



Engineering and Physical Sciences Research Council

Collection of the outcomes and outputs from the EPSRC Inclusion Matters investment Commissioned by the Engineering and Physical Sciences Research Council (EPSRC), this report focuses on the outputs and outcomes of the Inclusion Matters investment

*Please note that as a result of the ongoing nature of dissemination activities, details are correct up to and including 25th October 2022.

Contents

Executive summary	4
Overarching look at the portfolio	5
EPSRC's unique approach	23
Senior leadership	24
Project partners	26
Collaboration	28
Outcomes associated with collaboration	31
Challenges and suggestions from the Inclusion Matters projects	32
Different disciplinary norms	32
Consortium challenges	36
Insight	40
Spotlight on achievements	40
Key outputs	41
1. Toolkits, training resources and educational material	41
Toolkits	43
Training resources	44
Databases and lists to share knowledge	45
Educational material	45
2. Traditional academic outputs	47
3. Beyond the traditional outputs	51
Reports	53
General media outputs	57
Evidence submitted to all party parliamentary group (APPG) inquiries	60
Conferences	61
Online events	63
Social media content and blog posts	65

Key outcomes	68
1) Internal actions	68
Transforming institution-wide practices, strategies and guidance	69
Embedding change through engagement with HR and professional and support services	72
Informing recruitment and promotion practices	73
Raising awareness of Inclusion Matters project findings and insights	74
Investment in new EDI appointments	76
Creating and contributing towards networks and working groups to promote informed practice	78
2) External actions	79
Direct impact	79
Further dissemination – engaging with stakeholders	81
3) Career progression	83
Evidence of overall career progression	83
Raising ECR profiles	85
A point for further consideration: the importance of being named Principal Investigator (PI) for career progression	86
4) Further investment generated by the Inclusion Matters projects	87
Funding awarded by UKRI research councils	88
Funding towards developing inclusive working environments	89
Connecting EDI and EPS undergraduate and postgraduate students	91
Further funding for targeting global EDI issues	91
Funding to support the reduction of climate change	92
Internal funding	93
PhD funding	94

Recommendations	95
Conclusion	96
Acknowledgements	98
Appendix A: Logic models theory	99
Appendix B: Theory of Change models for the 10 Inclusion Matters projects that responded to the data capture survey	101
Appendix C: Theory of Change Model for the Inclusion Matters Portfolio of Investment	112
Appendix D: Traditional Academic Output	114

Executive summary

Equality, diversity and inclusion (EDI) initiatives within the engineering and physical sciences (EPS) community have accelerated in the past decade. The <u>Inclusion Matters portfolio</u> sought to harness and build on this progress by developing and implementing new approaches aimed at tackling and accelerating culture change. It aimed to incentivise behavioural and long-term culture change, promoting a more diverse, fair and inclusive engineering and physical sciences community and embedding innovative practice more broadly in the community. It is now more important than ever that EDI initiatives and innovative practices, are adopted by the EPS community to cater for an ever-changing, diverse demographic of students and staff, and to address the ongoing equality challenges affecting the sector.

It was evident from the findings that EPSRC's substantial investment was well received and welcomed by the project teams. The teams praised the opportunity to undertake valuable research into EDI issues, learn from others and disseminate their findings among a broad spectrum of stakeholders. Despite the challenges triggered by the global pandemic, teams were able to execute their research, achieve their overall objectives and deliver successful and desirable initiatives.

A key success of the Inclusion Matters portfolio was the effective implementation of multidisciplinary working instead of disciplines and faculties working in isolation. Sharing innovative practice among colleagues from divergent disciplines helped research teams to embrace paradigms which would not necessarily have been used within the EPS community. There are calls for more widespread work to be instigated in this area and for the continuation of multidisciplinary working initiatives.

Senior leadership buy-in was vital to the success of the Inclusion Matters EDI initiatives, aligning them with the overall strategy and corporate plans of the institutions. In a similar vein, the support from EPSRC was largely welcomed and valued as much as the monetary funding.

The findings show that embedding the initiatives and enhancing the longevity of the impacts was challenging to an extent. There was a recognition from the Inclusion Matters teams that, to ensure success, individuals in a position of power must support and reinforce EDI initiatives, and the length and funding of future projects should be extended. There must be sustained investment in EDI even after the project end date to build project legacy and there must be a willingness from the institutions to support follow-on funding.

A comprehensive set of recommendations and suggestions for improvement are offered based on input from the Inclusion Matters teams. These aim to provoke further thought and conversation beyond this initial exercise and stimulate further action for a variety of audiences.

The recommendations highlight the most pressing actions for the EPS community to enable researchers to address future EDI challenges, including the need for inclusive approaches within EPS, mechanisms for promoting multidisciplinary research and the use and continued promotion of Inclusion Matters online resources and materials. It is hoped that these recommendations will be welcomed by the EPS community, and enthusiastically adopted and implemented.

Overarching look at the portfolio

In 2018, the Engineering and Physical Sciences Research Council (EPSRC) now part of UK Research and Innovation (UKRI) piloted a first of its kind Inclusion Matters call for research proposals. It subsequently funded 11 highly ambitious and inspiring Inclusion Matters projects. The call aimed to increase diversity and accelerate inclusion in the engineering and physical sciences (EPS) community, with each project adopting a different approach, as detailed below.

Portfolio of products

- + 11 projects funded
- + Project duration of 24 months (excluding one project, which lasted 48 months)
- + £5.5 million invested
- + Around 119 staff members involved across 22 institutions
- + 63 project partners across academia and industry
- + More than 50 strands of activities
- + 18 toolkits, 4 training resources, 3 databases and 75 pieces of educational material comprising staff and student profiles
- + 17 academic papers and book chapters
- + 15 reports, 9 articles for the media/press, 6 pieces of evidence submitted to APPGs
- + 58 conference presentations and posters delivered
- + 26 events organised, including 4 conferences
- + More than 75 actions taken as a result within home and partner institutions and beyond
- + More than 35 bids submitted for additional or follow-on funding at least 21 successful
- + At least 5 awards related to individuals involved in Inclusion Matters projects
- + At least 16 instances of career progression linked to individuals participating in Inclusion Matters projects

Advanced strategic platform for inclusive research environments (ASPIRE)

Research findings to feed into the equality and diversity agenda for the upcoming Research Excellence Framework

ASPIRE offers an innovative, evidence-based approach to deepen our efforts in improving EDI to build a more inclusive research environment. Through extensive partnership, working and drawing on experiences across both the research and non-research communities, ASPIRE will accelerate sector-wide implementation of effective EDI practice.

Project website



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Challenging different forms of bias in physical science and engineering research

Increase representation of women and ethnic minority academics

To increase representation of academics from ethnic minority backgrounds and women academics. Looking at how the quality and value of academics' work is assessed in promotion processes and in the Research Excellence Framework (REF), to understand where the sources of bias arise.

Project details



Advance HE EPSRC 2022

DISC – Disability Inclusive Science Careers

Develop initiatives to support disabled early-career scientists' retention and progression

The aim of DISC was to improve the recruitment, retention and progression of postdoctoral disabled scientists through an online training portal designed to support employers with disability inclusion.

Project website and twitter handle @DisabilityIncl1



can be found in this video)

Advance HE EPSRC 2022

eBase: Evidence-Base; growing the Big Grant Club

Diversify Big Grant leadership

Understanding the grant funding landscape to identify pinch-points experienced by marginalised academics (the primary focus was on women, but this has been broadened to ethnic minority researchers, too) with a view to designing interventions to address those pinch-points and embed them to ensure systemic change.

Project website and twitter handle @evidenceBase_IM



Inclusion really does matter: improving reactions to gender equality initiatives amongst academics

Diversify the EPS research population

To accelerate EPS diversity culture change, by addressing how gender equality initiatives are received on the ground, by the people who create this culture.

Project website and twitter handle @QUBIncMatters



Northern power: making engineering and physical sciences research a domain for all in the north

Trial initiatives to support progression of women and ethnic minority academics

Durham University, along with eight other universities and six industrial organisations, embarked on a new and exciting research project to tackle this issue in the North of England. The aim of the project was to increase the attraction, retention and progression of people who are traditionally underrepresented in STEM subjects.

Project website



Promoting EDI in university spinout companies - a case for action

Identify barriers as well as enabling factors that exist for women scientists, engineers and mathematicians in key stages of the spinout process and entrepreneurial activities to commercialise research and innovation

The project aimed: (i) to map the pathway to spinout; (ii) to investigate how men and women researchers build their entrepreneurial capacity; and (iii) to engage with the innovation processes that lead to spinout.

Project website and twitter handle @WomenSpinouts



Advance HE EPSRC 2022

Project logic model

4x Project partners

Elsevier UK, Pertinax Pharma, The Royal Society of London, University of Oxford

Key activities:

Production of sex-disaggregated overview of women's participation in spinouts, exploration of the barriers and enables to increase women's participant in spinout companies' leadership, focus group facilitation to explore ECRs views of academic entrepreneurship, development of mentoring opportunities, development of online platform hosting key resources promoting inclusive academic entrepreneurship, case studies with successful women founders of spinouts, collaborative initiatives (e.g. panel discussions) with key stakeholders to promote women academic entrepreneurship

Key resources:

Developing gender inclusive academic entrepreneurship resources, inspiring women spinout founders profiles and insights

Reimagining recruitment

Improve language used for recruitment in EPS research and innovation

To begin a process of culture change, by giving scientists the opportunity to undo damaging stereotypes and understand the benefits of working as part of a more diverse team.

Project website



Advance HE EPSRC 2022

STEM equals

Develop initiatives that will improve equality and diversity for women and lesbian, gay, bisexual and transgender (LGBT) staff across science and engineering

The STEM equals project aimed to develop initiatives that will improve equality and diversity for women and lesbian, gay, bisexual and transgender (LGBT) staff across science and engineering. The project also aimed to deliver a fresh approach to university management to diversify senior leadership, increasing women's representation.

Project website and twitter handle @STEMEquals



STEMM change – uncovering barriers to inclusion and transforming institutional culture

Provide for and recognise the contributions of technicians, software engineers, project managers and all other professional support staff involved in EPS research and innovation

STEMM change's vision is for EDI to become business as usual for all. STEMM change aimed to: a) change processes by delivering greater diversity in recruitment and retention in STEMM through the STEMM active checklist and software tools; b) change culture through understanding the language of exclusion and how to challenge and change it; and c) change behaviours to achieve a strategic diversity through reverse mentoring and the 'Changemaker' scheme.

Project website and twitter handle @STEMM_CHANGE



VisNET: virtual in situ networking to reinvent the rules of international collaborations and reduce gender differences in academic careers

Improve women EPS academics' experience of building their international reputation through transforming the mechanisms of networking and collaboration

The vision was to:

- 1) Identify key barriers to international collaboration for women engineering academics.
- Design and demonstrate interventions and new best practices in networking and collaborations to define a new and more effective normal.

Project website and twitter handle @visNET_



Advance HE EPSRC 2022

8x Project partners

Atkins Ltd, CGI IT UK Ltd, Nokia UK Ltd, NXP Semiconductors Ltd, Scottish Research Partnership in Engineering, Thales UK Ltd, University of Edinburgh, University of Strathclyde

Key activities:

Development activities for women ECRs from the EPS community based on in situ networking and collaborations, mentoring and peer-mentoring, research on barriers of international collaborations for academic careers and how this differs by gender, assessment of interventions that promote international collaboration for women careers, online survey with eBase on the impact of Covid to academics' life, work and career

Key resources:

Youtube video summarising project findings, Twitter poster GIFs produced to summarise findings related to '<u>Networking Barriers</u>' and '<u>Dissonance Towards</u> <u>Gender Barriers in STEM</u>'.



The Inclusion Matters projects' team make-up

Overall, there were **119 Inclusion Matters team members.** Within the project teams, the number of research staff varied from 4 to 23. The table below outlines the number of staff involved in each Inclusion Matters research project:

Inclusion Matters project	Count of team members
ASPIRE	7
Challenging different forms of bias in EPS research	11
DISC	7
eBase	11
Inclusion really does matter	19
Northern power	23
Promoting EDI in university spinout companies	8
Reimagining recruitment	9
STEM equals	4
STEMM change	10
VisNET	10

It is worth clarifying that 119 is the total number of members that were involved throughout the duration of the Inclusion Matters projects, meaning that not all of those were employed for the entire duration of each project. Aside from the usual staff turnover that happens throughout the duration of funded projects, including university staff members (for example, due to departure from institutions for career progression), the unique circumstances brought by Covid influenced project staffing significantly.

Inclusion Matters team members came from a variety of disciplinary areas. This is very important as the Inclusion Matters investment encouraged collaborative work, transgressing the boundaries of disciplinary silos. Moreover, the variety of disciplinary areas and directorates represented within the Inclusion Matters team members is an important indicator of the impact that the Inclusion Matters work could have, as Inclusion Matters team members acted as project advocates and spread project findings across their networks, extending the EPS academic community. The following chart captures the diversity of disciplinary areas present in the Inclusion Matters project, presenting a school/ directorate breakdown of the total Inclusion Matters team members.



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Most Inclusion Matters teams were multidisciplinary and, in most cases, interdisciplinary as well. The chart below shows how this played out per Inclusion Matters project. This is important as it shows how each Inclusion Matters project brought together team members from different areas of the university in an attempt to combine the strengths of various disciplines to produce impactful research. Moreover, the very purpose of the Inclusion Matters investment was to promote EDI and an inclusive research culture, so bringing people from different disciplinary backgrounds to work together for the advancement of this cause is a good example of how the Inclusion Matters teams practised what the project 'preached'.



IM team members in numbers

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	Architecture and planning	Social studies	Humanities and language- based studies	Education	Administrative and business studies	Academic and central administration services	Biological, mathematical and physical sciences	Medicine and health	Engineering and technology
ASPIRE		29%				57%	14%		
Challenging different forms of bias in EPS research					9%		9%	64%	18%
DISC					71%	14%			14%
eBase		9%	9%			9%	36%	9%	27%
Inclusion really does matter	5%						26%	32%	37%
Northern power	4%		4%	22%		30%	22%	4%	13%
Promoting EDI in university spinout companies					75%		13%	13%	
Reimagining recruitment						22%	22%	56%	
Stem equals									100%
STEMM change VisNET			20%		10%	10%	10%	20%	30%
				30%		10%			60%
	Please no	ote tha	t the table	uses rov	v percentag	jes			

In terms of the roles that Inclusion Matters team members have, these vary again, as represented in the following chart. Almost half of the Inclusion Matters team members were co-investigators, whereas researchers made up nearly a quarter of the team members. In total, the proportion of people on managerial or co-managerial roles (64%) outnumbered those on research or other project support roles (35%).



Project roles across Inclusion Matters team members

However, this chart does not take into account the amount of time each of the different roles contributed to the Inclusion Matters projects. There were a large number of different disciplines and over 22 institutions involved in the projects, and as a result, there were a large number of co-investigators to cover each discipline and institution bringing valuable knowledge and skills. Each co-investigator represented a small proportion of time on the grant in comparison to the other role groups, however, they were well-placed to contribute to raising the awareness of the project thereby meeting a key aim of the funding.

Researchers were incredibly important for the Inclusion Matters projects and they formed the second biggest group after co-investigators. Researchers had a pivotal role in terms of the implementation of the programme on the ground as well as for dissemination, as will be further discussed in the Key Outcomes section of this report. It is also important to note that predominantly the post-doctoral research associates (PDRAs) roles were full-time positions. In general, for an investment that centred around the promotion of an inclusive research culture, it is great to see researchers making up a substantial part of its total staff members.

EPSRC adopted a unique approach to the different senior leadership roles within the Inclusion Matters project teams, this is covered in greater depth in the next section of the report. Briefly, this meant that the role of programme director was taken on by one of the co-investigators, and the principal investigator role was primarily held by a pro vice-chancellor or EDI/Research Leader to encourage buy-in from senior leadership.



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Finally, it is worth highlighting that **not all Inclusion Matters team members were academics**, with 13% of the total number of Inclusion Matters team members belonging to professional and support services. This is particularly important as professional and support services staff have a key role in promoting and (re)shaping EDI issues across institutions. Hence, their involvement is a further indicator that the Inclusion Matters projects did indeed take a **holistic approach**, involving staff members from across their institutions to accelerate culture change with respect to equality, diversity and inclusion, disseminate their findings and embed good practice.

EPSRC's unique approach

In 2018, EPSRC funded 11 Inclusion Matters projects. The projects focused on the development and implementation of new approaches aimed at tackling and accelerating culture change. Each project developed and implemented a unique EDI initiative for the EPS community. Importantly, the funding call incentivised behavioural and long-term culture change.

To meet the ambitious goal of behavioural and long-term culture change in the EPS community, **EPSRC adopted a unique approach**, which **emphasised collaboration**.

In the next section, we will discuss, the importance of buy-in from leadership and project partners, focusing on:

- + Feedback from Senior leadership
- + feedback from Project partners
- + explore the practicalities of Collaboration and its associated outcomes
- + and a final section on Challenges and suggestions from the Inclusion Matters projects.

Importance of buy-in from leadership and project partners

EPSRC's approach to the call explicitly promoted **engagement with stakeholders** and **national and international collaborations**.

EPSRC outlined the scope in the funding call:

Senior leadership buy-in. A pro vice-chancellor for research or pro vice-chancellor for equality, diversity and inclusion or similar to be appointed as the principal investigator on applications. In addition, to nominate one of the named investigators as the Inclusion Matters programme director and for that programme director to be responsible for successful operation of the grant and recognised as the institutional lead by EPSRC. The principal investigator and programme director are also expected to attend the interview for the funding application.

Promoting sector buy-in. Expectation to partner with institutions on equality, diversity and inclusion activities with matched support from institutions. Encouraged to consider analogous learning from outside the higher education sector, in particular **to involve project partners (collaborating organisations)** to bring new perspectives and capabilities. Project partner support could be financial contribution and/or in kind support eg secondments, trainers, sharing of expertise and experience, hosting visiting researchers, supporting events or collaborative work focused on exploring issues or actions relating to the academic research environment.

Promote collaborative engagement. Expectation **to look beyond the local** department and institution, to reach out and **work collaboratively** and information share **with other organisations**, eg other institutions, charities, support agencies, the police, the NHS, business and primary/ secondary schools. This could include the development of networks that promote inclusivity, connectivity and support for individuals with common challenges based around shared characteristics and also act as information and knowledge hubs, disseminating information, and providing a forum for communicating to and from other areas of the institution(s) or sector.

Senior leadership

One of the key factors that EPSRC outlined as essential was buy-in from senior leadership. This meant active involvement from someone who held a senior leadership position, such as pro vice-chancellor.

To ensure buy-in from senior leadership, grant applicants were required to name a PI who held a position in senior leadership. The intention was **to facilitate the active engagement of this group of stakeholders**, who are commonly acknowledged to be 'hard-to-reach' and yet immensely influential in terms of driving change. The prerequisite was seen as essential to implementation and long-term success.

Having senior leaders being actively involved in the Inclusion Matters projects was seen as a great way to **raise the visibility** and profile of the project at an institutional level.

"Having this very senior person in a leadership position in the university named helped us open a lot of doors. Because you can just drop this name and saying that this name is in your project and supporting you, and somehow something gets done."

(Researcher, STEM equals)

The requirement to establish buy-in from senior leadership "added credibility" and "made a huge difference internally" (research team member, Reimagining recruitment). Project teams were concerned that needing to name a senior leader PI could lead to them being a 'name on the paper'. However, this was not the case for any of the 11 project teams, as **all the named senior leaders were actively involved** in the Inclusion Matter projects.

In some cases, active involvement manifested itself as senior leaders having regular team meetings with the project teams to share updates, results and feedback. In other instances, active involvement was attending events and bringing awareness of the Inclusion Matters project to committees.

Many of the researchers commented that the active involvement of senior leadership was key in creating a supportive and constructive environment that allowed the project teams to evolve and flourish. As **senior leaders** they **were able to facilitate institutional change** not only through their positional authority but also through their access to multiple networks.

Indeed, even senior leaders themselves reported that having their 'name on paper' as the institutional leaders of the projects or *"just showing willingness and coming along"* (senior leader, eBase) was important for the Inclusion Matters projects to gain traction. In general, members across all the Inclusion Matters project teams were clear that, without senior involvement and that push from 'higher up' for things to be done, the success and long-term impact of the Inclusion Matters projects would be compromised.

Ultimately, both the project teams and senior leaders recognised that senior leaders were instrumental in driving institutional change, by using *"the findings of the projects to make a difference"* (senior leader, eBase).

However, the fact that the PI of the Inclusion Matters projects had to have a senior leadership role was also considered a challenge by some Inclusion Matters research team members.

A key issue that was reported was that the named project PIs, **the senior leaders**, **reaped the most benefits in terms of credits that count for career progression**. This prerequisite was viewed as contradictory to the Inclusion Matters funding scheme's overall aim of facilitating culture change, as having a senior leader being the PI when the leader on the ground was, in most cases, a less senior member of staff from a minoritised community was seen as a practice (re)producing inequities related to EDI and career progression in the EPS community.

Having a PI in a senior leadership position also raised challenges for cross-institutional projects that did not have the same level of senior leadership buy-in in all sites. Similarly, staff turnover in senior leadership roles created challenges as, understandably, senior leaders were frustrated that when their roles came to an end they had to pass on their PI-ship, even though they might have personal and professional expertise and interest in advancing EDI within the EPS community. In some cases, the transfer of PI-ship led to weakened buy-in from senior leadership, as the new senior leader was not necessarily as involved or effective as the original placeholders.

Moving forward, to address the imbalance of credit associated with the PI role in terms of career progression; a point of learning for next time would be to appoint a senior leader and project director as Co-PIs (or retain the traditional PI role and appoint a senior leader as a sponsor of the project). This would address the imbalance whilst maintaining the buy-in which was a valuable asset for accelerating culture change.

Project partners

Engaging in national and international collaborations with a variety of stakeholders was one of the defining characteristics of the Inclusion Matters portfolio, as project teams had to **indicate specific partners they would work with from the initial stages of applying for the funding**. Although Covid presented challenges in terms of reduced engagement from project partners beyond academia, the Inclusion Matters projects still had a variety of successful partnerships and collaborations to showcase, ranging from local charity-based organisations and law firms to business consortia such as the Oxfordshire Local Enterprise Partnership, along with funding bodies, such as Biotechnology and Biological Sciences Research Council (BBSRC) and the Science Council; research societies, such as the Royal Society of Chemistry and the Royal Academy of Engineering; as well as other types of non-academic organisations, such as UCU Scotland and Vitae.

All project partners

ASPIRE:	
Challenging different forms of bias	s in physical science and engineering research:
DISC: NADSN * UCU 🔞 THE UNIVERSE EDINAURCH	eBase: IV IOP Institute of Physics COMPANIES CONTACTORE IN THE INVESTIGATION OF A STATE
Northern power: Atom bank Of GTN LTD Humpshelessene University of LEEDS Tessade University of LEEDS Tessade	IBM Lancaster () () USER , Charlessity () USER , Charlessity () University () Northumbria () No
Promoting EDI in university spinor	At companies: Reimagining recruitment:
STEM equals: STEMM STEM STEMM IOP Instit C BY A 6005	I change: ute of Physics with geological Survey brownejscobson WHERSITY WHERSITY MOTTINGHAM Wentersity with with the survey with with the survey with with the survey with the survey with the survey with the survey withe survey withe survey

The unique approach to Inclusion Matters enabled the development of successful, reciprocal partnerships, where both the academics and the business people involved contributed equally and learned from each other. For example, one researcher from Challenging different forms of bias in EPS research explained that she got a lot of value in terms of how to most effectively implement reverse mentoring in academia from the project's partnership with Deloitte, when she visited *"Deloitte in the very early stages of the research"* to speak with company representatives and learn *"about their reverse mentoring practices"*, and also when she attended *"online webinars that were about different organisations rolling out reverse mentoring"*. A senior leader from the same project also highlighted the key contribution of Vitae in its reverse mentoring project, by providing initial training for both academic mentors and mentees, helping *"the senior people with what to expect, what they can get out of it"* and also *"giving the more junior people courage to talk to the senior people"* about their experiences and needs.

