason given for this, by more than half of these respondents, was a lack of opportunities for career progression. Other commonly selected responses were lack of recognition and salary.

Technical staff were also asked about the barriers they face in their careers. Just under half of the respondents (48%) selected a lack of opportunities as a barrier to a successful career. Slightly fewer selected a lack of support from their institution/workplace (33%) and lack of funding (32%). Wellcome asked their survey respondents a similar question, and their responses differed from the technical communities as they were more likely to identify a lack of funding (53%), job insecurity (51%) and unmanageable workload (43%) than other options. 38% and 35% selected a lack of support from their institution/workplace and lack of opportunities. These responses show there are concerns relevant to the research community as a whole, but some that are more pressing for technical staff. The specific concerns of different staff groups need equal consideration in initiatives to improve research culture and to increase retention in, and attractiveness of, research careers across job roles.

81%

of technicians surveyed said they were proud to be a member of the technical community

Grants, planning of research projects and opportunities to contribute to research

The TALENT Commission identified that there were a number of inconsistencies and misunderstandings in the way that technical staff are funded. With regards to research grants, worryingly the Commission found that "there is evidence that technical staff are under-costed on proposals, and are the last cost added and first cost stripped out when a proposal is perceived as 'too expensive'" despite that technical work being essential to the delivery of the proposed work.

When asked about their experience with research grants in the survey of UK technical staff, 50% of those involved in research activities stated they had never applied for, or been included in, a research grant. However, these respondents were likely to be Support Technicians (75%) or Teaching Technicians (73%). Perhaps unsurprisingly, length in role correlated with experience with research grant applications; 72% of those who had been in a role for 2 years or less had never applied for a grant or been included in a grant, whereas only 38% of respondents who had been in a technical role for 20+ years had never applied for a grant or been included in a grant. The latter group were significantly likely to have been specifically named on a research grant application (37%).

Of those who had experience with research grants in some capacity, only a very small number had applied for grants themselves or been included as a co-lead.

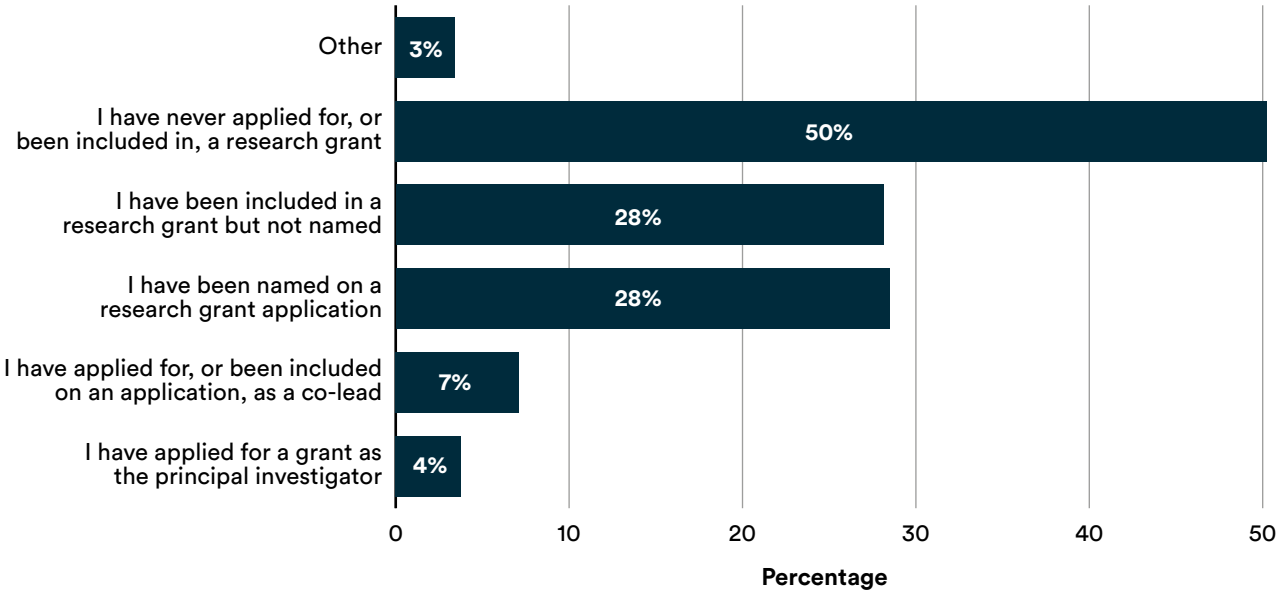

Figure 16: The experience of technical staff with research grants

Source: Survey of non-technical staff and students 2021: What is your experience with research grant applications? *n = 1194. Only asked to those involvement in research activities.*

When asked, academics agreed that technicians should be able to apply for research grants (61%). However, only 33% agreed that they usually include them in research grant applications. When compared across disciplines, engineering academics were more likely to include technicians on grant applications (56%).

"[To improve research culture] allow them the time to do [research]! Allow them to block time. Encourage them to write grant apps and pursue funding of their own, either individually or as part of a larger technical team effort."

Technical Manager, Survey of UK Technical Staff March 2021

There was also a sentiment amongst technical staff that their knowledge, skills and expertise are not always well used or they do not have the opportunities to use and develop these. Many commented that within their roles they should have the opportunity to carry out their own research, but that in practice this was difficult due to workloads, time constraints and attitudes towards them.

"Provide them with more opportunities to develop their scientific knowledge and invite them to participate more in brainstorming research ideas."

Teaching Technician, Survey of UK Technical Staff March 2021

"Dedicated research time built into our contracts as is the case with academic staff i.e., 20% of our hours should be protected for research or personal development. The nature of our roles and the expectation on us as technical staff is that we are always 'available' and on call, there is no time to even prepare the teaching materials we need for our own demonstrations to students, never mind to focus on a project or area of research of our own. Research, personal development and up-skilling should be integral to our roles, not something we are constantly doing in our own time. We cannot be expected to be student facing and available to help at all times as this is detrimental to us as skilled professionals and impacts negatively on our wellbeing due to high stress levels. Technical staff are relied on heavily for everything from their usual teaching/ preparation tasks to cleaning/ risk assessments and health and safety. We are encouraged to do research in our field but never have the time to do any. This is a result of being undervalued, underpaid and our roles and responsibilities (which can vary drastically even in the same institution) being misunderstood."

Teaching Technician, Survey of UK Technical Staff March 2021

"Survey, acknowledge and share in our technical skills experience and knowledge. Value this as a known resource, making time available so academics can access our skills and time."

Research and Teaching Technician, Survey of UK Technical Staff March 2021

"Allowing Technical staff to take part in research during times where teaching is not running or where classes are fewer as part of their CPD activities and career progression."

Teaching Technician, Survey of UK Technical Staff March 2021

"More integrated involvement in the research projects. I.e., technical staff should have a specified role in the research group or setting. It is often too general and spread around various labs."

Support Technician, Survey of UK Technical Staff March 2021

"Understanding that technical staff make as much of a contribution to research as research staff, and frequently are experts within their own field."

Core Facility/Technology Technician, Survey of UK Technical Staff March 2021

Changing research culture

Technical staff are not only affected by research culture; they have an important role to play in improving it. It is important that their views and suggestions are considered, they are included in the conversations and their participation is encouraged and supported.

Survey respondents were asked to suggest one thing that could be done to improve the research culture for technical staff at their workplace. A random sample of responses was coded and the following common themes were identified.

34% wanted to see more recognition for contributions. This included acknowledgements in research papers, recognition of expertise and skills sets, reducing micromanaging of capable technicians, and listening to suggestions.

"A more equal footing between technical staff and academics with appreciation of each other's roles and how both sides are needed for good output."

Core Facility/Technology Technician, Survey of UK Technical Staff March 2021

23% wanted to see more collaboration and open communication. This included communication channels between research and teaching teams, and between technical staff and academic teams, as well as between staff and senior leadership teams. Some responses were also linked to technical staff feeling a lack of respect for their suggestions.

"There are huge differences in the attitudes of academic colleagues, some highly value our contribution. Others virtually exclude us. Those that exclude us operate as a clique (largely within a discipline). This being addressed by institute management would help inter-disciplinary collaboration and perhaps make them more open to contributions from technical staff."