Similarly, both senior leader academics and an industrial partner from Stanley, Black and Decker talked about the benefits they got out of engaging with people in industry and academics respectively. Specifically, the industry partner who took part in Northern power's reciprocal mentoring scheme bringing together early career researchers (ECRs) from underrepresented backgrounds with senior leaders in academia and industry, mentioned an increase in their knowledge and understanding of how EDI can be applied to the workplace:

"I came out of it with a lot more understanding, and then a lot more acceptance of this, and the ability to be able to attune the kind of things I'd learnt to my time as a director in my business." *(Industrial project partner, Northern power)*

Increased understanding of the application of EDI was also mentioned by a member of the research team from Northern power in which he explains how networking with the industrial partners helped him understand further how industry *"do things"* and how they try to implement their EDI commitments:

"In a way, we were then able to access other levels of understanding as to how within industry they do things, rather than effectively just engaging perhaps with the person who's written the policy. For example, there were a couple of companies where we were directly engaging with team leaders who were seeking ways of recruiting more diverse people. They could see a business advantage, for example, in seeking more neurodiverse people. That was quite useful to get that, I suppose, more finely grained perspective of how industry sees things." (Senior leader, Northern power)

Along similar lines, another senior leader from Northern power talked about how engaging with industrial partners was an "eye-opener" for them in terms of how many things academics can learn from industry, making them realise, for example, that "academic institutions were less helpful with regard to things like family-friendly policies than some companies, and why should that be the case?"

The involvement of non-academic project partners was beneficial, as it helped the Inclusion Matters projects to achieve *"the bridging between research and academia"* and provided them with opportunities to take their findings *"outside academia and start to reach out to a wider audience"*, as a senior leader from Promoting EDI in university spinout companies put it.

Overall, the Inclusion Matters research team members agreed that although building partnerships with organisations beyond academia might be challenging, it was a **beneficial** way to 'scale-up' and 'reach-out', **to promote the wider dissemination of project findings, facilitating impact and long-term change across the sector.** Moreover, all projects agreed that, to maximise the potential of collaborations, these need to be based on reciprocity and sustained through time, as instigating EDI culture change is a long-term process.

Collaboration

One of the defining characteristics of the Inclusion Matters projects is that **EPSRC encouraged interdisciplinary working and cross-institutional collaborations.** Collaboration was emphasised in the funding call, and EPSRC also organised Grant Holder Workshops to promote collaboration. The workshops focused on sharing the findings from the Inclusion Matters projects with the other teams and considering how to best disseminate these outcomes, and not to forget to provide a space to celebrate and showcase the success of the Inclusion Matters portfolio.

Across the 22 institutions who received funding as part of the Inclusion Matters projects, there were several shared themes. As part of its unique approach, EPSRC promoted the shared themes between project teams at the Grant Holders Workshops (using the infographic below) and gave teams space to build connections which each other.



The workshops demonstrated that the Inclusion Matters project teams were interested in information sharing and strengthening working relationships to build on the synergies between the projects. Although information sharing is typical in EPS, this is generally restricted to the sharing of raw data and disseminating findings/interventions at the end of a project. However, the teams **suggested that to better understand what worked, sharing methodologies, findings and interventions in real time** would provide a greater richness.

Multiple projects expressed the desire to bond the funded projects together and create more spaces – both physical and virtual – for the projects to come together, such as networking spaces, workshops, events and to create an 'Inclusion Matters community'.

"I'd love to see the projects across Inclusion Matters that have been doing mentoring of any kind come together to share our trials and tribulations, our victories, and our challenges, because I think that there's a lot of cross-project learning that we could still be doing."

(Participant, STEM equals)

It was evident that this would not only aid personal connections between research teams and interdisciplinary working, but also enhance partnerships within the higher education sector regarding EDI matters. Sharing ideas and overcoming challenges as part of a wider Inclusion Matters community was a key ambition raised within the study:

"So, I think if you're looking for real big institutional systematic change, I think you need better connection between the projects and also for the projects to be heard in the right places, whatever they are."

(Participant, IVisNET)

With this is mind EPSRC are continuing to invest in the EDI space and are currently developing an EDI Sharing Hub. The Hub will address the key ambition from the teams by creating a space to collectively share EDI good practice and 'what works' within the EPS community.



Some of the collaborations occurred during the dissemination stages of the projects and had primarily to do with assisting organisations to improve their processes and practices, using Inclusion Matters project findings as good practice examples. For example, a manager from eBase mentioned that they work *"a lot with UKRI and also the BBSRC"* to help them embed some of eBase's *"thinking"* and *"new understandings"* around the barriers faced by women and other underrepresented groups when it comes to accessing big grants *"into the new UKRI processes"*, through their involvement in *"the new UKRI-BBSRC committee, reviewing, essentially, the grant review process"*. Also eBase's project manager undertook a secondment with EPSRC to develop and analyse the questions in the EPSRC Underrepresented Gender: Women and Large Grants 'have you say survey' (the findings can be accessed here). The results have been discussed with members of the <u>EPSRC Equality Diversity</u> and Inclusion Strategic Advisory Group and EDI champions from EPSRC's Strategic Advisory Teams to refine and inform the implementation plans. Critically, the input from team members from eBase is a good example, of how EPSRC and the Inclusion Matters teams have shared expertise to contribute to culture change in the EPS community.

Similarly, a senior leader from STEMM change mentioned receiving "a lot of interest from industrial partners after the project, people who weren't part of the work originally", but wanted to understand how to incorporate the project's work "on the language of exclusion", specifically, "what phraseology to include in adverts and role profiles to encourage applications from a wider proportion of potential candidates". It is important to note, that EPSRC have used the Inclusion Matters projects expertise to update their recruitment strategy, for example, EPSRC have updated the approach and language used in their e-recruitment application advert based on STEMM change's language of exclusion document.

Outcomes associated with collaboration

EPSRC's approach was to emphasise those collaborative activities that would have the greatest impact on its long-term goal of accelerating cultural change in the EPS community. This filtered down into the Inclusion Matters teams themselves who echoed the long-term goal with their actions.

For example, it became clear throughout our conversations with the Inclusion Matters project team members that the partnerships developed during the course of the Inclusion Matters projects were generally sustained beyond the end of the projects' cycles. In some cases, these collaborations led to subsequent collaborations, such as STEM equal's *"partnership with Glasgow Life and Glasgow Libraries to do a project with schools, showing different role models in STEM and encouraging young kids to maybe take up this career",* as a researcher mentioned.

A further impactful outcome of EPSRC's approach to the Inclusion Matters projects was the instigation of future research funding as a result of the implementation of the projects. It was encouraging to see that projects and institutions embraced the opportunity to undertake further work related to EDI, were keen to build on learning and have *"put in different funding bids"*, both in their own teams and in collaboration with other institutions/partners.

"Some of those partners though, I continue to work with now on other things, and would approach, and have done, and really we've put in different funding bids and things, so in some ways some of those relationships were really good."

(Northern power)

"We won a programme grant from EPSRC with other institutions involved. So, it's a very large-scale activity in engineering design but a big chunk of it is based around the team development."

(Participant, Inclusion really does matter)

Some participants also noted continued funding from industry project partners on the Inclusion Matters projects. For example, a participant from Promoting EDI in university spinout companies highlighted the opening of an enterprise centre, co-funded by the Oxford Local Enterprise Partnership, that will be a dedicated space for spinouts and startups. A researcher from STEMM change also noted that they are continuing their work with their project partner, a law firm, in changing recruitment and promotion processes and have recently established an Innovate UK Knowledge Transfer Partnership programme. This continued collaboration with existing industry project partners highlights the ongoing investment in the work undertaken within Inclusion Matters, signifying the need for further investment to be allocated to EDI in HE.

Follow-on external funding linked closely to aspects of the Inclusion Matters projects was also raised by several participants. For example, a research team leader from eBase won a tender from UKRI to establish the Future Leader Fellows Development Network and it was noted that, *"a huge amount of what the Inclusion Matters project has done is being picked up by aspects of that network".* Furthermore, the STEM equals project led to another EPSRC grant, Network+, and it was noted by the participant that, *"it's nice to see this work recognised and be able to continue somehow doing something in this space".* Further external funding from organisations such as the Scottish Funding Council, Research England, the Economic and Social Research Council, the Royal Society of Chemistry, the Scottish Library and Information Council and the Natural Environment Research Council was also noted by other participants involved in the evaluation. Overall, this highlights not only the successes of research teams in bidding for further funding as a result of Inclusion Matters but also emphasises the ongoing interest and investment from funders into EDI.

Challenges and suggestions from the Inclusion Matters projects

Understandably, collaboration, interdisciplinary and cross-institutional working is not without its challenges. The Inclusion Matters projects shared with us their challenges and suggestions for how to address them.

Different disciplinary norms

Challenges related to interdisciplinary working were related to **tensions around the importance of different types of data.** In particular, the value of qualitative data as the most effective way to explore attitudes and experiences related to EDI issues from the EPS community, which is vastly quantitative dominated, was raised.

"Particularly the challenge to Inclusion Matters, is you had something that's fundamentally located within the sciences, because it's EPSRC led by social scientists, and most of the projects led by social scientists, obviously ours was, and that challenge of what is data, what even counts as valid data, the kind of underpinning ontological positioning was something I think maybe EPSRC hadn't necessarily reckoned with. People said we need an evidence base, and I'm like we've got 70 odd interviews, that is a very strong evidence base, those kinds of conversations."

(Senior leader, DISC)

However, it was also challenging for team members from social sciences to work in an interdisciplinary way, as they felt that their methodology and even **expertise** in terms of researching EDI issues **was challenged at times**.

"I know that UKRI and EPSRC, in particular, is encouraging more multidisciplinary teams, it's done enough to create a multidisciplinary team, but it's important that there is some kind of accountability to make sure that that level of expertise [of social scientists] is valued in the work that needs to be done."

(Researcher, STEM equals)

There was also a dissonance in understanding the different timings needed for quantitative and qualitative data processing and analysis. Specifically, it became clear that the pace that qualitative data collection and analysis require was miscalculated by project team members with a science background.

Finally, there were challenges mentioned around the different ways in which different disciplines **manage ECRs and recognise their work,** with the social sciences picturing clearer hierarchies of power being present in the EPS disciplines, that needed to be renegotiated within an interdisciplinary work environment.

"STEM co-Is have a particular way of managing their postdoc staff that is quite different from the expectations of a postdoc in social science. They tend to have a lot more autonomy, whereas in STEM, even at a postdoc level, there was still quite a big steer from the co-I or the supervisor. So, there was some sort of culture difference there that had to be negotiated. [...] There was also some slight tension around the plans for authorship on papers because it's not uncommon in social science disciplines for there to be single author or maybe two author papers, whereas STEM fields, it's very rare to see that. You tend to have everyone who's on the project grant is going to be on the paper. So, we had to have some negotiation around that. I mean, it ended up being ok, but it was it was a challenge to navigate."

(Project lead, eBase)

"There was a difference in culture. There was much more of a hierarchy within maths, and it was interesting, actually, part of what went wrong in the process of appointing the RA was I had really liked somebody who had actually more experience than me and was coming from another country. And it wasn't until later that I realised there was this real kind of like push back from maths, this idea that you should never have somebody working for you who's more senior."

(Research team member, Reimagining recruitment)

Solution

As a solution, one research participant noted that creating **a collaboration guide** would be beneficial to support those working on multiple projects to work together, to ensure effective team working and build positive partnerships.

"There needs to be a suite of collaboration how to's, you know what I mean? How do we work together? What's acceptable? What's not acceptable? Is your voice more important than my voice? All of that needs to be on the table and actually out there and spoken about right up front, where you can get those things, you can have those disagreements. You can then build the relationships. You can develop how we actually work before you even get to the project" *(Participant, Northern power)*

Inequalities between institution size and finances

Differences in institutional size and finances was also a challenge when working across different institutions. For example, research team members from Challenging different forms of bias in EPS research raised that it was hard to replicate some activities across both institutions, because these **differences were not adequately accounted for during the project budgeting phases**. The following quote reflects how Aberystwyth was not able to replicate a mentoring career development initiative that gave ECRs three months of extra funding to account for the research time lost, because the pot of internal funding used by the University of Birmingham to support this activity did not exist in their institution:

"Some of the interventions which were more about fellowships and actually providing additional support to early career researchers were really difficult to implement at a small university that has smaller funding pots to start with, so it was really easy to try that in Birmingham. But as a smaller university in Aberystwyth, we couldn't really contribute to these things, because, in particular in the years when the project ran, the university was just not in a position to fund that. It would have been nice if those things could have been costed in into the project to some degree, and because it was expected for the university to pay the bill."

(Researcher, Challenging different forms of bias in EPS research)

Similar **issues with buy-outs for ECRs working differently across institutions** were also raised by a senior leader from Northern power, who also brought up the additional issue of potential inequities that this brings in terms of participants being able to participate in project activities under different terms and conditions, which had ECRs wondering *"why things had to be so completely different"*.
Solution

As a solution, a number of project members noted that there needed to be greater emphasis on the inclusion of different multiple disciplines, other departments and external partners, and for a more holistic approach to be adopted. This is not to say, that EPSRC's unique approach was unsuccessful only that it could have a greater reach.

Earlier in the report EPSRCs unique approach to the Inclusion Matters projects was discussed, as part of this we outlined that applicants were encouraged to create multidisciplinary teams which included people from professional services and people from social sciences within their application. Indeed, several of the teams included a diverse range of disciplines and people from professional services. However, there appears to be a difference between creating a multidisciplinary team to investigate EDI within the EPS community (which is what the Inclusion Matters projects addressed), and creating a multidisciplinary team to investigate EDI within EPS and other communities, including professional services.

There was a concern expressed by one participant regarding the EPSRC funding and its allocation across disciplines and departments. As the monetary funding was predominately allocated to those working in the EPSRC community, it may be an "unattractive" arrangement for other schools involved in the project,

"from a purely budgetary point of view makes the project very unattractive for those collaborating schools because they're not getting anything monetary wise out of it."

(Participant, eBase)

There was a call **to reimagine the composition of research teams to embody a more diverse pool** to address these other communities. With this in mind it is important to include the costs of participating for all partners and **establish that funding would be available from EPSRC, their institution or another source, to enable equity across a multidisciplinary team.** By ensuring that funding is allocated across all the faculties involved, this not only has the potential to increase 'buy in' but also to support and embed effective interdisciplinary practices to enhance EDI culture change.

"The first thing would be to, say, find ways of making sure that the focus of who you're trying to influence isn't exclusively engineering, science and engineering departments in universities. And the second thing I would say is that much of what we've talked about would apply just as easily to a historian or an English literature graduate, or a finance expert, or an economist as it would to an engineer or scientist. So, I'd also think if you are looking at universities as employers, I'd be thinking about what it tells us about professional service colleagues, and colleagues in non-STEM disciplines."

(Participant, DISC)

Consortium challenges

In general, Northern power, as the only Inclusion Matters project working as a consortium across nine universities, seemed to have faced some unique challenges.

The research team members brought up the issue of different and **variable levels of commitment** from the different members and the **unequal workload** that this created for some institutions who were leading a work stream, for example, compared to others that had no leading roles.

"We also had a couple of partner universities where unspecified internal things happened, but the level of commitment that they had promised suddenly just dropped off the radar. And they just couldn't take either a full part or take part at all. So, we had to rearrange the work packages and Durham actually had to take on more work than we had expected to. So, again, we had to try and recruit some more people to do that work."

(Senior leader, Northern power)

Also "there was an allocation within the budget for a platform" (senior leader, Northern power). However, it was "just taken out of thin air. There was no technical involvement, so nobody who actually knew what a platform would cost" (senior leader, Northern power), meaning that the budget did not cover the cost of the platform.

Another struggle was **to agree on definitions of key terms** and eligibility criteria for participants, like *"what does it mean to be an ECR, what does it mean to be an EPS researcher",* but also *"what do we mean when we talk about underrepresented groups"* as two senior leaders from Northern power put it. Those conversations were time consuming and hard to navigate, as bringing together representatives from nine different institutions, with only four universities developing activities and overall project leadership not being clearly implemented, made it hard to *"get a sense of direction"*.

It was interesting that particular research team members raised perceptions of feeling *"unimportant"* and *"snubbed"* when they were trying to contribute towards the project, so it seems like certain research team members perceived that were clear power hierarchies in place within the consortium, which determined what could and could not be done within the scope of the project.

Solution

While there were several discrete challenges working in the consortium, each project member we spoke to presented solutions to these challenges.

In response to challenges around collaborating across disciplines and institutions, one senior leader of Northern power suggested that **taking part in training** that focuses on what does not work, as well as what does work when collaborating, *"can be very useful and very powerful for other people to hear"*. Similarly, it takes *"effort"* early on when building working relationships and acknowledging *"how much effort sometimes you have to put into the people aspects of things"*, and **focusing on building relationships** with *"the people who could potentially be creating difficulty that I need to get on board... not necessarily who are the key people or even who are the gatekeepers"* (senior leader, Northern power) is critical to a successful collaboration.

In response to the challenge of unequal workload and commitment, one successful solution was *"where they were able to* **have a dedicated RA** *working with them, or project manager working with them, that worked very, very well."* (senior leader, Northern power). Similarly, (senior leader, Northern power) proposed *"genuinely reducing the workload* of those academics to give them the time on the project", could address the issue of unequal workload and commitment.

In response to the issue around budgeting for a platform, it could be prevented by involving "technical" experts when setting the budget, but the issue was solved by making "a deal...with the company that they would see it as a loss leader" (senior leader, Northern power).

From the evidence, to continue and sustain the successes of interdisciplinary/cross institutional working, several key aspects could be introduced in future funded projects, such as a collaboration guide, greater emphasis on a holistic approach, seeking experts for budget setting and hiring a dedicated RA or project manager.

Additional challenges related to context: the impact of the pandemic

Enmeshed with EPSRC's unique approach is the context the Inclusion Matters portfolios were working within. With the projects starting in 2018, all were impacted by the pandemic. **Covid created difficulties as it stalled,** or in some cases even completely stopped, certain activities that the project teams had planned. Most of the time those were activities that depended on people travelling and being physically present within a certain place, such as the placement opportunities planned by Northern power for ECRs from underrepresented backgrounds and STEMM change for technicians, which had to be cancelled.

"We had one initiative which I think would have been brilliant and sadly didn't come off because of Covid, which was we wanted a drop-in nursery that people could use when they were on sick or maternity leave, where you could book an hour or two-hour slot to go and see your post-doc or attend a key meeting that you wanted to do. And you would choose to do it, you would log that time and add it to the end of your leave, so you didn't lose any leave, but it allowed you if, and only if you wished to, to attend key things and have very short childcare so you could do something."

(Senior leader, STEM equals)

Moreover, some project activities the teams tried to reconfigure online were just not as successful as when done face-to-face, so they had to stop. These were predominantly related to mentoring and interactive workshops.

"We did do a couple of online incubators [collaborative workshops, bringing together ECRs and senior academics to try and turn industrial challenges into research projects], but they don't work as well because you don't have that, you know, literal, on-the-same-table and feeling that there is that absolute level playing field in the way that they [ECRs and senior academics] work."

(Senior manager, Reimagining recruitment)

Covid also brought unique challenges in terms of increased workloads and changing priorities for both research staff and participants. This had a negative impact as retaining interest and providing adequate support became more difficult in a climate where people were not yet used to working remotely and were still trying to adjust to the new reality that the pandemic had created.

"The main thing about Covid is our workload doubled and tripled. So people had to limit what they are engaging with and all these things are kind of extra and unless they see the value, for which, of course, if you are doing new interventions and new things, it's difficult to see the value, that was the problem."

(Senior leader, Northern power)

The uncertainty of the pandemic prompted a **sector-wide recruitment freeze**, in addition to staffing changes creating challenges that impacted data collection and made certain project activities redundant. For example, STEMM change had "to effectively stop" its trial of a recruitment process as *"the university put a recruitment freeze on, and for academic roles particularly the landscape had completely changed in terms of the job market"*. Covid and recruitment freezing also presented challenges for the members of the project teams themselves and project staffing in general. This was either in the form of Covid increasing workload, with the move of all university provision online, or because of homeworking increasing caring responsibilities, or because research posts could not be filled in time.

Finally, Covid also had a negative influence in terms of the **industrial partners'** involvement, as they had to focus on their core business. They **became harder to engage with as industry "went into total crisis mode"** (senior leader, STEM equals), forcing partners *"to back out"* (senior leader, Challenging different forms of bias in EPS research).

On the other hand, many of the Inclusion Matters teams stated that the pandemic "created opportunities for us to link better with other people because everyone started using Teams, and being forced to use it. So, it created some better connectivity" (senior manager, eBase). As well as creating better connectivity within Inclusion Matters teams and stakeholders, several team members commented on the rollout of Microsoft Teams having a positive impact on communication and breaking "into these circles [of people] that you don't know" (senior leader, eBase). Interestingly a senior leader from Northern power, shared that in their evaluation they found that people found attending virtual meetings "less intimidating".

More than this, teams reported that they "reached bigger audiences and got to more people" (senior leader, Promoting EDI in university spinout companies), in part because prior to the pandemic people were dissuaded from attending events "because then you have to add all the travel time in and everything" (senior leader, Promoting EDI in university spinout companies), but the switch to online delivery resulted in **attendance in training and events** "skyrocketing" (senior leader, Promoting EDI in university spinout companies). The impact of the switch online also improved the teams' reach within their institution "the COVID pandemic loosened up a lot of the university structures, and it made our job even easier" as they were "able to infiltrate many of the senior committees" (senior leader, eBase). Given the challenges of the pandemic this is a great achievement which has accelerated culture change with the EPS community.

Despite the climate Covid created, all of the projects managed to gradually adjust to the 'new reality'. For example, by moving elements that were originally planned to be face-to-face online or reducing primary data collection. A lot of the projects had to request EPSRC grant extensions to make up for the time lost during the pandemic, but no project was cancelled or produced no outputs. In other words, it is fair to say that **Covid delayed rather than stopped the implementation of the Inclusion Matters projects**, with a knock-on effect on the publication and dissemination of final outputs and deliverables in some cases.

"Covid. I know we had a grant extension to finish things off. The impact was delaying things, rather than we haven't done them. I think some of the dissemination activities were delayed probably by a year or so, but they have now happened and been done. They've also been virtual, rather than face-to-face."

(Senior leader, Promoting EDI in university spinout companies)

Insight

Spotlight on achievements

To improve the likelihood of the Inclusion Matters projects' success in accelerating culture change in the EPS community, EPSRC adopted a unique approach to the call that promoted **engagement with stakeholders** and **national and international collaborations.** Evidence of this can be seen clearly in the three examples shared below. Further examples of engaging with stakeholders and national and international collaborations can be found in the case studies.



STEM equals established <u>StrathPride</u>. This LGBTQ+ staff and postgraduate research student network is a unique and sought-after network within Strathclyde University. Importantly, StrathPride transcends the more typical focus on sex and ethnicity. **Dr Jessica Gagnon** and **Dr Marco Reggiani** were awarded **Strathclyde Medals** for setting up StrathPride, demonstrating the value of engaging with stakeholders.

Kelly Vere was awarded an **MBE** in the 2021 New Year's Honours list for her work on the Technician Commitment (STEMM change) and overall recognition of the technician community. The <u>Technician Commitment</u> aims to ensure visibility, recognition, career development and sustainability for technicians working in higher education and research, across all disciplines. It is an incredible achievement that has elevated the profile of technicians and accelerated culture change for this particular EPS community.

Clear evidence of effective collaboration can be seen in the way eBase and VisNET teams **formed a synergy and published a commentary together.** Inclusion in the time of COVID: 14 ways to seize the moment for change offered "14 recommendations for how institutions could improve equality, diversity and inclusion" based on their Inclusion Matters project findings.

Key outputs

The Inclusion Matters projects produced a wide variety of outputs, ranging from academic journal articles and book chapters to blog posts, reports, conference presentations and posters, and submissions to parliamentary inquiries. Generally, the teams seemed to believe that engaging in multiple and varied dissemination activities was the most successful strategy to reach multiple audiences.



*Please note, some projects are in progress so these numbers will increase over time.

1. Toolkits, training resources and educational material

All of the Inclusion Matters projects developed **open access resources to disseminate** their EDI initiatives within the wider EPS community. Many of those were toolkits developed to enable others to benefit from the good practices identified by the Inclusion Matters projects and further test the effectiveness of project findings by providing the chance for them to be applied in various contexts. Importantly, the focus of many of the toolkits was *"to bring [people] a solution and not a problem"* (researcher, eBase) and share best practice.

Challenging different forms of bias in EPS research

Reverse mentoring training toolkit. The toolkit has been disseminated internally and the intention is to make the toolkit more accessible by April 2023.

Inclusion really does matter

Evidence-based mobile and online resources for EPS academics.

Northern power

Northern power Inclusion Matters Practitioner Toolkit

Shared Characteristics and/or Interests Mentoring

Reciprocal mentoring

Being Prepared for Business to support early career academics for when they begin engaging in collaborative activities

Academic Networking

Promoting EDI in university spinout companies

Becoming, Building, Bridging: The 3Bs Framework Gender-inclusive academic Entrepreneurship: A framework for HEIs

Reimagining recruitment

Online guidance for Incubators

STEM equals

STEM Equals Reciprocal Mentoring Programme

STEMM change

Checklist for Recruiting a Diverse Technical Workforce

Communications toolkit quick-reference guide, short animation explaining the communications toolkit and podcast video explaining the communications toolkit by its curators, an AI job analyser to remove bias from job ads in collaboration with Diversely.

VisNET

Suite of online development activities related to networking and collaboration training (including sessions on 'what is your vision and purpose', personal branding, using LinkedIn for networking and leadership skills), currently unavailable online.

Toolkits

Most of the Inclusion Matters teams have created (or are in the process of developing) a toolkit to support the implementation of their initiatives.

Many of those focus on mentoring. For example, the "Reverse mentoring training toolkit" (Challenging different forms of bias in EPS research), the <u>Reverse mentoring resources</u> (STEMM change), the <u>Shared</u> characteristics/interests mentoring resources (Northern power), the <u>Reciprocal mentoring</u> resources (Northern power), the <u>Reciprocal mentoring</u> resources (Northern power), and the <u>Reciprocal mentoring</u> programme (STEM equals) have all been developed to aid senior leaders' understanding of the challenges faced by less senior staff members from underrepresented backgrounds. They also offer concrete steps on how meaningful, reciprocal mentoring relationships can be set up that will aid diversity, representation and equity for all within the EPS community.

The collective knowledge provided by the combination of these toolkits is invaluable for the EPS sector. For example, there is <u>useful advice</u> for the implementation of mentoring such as *"don't aim for the perfect match only; if a close match isn't available, ask participants to review choices, rather than miss out on taking part in the activity"* and guidance on *"listening, to understand, not to reply"*. Promoting EDI in university spinout companies also notes the importance of developing a diverse pool of mentors to make it more inclusive, such as considering the timing and conventions surrounding these events.

Many of the toolkits focused their efforts on **catering for the needs of specific minority groups**. Promoting EDI in university spinout companies produced a suite of toolkits focused on supporting gender-inclusive academic entrepreneurship, including elements such as "Becoming, Building, Bridging: The 3Bs Framework" and "Gender-inclusive Academic Entrepreneurship: A framework for HEIs". Similarly, STEMM Change mapped the EDI characteristics of the technicians' community in UK higher education for the first time. In response to their findings, they developed the <u>Checklist for</u> <u>Recruiting a Diverse Technical Workforce</u> to try to address, during the recruitment process, the problem of underrepresentation of certain characteristics within the technical community. This toolkit was designed for managers who have responsibility for recruiting technical staff, with the aim of supporting managers to recruit and hire diverse candidates. eBase developed a toolkit for embedding equality, diversity and inclusion in the Edinburgh Research Office. This toolkit is aimed at researchers, managers of researchers and research management professionals as a resource to support funding success. It supports researchers by developing a vision for their research with the bigger picture in mind, as well as developing a strategy to achieve their vision.

Other toolkits focused on **promoting networking and collaboration,** such as the <u>Online guidance</u> for incubators, developed by Reimagining recruitment, and the <u>Networking and Leadership</u> and <u>Collaboration with Industry</u> resources developed by Northern power. VisNET also produced a suite of online development activities related to networking and collaboration training, including sessions on 'what is your vision and purpose', 'personal branding' and 'using LinkedIn for networking and leadership skills' (not available online), which were specifically targeted to help women ECRs understand and reap the benefits of expanding their networks. Such resources are important because they provide practical steps on how to bridge the gap between academia and industry as well as on how to facilitate meaningful collaborations between individuals at different career stages within the EPS community.

Overall, the Inclusion Matters teams have successfully taken their research findings and conveyed them in easy to access and understand toolkits and guidance documents.

Training resources

Four Inclusion Matters teams developed training resources. All of these were developed to be initially **tested with staff at the Inclusion Matters projects' institutions.** Whereas some of those still remain relevant to a single institution, such as the LGBTQI+ Awareness Training for senior leaders at the University of Strathclyde, **others have already been disseminated to wider audiences.** For example, DISC's Disability Training (there is a short introduction to the training on YouTube) has been delivered to four universities, one charity, two private sector companies, local UCU branches and the Scottish Government. The Inclusion really does matter team produced and tested Athena Swan resources (including a brochure, videos and a questionnaire to assess GEI effectiveness) relevant to Athena Swan champions and other staff members in all disciplines. ASPIRE developed a microcredential module on Equality, Diversity & Inclusion Literacy: the ABC of EDI suitable for businesses and employees that can be delivered as part of an organisation's EDI training provision. The ASPIRE team is also developing further microcredentials in EDI.

The training resources created by the Inclusion Matters teams are invaluable as they **address current gaps** in the **provision of EDI institutional training** (for example, the lack of focus on disability, LGBTQI+ matters). Moreover, they focus on being participatory rather than being based on a passive online delivery, requiring participants to be actively involved in the training process. The incorporation of virtual reality elements was considered particularly powerful in challenging previously held beliefs, promoting self-awareness and deep learning through the method of *"consciousness raising"* (senior leader, DISC).

ASPIRE

Developed a microcredential in EDI: Equality, Diversity & Inclusion Literacy: the ABC of EDI

DISC

DISC Disability Training Package (A short introduction to the training can be found in this video)

Inclusion really does matter

Created and tested Athena Swan resources including: a brochure, videos, a questionnaire to assess GEI effectiveness.

STEM equals

LGBTQI+ Awareness Training for senior leaders at the University of Strathclyde delivered in collaboration with the EDI team and the Equality Network.

Databases and lists to share knowledge

As part of their Inclusion Matters projects, four teams put together extensive databases and lists of EDI resources that exhibit best practices.

- + The <u>ASPIRE 8-pillar Model</u> is an extensive database of linked challenges, interventions, change indicators and impact indicators. It comprises eight pillars that define an inclusive research environment, developed through a theory of change.
- + The EDI Resource Bank from STEMM change is designed to practically support organisations to address EDI challenges and make improvements, through curating EDI resources and best practices.
- + Northern power has curated a <u>list of resources</u> on branding, confidence, disability, diversity, female, neurodiversity mental health, race and sexuality to support researchers in better understanding themselves.

These curated databases are important as they significantly **lessen the burden** of having to reinvent the wheel **every time an institution addresses EDI-relevant issues.** Sharing knowledge and good practices saves time by helping institutions avoid previously unsuccessful approaches as well as providing them with tools and materials they can adjust to fit their specific needs.

Educational material

Some Inclusion Matters teams focused on disseminating information to promote equality, diversity and inclusion in the EPS community by **showcasing how the EPS community is comprised of diverse individuals,** in an attempt to promote inclusive understandings and **foster a sense of belonging for all.** Critically, these easily accessible educational materials address key EDI issues in the EPS community such as the lack of representation, which influences both the diversity of the potential recruitees' pool and the career progression of individuals from minoritised backgrounds.

Specifically, across four Inclusion Matters teams, **57 profiles were produced,** including profiles of inspiring women (Promoting EDI in university spinout companies), researcher role model profiles (STEM equals) and technicians' case studies included in the <u>Change maker programme brochure</u> presenting technicians sharing their experiences of participating in the change maker programme and how that helped them in their roles, (STEM change), and profiles of PDRAs who took part in VisNET's research about networking.

For the team Promoting EDI in university spinout companies, it was important to be clear that their project was not "about fixing the women", but "to focus on those structural barriers as opposed to, 'Oh, the women lack confidence'. You know the usual stories" (senior leader, Promoting EDI in university spinout companies). Generating profiles of inspiring women was a key way to address their goal. Their stakeholder network (for example, PraxisAuril and Royal Academy of Engineering) was vital to find inspiring women. As a senior leader put it, they "put us in touch with some women who had spun out because they had a very successful enterprise fellowship".

In contrast, the STEM equals team generated researcher role models by recruiting 18 Glasgow-based role models, from academic staff, postdoctoral researchers, PhD students and undergraduates with experience researching in STEM subjects. Their role was to deliver sessions in schools (or online) to enable school pupils to engage with science and technology as citizen scientists around the challenges of climate change.

Looking across the teams, profiles typically consisted of the individual's name, their job title and either a formal or informal picture of themselves depending on the project. These profiles then consisted of written questions and answers about their work. The profile of Noemi Vadaszy below, from the Change maker programme brochure (STEMM change), is an example.



Noemi Vadaszy Teaching Support Technician, School of Medicine

Why did you apply for the programme? I am quite new to my role and the only one in this job within the Division of Primary Care. Therefore I looked for other learning opportunities and the Changemaker Programme seemed like an ideal choice.

How did you benefit from your placement? The programme allowed me to go to another university and meet technicians and academics there. I think it was not just about me learning skills but it was also about building a relationship between the two universities.

What advice would you give to others interested in applying?

Put a concise application together and when you are on placement don't be too worried about writing everything down. Try to pay attention to the practical things like how to deliver a session or how to calibrate equipment. Pay attention to the people because you will learn from them. All 57 profiles focused on staff, from PDRAs to owners of spinout companies. In addition to the 57 profiles, the project <u>See Yourself in STEM</u> was developed to **enable school pupils** (11-14 year olds) **to engage with science and technology** as citizen scientists around the challenges of climate change (STEM equals). These profiles were developed to inspire young people from underrepresented backgrounds to consider a career in STEM disciplines. Currently, there are 18 in-depth profiles of role models from underrepresented groups in STEM. These share a role model's name, picture and written questions and answers. The STEM equals role models worked with three schools across the Glasgow area, delivering four one-hour sessions on a citizen science project.

Finally, some Inclusion Matters teams promoted inclusivity in EPS using **videos**. For example, Promoting EDI in university spinout companies produced <u>18 videos</u> that shared knowledge and expertise from women spinout founders and experts working in commercialisation. These videos are a great example of inspirational material for young women academics who wish to pursue entrepreneurial careers. The team has also produced three open access guidance documents on methodologies: Using collage as an Inquiry Method into Gender Related Processes, Focus group methodology: Co-creation activities for assessing awareness and preconceptions of academic entrepreneurship and Identification of best-in-class existing information on university spinouts and gender inclusive approaches to further empower young women academics to access this knowledge for themselves.

A work in progress...

There is still work in progress in terms of Inclusion Matters project deliverables. For example, the ASPIRE team is developing a web-based platform that will allow institutions and organisations to create individualised plans to tackle EDI challenges and measure their progress towards them. This platform will be instrumental in addressing both the need for monitoring the implementation and success of EDI plans as well as supporting the EPS community to adopt an intersectional approach to its EDI plans. Similarly, the Inclusion really does matter team are working on building a virtual reality toolkit and producing evidence-based mobile and <u>online resources</u> for academics within EPS. The virtual reality toolkit and resources will help the sector to maximise the effectiveness of gender-based initiatives.

2. Traditional academic outputs

As well as producing open access resources to share their EDI initiatives, all the Inclusion Matters project teams created traditional academic outputs. These were acknowledged as important as *"hiring managers pay attention to those in academia"*, as a senior leader from DISC put it, helping to secure career progression for PIs and research team members. However, in general, non-academic outputs seemed to be considered more influential than academic ones, as they were reaching a far wider audience. In total, **17 traditional academic outputs** were produced.

A complete list of academic outputs can be found on <u>Appendix D</u>. The chart below summarises some of their main characteristics.



Traditional academic outputs count with open access

Fifteen published academic papers and two book chapters were produced by the Inclusion Matters projects. The **majority** (11 of 15) of the published pieces of academic writing are **open access**; of these four are preprints, one is based in a repository and the remaining six are journal-based open access.

There is a growing trend in the academic community to use preprint servers, where a preliminary version of the paper manuscript is shared on an open access platform before peer review and publication by an academic journal. Indeed, four of the 14 published academic papers shared early versions of their paper with preprint servers (two from VisNET, one from Inclusion really does matter, and one co-written by the eBase and VisNET teams). The biggest advantage of using preprint servers is that a full draft of the paper manuscript is available to a wide audience in a much shorter time frame.

Length of time to publication was a major consideration for teams when deciding whether to publish a traditional academic article or take another approach, such as writing a blog post or presenting in a conference. As a senior leader from eBase put it, *"writing papers takes a lot longer"*, because of all the steps required in the peer-review process, such as multiple rounds of revisions and resubmissions. It is important to mention that the academic journal publication process duration was significantly lengthened during Covid, due to issues such as the lack of available reviewers resulting from the additional responsibilities related to working from home. This will have probably also influenced the decision of Inclusion Matters projects in terms of academic publications, most of which had to be taken during the Covid pandemic.

Looking across all the published papers, they cover a **wide range of topics within EDI**, including the **impact of Covid**, **management of health in the workplace**, **models and frameworks to share with human resources**, **and the impact of EDI on students and ECRs**. Notably, two of the projects (VisNET and eBase) formed a synergy and published a commentary together, called Inclusion in the time of COVID: 14 ways to seize the moment for change' which offered *"14 recommendations for how institutions could improve equality, diversity and inclusion"* based on their Inclusion Matters project findings.

It is important to note that **most** of the academic papers have been collaborative pieces, **featuring ECRs as named authors,** which is an important indicator of how the Inclusion Matters funding encouraged future career progression. All the published academic papers and book chapters are listed below and grouped thematically.

Academic papers published by the Inclusion Matters teams, grouped together thematically

Belonging

Sinton, M C, Baines, K N, Thornalley, K A, Ilangovan, V and Kurt, M (2021) 'Comment on: Increasing the visibility of LGBTQ+ researchers in STEM', The Lancet, 397: 77-79.

Covid-19

Cebula, C, Baines, KN, Lido, K, Thijssen, J H J, Halliday, K, Hedge, N, Mulvana, H and Gauchotte-Lindsay, C (2020) 'Inclusion DOES matter: Covid-19 as an opportunity (not a near miss) for making decisive changes in UK STEMM academia', *SocArXiv*, 2 October. Available at: osf.io/preprints/socarxiv/rkj5h/

Cebula, C, Baines, KN, Lido, K, Thijssen, J H J, Halliday, K, Hedge, N, Mulvana, H and Gauchotte-Lindsay, C (2021) 'Inclusion in the time of Covid: 14 ways to seize the moment for change', *Nature Index*, 9 February. Available at: <u>natureindex.com/news-blog/inclusion-time-covid-pandemic-how-to-</u> seize-the-moment-for-change

Farrell, L, Latu, I, Linden, M, Stefanova, V and McCloskey, K (2022) 'An evidenced-based approach to Covid-19 pandemic effects on academics', *Research Square*, preprint 18 July. Available at: researchsquare.com/article/rs-1812476/v1

ECR

Cebula, C, Gauchotte-Lindsay, C, Lido, C and Mulvana, H (2020) 'Comment on: The association between early career informal mentorship in academic collaborations and junior author performance', *SocArXiv*, 28 November. Available at: doi.org/10.31235/osf.io/5r42z

EDI initiative specific

Griffiths, H, Manfredi, S, Still, A and Tzanakou, C (2022) 'Increasing women's representation as founders of university spinout companies: A case for action', in Owalla, B, Vorley, T and Lawton-Smith, H (eds) *Gender, Diversity and Innovation.* Cheltenham: Edward Elgar Publishing, pp 46-62. Available at: doi.org/10.4337/9781800377462.00011

Pinho, M, Colston, B, Mitchell, A, Bayley, J and Salmon, U (2022) 'Advanced Strategic Platform for Inclusive Research Environments (ASPIRE): A tool for change', in Pereira, E T, Costa, C and Breda, Z (eds) *Proceedings of the 5th International Conference on Gender Research*, 5 (1), 186-192. University of Aveiro, Portugal, 28-29 April. Available at: doi.org/10.34190/icgr.5.1.80

Health in the workplace

Remnant, J, Sang, K, Myhill, K, Calvard, T, Chowdhry, S and Richards, J (2022) 'Working it out – will the improved management of leaky bodies in the workplace create a dialogue between medical sociology and disability studies?', *Sociology of Health and Illness.* Published online, ahead of print. Available at: https://onlinelibrary.wiley.com/doi/10.1111/1467-9566.13519

Sang K J C, Remnant J, Babajide, O A and Richards, J (2021) 'Management of equity and diversity', inBrough P, Gardiner, E and Daniels, K (eds) *Handbook on management and employment practices*. Cham: Springer. Available at: link.springer.com/referenceworkentry/10.1007/978-3-030-24936-6_15-1

Sang, K, Remnant, J, Calvard, T and Myhill, K (2021) 'Blood work: Managing menstruation, menopause and gynaecological health conditions in the workplace', *International Journal of Environmental Research and Public Health*, 18 (4): 1951. Available at: pubmed.ncbi.nlm.nih.gov/33671403/

Human resources

Farrell, L, Petzel, Z W, McCormack, T, Turner, R N, Rafferty, K and Latu, I M (2021) 'When you put it that way: Framing gender equality initiatives to improve engagement among STEM academics', *BioScience*, 71 (3): 292-304, Available at: doi.org/10.1093/biosci/biaa136

Richards, J and Sang, K (2021) 'Socially irresponsible human resource management? Conceptualising HRM practice and philosophy in relation to in-work poverty in the UK', *The International Journal of Human Resource Management,* 32 (10): 2185-2212. Available at: tandfonline.com/doi/abs/10.1080/09585192.2019.1579249

Sang, K, Calvard, T and Remnant, J (2022) 'Disability and academic careers: Using the social model to reveal the role of human resource management practices in creating disability', *Work, Employment and Society,* 36 (4), 722-740. Available at: doi.org/10.1177/0950017021993737

Students

Harrington, R E, Thijssen, J H J and Hardy, J (2022) 'Participation, performance, and outcomes in an undergraduate physics degree: Perspectives on gender and socioeconomic factors', *Physical Review Physics Education Research*, 18 (1). Available at: doi.org/10.1103/PhysRevPhysEducRes.18.010114

The academic papers were published in various journals, and those journals range beyond the EPS community, making Inclusion Matters project findings available to a wider audience. This can be seen in the list of all the journals in which Inclusion Matters academic articles were published, in the table below.

List of journals that have published articles from the Inclusion Matters projects	Discipline journal addresses
BioScience	Biology
International Journal of Environmental Research and Public Health	Public health
The Lancet	Medicine
Nature Index	Natural science
Physical Review Physics Education Research	Science education
Sociology of Health and Illness	Sociology
The International Journal of Human Resource Management	Human resource management, including organisational behaviour, occupational psychology or labour economics
Work, Employment and Society	Sociology

It is important to note that the **total number of published** academic papers **is set to almost double**, as another 15 articles are either currently being reviewed by journals or written up (figures correct as of 25th October 2022).

3. Beyond the traditional outputs

Many of the teams published content for the wider EPS community beyond traditional academic outlets, such as **news articles for the general public, specialist sector-wide articles** (for example, Times Higher and Advance HE) and **magazines**. Many also contributed evidence to all party parliamentary group (APPG) inquiries. The following infographic summarises the types of non-academic outputs produced by the Inclusion Matters projects.

- + Fifteen reports
- + Nine articles for media (specialist magazines and tabloids)
- + Six pieces of evidence submitted to two APPGs
- + Forty-eight conference presentations
- + Ten posters
- + Twenty-six events organised (including four conferences)

STEMM change focused on producing a suite of resources about communication, <u>Understanding the</u> language of exclusion and how to challenge/change it towards an improved research culture. This strand included: a <u>report</u>, <u>the communications toolkit quick-reference guide</u>, a <u>short animation</u> <u>explaining the communications toolkit</u>, a podcast explaining the communications toolkit by its creators, and an AI job analyser to remove bias from job ads in collaboration with Diversely.

When we spoke with the STEMM change team members they mentioned their report Towards diverse workforces: transforming the language of exclusion and bias in recruitment as the dissemination strategy that has "penetrated the university and partners most deeply". They also mentioned that their earlier report, Equality, diversity and inclusion: a technician lens was key in raising "the profile of EDI and what that meant for the technical community on a sector level". In general, this suite of resources includes advice to better support inclusion work in the EPS community and has had a wider impact, being used by external partners, such as the local law firm, to develop bespoke models and training that further embed linguistic diversity and inclusiveness into recruitment and promotions processes.

An EDI officer involved in the eBase project also described how they put in place a useful data report series to facilitate the creation of an EDI evidence base for the student population, which is soon to be expanded to include staff data, and has potential to be replicated by other institutions, too:

"I have been putting together these data reports [...] looking at race and ethnicity and I'm currently working on one for widening participation of students. So far they're student based but the next phase will be to look at staff data. And I think they're useful within the college and within the university because [...] the data people have access to can vary a lot but also the time people have to go digging for the data to [...] evidence these things, I think pulling together and placing these things, and as I said I think in [Science and Engineering] having the data is really important. [...] I think this report series is going to be quite useful internally, but it's not published externally yet, although I think there could be some potential for publications maybe more kind of looking at a series of the reports rather than individual ones, but I think within the university they're quite useful and they've been shared not just in the college but also with the REAR sub-committee, which is the race equality and anti-racism sub-committee."