Technical Manager, Survey of UK Technical Staff March 2021

17% mentioned inclusion in decision-making. This was closely linked to collaboration, but also reflected being included in conversations during application and bidding processes or feeding into methodology and design. Some technicians felt they were not given enough notice of forthcoming projects, nor were they effectively utilised during quieter periods, for example over summer when teaching was not required. Many responses suggested there would be an increase in job satisfaction if technicians were involved in projects from an earlier stage, and able to contribute fully, rather than doing small house-keeping tasks across different projects.

"Being used to produce actual research material and to support research activity with active input, rather than more mundane housekeeping tasks."

Technical Manager, Survey of UK Technical Staff March 2021

16% mentioned opportunities for career progression or clear development pathways. Responses suggested a desire for increased training and better networking opportunities, in addition to better recognition of contributions by senior leadership teams. Many suggested they wanted their skills to be used more effectively, or their advice to be acted upon.

"Give opportunities to technical staff to work their way up the ladder in a research career. I say this on every survey I get given [...] The University has this extremely naive mind-set that if they ignore their technicians' opinions and demands, then technicians will stay. Our VC is adamant about not giving an annual award to technical and professional service staff - it's only one person out of hundreds of members of staff [...] academics are constantly rewarded for ignoring our pleas - they are almost actively encouraged to break the rules of the labs, or just completely ignore our guidance and instruction that we are meant to be enforcing."

Research Technician, Survey of UK Technical Staff March 2021

14% of responses related to workload management and job security. This included employing more support staff, ensuring administrative tasks were spread out to allow technicians to take part in research, and reducing pressure on time to ensure quality. More funding was commonly mentioned, as were longer contracts.

"Better job security - lack of security leads to staff anxiety, and sometimes the loss of good, experienced staff just because their funding has ended."

Research Technician, Survey of UK Technical Staff March 2021

1% wanted to see a better understanding of technicians' roles in research from other staff. This included understanding the value of technical staff, as well as the skills and expertise they have to offer.

"Learn how to utilise me and engage me to help more. I have skills, people don't take advantage of them."

Technical Manager, Survey of UK Technical Staff March 2021

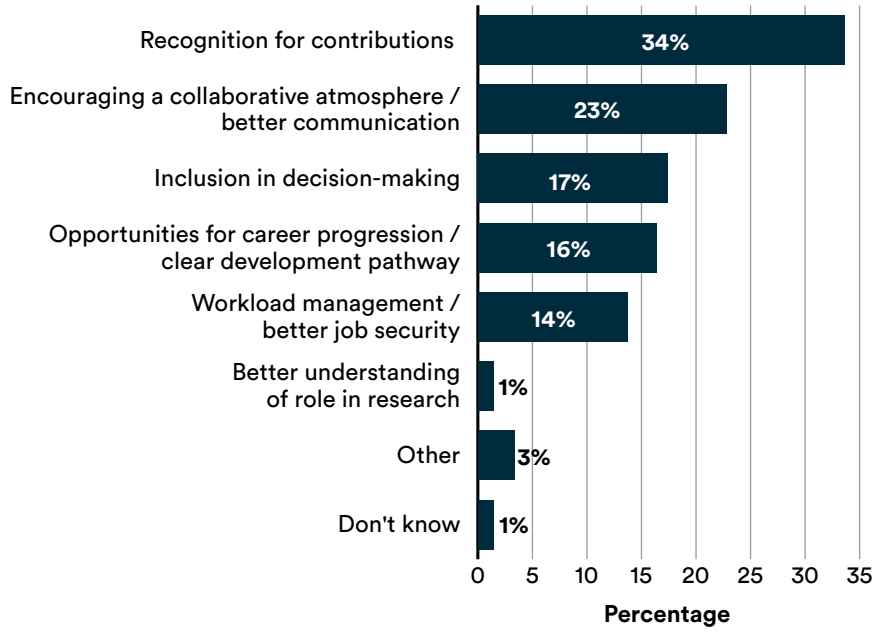

Figure 17: Suggestions for ways to improve research culture

Source: Survey of non-technical staff and students 2021: What one thing do you think could be done to improve the research culture for technical staff where you work? *n = 562. Open question, coded.*

These improvements will require collaboration across the research community, and it is essential to include technical staff in this not only as it impacts them, but because of their impact on the research culture.