(EDI officer, eBase)

Alongside publications written for audiences outside of academia, many teams produced videos and podcasts to disseminate their findings. For example, the team from Promoting EDI in university spinout companies produced podcasts to disseminate their findings; findings from DISC can be accessed through a designated webpage; and VisNET produced a video to summarise their findings in an accessible way, which has been viewed more than 1,000 times. The team from Promoting EDI in university spinout companies similarly echoed this holistic approach by organising launch webinars for their reports. However, first we will look at the reports produced by the Inclusion Matters teams.

Reports

Generating impact in the form of culture change in the EPS community through reports was important to the Inclusion Matters teams. Many of the teams produced at least one internal report, with three teams producing multiple reports.

Reports:

Challenging different forms of bias in EPS research

Challenging different forms of bias (2021). Short report on reverse mentoring benefits. Birmingham: University of Birmingham.

DISC

Remnant, J, Sang, K, Calvard, T and Richards, J (2019) 'Transforming HE for disability inclusion', in *A new vision for further and higher education: Essay collection.* London: CLASS, pp 56-63. Available at: classonline.org.uk/pubs/item/a-new-vision-for-further-and-higher-education

Sang, K and Remnant, J (2019) *Short briefing on disability, broader equalities and single use plastics.* Edinburgh: Heriot-Watt University. Available at: <u>pureapps2.hw.ac.uk/ws/portalfiles/portal/24787832/</u> Social_model_of_disability_and_plastics.pdf

eBase

Internal report data series to generate an EDI evidence base for the student and staff population for the race equality and anti-racism sub-committee at The University of Edinburgh.

Northern power

Cramman, H, Gray, H, Siddiqui, N and Tudor, J (2021) *Evaluation of Inclusion Matters* – Northern power: *Making engineering and physical sciences research a domain for all in the north of England: end of programme report.* Durham: Durham University. Available at: doi.org/10.15128/r1j098zb14w

Promoting EDI in university spinout companies

Griffiths, H, Grisoni, L, Manfredi, S, Still, A and Tzanakou, C (2020) <u>The spinout journey: Barriers and</u> <u>enablers to gender inclusive innovation</u>. Oxford: Oxford Brookes University Centre for Diversity Policy Research and Practice.

Griffiths, H and Humbert, A L (2019) Gender and university spinouts in the UK – geography, governance and growth. Oxford: Oxford Brookes University Centre for Diversity Policy Research and Practice.

Griffiths, H, Still, A, Tzanakou, C and Manfredi, S (2021) <u>Academic entrepreneurship: Early career</u> researchers' perspectives. Oxford: Oxford Brookes University Centre for Diversity Policy Research and Practice. Khokra, J and Griffiths, H (2021) Women and spinouts at the Royal College of Art – An exploratory study into inclusive innovation practices. Oxford: Oxford Brookes University Centre for Diversity Policy Research and Practice.

Manfredi, S (2022) <u>Scientists and entrepreneurs: Women tackling global problems</u>. Oxford: Oxford Brookes Business School.

Still, A and Manfredi, S (2021) <u>A Snapshot of gender diversity in Oxfordshire innovation/knowledge</u> based companies. A discussion paper. Oxford: Oxford Brookes.

STEM equals

Gagnon, J and Reggiani, M (2021) A case for inclusion as essential for innovation. Available at: stemequals.ac.uk/Portals/6/Responsible%20innovation%20case%20study%20STEM%20Equals.pdf

STEM Equals (2020) *The* STEM Equals *project: First year report.* Glasgow: University of Strathclyde. Available at: stemequals.ac.uk/Portals/6/Documents/Reports/STEM%20Equals%20First%20Year%20 Report_LowRes.pdf?ver=Kk7fFU_jorKMa0sh40hhxg%3d%3d

STEM Equals (2021) The STEM Equals project: 2021 report. Glasgow: University of Strathclyde.

STEM change

STEMM Change (2021) *Towards diverse workforces: Transforming the language of recruitment.* Nottingham: University of Nottingham. Available at: stemm-change.co.uk/wp-content/uploads/2021/06/Transforming-the-Language-of-Exclusion-and-Bias-in-Recruitment-June-2021x.pdf

Overall, four of the 15 reports were programme reports and **focused on sharing project results**. These are listed below:

Challenging different forms of bias (2021). *Short report on reverse mentoring benefits.* Birmingham: University of Birmingham.

Cramman, H, Gray, H, Siddiqui, N and Tudor, J (2021) Evaluation of Inclusion Matters – Northern power: Making engineering and physical sciences research a domain for all in the north of England: end of programme report. Durham: Durham University.

STEM Equals (2020) The STEM Equals project: First year report. Glasgow: University of Strathclyde.

STEMM Change (2021) Towards diverse workforces: Transforming the language of recruitment. Nottingham: University of Nottingham.

These reports were useful not only for disseminating findings externally but also because they **influenced institutional practices**. For example, the Reverse Mentoring Short Report from Challenging different forms of bias in EPS research was used by Aberystwyth University, which was a partner of the project, to inform a broader body of work on mentoring at the institution – for example, insights regarding the benefits of reverse mentoring were shared with the Communications Equality Officer and Head of Organisational Development and Learning. We will discuss impact in greater depth in the following section.

Two of the 15 reports were **think pieces**, one looking at <u>Transforming HE for Disability Inclusion</u> (produced by DISC in an essay collection), and the other providing <u>A Snapshot of Gender Diversity in</u> <u>Oxfordshire Innovation/Knowledge Based Companies</u> (produced by Promoting EDI in university spinout companies). These reports prompted readers to think about the findings from the Inclusion Matters projects and consider what future work based on those will look like or how they could be further developed and implemented. For example, Promoting EDI in university spinout companies asked, *"How can local companies be supported to achieve greater gender diversity in their senior leadership teams?"*, whereas DISC's think piece pointed to the four following recommendations in terms of how to make academic institutions more disability inclusive:

- 1 Clear up-to-date recording and anonymised reporting pathways for disabled staff
- 2 Consolidated disability-relevant policies that are easy to access and transparent
- 3 Placement of disability champions in positions of authority
- 4 Greater funding provisions for disabled academics and research

Promoting EDI in university spinout companies also produced four <u>reports</u>, which were published by Oxford Brookes Universities Centre for Diversity Policy Research and Practice. These focused on disseminating the outcomes of the project in a *"high-quality, accessible,"* way, and were produced with *"professional support"* to reduce the likelihood of *"doing reports that nobody can read"* (Senior leader, Promoting EDI in university spinout companies). These reports were:

Griffiths, H, Grisoni, L, Manfredi, S, Still, A and Tzanakou, C (2020) <u>The spinout journey: Barriers and</u> <u>enablers to gender inclusive innovation</u>. Oxford: Oxford Brookes University Centre for Diversity Policy Research and Practice.

Griffiths, H and Humbert, A L (2019) <u>Gender and university spinouts in the UK – geography,</u> <u>governance and growth</u>. Oxford: Oxford Brookes University Centre for Diversity Policy Research and Practice.

Griffiths, H, Still, A, Tzanakou, C and Manfredi, S (2021) <u>Academic entrepreneurship: Early career</u> researchers' perspectives. Oxford: Oxford Brookes University Centre for Diversity Policy Research and Practice.

Khokra, J and Griffiths, H (2021) Women and spinouts at the Royal College of Art – An exploratory study into inclusive innovation practices. Oxford: Oxford Brookes University Centre for Diversity Policy Research and Practice.

A lot of **consideration was given to the size of the reports for maximum impact**. As the project lead from Promoting EDI in university spinout companies put it *"there was one report that was supposed to be one big report but then we decided to split it into three. That was much, much better because […] people focus more. If you give them far too much, it's too much to take"*. An extra strategy employed by Inclusion Matters teams to further increase the impact of their reports was to include **high-quality visual elements**, such as infographics.

"Because I have graphic skills, we always curated a lot the way our output looks. I think that is something that makes outputs more impactful as well. Nobody thinks about that, but somehow, it's another way to deliver your message in a very strong way without having people read a 10-page report to understand what you are doing."

(Researcher, STEM equals)

Another strategy was to **adapt the writing style** and **report structure**. In general, reports that included clear **strategic development actions** and **recommendations** seemed to be considered *"more successful than any of the individual interventions"* (senior leader, Northern power) as they provided practical steps in terms of how structures and processes could be improved so that culture change can be implemented. For example, a senior leader from STEM equals agreed that presenting project findings to the University of Strathclyde *"management group"* written like a *"government report"*, *with "an executive summary"* followed by outlining one by one *"formal recommendations"*, including *"some quite difficult things, like making sure that all HR policies have an implementation strategy and a monitoring programme"* and *"increased investment in the EDI university team"* was a catalyst for the executive team to accept them all and agree to share them with all the Scottish universities. Similarly, STEMM change team members mentioned their report 'Towards Diverse Workforces: Transforming the Language of Exclusion and Bias in Recruitment' as the dissemination strategy that has *"penetrated the university and partners most deeply"*. They also mentioned that their earlier report 'Equality, Diversity & Inclusion: A Technician Lens' was key in raising *"the profile of EDI and what that meant for the technical community on a sector level"*.

In addition, four Inclusion Matters teams produced reports that focused on applying their research to the 'real world' in the form of: a) a briefing, b) a data report series, c) an edited version of an online panel discussion, and d) a teaching case study. The <u>briefing</u> was produced by DISC and focused on applying its research to the implications of single-use plastics. A series of internal data reports are in production by eBase to generate an EDI evidence base for the student and staff population for the race equality and anti-racism sub-committee at the University of Edinburgh. The <u>edited version of an online panel discussion</u> was produced by Promoting EDI in university spinout companies in association with WEgate (an online European community that has created an initiative to help women entrepreneurs start and build up their business), and discussed how women's contribution is essential in tackling global problems. Based on the project findings of Promoting EDI in university spinout companies of produced by STEM equals looking at inclusion as essential for innovation. This case study was produced by STEM equals looking at inclusion as essential for innovation. This case study comprised of students' research designs, relevant diversity and inclusion statement and equality impact

assessments to address two pertinent EDI issues posed by the STEM equals' research team members related to gender and race bias in design and production.

Some Inclusion Matters project team members clearly outlined **how project findings** get diffused and cascaded through the various networks they engage with, managing to "*infiltrate*" a variety of institutional structures. For example, a senior leader from the Promoting EDI in university spinout companies project indicated how the project lead chairs the Oxford Brooke's diversity, gender and inclusion network and how "*this has been a really good way internally to disseminate the project outputs*". Generating impact will be discussed in greater depth in the following section.

General media outputs

Alongside the reports, approximately half (six) of the Inclusion Matters teams promoted their research in the general media alongside some more specialised sector-wide and specialist magazine pieces.

Non-traditional articles:

DISC

Remnant, J, Sang, K and Richards, J (2020) 'Coronavirus: Why disabled workers may hold some of the answers to post-pandemic working'. *Personnel Today*, 3 July. Available at: <u>personneltoday.com/hr/</u> coronavirus-why-disabled-workers-may-hold-some-of-the-answers-to-post-pandemic-working/

eBase

Porth, E (2020) 'Taking on the System'. *The Protagonist* (Association of Research Managers and Administrators magazine). Available at: ebaseevidencebase.files.wordpress.com/2020/12/p18-19_arma_big_grants_the_protagonist_012.pdf

Promoting EDI in university spinout companies

Baker, S (2019) 'Study reveals major gender imbalance in UK university spin-outs'. *Times Higher Education*, 7 November. Available at: timeshighereducation.com/news/study-reveals-major-gender-imbalance-uk-university-spin-outs

Manfredi, S (2018) 'Time to end bias against academia's female entrepreneurs'. *Times Higher Education*, 21 March. (This article pre-dates the allocation of the grant.) Available at: timeshighereducation.com/blog/time-end-bias-against-academias-female-entrepreneurs

Manfredi, S (2021) 'Scaling up gender diversity in the university spinout ecosystem'. London: *Wonkhe*. Available at: wonkhe.com/blogs/scaling-up-gender-diversity-in-the-university-spinout-ecosystem/

Swain, H (2020) 'Guys ask for more money': the hurdles facing female-led science startups'. *The Guardian*, 8 January. Available at: theguardian.com/education/2020/jan/08/guys-ask-for-more-money-why-female-led-startups-underperform

University Business Staff (2020) 'University spinout companies: Where are all the women?' *University Business*, 24 November. Available at: <u>universitybusiness.co.uk/comment/university</u>spinout-companies-where-are-all-the-women/

Reimagining recruitment

Douglas, S, Morton, J, Roberts, M and Rogers, T (2021) 'Academic workshops: How we build back better'. *Times Higher Education*, 21 May. Available at: <u>timeshighereducation.com/career/academic-workshops-how-we-build-back-better</u>

STEM equals

Gagnon, J and Reggiani, M (2019) 'The STEM Equals project asks: What does it mean to be seen?' *The GIST*, 30 September. Available at: <u>the-gist.org/2019/09/the-stem-equals-project-asks-what-</u> does-it-mean-to-be-seen/

STEM change

Jones, L (2021) 'A new tool to support EDI in HE'. *Advance HE News* and Views, 25 January. Available at: advance-he.ac.uk/news-and-views/new-tool-support-edi-he

Vere, K (2021) 'Advancing gender equality for professional roles in higher education and research institutions in the UK'. *Advance HE News* and Views, 7 July. Available at: <u>advance-he.ac.uk/news-</u> and-views/advancing-gender-equality-professional-roles-higher-education-and-research

In general, articles in newspapers and specialist magazines were considered by the teams to be **more influential** than academic ones, as they were reaching a far wider audience.

"Drawing on the data from DISC, our postdoc led a piece in Personnel Today, which is an HR magazine, on how might the Covid-19 pandemic be good for disabled workers. So, that kind of thing is quite successful as well. [...] Also, the company that developed our virtual reality training software wanted to do a press release conveying what they did to support us with the design of our disability training. And that got picked up so widely [...] it went out through a lot of business and tech magazines [...] and I only knew when I opened up my Twitter and my notifications were really high because I'd been tagged in a lot of the tweets [...] So, that was really widely successful."

(Senior leader, DISC)

The articles for the **general media were generated by two teams** (Promoting EDI in university spinout companies and Reimagining recruitment). In total, 11 such articles were produced. Three of these pieces were published in the online magazine Times Higher Education, which has a broad readership of stakeholders involved in HE. The pieces focused on Academic Workshops: how we build back better, Time to end bias against academia's female entrepreneurs, and Study reveals major gender imbalance in UK university spinouts. One article from Promoting EDI in university spinout companies on the topic Guys ask for money, looking at why female-led startups underperform, was published in the Guardian; and another article from the same team on University spinout companies: where are all the women? was published in University Business. These articles are significant because they provide important pointers for the sector in terms of how the gap between real-life problems and academic research can be reduced, while keeping diversity consideration at the centre to try to diversify the EPS sector.

IM teams published in the general media and specialist magazines



Other Inclusion Matters teams used more **specialised magazines** when trying to disseminate their findings, such as <u>The GIST</u>, <u>The Protagonist</u>, and <u>Personnel Today</u>. The GIST is a specialist student science magazine that gives insight into science and technology. It is based in Glasgow and has a network based across three Scottish universities (University of Glasgow, the University of Strathclyde, and Glasgow Caledonian University). The Protagonist is a biannual members' magazine for the Association of Research Managers and Administrators (ARMA). It provides critical perspectives on current sector-wide topics such as the research bureaucracy review. Personnel Today is the leading free-access HR website in the UK and provides independent coverage of HR and the employment sector.

Gagnon, J and Reggiani, M (2019) The STEM Equals project asks: What does it mean to be seen? *The GIST*, 30 September.

Porth, E (2020) 'Taking on the System'. <u>The Protagonist</u> (Association of Research Managers and Administrators magazine).

Remnant, J, Sang, K and Richards, J (2020) <u>Coronavirus: Why disabled workers may hold some of</u> the answers to post-pandemic working. *Personnel Today*, 3 July.

Choosing to publish in specialised magazines was a strategy adopted by three Inclusion Matters teams **to better reach their target audience** and **further accelerate cultural change in EPS**. For example, by publishing in The GIST magazine, STEM equals were able to share their work with the local community and, in particular, acknowledge the Scottish context of their project. For eBase, to reach their target audience of barriers to career progression and research culture, it was important for their piece to be in The Protagonist where the readership are key stakeholders (for example, research managers and administrators) who deal with these issues. Finally, DISC's piece is ideally situated in Personnel Today, as HR personnel are key agents with the power to (re)shape working environments so that they are more inclusive for disabled workers.

Evidence submitted to all party parliamentary group (APPG) inquiries

The Inclusion Matters teams were very focused on implementing culture change in the EPS community and were actively trying to *"answer to government enquiry when we feel that our findings are relevant"* (Project lead, VisNET). Traditionally, **one way of measuring high research impact is indicating influence at a national policy level**. Submitting evidence to APPGs is a perfect indicator of how Inclusion Matters projects engaged in this. In total, **seven pieces of evidence were submitted** to two inquiries from five Inclusion Matters projects. Details are in the table below.

APPG Inquiry	Inclusion Matters Project
Inquiry into equity in the STEM workforce	eBase, Promoting EDI in university spinout companies, STEM equals, STEMM change
Inquiry on the impact of Covid on people with protected characteristics	eBase, VisNET

There is also a White Paper from the Reimagining recruitment team that will be published later in 2022. This interprets the project's research findings into actionable recruitment policy recommendations for the wider sector.

Conferences

Many of the Inclusion Matters projects organised their own conferences, festivals or events to promote their work. There was great diversity in the types of events that the project teams organised, usually with the **collaboration of an external partner**.

For example, a joint virtual EDI festival was held by the Challenging different forms of bias in EPS research team in collaboration with the University of Amsterdam, to share best practice around reverse mentoring. Several of the sessions in this collaborative event were recorded and are available. There was a strong emphasis on artistic expression at the festival, with an artist hired to produce a visual piece summarising the festival's main topics and outcomes (which can be found here). The festival also hosted an EDI photo competition, with the winners' photos displayed in the Exchange Express (a digital magazine made by exchange students at the University of Amsterdam), which strengthened the Inclusion Matters team's connection with the local community, giving their findings greater reach.

Although various synergies developed between the teams as the Inclusion Matters projects progressed, this was most evident in the dissemination stages of their projects. Interestingly, two teams (eBase and STEM equals) collaborated with an external partner, the STEM Village, to support the event STEMinar 2022, which is believed to be the longest running and largest conference in the world dedicated specifically to showcasing the achievements of LGBTQ+ people in STEM. More than 460 people registered to attend the LGBTQ+ STEMinar 2022 from around the world. At the event, STEM equals organised a session on LGBTQ+ individuals' achievement within EPS, featuring two keynote speakers and 20 additional speakers from a variety of disciplines, identities and backgrounds. Similarly, eBase collaborated with the STEM Village to raise the profile of LGBTQ+ scientists at the STEM Village 2020 conference, delivered online due to Covid-19. Following on from this collaboration, the eBase team wrote about their experiences in a commentary to The Lancet and on the eBase blog, outlining constructive suggestions regarding interventions that could be taken to increase LGBTQ+ visibility in STEM (at both the micro and macro level). A few of the suggestions that were offered included the normalisation of sharing pronouns by including pronouns in emails and introductions during meetings and classes, and focusing on improving "support and safety" by institutions ensuring LGBTQ+ staff and students' safety in the workplace, when organising overseas work in countries that openly discriminate against the community" (text from comment to The Lancet).

In total, **48 conference presentations** and **10 posters** have been delivered. Almost half (47%) were associated with conferences hosted in the UK and 21% with international conferences. Given that many of the presentations were scheduled to happen during the Covid-19 pandemic, some presentations were delivered online, and 12% were delivered at virtual events. On average each team contributed five presentations and posters. However, the Reimagining recruitment project is still in progress so this number is set to grow. Across the 11 projects there was a global reach as demonstrated in the map below.



Including the events the Inclusion Matters teams organised themselves, their work was shared in presentations and posters in at least 60 different conferences and virtual events. When we looked across the conferences there were some that had presentations and posters from multiple Inclusion Matters teams; the most popular (measured by how many Inclusion Matters teams attended) conferences are listed below.

Number of presentations and posters	Conference name
5	Gender, Work and Organisation Biennial International Interdisciplinary conference
5	Vitae Researcher Development international conference
4	Advance HE EDI conference
3	STEMM change annual conference
3	Network, Gender and STEMM conference

Among the Inclusion Matters projects that are finished, **a member from every team attended at least one conference**. This is impressive given the challenges of Covid the Inclusion Matters teams had to deal with. Moreover, it is particularly important to see the names of ECRs featuring high in the lists of team members that attended these conferences and delivered these talks, as this is evidence that the Inclusion Matters projects gave ECRs opportunities to extend their networks and gain valuable experience with disseminating research findings worldwide and to various audiences. Finally, it is also good to see that **most of the conference presentations were delivered by groups and not by individuals** (ie not just the project leaders or PIs of the projects), something that is an important indicator that all team members got credit for the work they put into the Inclusion Matters projects. The Inclusion Matters portfolio was funded to promote culture change within the EPS community and provide all research team members with relevant opportunities to present their research, as well as acknowledging that research is the outcome of teamwork rather than an individual's accomplishment, so this shows that Inclusion Matters projects 'did as they preached' and promoted an inclusive research culture.

Online events

Apart from taking actions to promote individual Inclusion Matters projects online, the Inclusion Matters portfolio created opportunities for **synergies** to develop between its 11 funded projects to advance the common cause of promoting EDI awareness across wider audiences through appropriate online resources. Two such initiatives took the shape of online seminar series. Roadblocks on the path to innovation: creating inclusive research communities was an online seminar series arising, again, from a collaboration between STEM equals and eBase. The seminar series featured "challenging questions around inclusion discussed by diverse panels of experts from different aspects of the research and higher education community" and took place during October-November 2021.

Pop Up Inclusion Matters seminar series was an eBase-led "programme of presentations, seminars and workshops which showcased the work of the EPSRC Inclusion Matters programme as well as other related work at the University of Edinburgh". The series took place in November 2020 and included contributions from eBase, STEM equals, Inclusion really does matter, VisNet, Promoting EDI in university spinout companies, DISC and STEMM change. The event has been recorded and is publicly accessible.

Other Inclusion Matters teams **organised more typical academic events** to launch their reports. For example, STEM change organised an annual conference in 2019 (see the <u>conference programme</u>). It used this event to launch its report, focusing on the EDI challenges faced by the technician community within EPS to raise awareness around this often neglected area and capitalise on the opportunity to introduce the project and its work to a wider audience. Similarly, Promoting EDI in university spinout companies held separate events to launch its reports. One event for <u>The Spinout</u> <u>Journey</u> was recorded and <u>five additional videos</u> are available online that illuminate particular aspects of the project. For another report launch a <u>video</u> was produced summarising key findings titled, <u>Gender and University Spinouts in the UK: Geography, Governance and Growth</u>. These academic events were an important part of disseminating the insights from the Inclusion Matters projects' work to a wider audience within the EPS community to accelerate culture change.

The Promoting EDI in university spinout companies team was prolific in its dissemination activities and organised nine different events, two of which were used to launch reports. The other seven events focused on networking events and raising the visibility of women entrepreneurs. Many of their events were filmed. For example, the team organised a panel discussion called <u>Connecting women entrepreneurs across Europe</u>, a webinar for <u>Scientist and entrepreneurs</u>, and a networking event <u>Supporting Spinouts</u>. On other occasions, follow-up videos were produced to disseminate findings. For example, its event <u>Investing in Women-Led Start-Ups and Spinouts</u> produced four videos and a video series supporting the Spinouts from ICURe programme.

It is important to consider the impact of the Covid-19 pandemic. Despite the challenges of the pandemic, all of the projects managed to gradually adjust to the 'new reality', for example, through moving elements that were originally planned to be face-to-face online or reducing their primary data collection.

"COVID has presented a challenge [...] We launched our LGBT network virtually. So it's just made it difficult to network across, sort of, and just have a more personal touch"

(Senior Leader, STEM equals)

Similarly, projects that organised events as part of the EDI initiative were impacted by the pandemic. For example, Reimagining recruitment designed events that were purposefully *"unconference-style"* (from Star formation across the universe call), called incubator workshops – *"which are domain-specific workshops, run by experts in that field, attended by academics at all career stages who formulate and/or solve interesting problems"* (defined on the Reimagining recruitment website). The 12 incubator events were held with various external experts to explore a diverse range of ideas and approaches, such as a hackathon, datathon and collaborative workshops.

Social media content and blog posts

Inclusion Matters project teams employed social media and online channels **for promotion and dissemination purposes**. In terms of promotion, almost all of the Inclusion Matters project teams used a combination of online channels, such as dedicated project webpages and social media profiles. These methods were seen as particularly successful, especially as most of the projects were in their main stages of recruitment and implementation during Covid. DISC, eBase, Inclusion really does matter, Promoting EDI in university spinout companies, STEM equals, STEMM change and VisNET (seven of the 11 Inclusion Matters projects) **created their own Twitter profiles**, which they actively **used to promote their activities and share their findings**, as well as those of other Inclusion Matters projects.

Inclusion Matters Team	Twitter handle	Twitter Name
DISC	@DisabilityIncl1	DisabilityInclusiveScienceCareers
eBase	@evidenceBase_IM	evidenceBase
Inclusion really does matter	@QUBIncMatters	QUB Inclusion Matters
Promoting EDI in university spinout companies	@WomenSpinouts	Women in STEM Spinouts
STEM equals	@STEMEquals	STEM Equals Project
STEMM change	@STEMM_CHANGE	STEMM-CHANGE
VisNET	@visNET_	visNET

All those projects, as well as ASPIRE, Northern power and Reimagining recruitment, have built their own webpages, which curate information and host resources developed by each project.

"I think one thing that really make[s] us stand apart compared to other Inclusion Matters is that we have a very big online presence, especially on Twitter. We put a lot of effort into that, especially at the beginning, and I have to say that somehow it paid off because it was really a way to showcase what we were doing and engage in conversations. Even people from abroad noticed what we were doing and got in touch with us."

(Researcher, STEM equals)

Having an online presence helped the Inclusion Matters teams **create new networks** as well as use existing networks to spread the projects' findings and extend their spheres of influence. To give some examples of the types of networks that were created through the Inclusion Matters projects, STEMM equals facilitated the creation of 'StrathPride', an LGBTQ+ network at the University of Strathclyde in its attempt to promote inclusion and representation of LGBTQ+ staff and students. STEMM change facilitated a national EDI technical leads network, comprised of *"technical leads from a number of institutions across the UK, who come together regularly to discuss what they can do to advance EDI in the sector"*, as an HR/EDI practitioner from the project team explained.

"In terms of dissemination, again, all teams engaged in practices that exceeded the 'traditional' understandings of pursuing academic publications, to include strong social media presence and publicly accessible forms of writing, like blog posts and Twitter threads. So, I always encourage people to not just think about dissemination as in 'we're going to have three journal articles'. You have to have a social media presence. You have to have a blog, and our blog was quite widely read actually."

(Senior leader, DISC)

Two blog series were established by Inclusion Matters teams and five further contributions were made to established blogs. <u>DISC's blog series</u> and eBase's <u>blog series</u> produced 41 blog entries overall. The entries document a wide range of topics from "<u>origin stories</u>" of the Inclusion Matters project to insights into building project resources, as well as relevant reflections and recommendations arising from project findings.

Promoting EDI in university spinout companies contributed to three sector-wide blogs – EPSRC blog, Times Higher Education and Wonkhe. Likewise, Inclusion really does matter contributed to the EPSRC blog. Similarly, STEMM change contributed twice to one sector-wide blog – Advance HE. The articles were published in Advance HE News and Views and focused on promoting STEMM change's EDI Resource bank and work on transforming the Athena Swan Charter.

Inclusion Matters team name	Details of the sector-wide blogs
Inclusion really does matter	EPSRC blog, a post on framing STEM gender equality initiatives
Promoting EDI in university spinout companies	EPSRC blog, a post on the spinout journey from a gender perspective
Promoting EDI in university spinout companies	Times Higher Education blog, post on Time to end bias against academia's female entrepreneurs
Promoting EDI in university spinout companies	Wonkhe blog, post on Scaling up gender diversity in the university spinout ecosystem
STEMM change	Advance HE, post on A new tool to support EDI in HE
STEMM change	Advance HE, post on Advancing gender equality for professional roles in higher education and research institutions in the UK

In general, the **Inclusion Matters projects' online presence and resources form a solid proof of project legacy**. These should be further promoted and used to link with follow-on investments and projects to sustain their relevance and implementation. One route for further dissemination is through EPSRCs EDI Expectations which can be found here.

Key outcomes

The Inclusion Matters projects produced a variety of outcomes, including internal and external actions, career progression and further funding. The Inclusion Matters teams bought into the unique scope of the funding call, committing to generate culture change within the wider EPS sector and working hard to generate both internal and external impact from their Inclusion Matters projects.



The key outcomes from the Inclusion Matters projects fall broadly into four categories: 1) internal actions, 2) external actions, 3) career progression, and 4) further funding.

1) Internal actions

Overall, there were **63 internal actions** reported by the various Inclusion Matters teams as a result of the Inclusion Matters implementation. These were comprised of:

- + twenty-eight instances where institutional practice was informed by the Inclusion Matters projects findings
- + twelve instances of expansion of existing EDI initiatives to make them applicable to additional marginalised groups
- nine instances of raising awareness and visibility of the Inclusion Matters project findings within the host institutions

- + seven instances of establishing new, or contributing towards established, networks and working groups
- + seven instances of Inclusion Matters team member applying for internal promotion.

By far the largest internal outcome across all projects was using research findings generated by the Inclusion Matters projects to inform practice within the host institutions (44% of all Inclusion Matters teams reported this). Some projects were able to transform institution-wide practices, strategies and guidance, but the majority of change was made by engaging with HR departments.

11x Host Institutions



Advance HE EPSRC 2022

Transforming institution-wide practices, strategies and guidance

Inclusion Matters projects played a major role in revising and reviewing policies and processes that sustained inequities. To do this, it was vital that institutions had the relevant evidence to understand the barriers created by existing practices and processes before devising targeted actions to tackle those barriers. As noted by one participant:

"Every institution almost needs to go through an effort to understand its own system and the pinch points in that system and where things get stuck and how to then insert good practice in the right part of that system, and that will almost certainly be different for every institution because every institution is slightly differently built up."

(Participant, eBase)

Looking at how the Inclusion Matters projects informed institution-wide practices, strategies and guidance, the Inclusion Matters teams framed their research project findings as **recommendations** to their host institutions' executive board. For example, as shown earlier in the report (Key outputs), many of the teams produced at least one internal report, with three teams producing multiple reports, outlining how their project findings could be translated into concrete EDI recommendations to help their faculties and/or wider institutions become more equitable and inclusive. A good example of such a report was produced by STEM equals. This report, **addressed to the host institution's executive board, made six recommendations to change university policy and practice to become more inclusive**. Not only has the executive board accepted all six recommendations, it also shared the recommendations with all other Scottish HE institutions, an action evidencing wider external impact.

Six recommendations from STEM Equals to change university policy and practice to become more inclusive:

Recommendation 1: The University provides clear information and training to ensure all staff actively include marginalised colleagues, this should include an obligation on staff to act if they witness offensive or discriminatory behaviour.

Recommendation 2: The University significantly increases the size of the EDI team and the funding available for ongoing research, and for development and post-implementation evaluation of initiatives, especially in STEM.

Recommendation 3: The University implements a more transparent, easier to navigate complaints procedure that is supported by a well-qualified staffing resource sufficient to address serious incidents of discrimination.

Recommendation 4: The University budgets to automatically fund family leave (maternity/ paternity), sick leave, and family-friendly research leave, removing any element of discretion that lies with Heads of Department.

Recommendation 5: The University collects robust EDI data annually from all staff and uses it to monitor the progress towards equity, diversity, and inclusion KPIs.

Recommendation 6: The University ensures that all policies in HR have an accompanying implementation plan, and a monitoring and evaluation strategy. This should include a regular timeline for evaluation and for subsequent revision of the policy and implementation strategy, where required.

One of the key recommendations made by most Inclusion Matters projects was the importance of collecting institutional EDI monitoring data and making this information publicly available so that institutions can monitor their progress as well as be held accountable. For example, as a result of the reverse mentoring programme implemented by the Challenging different forms of bias in EPS research project, and the significant demand from staff from the Race Equality Network at the University of Birmingham (one of the key collaborators of the project), the university
published ethnicity pay gap figures for the first time in 2021 (the report can be accessed here). Similarly, through revising the collection of disability data, DISC was able to raise the profile of disability inclusion within Heriot-Watt University, and now disability inclusion is a key performance indicator for the university (as part of Heriot-Watt's strategy to Build Flourishing Communities). Finally, the STEM equals project also revealed issues related to insufficient monitoring and reporting when it came to data for an existing university scheme that provided a staged return to research for women who came back from maternity leave. HR within the University of Strathclyde was responsible for recording the number of women who undertook this opportunity but, when asked by the STEM equals team about this data, as it was not publicly accessible, they discovered *"that in the last five years, only one person in the engineering faculty had done it"*. After further investigation, it was recognised that there were concerns and issues surrounding awareness of the policy and process monitoring in terms of evaluating the take-up and effect of EDI initiatives:

"...the university didn't know that it had a policy that was not being taken up because it just doesn't collect the data to find out. So we put this in front of the executive team and said, "You introduced this family-friendly policy and your middle management are not allowing people to apply for it. They're applying pressure to them and saying they can't afford the teaching." So it's just examples of trying to get really practical support in place and a much better understanding of what's going on the ground of the university, no matter what you might think your policies look like in the centre."

(Project lead, STEM equals)

From this scenario, it is clear that to ensure that all university systems and processes are accessible and up-to-date, **university teams must work in tandem if there is to be real structural transformation and impact**, including the effective use of data collection and analysis processes. As a project lead put it, university policies need to be reviewed and monitored based on evidence if we want to ensure that they are meeting the needs of the targeted groups they were created for instead of being words on paper that *"sit on the shelf"*.

There were also four instances of institution-wide strategies and guidance being revised in response to findings from three Inclusion Matters projects (eBase, Reimagining recruitment and VisNET). These included revising the information on funding for research and impact for ECRs at the University of Edinburgh (eBase), embedding EDI in the Edinburgh Research Office competency framework (eBase), revising the sustainable business travel guidance for the University of Glasgow using inclusive practice (VisNET), introducing the Pathway to Research scheme and incorporating EDI as one of the University of Bath's four pillars (Reimagining recruitment). The Pathway to Research scheme is designed to address the recruitment bias for PhD students at the University of Bath, because Reimagining recruitment project demonstrated that barriers to the diversification of EPS communities often start at an earlier stage (this is discussed in more detail in Internal Funding later in the report)

Embedding change through engagement with HR and professional and support services

From the data collected, changes and impact on institutional processes and policies predominately took place through engagement with HR as well as professional and support services staff teams. This bridging of academic and professional and support services is among the **unique characteristics of the Inclusion Matters portfolio** and shows the way forward in terms of **effecting long-term change**. This is because it is apparent that the Inclusion Matters projects were able to influence or collaborate with HR teams and professional and support staff to make alterations to institutional structures which affect inequalities, such as recruitment strategies and policy monitoring and evaluation. According to a researcher from the Reimagining recruitment project, the strengthening of partnerships between HR, academics and support services was enhanced and procedural changes *"accelerated and modified"* by the Inclusion Matters project. They added that there was immense involvement from the deputy head of HR, who was driving the outcomes of the project to impact recruitment practices, not only in the institution but in the wider sector.

"The deputy head of HR is really heavily involved in delivering the outcomes of this project. I think he's, you know, pushing from his side to get things done. He also sits on [...] GW4, the network of south-western universities [...] at some point hopefully it will start to percolate out." (Participant, Reimagining recruitment)

Similar involvement with various professional and support services staff took place across other Inclusion Matters projects. For example, most of the ASPIRE team members were based in the University of Lincoln's diversity and inclusion department. This is the university's strategic lead for EDI and, as such, is the hub of all EDI activity at the University of Lincoln. Similarly, eBase, DISC and VisNET involved researcher developers in disseminating their findings across university relevant structures, whereas Northern power involved team members from organisational development and EDI. Finally, STEMM change had a strand dedicated to developing technicians and raising awareness across EDI issues within this community.

Inclusion really does matter also took a practical step to instigate culture change, informing the Faculty of Engineering and Physical Sciences at the University of Birmingham's decision to list all contributors to grant applications as a means of equitable recognition for all members who contribute towards research and innovation. Most Inclusion Matters projects realised that a whole-institution approach was the most effective when it came to culture change, which was why they included HR as well as professional and support services staff within their teams from the very beginning. Such collaborations should sit at the centre of research funding initiatives that aim to promote a more inclusive research culture and long-term change; recognising the contribution and importance of HR and professional and support services staff in research and innovation is one of the key drivers for creating more inclusive communities. Research findings need to penetrate university structures for meaningful and long-term EDI change to be implemented and this can only be done by including in this process people with various roles across institutions.

Informing recruitment and promotion practices

One of the key changes driven through HR was changes to internal and external recruitment practices, such as reviewing shortlisting criteria, changing recruitment material and anonymous shortlisting. This demonstrates the wide impact of the Inclusion Matters projects on modifying university practices such as recruitment:

Examples of programmes that have benefited from insight from the Inclusion Matters projects

- + <u>The Aditi Leadership Programme</u>, which specifically caters for the development of minority ethnic staff members, will be revised as a result of the feedback received through the reverse mentoring programme at the University of Birmingham (Challenging different forms of bias in EPS research).
- Project findings are used to inform a large-scale <u>equality change programme</u>, particularly
 informing areas such as career progression and how to eliminate bias in evaluation of promotion
 applications at the University of Birmingham (Challenging different forms of bias in EPS research).

"We've introduced anonymous shortlisting for academic posts. There's not many universities in the country doing that. And that was partly, I think, the work that we've done through this project has emboldened us to move forward on some of those things, I don't think we would have tried without it."

(Participant, Reimagining recruitment)

Similarly, based on the research findings of the Challenging different forms of bias in EPS research project, the College of Social Sciences at the University of Birmingham has introduced a system where job vacancies will not progress to shortlisting unless there is at least one application submitted from a person with an ethnic minority background. Likewise, the University of Nottingham has updated its recruitment practices as a result of STEMM change's language of exclusion work, with senior support to roll this out across faculties also secured. For example, there have been a number of recruitment rounds in which new staff members were appointed with no interview, using roleplaying or other task-based assessments instead. Recruitment is now also routinely done without the requirement of a CV submission. In general, the language of exclusion work and insights has found wide practical implementation through the production of publicly accessible guidelines supporting line managers who are in the process of recruitment to be inclusive way, avoiding bias, as well as guidelines on how job advertisements should be written to be inclusive (STEMM change). Promoting EDI in university spinout companies is also using its project findings to fill a gap by developing an Enterprise/Knowledge Exchange Career Pathway at Oxford Brookes University, to help nurture the production of a more inclusive workforce when it comes to entrepreneurship through founding spinout companies.

Similar examples are found in Scottish universities. For example, the University of Edinburgh has used eBase's recommendations to rebrand the *"talent register"* as the *"redeployment register"*, providing improved guidelines and content on how HR should internally advertise posts to be filled through redeployment. Similarly, Heriot-Watt University has updated its grievance policy to include the need for reasonable adjustments, and the University of Glasgow consulted VisNet before updating its promotion criteria.

Changes to HR practices not only impacted the EPS community, but were also beneficial to minority and underrepresented groups more widely. As recognised by one participant from the STEM equals project, engagement with HR teams meant that structures could be adapted to *"better support those members of staff from minority groups and our engagement with the policies that were coming through, [this also] supported diversity and inclusion".* In general, all the above shows clear progress from actions inspired by the Inclusion Matters projects toward more inclusive recruitment and promotion practices. Who and how people are recruited within academia as well as who and on what basis they get promoted are important factors in creating a more inclusive EPS community, demonstrating that the changes implemented by the Inclusion Matters projects are a clear step towards advancing EDI.

Raising awareness of Inclusion Matters project findings and insights

There were nine instances where Inclusion Matters projects raised awareness and visibility of their findings within their host institutions with the aim of updating colleagues who were not involved in the project teams but were in positions to use the project findings to inform their practice. As evidenced by Inclusion really does matter, Northern power, Reimagining recruitment and VisNET, the first step to instigate positive EDI change was to raise awareness of the need to accelerate culture change in the EPS community. This can be done by highlighting practical examples that show current shortcomings, which prove why investment into EDI work is valuable. This understanding in turn helps to put solid action plans in place. One of the main impacts of Northern power was indeed that, through raising awareness of the value and importance of EDI work, team members and other colleagues felt more confident to get involved in more EDI-relevant projects and work - and this has been the case across all the institutions involved in the project. Northern power also reported that raising awareness around the importance of considering EDI issues had an impact on teaching and curriculum design within the EPS faculties involved in the project. This was also reported by eBase, which contributed to EDI research topics offered for undergraduate physics students at the University of Edinburgh. Moreover, raising awareness around the importance of EDI work resulted in new EDI roles being created in some institutions. For example, a new EDI lead was added to one of the universities involved in Northern power and funding was provided by the University of Edinburgh for an EDI officer to oversee and ensure the implementation of eBase findings across the institution long-term.

Other instances of raising awareness around EDI issues can be found in the people who took part in the Inclusion Matters projects as research participants. A clear example of this comes from STEMM change, which reported that reverse mentoring had caused a cultural shift in the senior leader mentees, who have anecdotally reported behaviour changes in response to their conversations with mentors. Likewise, Inclusion really does matter has demonstrated that male staff and students from civil engineering have started to realise that they might be unconsciously biased towards certain aspects after undertaking the VR experience emulating the challenges faced by being a woman in various aspects of the EPS community.

Another good example of how to generate impact through raising awareness is establishing long-term engagement with partners. For example, STEMM change's partnership with a local law firm. As a result of this partnership, the law firm is now developing bespoke models and training to further embed linguistic diversity and inclusiveness into its recruitment and promotions processes. The aim of this collaboration is to provide better understanding and practice of how to communicate and conduct recruitment and promotions to achieve more socially representative staffing profiles and fairer work environments. As a senior manager from STEMM change mentioned, this type of engagement, including elements such as supporting partners with *"their work and pilot programmes within their organisations"*, led to external impact, such as some of the partners going on to use the resources the Inclusion Matters project developed.

Awareness was also raised within host institutions around the value of interdisciplinary collaborations when it came to unpacking the complexity inherent in EDI work. Many Inclusion Matters teams mentioned how disciplines create "these silos" of "experts", but that until the Inclusion Matters project "we never really used the silos before" (researcher, Inclusion really does matter) to create interdisciplinary teams. Indeed, Inclusion Matters team members shared that taking part in the Inclusion Matters projects had made them question their methods and understanding of what science is and how they choose their methods (programme director, VisNET), and that this has led them to adopt different approaches from disciplines outside of their primary field. For example, the PI from Reimagining Recruitment shared with us that the thing they took away from the Inclusion Matters project "was academic rigour in the way that they approach questions about things like diversity and interventions", and a Co-I from eBase highlighted that they "were able to do qualitative work, which is not something that always goes hand-in-hand when you talk about STEM work". Critically, learning these new techniques has had long-lasting impact, with teams seeing "the value of working with social science researchers" (project manager, eBase), raising awareness of where the "silos" of "experts" are and how they "can make use of all of these additional resources" (researcher, Inclusion really does matter).

"Now, we're setting up collaborations with the School of Social and Political Science in order to support those projects, to broaden their scope. So, there's real long-term change, which is nice to see."

(Project manager, eBase)

This appeared to have a knock-on effect on the number of collaborative, interdisciplinary projects initiated after Inclusion Matters projects had ended. For example, a team member from Inclusion really does matter highlighted that engineering colleagues are putting together many more projects with interdisciplinary elements, such as a project that took place in Malaysia and included social scientists to see if the market is receptive to the idea of installing concrete systems. This project used social research participatory methods, inviting participants to build their own model houses and become an active part of the research process. Participant feedback suggested that, in this way, they felt much more involved in the process.

Overall, interdisciplinary work and the use of research methods from various disciplines to better address global issues is one of the main benefits that research team members perceive they gained out of their involvement with the Inclusion Matters portfolio.

Investment in new EDI appointments

As a result of awareness raising around EDI issues brought by the work of the various Inclusion Matters projects, some of the host institutions decided to invest more time in, as well as create dedicated posts related to, EDI. This can be interpreted as a sign of these institutions' ongoing commitment to sustain and build on learnings from Inclusion Matters projects.

Creation of new posts in the area of EDI as a response to Inclusion Matters project findings

"[...] the Inclusion Matters projects influenced investment in EDI teams and the creation of new EDI appointments, through raising awareness and adding evidence for the need to address EDI issues within the EPS community. For example, the institution decided to invest in more positions in the EDI team that was really small and underfunded. So it seems that we put certain things on the agenda and now the institution is trying to deal with that."

(Research team member, STEM equals)

"We recently appointed in Durham a pro vice-chancellor for equality, diversity and inclusivity. I do actually think that these activities gave a lot of heft to the idea that such an appointment would be a good idea."

(Research team member, Northern power)

Four host institutions created new posts in EDI as a response to Inclusion Matters project findings. For example, the University of Edinburgh hired a diversity and inclusion officer to support the embedding phase of the eBase project by:

- + analysing staff and student EDI data for the College of Science and Engineering (CSE)
- + providing CSE staff reports that disseminate these analyses
- + working with the Planning and Business Insight Officer to make EDI data more accessible and useable and participating in cross-college collaboration to explore common trends and promote consistent access to and engagement with EDI data
- + membership of the College Decolonising the Curriculum and Progression and Attainment Working Groups
- + supporting the development of the college EDI Hub
- contributing to university-wide networks that address EDI issues, including the Race Equality Staff Network (EREN) and the Race-equality and Anti-racism Committee (REAR) – investigating staff recruitment, retention and promotion practices as part of an inclusive recruitment project
- + contributing to the Research Cultures Working Group.

Likewise, the increased awareness around the importance of EDI issues at Durham University culminated in the appointment of a PVC for EDI (Northern power). Similarly, team members from the University of Bath mentioned how Reimagining recruitment might have influenced the appointment of a Vice President for Community and Inclusion, which is focused on EDI and has invested in accelerating culture change in EPS by becoming a member of Women into Science and Engineering (Wise: a partner for institutions who want to make real, sustainable improvement to gender balance in STEM roles in the UK by providing products and services to organisations to accelerate cultural change and increase gender balance in STEM). The University of Strathclyde was already a member of Wise and, as a result of STEM equals, it has now formed a cross-faculty Women into Science and Engineering committee. The role of the committee is to monitor, analyse and address issues and patterns of gender-related inequality within STEM-focused academic professionals, encompassing academic staff within research, teaching and knowledge exchange at the University of Strathclyde.