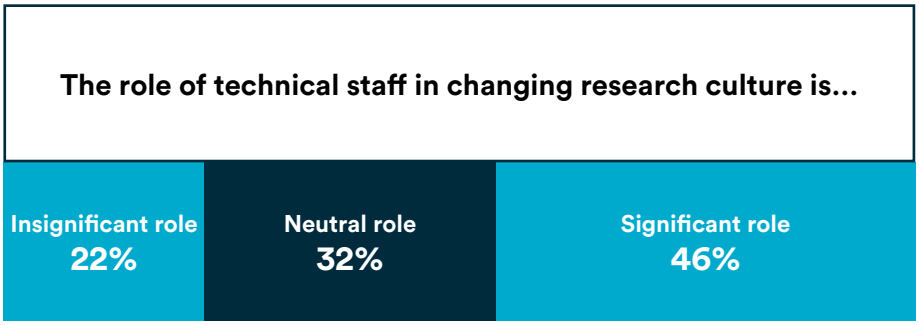

Figure 18: The role of technical staff in changing research culture

Source: Survey of UK Technical Staff 2021: Please assign each statement an answer using the sliding scale. (n=1194). *5-point scale, top and bottom boxes grouped.*

Conclusions

As a vital part of research teams, technical staff are both impacted by and play a role in influencing research culture. Despite this, many technical staff do not feel included in the research community, or that research culture necessarily impacts them. Therefore, technical staff need to be considered and actively included in research culture initiatives, such as data collection on perspectives and experiences, with clear communication on how their opinion will be used.

A key theme across responses from technical staff was a lack of recognition for their contributions and expertise. This is exacerbated by a lack of understanding of technical roles. It is essential that the skills and expertise offered by technical staff is respected and understood. This can be achieved through mechanisms that ensure formal recognition of their contributions and appropriate acknowledgment on research outputs and publications. Where appropriate, this includes HEIs enabling technical staff to be formally recognised as supervisors on student projects.

Those that manage technical staff should ensure they have a good understanding and appreciation for the depth and breadth of technical roles, skills and expertise in UK higher education and research. Project leads should actively encourage collaboration and ensure that technical staff are included and recognised as members of the team. This not only benefits the technicians; many research projects require significant technical input, for example technical skills can enhance the safety of a project's operation. Technical staff need the time and support to carry out this crucial aspect of their roles and the opportunities at the appropriate stages to make these contributions. Matters on research integrity, including The Concordat to Support Research Integrity, should be inclusive of technical staff. Technical staff are vital to the generation of research results and data. It is essential that technical staff are not put under pressure to compromise the integrity of their work.

Technical staff reported significant challenges with advancing their careers, due to limited options for progression. Undertaking professional development activities can also be difficult due to a lack of time. Opportunities should be open for technical staff to broaden their skills and experience, for example through supervision of students and leading or co-leading research projects. Technical staff should be supported, encouraged, and sign-posted to opportunities.

There is significant work to be done in improving research culture and many initiatives are already underway. It is essential that technical staff are considered and consulted in this as improving research culture will require a collaborative effort across the entire research community.

Recommendations

1. Employers of technical staff, funders, and sector bodies (e.g., professional associations and learned societies) should ensure that initiatives to improve research culture, from institution through to sector level, are inclusive of technical staff. Committees, groups, and discussions should include technical representation to ensure they reflect the community they represent and to provide diversity of views and expertise.
2. Technical staff should be credited appropriately on research publications and outputs. Employers of technical staff, publishers, funders, and other sector bodies (e.g., professional associations and learned societies) should ensure the contributions of technical staff are visible and recognised.
3. Project leads should understand and recognise the importance of technicians' contributions and expertise to projects, ensuring inclusion at all stages, for example, enabling input in the early planning phases.
4. The fundamental role that technical staff play in ensuring the health and safety of staff and students across UK higher education and research needs increased recognition. Their expertise and practice should be supported and respected to ensure a safe working environment for all. This should include the provision of dedicated time to ensure health and safety practices can be delivered in a judicious manner.
5. Employers and funders should enable opportunities for technical staff to be considered as principal and co-investigators, co-supervisors or named researchers on internal and external grants and projects.
6. Employers of technical staff should ensure visibility of clearly defined career pathways, both through managerial and specialist progression routes, and ensure provision and access to a range of professional development opportunities tailored to technical roles and careers.

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