Creating and contributing towards networks and working groups to promote informed practice

The establishment of networks and/or working groups to inform practice and long-term culture change was another outcome of the Inclusion Matters projects. Seven of the completed projects had at least one outcome related to building networks or working groups to implement their Inclusion Matters project findings to address key issues within their host institutions, as detailed below.

Examples of building networks or working groups

- Challenging different forms of bias in EPS research is collaborating with Diversity and STEMM and Innovation Research Groups to explore potential collaborations across universities in the midlands to ensure inclusion of underrepresented ethnic and religious groups in STEM.
- + **DISC** has established a working group to look at how findings from its project could be used to inform preparations for the next REF.
- + **eBASE** has established a research cultures working group to design a research culture strategy for the University of Edinburgh.
- + **Inclusion really does matter** is working with other researchers to better understand the gendered impact of the pandemic with the Queen's Gender Initiative.
- + **Reimagining recruitment** has established a new and larger EDI team with the University of Bath, as well as putting in place a race equality taskforce and strengthening the relationship between the researchers and HR.
- + **STEM equals** established <u>StrathPride</u>; a LGBTQ+ staff and student network. This is a unique and sought after network within Strathclyde. Importantly, StrathPride transcends the usual focus on sex and ethnicity.
- + STEM equals has also created a cross-faculty Women into Science and Engineering committee.

This form of networking and collaboration in working groups can also take the form of contributing towards establishing networks and working groups to collaboratively address key EDI issues. Such actions can have a strong impact. For example, the STEMM change project assisted with its project findings and work to make the Faculty of Engineering at the University of Nottingham the first engineering faculty in the UK to be awarded an Athena Swan Gold award. Other Inclusion Matters projects' findings are also contributing towards Athena Swan applications:

- + **VisNETs** project findings are being used to prepare an Athena Swan Silver application for the School of Engineering at the University of Edinburgh
- + Inclusion really does matter project findings are being used to prepare an Athena Swan Gold application (with the Gender Initiative Group) for Queens University Belfast
- + **Promoting EDI in university spinout companies'** project findings are being used to update Oxford Brookes University's Athena Swan action plan.

In general, as evident from this section, the Inclusion Matters teams have a variety of internal actions to showcase, ranging from raising awareness around EDI institutional issues to implementing change in terms of revised policies and institutional practices to promote inclusion and equity. These changes were generally the result of collaboration with colleagues across the host institutions, as long-term and meaningful change requires whole-institution approaches. Consequently, the Inclusion Matters portfolio seems to have indeed promoted active steps towards a more inclusive EPS community, highlighting the importance of interdisciplinary as well as academic and professional staff collaborations to achieve this.

2) External actions

Overall, 22 external actions could be broadly identified as a result of the Inclusion Matters projects' implementation. All of these focused on promoting and disseminating the Inclusion Matters project findings as far as possible. These could be roughly split into: a) direct external impact, and b) further dissemination of Inclusion Matters project findings through engagement with relevant stakeholders. Notably, all external actions focus on aligning with EPSRC's unique scope, which it shared in the funding call, to promote engagement with stakeholders and national and international collaborations (see section EPSRC's unique approach).

Direct impact

There were seven instances of findings from the Inclusion Matters projects having direct external impact brought by five projects. A clear example of external impact comes from STEMM change, which noted that the technician-related activities from its project has led to an increased awareness of the EDI challenges within the technician community nationally. Now, **more technical staff are asked to** *"sit on Athena Swan or Race equality charter assessment groups"*, which is most likely a joint outcome of the *STEMM change* work and the Technician Commitment, which was

a partner of STEMM change. More technical staff are also engaged with unconscious bias training, which might be the most basic EDI training offered by institutions, but technicians were not offered even that in the past.

There has been notable external impact from across the Inclusion Matters projects, informing EDI strategies and policies in other higher education institutions and industry. Below are seven examples of external actions shared from the Inclusion Matters teams.

- + Scottish Funding Council's new round of **equality and diversity policies** was informed by DISC findings.
- + The UKRI-funded Future Leader Fellows Development network and EDI strategy received input from eBase.
- + The Universities Alliance's <u>A vision of growth briefing</u>, which was compiled as a response to the government's R&D roadmap, received input from Promoting EDI in university spinout companies.
- + Promoting EDI in university spinout companies provided input to OxLEP Innovation subgroup's and local industrial strategy.
- The EDI work package of the Research England-funded <u>TALENT programme</u>, which was formed to lead and influence change to advance the status and opportunities of technicians in UK higher education and research is supported by the foundations of the technician EDI strand of STEMM change.
- + One of VisNET's Co-Is was asked to act as Chair for an external **Standardisation committee**, giving VisNETs research a platform to further promote their project findings outside of their host institution. Notably, this committee has since gone on to make significant changes **to address** evident EDI issues.

The above list demonstrates the **far-reaching impact of the Inclusion Matters funding**, with projects' findings **informing funding bodies' policies, training and support networks** as well as **providing an evidence base** to support the tackling of EDI issues. In addition, six submissions were made using Inclusion Matters project findings to the APPG (more detail can be found in section Key outputs). Critically, the Inclusion Matters funding call placed high value in external engagement as discussed in section 'Importance of buy-in from leadership and project partners', and as the above section showed, this has paid off with Inclusion Matters findings influencing the wider EPS community.

Further dissemination – engaging with stakeholders

Another external outcome was achieved via the Inclusion Matters project findings being further disseminated. There were nine instances of further dissemination work. Interestingly, different Inclusion Matters teams adopted different strategies for dissemination (as previously discussed in Key outputs). However, in terms of external outcomes, **project findings that were disseminated through established external networks were most effective**. These could be pre-existing networks within the institutions that the Inclusion Matters projects were based in, such as EDI faculty and/or school networks and committees (for example, Athena Swan, Juno, Race Equality etc), the senior management team or HR practitioners and researcher developers.

- + Project team members shared how project findings were diffused and cascaded through the various networks they engaged with, to infiltrate a variety of institutional structures and maximise their impact. This strategy is demonstrated in the examples below: DPVCs for equalities that were involved in the Challenging different forms of bias in EPS research project from the University of Birmingham disseminated project findings into the wider sector through their participation in the meetings of the National Network of Equality, Diversity and Inclusion Academic Leads.
- + Members from the Inclusion really does matter team are involved in ongoing distribution of the Athena Swan champions' toolkit they have developed, so that it reaches a variety of EPS disciplines outside the partner institutions to be further tested and become UK-representative.
- + Findings from the Reimagining recruitment project regarding barriers in recruitment, promotion and progression of researchers from marginalised communities are disseminated across other institutions through the participation of a Reimagining recruitment member in the national Universities HR network.
- STEM equals is engaging with the local community to spread its findings beyond academia, including presentation of findings to the likes of the Glasgow Science Centre and the Glasgow Life/ Glasgow Libraries.
- + The University of Strathclyde's executive board shared the recommendations towards establishing more inclusive institutions presented to them by the STEM equals team with all Scottish universities.
- + STEMM change has provided its project partners with bespoke reports on the language used in their organisations for recruitment to make meaningful change in their approaches to recruitment.

In addition, there were three instances where Inclusion Matters project work was picked up by an external source that cited and promoted the Inclusion Matters project findings:

- 1 Mention of the Challenging different forms of bias in EPS research project's reverse mentoring programme in the Times Higher Education article 'Minority scientists to mentor senior professors in equality drive'.
- 2 DISC's project findings have been included in the CRAC 2020 report 'Qualitative research on barriers to progression of disabled scientists'.
- 3 Article in Business UpNorth magazine presenting the innovative VR elements of DISC's disability training.

All three external citations promoted the projects' findings and shared recommendations based on them. Cross-referencing of Inclusion Matters project findings by such a variety of sources, ranging from specialist magazines to reports written for the wider sector, **raises the importance of project findings as important for the wider EPS community**, within both academia and industry.

Another example of external action is a secondment project. There were two examples of follow-on secondments, one from a team member in STEM equals, which is discussed in section Career progression, and the other from eBase. Critically, this secondment is matched funding from EPSRC and the secondment host institution, which allowed one of the eBase team to work with the EPSRC EDI team to analyse the results of the EPSRC *"Have Your Say"* survey data gathered as part of the eBase project. This analysis and published report enabled the researcher to further disseminate the project findings by networking at the host institution, as well as generating a better understanding of gender diversity as part of eBase. This is a great example of the Inclusion Matters teams adhering to EPSRC's approach to encourage collaborative engagement as part of the Inclusion Matters projects and for the secondee to be embedded within EPSRC's EDI team.

There is strong evidence to suggest that the Inclusion Matters projects succeeded in engaging with various stakeholders to disseminate their findings widely. This aligns with and contributes towards one of the main aims set out in the Inclusion Matters funding call, namely the instigation of long-term culture change within the wider EPS community, facilitated by the establishment of strategic connections with key stakeholders.

*Please note: as ASPIRE is in progress, no internal or external actions have been shared.

3) Career progression

Further career development is a good sign of impact arising from project funding. This is because, ultimately, leading or participating in such a prestigious grant should result in valuable experience, outputs and outcomes that research team members can capitalise on to gain more skills and eventually progress with their careers.

Evidence of overall career progression

In general, there was evidence of various Inclusion Matters team members, independent of their career stage, agreeing that they **professionally benefited from their engagement with Inclusion Matters**. As a VisNET team member pointed out, *"we've all progressed a bit in the time of the project which is a good thing"*. A Reimagining recruitment team member provided more detail into how this benefit could be manifested, stating that involvement in the prestigious Inclusion Matters funding *"raised our profile as people who are proactive in this area and who are willing to make things happen"*.

Moreover, participation in the Inclusion Matters projects granted team members extra recognition, which translated into opening up opportunities to join senior internal and external networks and committees.

"So it's put me on the university's EDI committee. So with getting PI, I got a position on their EDI committee, which is the top, it sits under the vice principal, which I would never have been on otherwise."

(Project lead, eBase)

Most importantly, five Inclusion Matters team members were recipients of institutional and/or national awards, as a sign of recognition for their work. Detailed relevant information is provided in the infographic on the following page.

Awards

Professor Kate Sang

was awarded Herriot Watt's Principal's Research Impact and Engagement (PRIME) award. Recognising her outstanding achievement, innovation and creativity in impact and public engagement with research.

Dr Jessica Gagnon and Dr Marco Reggiani

were awarded Strathclyde Medals for StrathPride (the Strathclyde LGBTQI+ Staff and PGR Network).

DISC team

received the Scottish Trades Union Congress Equality Award for advocating for disability awareness and inclusion.

Kelly Vere

was awarded an MBE in the 2021 New Year's Honours list, for her work on the Technician Commitment and overall recognition of technicians' community (STEMM change).

Dr Lynn Farrell

was awarded the Outstanding Engagement prize from the Faculty of Engineering and Physical Sciences for the range of public engagement activities she carried out at Queens University Belfast (Inclusion really does matter).

Dr Caroline Gauchotte-Lindsay

was awarded the Research Culture Award from University of Glasgow for her work to make STEM more inclusive and supporting ECRs in their career development (VisNET). One of the most frequently cited personal outcomes of the project in relation to career progression was that the Inclusion Matters project enabled team members **to expand their networks and prompt future collaborations**. As a member of the Challenging different forms of bias in EPS research project put it, "it was really good for me within the university to actually get new contacts, so we are still in touch and work on other things together now". Widening networks and gaining visibility within their institution was seen by many team members as key to their career progression, as they were able to create long-lasting relationships and collaborations, which would be instrumental for future project development and work around EDI issues. For example, the Reimagining recruitment team have built strong working relationships with HR, which they hope will enable proactive and evidence-based HR policies to be developed collaboratively. It is also important to note that for those Inclusion Matters team members outside the traditional bounds of the EPS community, for example, those in Education or Social Sciences, the Inclusion Matters grant size was significantly larger than funding that is typically available in those subjects and gave those involved a "real career boost" (PI, DISC). This is explored further in the section Further funding.

Some of the Inclusion Matters project team members gave examples of individuals from their team who had been **promoted as a result of their work on their Inclusion Matters project**. For example, one of the research fellows from the STEM equals project was successful in gaining a lectureship at the University of Manchester. Career progression in the STEM equals team was also shown by the other researcher, who won funding to support a secondment abroad. Finally, the PI for Inclusion really does matter was promoted to senior lecturer.

Despite being one of the smallest Inclusion Matters teams, DISC demonstrated several instances of successful career progression. Apart from the ECR who landed a new job (fellowship) in another university, one of the Co-Is has now completed PI training, and the project lead now runs their own research centre.

Other examples of career progression can be seen when we look at the number of staff who left the Inclusion Matters projects. Of the 20 team members who left Inclusion Matters projects before their completion, almost half (eight) did so because they had secured a new role, which can be read as an indicator that being part of the Inclusion Matters project positively impacted their career. One of those secured a new role outside academia whereas seven remained in academia. Another eight from the members that left Inclusion Matters projects early did so because they were on fixed-term contracts and these came to an end before the project end. Some projects, such as ASPIRE, were able to address this barrier by obtaining permanent internal funding for their research staff from their institute. Of the remaining two team members who left the Inclusion Matters projects, one was a research student whose PhD had come to an end, and the other team member retired.

Raising ECR profiles

An important factor aiding career development and progression arising from the Inclusion Matters funding is the fact that **PI's were keen to raise the profile of their ECRs** (see also <u>Key outputs</u> section). Evidence for this can be found in the fact that many of the ECR researchers featured as **named authors on collaborative publications**. For example, a DISC senior leader mentioned that one of the ECRs *"landed a job"* based on *"four star rated papers"* co-authored as part of her engagement with DISC. Similarly, early career researchers' names featured highly when it came to conference presentations and the delivery of other engagement talks. Most publications and conference talks produced by the Inclusion Matters projects were collaborative pieces of work instead of just being attributed to PI's and project leads. This is a **clear step towards the practical implementation of a more inclusive research culture**, which gives credits to all the parties involved in the research production and cares about equipping everyone with added credentials and experiences that will be instrumental for further career progression.

Moving from fixed-term to permanent contracts

Another key marker of career progression is that although many members of the Inclusion Matters projects were hired on a fixed-term contract, they subsequently **progressed to permanent positions**. From information provided by the various Inclusion Matters teams, it is evident that, in some cases, teams were able to secure additional budget to move staff on fixed-term contracts to permanent ones (for example, ASPIRE) or individuals moved internally to more senior permanent roles. Internal promotions included career step change for academics (for example, two postdoctoral researchers attaining lectureships, four lecturers being promoted to senior lecturers and one senior lecturer being promoted to professor. However, **support staff from Inclusion Matters teams also managed to secure career progression** (for example, a Northern power project officer moved to be a permanent organisational leader within the same institution, and a Reimagining recruitment project officer moved to a research and enterprise role at the same institution). There were also cases of staff moving to different institutions (for example, a research fellow moved to a research associate position funded by the Wellcome Trust).

Finally, being involved in the Inclusion Matters projects as a support or research assistant was seen as advantageous for prospective PhD applicants. As a result, two Inclusion Matters teams (Northern power and Promoting EDI in university spinout companies) have fed back that previous project members holding assisting roles are now in receipt of PhD studentships.

A point for further consideration: the importance of being named Principal Investigator (PI) for career progression

While considering the contribution that being involved in one of the Inclusion Matters projects brought for team members, it is important to note that Inclusion Matter's prerequisite of granting the PI status on those holding senior leadership positions (for example, VCs) was perceived as detrimental for career progression. This is because, as the named project PI's, **senior leaders reaped the most benefits in terms of credits that count for career progression**. This prerequisite was viewed as contradictory to the Inclusion Matters funding scheme's overall aim of facilitating culture change, as having a senior leader being the PI when the leader on the ground was, in most cases, a less senior member of staff from a minoritised community was seen as a practice (re)producing inequities related to EDI and career progression in the EPS community.

"This specific constraint about who a PI can be, I think that that is... well, there's a whole variety of things that I feel about that and I don't need to go on about it. But I think that had actual impact on what we could do. And it had impact on the individuals' careers which is ridiculous because I feel like the people that were in the Co-I roles that were actually leading the project were often the minoritised groups that we were trying to research. So it's actually just embedding these inequalities in ... Yes, you need buy-in from someone senior, fair enough. Can't we just add another box to the application and say: this person from senior leadership has bought into this?"

(Researcher, VisNet)

While for one senior leader they said that "this didn't matter that much, to be honest", for others it meant that "then they don't get the credit in the university. Even if the university themselves gave it credit, you wouldn't get the credit if you'd moved university" because you were not the named PI (senior leader, STEM equals).

Overall, it would be fair to say that securing senior leadership active involvement and buy-in was seen as an important driver for the Inclusion Matters projects' implementation and long-term success, although the way this senior-leadership buy-in was secured was considered problematic. Although it is important to acknowledge that it is not the system of having a PI on a grant that causes the inequality, rather the weight attached to the PI role as part of promotion criteria within the sector. EPSRC understands that this is something to change on future grants, and are currently working on enabling flexible models of leadership and joint PI's.

4) Further investment generated by the Inclusion Matters projects

Another impactful outcome of the Inclusion Matters projects was the instigation of additional research funding for projects that were either inspired from or based on Inclusion Matters project findings. This is a prime example of a contribution to long-term culture change, as continuous investment in this area is needed to make sure that addressing EDI issues will not be seen as a 'stand-alone' incident, but as a sector priority among the EPS community.

The Inclusion Matters projects produced a variety of further investment in EDI issues. Across the portfolio, there were at least 35 bids submitted, with **13 of those 35 leading to a substantial investment** from a wide range of funders to undertake further work related to EDI.



Advance HE EPSRC 2022

Funding awarded by UKRI research councils

Awarding body	Total funding amount	Project topics (N=13)
The Engineering and Physical Sciences	£2,045,334 ¹	+ Transformational change towards a diverse, inclusive and accessible research community
Research Council		+ Eliminating gender bias
(EPSRC)		 Identifying and challenging systemic inequities at all career stages
		 Making connections between EDI matters and climate change
The Economic and Social Research Council (ESRC)	£593,083²	+ The application of social sciences knowledge to challenges in society
,		 Supporting the career trajectories of ethnic minority medics
		+ Embedding linguistic diversity and inclusiveness into recruitment and promotions processes
Arts and Humanities Research Council (AHRC)	Unknown amount³	+ Strengthening the research base on conflict transformation and cultures of peace
Research England	£5,337,612	+ Advancing technician status and opportunities within the technical community
		 Increasing access and participation of PGR students from ethnic minority backgrounds
UKRI	£7,355,9024	+ Specialised leadership training and access to networks and mentors
		+ Wider knowledge on the generation of new ideas and concepts where both the product and its associated manufacturing system are designed concurrently and fully tailored to each other.
Natural Environment Research Council (NERC)	Unknown amount⁵	+ Insights into diversity in the UK's geochemistry community

1 VisNET's funding from EPSRC to produce a video of its findings and to organise a closing meeting for the project is not included in the total as the amounts are not disclosed

2 Northern power's successful bid from the UKRI/ESRC Impact Acceleration Accounts is not included in the total as the amounts are not disclosed

- 3 Northern power's funding from the Culture for Sustainable and Inclusive Peace (CUSP), a network financed by Arts and Humanities Research Council (AHRC), is not included in the total as the amounts are not disclosed
- 4 eBase's funding from UKRI to establish the Future Leader Fellows Development Network and funding to Northern power researchers as part of Industrial Decarbonisation Challenge (IDC) is not included in the total as the amounts are not disclosed
- 5 'Evaluating diversity and inclusion within the (geochemistry) academic ladder (EDIAL) and Decolonising environmental sciences: An action research approach to develop practice based guidance to support inclusive UG and PG teaching environments is not included in the total as the amounts are not disclosed

Through the acquisition and application for further funding, it is evident that the projects were keen to drive forward the work undertaken by Inclusion Matters. The information below outlines the bids and tenders arising both as a direct result of Inclusion Matters and through the continued desire of research team members to get involved in EDI work.

Funding towards developing inclusive working environments

It was evident that Inclusion Matters research teams were keen to build on existing work to progress inclusivity in the EPS community and develop EDI initiatives within the field. Multiple Inclusion Matters projects were successful in securing funding from UKRI via numerous research councils within UKRI to enhance this objective. Researchers from the Northern power Inclusion Matters project also gained £1,006,946 of EPSRC funding for the EDI+ Research And Innovation Network+ For Equality, Diversity And Inclusion In The Energy Research Community. The aim of the EDI+ network is to acknowledge and address key challenges and equip a cohort of researchers and their organisations to make lasting changes towards a diverse, inclusive and accessible research community.

Career Development Funding was also obtained from UKRI to enhance researcher career development and progression opportunities. A researcher from the Inclusion Matters project Challenging different forms of bias in EPS research received a £568,083 award from the Economic and Social Research Council (ESRC) to complete Exploring minority ethnic doctors' career transitions in medicine: a life course approach, a project focused on the career trajectories of ethnic minority medics from the University of Birmingham. The project will provide insights into how ethnic minority doctors manage their transitions through the distinct stages of a medical career, including an investigation into the barriers they face and successful strategies to progress from one stage of a medical career to the next. Ultimately, this insight will improve the career support for ethnic minority doctors and improve doctor retention in the NHS. The STEMM change team were also awarded £25,000 from the Economic and Social Research Council (ESRC) Impact Acceleration Funding to support Transforming Recruitment Progression and People Processes: Communicating Equality, Diversity and Inclusion for Fairer Workplaces. This funding was used to support the law firm develop bespoke models and training that further embed linguistic diversity and inclusiveness into recruitment and promotions processes. As a senior manager from STEMM change mentioned, this type of engagement, including elements such as supporting partners with "their work and pilot programmes within their organisations", led to external impact, such as some of the partners going on to use the resources Inclusion Matters project developed. STEMM change's partnership with the law firm is a great example of long-term engagement that led to external impact, including some follow-on funding to do more targeted work on EDI with this partner:

"We've been working with [the law firm] them extensively and we've had an Innovate UK funded KTP related to that, and some impact acceleration, and worked with them as well through EPSRC."

(Senior leader, STEMM change)

STEMM change was also awarded £5 million research funding from the <u>Research England</u> <u>development fund</u> for the <u>TALENT programme</u>, which is about advancing technician status and opportunities within the technical community. The programme has three work streams and one of them is dedicated to EDI, so it builds heavily on the work developed as part of STEMM change. Through the TALENT programme, a new development programme was launched for women in technical leadership called <u>The Herschel Programme</u>, which has already enrolled nearly 200 women from across the UK and is a direct result of analysis done by STEMM change that revealed the lack of women in technical leadership roles, even in disciplines where women technicians outnumber men. Furthermore, £8,000 was also granted from the EPSRC Impact Acceleration Accounts (IAA) to STEMM change for the gender bias tool development with Diversely. This will aid organisations in eliminating gender bias in future work, including recruiting.

Leadership development and career progression was also a key aspect of eBase. Following the Inclusion Matters project, one of the project leads won a tender from UKRI to establish the Future Leader Fellows Development Network and it was noted that, *"a huge amount of what the Inclusion Matters project has done is being picked up by aspects of that network"*. This network supports and delivers specialised leadership training and supports access to networks and mentors, to allow its members to pursue world-class interdisciplinary, cross-sector research and innovation.

Funding was also obtained to enhance research and development within EPS, as demonstrated by the senior leader of Inclusion really does matter gaining substantive funding from UKRI as a result of their experience on the Inclusion Matters project. As the lead academic on the collaborative project <u>Re-Imagining Engineering Design: Growing Radical Cyber-Physical-Socio Phenotypes</u>, the team were awarded a shared total £7,355,902 between 11 organisations, with Queens University Belfast leading the project. This funding will contribute to wider knowledge on the generation of new ideas and concepts where both the product and its associated manufacturing system are designed concurrently and fully tailored to each other.

Following on from its Inclusion Matters project STEM equals, the University of Strathclyde received a £1,020,388 EDI Network+ grant from the Engineering and Physical Sciences Research Council (EPSRC), which funded the Innovation and Growth Needs Inclusion and engagement of all Talent in Energy research project, led by Strathclyde University. This project aims to build an interdisciplinary community of energy researchers based on equality, diversity and inclusion (EDI) and accessibility. Its key aim is to critically evaluate stages in the pathway of energy researchers and identify and challenge systemic inequities at all career stages, through the collection and analysis of rarely available intersectional data. Moreover, another researcher from STEM equals was awarded funding from the Natural Environment Research Council (NERC) as a principal investigator on the project 'Evaluating diversity and inclusion within the (geochemistry) academic ladder (EDIAL)' during its funding call in 2022 Making environmental science equal, diverse and inclusive. This project will provide insights into diversity in the UK's geochemistry community, through an intersectional lens, with a focus on the HEI academic ladder. It was noted by the research team that evidence collected

from this project may be used within the <u>All Party Parliamentary group report on Diversity and</u> <u>Inclusion in STEM</u>, therefore highlighting the potential to shape UK policy, in addition to promoting inclusivity and career development.

In October 2020, the research team from Promoting EDI in university spinout companies also applied for funding from the <u>Research England Development (RED) Fund</u> for a project entitled 'Scaling up diversity in the universities innovation ecosystem to grow R&D capacity to support economic growth'. Despite this bid being unsuccessful, all the above bidding attempts highlight the ambition of Inclusion Matters teams to apply for high-profile awards and drive forward culture change in the sector.

Connecting EDI and EPS undergraduate and postgraduate students

As previously demonstrated (in <u>career progression</u>), the Inclusion Matters teams believe in creating an inclusive research culture, and this extends to undergraduate and postgraduate students. Therefore, funding was also sought to support students within the EPS community and ensure that EDI matters were a key priority in teaching and learning practices. For example, a researcher on the Northern power team received a proportion of £1.7m funding from the <u>Natural Environment Research</u> <u>Council (NERC)</u> for a project on diversification of environmental sciences at undergraduate and postgraduate level, called <u>Decolonising environmental sciences</u>: an action research approach to <u>develop practice based guidance to support inclusive UG and PG teaching environments</u>. This project sought to make environmental science more diverse, equitable and inclusive for undergraduate and postgraduate students. Moreover, the ASPIRE team noted that its model had been used to inform and win a Research England/Office for Students (OfS) bid of £337,612 to increase access and <u>participation of postgraduate research students from ethnic minority backgrounds</u>, leveraging the investment already made by UKRI. This project aims to develop the capabilities of Black students to navigate structural barriers to doctoral study and enhance pathways of opportunity, through inclusive targeting.

Further funding for targeting global EDI issues

Although the amount of funding is unknown, Northern power successfully bid and was awarded funding from the UKRI/ESRC Impact Acceleration Accounts, which allows research organisations to work with partners from all sectors to apply social sciences knowledge to challenges in society. In addition, researchers involved in Northern power received funding from the Culture for Sustainable and Inclusive Peace (CUSP), a network financed by Arts and Humanities Research Council (AHRC) and managed by Glasgow University, to partner with the Islamic University of Gaza. This project aimed to strengthen the evidence base on conflict transformation and cultures of peace.

Funding to support the reduction of climate change

Further funding was also obtained to develop solutions to global climate change, demonstrating that EDI projects – and their ambitions – can extend beyond that of the institution and their knowledge can be harnessed to tackle wider global issues. This ambition aligns directly with UKRI's Environmental sustainability strategy, which seeks "to actively lead environmental sustainability across our sector. This includes a vision to ensure that all major investment and funding decisions we make are directly informed by environmental sustainability, recognising environmental benefits as well as potential for environmental harm". To illustrate this point, researchers from Northern power were successfully awarded funding from UKRI as part of the Industrial Decarbonisation Challenge (IDC). The challenge provides up to £210 million, matched by £261 million from industry, to invest in developing technologies such as carbon capture and storage and hydrogen fuel switching. This will contribute the UK's drive for clean growth by supporting the UK's six largest industrial clusters in their mission to decarbonise at scale – laving the foundation for developing at least one low-carbon industrial cluster by 2030 and the world's first net-zero industrial cluster by 2040. Additionally, STEM equals was awarded £10,000 of internal funding from the University of Strathclyde's Research & Knowledge Exchange Services (RKES) from the EPSRC funded Impact Acceleration Account (IAA) in support of a workshop titled: 'Together for a better world: Innovation to address climate change starts with more inclusive STEM communities'. This workshop made key connections between EDI matters and climate change, highlighting the impactful outcomes and insights of the project on a wider audience.

Funding from external organisations

Apart from UKRI, further funding was also secured from other organisations to continue work inspired by or based on Inclusion Matters project findings. The following table provides a summary of the relevant awarding bodies and topics of funding:

Awarding body	Project topic
Royal Chemistry of Engineering	Funding to address unequal outcomes for underrepresented groups
Foundation for the Sociology of Health and Illness	Supporting disabled staff in the workplace
Autistica	Investigating the needs of older autistic people
Bath and Northeast Somerset Council (BANES)	Reducing the impact of existing transport infrastructure on the environment
Scottish Library and Information Council (SLiC)	Enabling students, particularly those from groups underrepresented in STEM, to engage with science and technology as citizen scientists around the challenges of climate change
College of Science Engineering at Edinburgh	Ensuring continuation and sustainability of the Inclusion Matters findings

*Exact funding amounts were not specific for these projects, so these have not been included

Successful funding was obtained from the <u>Royal Society of Chemistry</u> to support DISC in undertaking research into 'Accessible Laboratories: understanding the needs of disabled chemists including those with hidden impairments and long-term conditions'. Additionally, a bid was also awarded to researchers from Northern power from the <u>Royal Academy of Engineering Diversity Impact Programmes Fund</u> to investigate EDI within engineering. Specifically, this fund aimed to assist engineering departments to address the unequal outcomes experienced by students from underrepresented groups.

One of the postdoctoral researchers from DISC was successful in gaining funding from the Foundation for the Sociology of Health and Illness on the research project Lifting the lid: Managing messy body at work as a Mildred Blaxter Fellow. Furthermore, the <u>National Institute for Health and</u> <u>Care Research (NIHR)</u> and <u>Autistica</u> also funded a pilot project into the needs of older autistic people pilot study, stemming from research undertaken by DISC.

Reimagining recruitment also gained external funding from the <u>Bath and North East Somerset</u> <u>Council (BANES)</u> to host an incubator event called 'Beyond the Car', which subsequently developed into a larger engagement project with the University of Bath and the council seeking methods to limit car usage in Bath. Residents of Bath were eager to reduce their driving within the town and to lessen the impact of existing transport infrastructure on the environment – a major impetus for running 'Beyond the Car'. As BANES has set a target of becoming carbon neutral by 2030, this event marked a key shift away from cars to a mass transport system, along with more walking and cycling to reduce emissions.

The researchers within STEM equals were awarded funding as a partner with <u>Glasgow Life/Glasgow</u> <u>Libraries</u> for a project titled <u>See Yourself in STEM</u>. This was a new partnership and the funding was awarded to Glasgow Life by the <u>Scottish Library and Information Council (SLiC)</u> as the grant holders, with the total value of the grant at just over £20,000. The project aimed to enable students, particularly those from groups underrepresented in STEM, to engage with science and technology as citizen scientists around the challenges of climate change. Finally, the team from Inclusion really does matter also gained further funding from the US Embassy grants, but no further details of the scope of the project were shared.

Internal funding

Inclusion Matters teams also noted making use of follow-on, internal funding, allocated to drive forward the work of the projects or to disseminate their findings. Reimagining recruitment, for example, was successful in securing additional funding from the University of Bath to continue with the work of the project and disseminate its results.

One significant finding from Reimagining recruitment was that barriers to the diversification of EPS communities often start at an earlier stage, namely PhD recruitment. Specifically, Reimagining recruitment had evidence that there is recruitment bias for PhD students currently at the University of Bath because the current knowledge requirements to embark on a postgraduate research degree at the University of Bath are only covered by high-tariff institutions' undergraduate courses.

Reimagining recruitment suggested that, to plug this knowledge gap, the institution should provide funded places at a master's level to aspiring maths students who come from lower-tariff institutions and aspire to do a PhD in maths at Bath. For this purpose, the <u>Pathway to Research</u> scheme was introduced. This scheme comprises an eight-week summer research placement followed by the MSc Mathematics with Data Science for Industry course for students from a disadvantaged background who have not studied maths at an HEI that meets the minimum requirement for a PhD at the University of Bath. It provides them with funding to encourage them to pursue further research careers.

Promoting EDI in university spinout companies was also awarded approximately £20,000 from the Oxford Brookes Research Excellence Award, an internal funding scheme, awarded on a competitive basis, so that the project could continue to disseminate its findings and get involved in further engagement activities. The opening of the Oxford Brookes Enterprise Centre, a dedicated space for spinouts and startups, was also co-funded by the Oxford Local Enterprise Partnership.

Overall, the funding listed above demonstrates the successes of research teams in bidding for further funding as a result of Inclusion Matters, but also emphasises the ongoing interest and investment from funders into EDI issues, which is definitely a step in the right direction to ensuring long-term culture change within the EPS community.

PhD funding

Successful funding for PhD studentships were also noted within further funding bids. It is evident that the allocation and award for funding to PhD students promotes the significance of EDI work in this field, and that HEIs are embracing concepts and ideas generated from the Inclusion Matters projects and embedding them deeply into their practices.

For example, as a result of the Inclusion really does matter project, funding was allocated to two PhD students who are conducting research on the long-term impact of the Inclusion Matters toolkits, such as a video game resource and investigating an intersectionality focus of EDI initiatives. One studentship is funded by a <u>Department for the Economy Research Studentship</u> and follows on from the EPSRC-funded Inclusion Matters project. The PhD is focused on developing a game-based training intervention that successfully reduces negative attitudes and conspiracy beliefs about gender equality initiatives.

Recommendations

From the evidence gathered, a number of recommendations for EPSRC and the wider EPS community to continue to accelerate culture change can be suggested:

- 1 Ensure everyone is involved and takes **individual responsibility and ownership** of EDI matters within the EPS community.
- 2 Create a safe space and an Inclusion Matters community of practice to communicate, capture and disseminate good practice across individual institutions, between institutions and more broadly across the sector, creating a culture of sharing and advocacy in EDI.
- 3 Ensure that there are sufficient resources to promote and have sustained buy-in from institutional leadership, funders and external business to tackle and promote long-lasting behavioural and cultural transformation in EDI. This should include a willingness to support legacy funding.
- 4 Ensure sustainability of learnings from the Inclusion Matters projects through continued financial investment and support to embed project initiatives and outcomes. This could include the use and continued promotion of Inclusion Matters online resources and materials.
- 5 Consult on embedding fundamental practices to **challenge systemic inequalities** and investigate methods to promote EDI perception and attitudes within the overall corporate plan.
- 6 Recognise the challenges faced by underrepresented groups and those with protected characteristics to feel supported, valued and respected within their job role and wider institutional practices and processes. Ensure that every 'voice' is equally welcome.
- 7 Create a culture of openness to ensure learnings are shared among a wider audience for maximum impact for all. This will avoid previously unsuccessful approaches by providing teams with resources and materials they can adjust to fit their specific needs.
- 8 Continue to **collate**, **assemble and promote key learnings** from the Inclusion Matters projects to enable sustained impact locally, nationally and internationally.
- 9 Encourage the implementation of participatory EDI training to address current gaps in institutional knowledge, allowing opportunities for participants to have active involvement rather than passive absorption of knowledge.
- 10 Acknowledge we have **reached saturation points of understanding** evidence-based practice in EDI initiatives and act on the learnings already in circulation, taking anticipatory and reactionary measures to embed change.

Conclusion

In conclusion, a substantial investment was made by EPSRC, which was well-received and welcomed by the project teams, and critically **had a marked impact on accelerating culture change in the EPS community**. There were multiple outputs created by the Inclusion Matters teams, ranging from academic journal articles and book chapters to blog posts, reports, conference presentations and posters, and submissions to parliamentary inquiries. The large variety of outputs were similarly echoed in the impact that these outputs generated, from making policy changes within the host institutions to impact more widely in external organisations such as UKRI. Notably, there **is a feeling and willingness for an ongoing drive from EPSRC and the project team members to continue accelerating culture change**. This drive will ensure that long-term change is embedded and entrenched within the overall culture.

The unique approach EPSRC adopted, which promoted **engagement with stakeholders and national and international collaborations**, was successful in widening the scope of each Inclusion Matters project and arguably led to each project generating a wider reach (as demonstrated in <u>Key outcomes</u>). Throughout the report we have reiterated that senior buy-in is vitally important, as it extends the Inclusion Matters teams' reach by providing a platform through which they can accelerate culture change. In addition, there is a **notable drive from Inclusion Matters team members to continue this work, as evidenced by at least 35 further funding applications** in this area, and a continued effort to share their knowledge through networks and in accessible and open access publications or reports.

The Inclusion Matters teams were able to develop skills beyond their 'normal' trajectory and adopt multiple means of both data collection and collaboration across the institutions. An unexpected outcome of the funding was the embracing of paradigms which would not necessarily have been used within the EPS community. Stereotypically, the EPS community is considered positivist and, by taking part in this investment, it has widened its own skillset and revealed new and innovative methods of conducting STEM research. This has led to requests for continued multidisciplinary working practices and an ongoing commitment to sharing good practice within the fields of STEM and EDI culture change. It is vital that this includes not only the institutional partners but also those working in industry. Widening the scope of their research has and will enable EPS teams to collaborate and communicate more effectively on an interdisciplinary level and allow greater accessibility to both language and subject knowledge.

Despite the timing of the funding coinciding with the pandemic, teams were able to achieve their objectives and succeed in delivering successful and desirable EDI initiatives. Indeed, despite the pivot to online working, many Inclusion Matters projects embraced multidisciplinary working and alternative paradigms that would not necessarily have been used within the EPS community. The project teams' widening of their approach is similarly demonstrated in the EDI communities and networks that have been established and is similarly reflected in some of successful follow-on funding from the Inclusion Matters projects.

Overall, it is clear that there were many successes and achievements brought about by the Inclusion Matters portfolio and this has had a substantial impact on driving forward culture change within the EPS sector. The invaluable support from EPSRC has ensured that these EDI initiatives have raised the profile of EDI and encouraged the 'buy in' from the institutions that is critical in creating a fair and equitable space for all stakeholders.

"To have EPSRC be able to kind of put their money into this space, makes people sit up and notice. So I think that's been – again it's all about kind of leveraging, using it to leverage the importance of equality, diversity, and inclusion in our faculty and institution."

(Participant, Northern power)

Acknowledgements

We would like to thank the EPSRC EDI team for its support throughout this process. We would also like to thank each of the Inclusion Matters research team members and partners that kindly gave their time to voluntarily to take part in this exercise. We are truly grateful to them as, without their input, this evidence would have never materialised.

Appendix A: Logic models theory

A key challenge to evaluating EPSRC's investment into the Inclusion Matters projects was finding an approach that would work effectively for 11 unique projects, given that each adopts different approaches to accelerate culture change within EPS, has different timescales, and differs in size (from institution-specific projects to projects that span across a region). To accurately, fairly and consistently understand the success of the EPSRC investment in the 11 Inclusion Matters projects, a Theory of Change (ToC) framework was constructed to identify specific and measurable outcomes and impacts.

A ToC framework is essentially a comprehensive description and illustration of how and why a desired change is expected to happen in a particular context. As illustrated in Figure 1, it follows four stages of diagnosing, planning, measuring and reflecting to create a ToC logic model.

Figure 1: Theory of Change stages



These stages were followed to create logic models that would describe the need the Inclusion Matters projects were trying to address, the changes they aimed to make (ie outcome and impact) as well as how they planned to achieve those (ie activities). Creating a robust ToC model for each individual project, but also for the Inclusion Matters investment portfolio in total, allowed for the establishment of specific activities, outputs, outcomes and impact that each project and the overall Inclusion Matters portfolio aspired towards, which formed a baseline.

To populate the ToC models for each Inclusion Matters project, an online questionnaire based on each one of the elements included in a ToC logic model (as illustrated in Figure 2 below), was sent out to all Inclusion Matters project teams, using contact details of project managers/leads the EPSRC team shared with us. This formed the data capture survey. This survey used open-ended questions to ask about the aims, activities, outputs, outcomes and impact of each project. Most importantly, the survey also aimed to gain further insights into each project to inform the next phase.

Figure 2: Outline of a Theory of Change logic model

For all but one of these projects an individualised ToC logic model was constructed, which can be found in Appendix A. Additionally, a ToC logic model was created for the entire Inclusion Matters portfolio of investment, drawing information across the 11 projects (information from the one project that did not respond to the data capture survey was drawn from its website and grant documents). This can be found in Appendix B. To further ensure that the overall Inclusion Matters ToC model accurately represented EPSRC's aspirations, an online workshop was facilitated by the Advance HE researchers with representatives from EPSRC EDI Team who were involved in the Inclusion Matters investment portfolio. Feedback shared by the EPSRC members during this session was used to refine the Inclusion Matters ToC logic model.



Appendix B: Theory of Change models for the 10 Inclusion Matters projects that responded to the data capture survey

1. ASPIRE

1 Situation	The research sector has been striving for fully inclusive environments in science- and engineering-related disciplines for over 30 years. Despite substantial investment broad under-representation and inequalities remain widespread. Reasons for this are complex and often system-wide, but ultimately reflect deep-rooted cultures and attitudes in the workplace.				
2 Aims	ASPIRE offers an innovative, evidence-based approach to deepen our efforts in improving EDI to build a more inclusive research environment. Through extensive partnership, working and drawing on experiences across both the research and non-research communities, ASPIRE will accelerate sector-wide implementation of effective EDI practice.				
7 Inputs	5 Activities	6 Outputs	3 Outcomes	4 Impact	
Process				act	
Research team Project partners Employers EDI leaders & other senior leaders Technical and support staff members External engagement with the platform Covid-19	Build a web-based interactive platform of EDI interventions International pilot case studies Open online discussion and feedback on the pilot case studies Develop a communication strategy to ensure the platform is disseminated widely Maintain a community of practice (via website) to sustain the research and continued development of the platform Stakeholder workshop Stakeholder survey Forthcoming Pilot studies workshops Launch conference Pilot studies evaluation	Research papers submitted to academic journals Presentations in meetings/conferences (national & international) Extensive database of EDI interventions (UK/Europe/USA) Impact framework providing measurable change indicators for interventions in EDI attitudes and behaviors ASPIRE 8 pillar model (ToC model) Aspire web-based platform Forthcoming Website is being built and towards the end of 2022: launch of web-based toolkit to harness best practice across the sector, enable measurement and monitoring of the implementation of inclusion initiatives across institutions, link implementation with markers of culture change and provide recommendations for scaling across the sector	Great interest for engagement with the web-based platform to date ASPIRE model/platform incorporated into a Research England / Office for Students bid to increase access and participation of PGR students from ethnic minority groups, leveraging the investment already made by UKRI. This built new collaborations with universities of Durham, Newcastle, Northumbria, Wolverhampton and Derby	ASPIRE platform utilised across the sector to build EDI strategies, implementation plans & for self-auditing purposes to measure progress Institutions are able to monitor the impact of their EDI interventions in terms of changing culture Culture changes are evidenced across the sector ASPIRE model/platform can be applied and adapted across the EDI spectrum in many arenas (both in STEM and non-STEM disciplines), including primary and secondary education as well as business and industry	

2. Challenging different forms of bias

1 Situation	It is not yet fully understood why academics from ethnic minority backgrounds and women academics struggle to progress in their careers.			
2 Aims	To increase representation of academics from ethnic minority ba			
7 Inputs	5 Activities 6 Outputs	3 Outcomes	4 Impact	
Process		Impact		
Research team Project partners Employers and other stakeholders Technical and support staff members Covid-19	 Looking at how the quality and value of academics' work is assessed in promotion processes and in the Research Excellence Framework (REF), to understand where the sources of bias arise Trial innovative interventions, such as 'reverse mentoring', where a junior BAME woman coaches a White man in a senior role, and empower academics to challenge senior-level decisions, with appropriate backing and support (trialled in Birmingham and Aberystwyth) Forthcoming Joint EDI festival with University of Amsterdam 	 The Birmingham reverse mentoring pilot has been developed into an embedded programme available for all those on the University's senior leadership programme and all members of the University Executive Board have been reverse mentored by minority ethnic staff and students. There is commitment to continuing the process for University Executive Board Strong collaboration with the Diversity and STEMM and Innovation research group within the Institute for STEMM in Culture and Society at the University of Birmingham Reverse mentoring work is being used to inform a broader body of work on mentoring at Aberystwyth University – for example shared insights with the Communications Equality Officer and Head of Organisational Development and learning One of the project members is working with the University of Amsterdam to share best practice around reverse mentoring Forthcoming Collection of best practice to be rolled out across the sector and non-academic partners Share reverse mentoring training toolkit and implementation practice widely across the academic sector through a national network of EDI Leads, the Network of Equality, Diversity and Inclusion Academic Leads (NEDIAL) Work across Universities in the Birmingham region (University of Birmingham, Aston University, Birmingham City University, Newman University) to understand how to collaboratively work to improve diversity in STEMM subjects 	Reduce bias in academic judgement of published research outputs Diversify STEMM subjects	

3. DISC

1 Situation	Disabled researchers are leaving scientific careers due to social and physical barriers. Disabled employees face a range of obstacles when in employment including inaccessible laboratories, social barriers and a lack of managerial understanding of disability inclusion. Disability Inclusive Science Careers (DISC) focuses on early career entry to the science sector.				
2 Aims	The aim of DISC is to improve the recruitment, retention and progression of postdoctoral disabled scientists through an online training portal designed to support employers with disability inclusion.				
7 Inputs	5 Activities	6 Outputs	3 Outcomes	4 Impact	
Process					
Heriot-Watt research team Disabled early-career researchers Project partners Employers Managers EDI leaders & other senior leaders Technical and support staff members Covid-19	Map current disability support within the participating institutions and the wider STEM community, identifying best practice and gap in provision and take-up Immersive virtual reality games for line managers and research leaders = SUSPENDED DUE TO COVID Train-the-trainer face-to-face sessions Training to support disabled and chronically ill scientists' self-care and career development Disability summer school online (4-hour workshop) Forthcoming Training evaluation	DISC web-tools, co-designed by disabled researchers, managers & employers alongside Heriot-Watt led research team, tailored to specific disciplinary needs and from an intersectional perspective All Scottish universities' disability policies mapped and analysed 3 published articles in peer-reviewed academic journals (further 3 in preparation) 1 chapter in edited academic book 2 policy-related publications (national) 6 conference presentations (national & international)	Training co-designed and delivered to 4 UK HEIs Elements of training delivered to partner organisations & other external industry/ governmental organisations DISC delivered to more than 200 senior leaders across industry, public sector, trade unions & universities DISC incorporated in UG teaching at Heriot Watt Empirical research has received considerable interest from national & international science press Informed HW institutional policies Inclusion in the development of the Scottish Funding Council's new round of equality & diversity policies & Royal Society report on DISC Successful follow-up funding applications to further support DISC Forthcoming DISC interwoven into a new MSc Programme Further funding applications in progress (ESRC, EPSRC and Nuffield)	Make DISC freely available for any science research employer to tailor to their own organisational needs Improve the working lives of disabled scientists, particularly at the early career stage Support employers, line managers, research funders, trade unions, disability representative groups and other stakeholders in the recruitment and retention of disabled researchers Increase key stakeholders' understanding of the social model of disability and how to use the social model of disability to create more inclusive research cultures Challenge ableist stereotypes	

4. eBase

1	Situation	Various reports describe the glacial progress towards equality in science and engineering. For many years, various initiatives and approaches have tried to address the imbalance, but no substantial progress has been made.			e tried to address
2	Aims	Understanding the grant funding landscape to identify pinch-points experi- broadened to ethnic minority researchers, too) with a view to designing in		ienced by marginalised academics (primary focus was on women, bunterventions to address those pinch-points and embed them to ensure	ut this has been e systemic change.
7	Inputs	5 Activities	6 Outputs	3 Outcomes	4 Impact
	Process			Impact	
Resea (partn betwee Scien Socia Resea leade devela progra partic Projea HR te Covid (Chall with n of PD initial HR, s depar sick-la comp	arch team ership een l Sciences) arch rship opment ams to panters am -19 enges ecruitment RA at stages – taff ture and save lexities) Case stud to support Semi-struc Innovation involved ir understan current 'ex marginalis register (th University 'Everyday at University Evaluation yet due to and a lack and in HR officer with Evaluation yet due to and a lack and in HR officer with Evaluation cohort of U Fellows re Review of used to pri	y investigation of programs designed development of research leaders ctured interviews with participants a, Chancellor's Fellows and Fellows as well as managers to the design of these programs to d the culture that supports the culture that support for ed academics, review of 'talent e mechanism of redeployment at the of Edinburgh) discrimination' survey of BAME staff ity of Edinburgh ning s criteria review (not been addressed the promotions freeze during COVID of resource both within the project) – hired a Diversity & Inclusion n match funds to support this task of internal recruitment of 2020 Jniversity of Edinburgh Chancellor's cruitment recruitment materials and language prote opportunity on of the impact of setting targets of women and 20% BAME fellows and unconscious bias observers	Presentations in conferences/meetings (national & international) Research articles in academic journals and science magazines Ebase webpage and Twitter profile Updated University of Edinburgh Research Office competency framework Establishment of the 'redeployment register', as a result of the review of the 'talent register', the old redeployment system used Establishment of Research Cultures Working Group, a University of Edinburgh initiative designed to explore and consolidate research culture activities at the University of Edinburgh with a view to designing a research culture strategy for the university Pop-Up Inclusion Matters: inclusive online showcase of the Inclusion Matters portfolios Roadblocks to Inclusion: online seminar series featuring challenging questions around inclusion different aspects of the research and higher education community Forthcoming Manuscript for publication currently under review on investigation of research leaders' development programs Analysis of everyday discrimination survey Secondment project with EPSRC analysing results of 'Have Your Say' survey data gathered from EPS community perspectives on gender diversity	Unconscious bias observers: trialled in a variety of forms during the internal recruitment of 2020 cohort of University of Edinburgh Chancellor's Fellows Mid-career support for marginalised academics: disseminated through IAD in the form of Women of Colour Leadership programme (funding available for research impacted by COVID) Embedding EDI in the Edinburgh Research Office competency framework Recommendations made to HR based on the review of the 'talent register', which led to its re-naming to 'redeployment register' and improvements in its use Involvement in policy change recommendations at the University of Edinburgh (recruitment of 2020 cohort of Chancellor's Fellows led to hiring 80% women and 19% BAME fellows) Input into the creation of the Future Leader Fellow's Development network and the EDI strategy EDI projects incorporated into research projects offered to undergraduate physics students at Edinburgh Evidence Base submission to All Party Parliamentary Group Enquiry into equity in the STEM Workforce Project representatives feature in instrumental internal policy roles in networks like the Race Equality & Anti-Racism committee, Gender Equality Action, LGBTQ+ equality Team members involved in key external organisations involved in systemic change (e.g. research councils, societies) Forthcoming Wider role of Diversity & Inclusion Officer hired until 2023: disseminate findings through staff reports, working with the Planning & Business Insight officer to make EDI data more accessible and used, taking part into the Decolonising the Curriculum and Progression and Attainment Working Groups, supporting the development of the College EDI Hub	Develop a more intuitive 'system level' understanding of institutional culture and practices in order to bring about more effective, systemic change in the engineering and physical sciences with a particular focus on issues affecting access to large grant funding EDI research becomes part of the regular teaching practice in physics departments Embed change widely, covering the academic and industrial sectors, through partnerships with learned societies and key networks

5. Inclusion really does matter

1 Situation	Although gender equality initiatives (GEIs) exist in Engineering and Physical Sciences (EPS) across UK institutions, progress is painfully slow. In order to change EPS diversity and inclusion culture sustainably and rapidly, we need to understand academics' potentially negative or indifferent attitudes towards GEIs.			
2 Aims	To accelerate EPS diversity culture ch	ange, by addressing how GEIs are received	d on the ground, by the people who create	e this culture.
7 Inputs	5 Activities	6 Outputs	3 Outcomes	4 Impact
	Process		Imp	pact
Interdisciplinary research team EPS academics research participants Project partners Buy-in of EDI & other senior leaders Technical and professional services and support staff members Covid-19 General negative attitudes towards scope of project (gender equality in EPS)	6 experimental studies investigating the factors that moderate the efficiency of GEIs Progress workshop bringing wider team together to discuss empirical findings Created Athena SWAN resources including a brochure, flyer, videos and a questionnaire to assess GEIs effectiveness Tested above resources Networking activities Forthcoming Finalising mobile and online resources Virtual reality toolkit	 Empirical research findings on how GEIs should be best designed to increase effectiveness at the ground level Resources for Athena SWAN committees Twitter profile Academic journal publications Blog posts Conferences/workshops/ events presentation (national and international) Practitioner toolkit/handbook on how to deliver each activity Conference and cross-sector group events presentation of findings, learning and practice (national) Findings' and tools' dissemination via social media and workshops (national and international) Forthcoming Academic publications under review Online and mobile application for EPS academics Virtual reality toolkit 	Created network of EDI-interested academics and non-academics both at QUB and nationally Project networking led to follow-on collaboration for grant proposal on EDI in Energy research with colleagues from Edinburgh and Aston University. Although the proposal was unsuccessful, the collaboration generated important research and EDI activities ideas that will be used for future bids Two PhD projects are based on the long term impacts of the tools produced by the project, including investigating conspiracy theories, creating a videogame resource and investigating an intersectionality focus in EDI initatives	Increased understanding of when and why GEIs elicit negative reactions across the EPS sector Improve attitudes towards GEIs Raise awareness around the importance and efficacy of GEIs across UK academia and beyond Improve experiences and inclusion feelings for women academics and other individuals form under- represented groups in EPS due to generalisability of empirical findings Overall EDI culture change in academia
6. Northern power

1 Situation	Women, disabled people, LGBT+, and people from Black and Minority Ethnic backgrounds are poorly represented across the engineering and physical sciences (EPS) sector. Unequal opportunities, paucity of role models from under-represented groups, and a lack of understanding among senior leaders as to the barriers these groups face are among a number of factors that cause, compound, and sustain this problem.							
2 Aims	Durham University, along with eight other Universities and six industrial organisations, are embarking on a new and exciting research project to tackle this issue in the North of England. The aim of the project is to increase the attraction, retention and progression of people who are traditionally under-represented in STEM subjects.							
7 Inputs	5 Activities	6 Outputs	3 Outcomes	4 Impact				
	Process		Impac	t				
Research team across 9 institutions Project participants across 9 institutions Project partners EDI leaders & other senior leaders Technical and professional services and support staff members Covid-19	Shared-characteristics mentoring Reciprocal mentoring Leadership development training Industry collaboration training and interactions 'Being prepared for industry collaborations' training Programme evaluation Workplace shadowing with industry partners= SUSPENDED DUE TO COVID	Freely-accessible online publication of evaluation report on the effectiveness of the activities undertaken by participants and the overall project delivery Practitioner toolkit/handbook on how to deliver each activity Conference and cross-sector group events presentation of findings, learning and practice (national)	 Project participants reported increased levels of skills and confidence in terms of career progression Project findings informed bids for: 1) The EPSRC Impact Accelerator Account funding (awarded) 2) An Office for Students BAME PGF project (awarded) 3) EPSRC call for 2 Industrial Strategy Challenge Fund Industrial Decarbonisations Research and Innovation Centre Champion applications, one led by Durham and another led by Hull in collaboration with energy partners Project findings informed the design of mentoring programme: 1) to increase diversity in funding applications at Durham University 2) to address the BAME postgraduate student-researcher pipeline Overall programme is adapted to support succession planning and representation into wider areas (e.g. reciprocal mentoring used with senior committee members to support approach to diversifying future membership) 	Raise awareness across senior leaders around the lived experiences of people form under-represented groups in EPS Increase the recruitment of people from under-represented groups in the EPS sector Increase the retention of people from under-represented groups in the EPS sector Increase the career progression of people from under-represented groups in the EPS sector (project participants having the skills, knowledge and networks to stay within their subject areas and progress through a successful career in STEM) Increase diversity in senior leadership teams across the EPS sector and roles in organisational context to inform decision making and affect cultural change Create a more diverse talent pool across the EPS sector Improve the quality of science and engineering to address complex and pressing global challenges through diversifying the sector				

7. Reimagining recruitment

1 Situation	The stereotypes remembered from childhood regarding what a scientist looks like (i.e. middle-aged white man in lab coat) are sadly persistent and research shows they can negatively influence the recruitment process.							
2 Aims	To begin a process of culture change, by giving scientists the opportunity to undo damaging stereotypes and understand the benefits of working as part of a more diverse team.							
7 Inputs	5 Activities 6 Outputs	3 Outcomes 4 Impact						
	Process	Impact						
Research team Project partners Employers and other stakeholders Technical and support staff members Covid-19	 Programme of innovative 'incubator' events - academic research workshops in which senior academics work alongside early-career scientists, in an accessible and inclusive environment to tackle cutting-edge research problems Evaluate the success of the incubator format as an alternative to traditional workshops to promote better opportunities for diverse early career academics Interlinked programme of psychology research into the experiences of early-career researchers in STEM subjects and the efficacy of alternative recruitment strategies in academia Forthcoming Develop pilot schemes at the University of Bath to trial the proposed interventions in the white paper for recruitment Further promotion of research findings and white paper Further promotion of research findings and white paper 	Improve the experiences of those diverse early-career researchers taking part in incubator events, providing them with opportunities to network and gain project development skills Build a body of research findings to underpin future evidence-based EDI interventions across the sector Strong buy-in from University of Bath's HR (the Deputy Director is part of the working group) Several projects arising from incubator workshops have grown into larger-scale collaborations, publications, community engagement exercises, etc. Important and impactful collaboration developed locally between HR department and social psychology researchers Forthcoming Recruitment policy recommendations to be implemented at the University of Bath						

8. Promoting EDI in university spinout companies

1 Situation	Too few women researchers are leading spinout companies. There has been limited focus on the progression of women researchers at all career stages on the entrepreneurial pathway from research to spinout leadership. Whilst challenges relating to women's research career progression are well understood, the STEM community and HE sector as a whole are not as well informed about women entrepreneurial career progression pathways to spinout.							
2 Aims	The project's aims are: (i) to map the pathway to s (iii) to engage with the innovation processes that le	pinout, (ii) to investigate how men and women ead to spinout.	researchers build their entrepreneurial ca	apacity and				
7 Inputs	5 Activities	6 Outputs	3 Outcomes	4 Impact				
	Process		Impact					
Research team Project partners Employers and other stakeholders Technical and support staff members Investors (challenging to attract) Covid-19	Map institutional initiatives to build entrepreneurial capacity and the pathway from engaging with innovation, knowledge exchange and spinout Map women's participation in spinouts through a sex-disaggregated overview of individuals involved in spinout companies over time (e.g. sector, status, equity size, etc.) Survey on how gender and other equality EDI characteristics, especially age (e.g. different generational cohorts) affect the experience of scientists and engineers involved in setting up spinout companies Build institutional capacity by developing a set of tools that can be used and adapted to support women researchers in STEM at all career stages in creating spinouts and to tackle cultural and structural issues Collaborative initiatives with industry (e.g. mentoring) and potential investors with the help of the project partners and drawing on the project team existing networks Identify role models and develop case studies of women scientists and engineers who have successfully founded spinout companies Establish LinkedIn group 'Supporting Women for Spinout Success'	 Project Webpage, LinkedIn and Twitter profiles 5 research reports published on project's webpage (freely available) Collection of videos sharing knowledge and expertise from spinout founders and experts working in commercialisation and across the innovation ecosystems 9 written case studies of women spinout company founders narrating their journeys 9 profiles of women spinout founders and their companies' info 13 blog posts on project's webpage Curated resource bank aiming to improve women's participation in spinout companies at both individual and institutional level (including speed-dating mentoring initiative & framework for institutions to develop gender inclusive academic entrepreneurship) Findings' presentations to national & international meetings, conferences and events Forthcoming Discussion paper on working with the investment community 	Collaboration with local policy makers, including OxLEP and the City Council, to ensure that boosting the participation of women scientists and engineers in the local innovation eco-system becomes an objective of regional innovation strategies Submission and recommendations to the All-Party Parliamentary Groups Enquiry into Equity in the STEM Workforce Media coverage from the national press and invitations to share the findings and recommendations of the project at national and international events (e.g. Innovate UK, ILO Gender Academy, European Investment Bank, WEgate project funded by the EU to support women entrepreneurs) Project influenced other European HE institutions through involvement in Horizon 2020 projects to promote gender equality in HE Project influenced another project funded by the British Council in Brazil that focuses on supporting women in STEM and innovation	Resources developed freely available on the project's website Raise awareness about the under- representation of women in STEM as founders of university spinout companies and the need to take action. It initiated a national and international conversation on the topic Raise awareness of the importance of embedding a gender perspective in research and innovation in the pursuit of scientific excellence and economic growth Exploring follow-up international collaborations				

9. STEM equals

1	Situation		There is a growing body of evidence demonstrating that women are discriminated against in Universities, and that the problem is particularly persistent across engineering and the sciences. The experiences of LGBT staff in science and engineering are less well-studied, but it is widely recognised that the numbers of 'out' senior academic staff are vanishingly small.							
2	Aims		The STEM Equals project aims to develop initiatives that will improve equality and diversity for female and Lesbian, Gay, Bisexual and Transgender (LGBT) staff across science and engineering. The project also aims to deliver a fresh approach to University management to diversify senior leadership, increasing women's representation.							
7	Inputs		5	Activities		6 Outputs		3 Outcomes		4 Impact
				Process				Impact		
Researc Project p Industry governm non-part universit buy-in EDI lead other se leaders Technica support member Voluntee Covid-19	ch team partners nent and tner ties ders & nior al and staff 's ers 9	Examine work Interviews, and PhD str Reach out to STEM Equa SETEM Equa See Yourse LGBTQI+ A STEM Equa Setting up of within the U Pump-primi within the re Forthcomin University-v working cull Small-scale campus spa Free flexible Delivery of 1 and share to 'Peel-back' UK, to defin alternative p of leave or p Evaluation of Mentoring p	rking cultu occus grou idents with o other un ils Profiles ils Funding f in STEM wareness ils Recipro f public ar niversity ng funding mit of EP ures along exercise f workshops exter at Strate crèche fa workshops est practis over time te e excellene romotion part-time w of STEM E of LGBTQI rogramme	res within HE and industry through an intersectional lens ps & reflective writing with women and LGBT+ academic staff in STEM at the University of Strathclyde iversities and strategic industry partners to share best practice g Calls initiative Training for senior leaders at the University of Strathclyde ical Mentoring Programme id private social media platforms for women and for LGBT staff call for collaborative projects led by women at Strathclyde and SRC's research areas / with staff and PhD students at Strathclyde to investigate g with EDI issues emerging from phase one of the study o investigate the ways underrepresented individuals use the thclyde cilities for staff to attend key research meetings whilst on-leave with key industry partners to disseminate successful activities ie he CVs of volunteer senior female academics from across the cc at each stage of their career, and hence to develop criteria, more appropriate to academics that have had periods forking quals Funding Calls + Awareness Training and the STEM Equals Reciprocal	→	After initial data collection, 6 themes identified in terms of challenges and 2 visual models were developed to describe the experiences of women and LGBT+ individuals in STEM From research & best practice across the sector, 6 key recommendations were developed on changing University policy and practice around LGBT+ issues and issues of promotion and retention relevant to underrepresented individuals in STEM and the sector Conferences/seminars/events presentations Academic journal, magazine, website and report publications 11 awareness-raising events around EDI barriers and the contributions to underrepresented researchers in STEM STEM Equals website and Twitter page Hosted LGBTQ+ STEMinar 2022 Learning materials' production and workshops facilitation (e.g. Thriving Together)	-	More than 3,000 followers on Twitter profile and more than 12,000 page views on website over the past two years 6 key recommendations on changing University policy and practices around women and LGBT+ accepted in principle by the Executive Team at the University of Strathclyde and are now being shared with other Universities in Scotland Facilitated creation of the Women in Science and Engineering (WISE) committee Creation of StrathPride, the LGBTQ+ Staff & PGR Network (120+ staff & PGR student members) Submitted evidence to the Equity in the STEM workforce promoted by the All-Party Parliamentary Group on Diversity and Inclusion in STEM Presented results to local community groups and other local stakeholders, including the Glasgow Science Centre and Glasgow Libraries for See Yourself in STEM & with Evidence Base for Roadblocks on the Path to Innovations Webinar Series and additional funding secured for those Internal funding secured for Sustainable impact by design: a pilot study of effective STEM dissemination for hard-to-reach audiences Forthcoming See Yourself in STEM Partnership to be replicated Interest expressed for Thriving together workshop by Sheffield and ManMet Universities	•	16 applications submitted for STEM Equals Funding Call. Judging panel selected 10 projects to fund for a total value of £50,000 Participating academics in Sustainable Impact by Design reported a shift in their understanding of diverse approaches to teaching about STEM to lay audiences Long-term More inclusive STEM communities for women and LGBT+ people in both academia and industry created Increasing numbers of women PIs on submitted research grants Increased support for diversity in STEM. Increased retention of women and LGBT+ talent in STEM

10. STEMM change

1 Situation	Equality, Diversity and Inclusion (EDI) does not currently feature at the core of STEMM Sciences considerations. Current institutional cultures are problematic, (re)producing various forms of exclusion. Transformational change is needed.								
2 Aims	STEMM-CHANGE's vision is for EDI to become business as usual for all. STEMM-CHANGE aims to: a) change processes by delivering greater diversity in recruitment and retention in STEMM through the STEMM active checklist and software tools, b) change culture through understanding the language of exclusion and how to challenge and change it and, c) change behaviours to achieve a strategic diversity through reverse mentoring and the 'Changemaker' scheme.								
7 Inputs	5 Activities	6 Outputs	3 Outcomes	4 Impact					
	Process		Impact						
Interdisciplinary research team Encompassing all staff roles within higher education, including academic, professional services and technical staff Engagement with all institutional EDI structures – ensuring support from central EDI teams, staff groups and faculty/school EDI staff Senior sponsors Research institutions and other project partners Covid-19	Reverse mentoring programme 'Changemaker' scheme: Placement scheme for technicians Toolkit for improving language used for recruitment EDI resource bank to practically support organisations to address EDI challenges and make improvements Funding opportunity for major projects within University of Nottingham that will make a meaningful impact to STEMM-CHANGE EDI objectives (EDI feasibility studies)	 Project webpage 3 freely accessible report publications: 1. Equality, Diversity & Inclusion: A Technician Lens 2. UK Technicians' Experiences During the Covid-19 Pandemic 3. Towards Diverse Workforces: Transforming the Language of Recruitment Checklist for Recruiting a Diverse Technical Workforce EDI resource bank Reverse mentoring film featuring participants' experiences National & international awareness-raising and dissemination events (e.g. presentation at Vitae Researcher Development International Conference in September 2019, Language, Gender and Leadership Network conference at the University of Nottingham in September 2019, Project conference in November 2019, Working in Partnership – Technician Commitment event at Newcastle University in February 2020 etc.) Individualised reports with recommendations for project partners on changing recruitment language 	Updated recruitment practices and approaches at the University of Nottingham, with senior support to roll this out across faculties. The language of exclusion work and insights have been embedded into processes, including when line managers are supported in the process and how job advertisements are written Project partners have received bespoke reports on the language used in their organisations, in order to make meaningful change in their approaches to recruitment 3 cohorts of reverse mentoring. Evidence of cultural shift in the senior leader mentees who have anecdotally reported behaviour changes in response to their conversations with mentors The 'Changemaker' scheme has given the opportunity to undertake dedicated career development activity to over 20 technical staff members from underrepresented groups EDI Resource Bank is hosted on the University of Nottingham domain and is open access for colleagues across the sector to find and submit EDI resources The UKRI Research England-funded TALENT programme has an EDI work package which is supported by the foundations of the technician EDI strand of STEMM-CHANGE 10 EDI feasibility studies were funded across University of Nottingham	Increased consideration and awareness of EDI challenges across senior leaders evidencing cultural shift Increased engagement with freely-accessible evidence base for organisations to take meaningful action on EDI challenges Changed approach to make recruitment practices and language used for recruitment purposes more inclusive across the STEMM research and innovation community Increased feelings of inclusion, recognition and development opportunities for technical and support stuff					

Appendix C: Theory of Change Model for the Inclusion Matters Portfolio of Investment

1 Situation	There are inequities in equality, diversity and inclusion (ED	I) in the Engineering and Physical Scier	nces (EPS) research and innovation comr	nunity (see UKRI-EPSRC). Change is needed.
2 Aims	The IM portfolio aims to empower the EPS research and understand more about specific challenges and issues a of relevant stakeholders, b) Innovate: To try new and/or of progress more widely, either across the institution or sec	innovation community to tackle EDI is nd what actions might be taken. Learn different approaches (based on availab tor.	sues. IM projects' aims centre around: a ing from others, engaging nationally and le evidence) to those currently used, and) Research: Undertake new research to internationally. Engaging a broad spectrum d c) Embed: To broaden activities already in
7 Inputs	5 Activities	6 Outputs	3 Outcomes	a Impact
	Process			Impact
 External and internal buy-in across a levels (e.g. senior leadership, project leads, research teams, EDI officers, industry engagement etc.) £5 million funds from EPSRC Leverage from other research activit and funds: a. Knowledge, practices, research findings, skills and talents develop by research team members in oth projects transferred over b. Project partner investments c. Institutional investments (e.g. pos funding, extended project timeline etc.) Interdisciplinary collaborative approx and industry involvement – extended networks both within and beyond academia and IM institutions Overall culture change climate (e.g. see Wellcome, 2020) Covid and its knock-on effects on research and innovation Physical and virtual spaces and infrastructure (e.g. labs, software, promo material etc.) 	 I. Advanced Strategic Platform for Inclusive Research Environments 2. Challenging different forms of bias in EPS Research 3. DISC – Disability Inclusive Science Careers 4. eBase – Evidence-Base; Growing the Big Grant Club 5. Inclusion Really Does Matter: Improving Reactions to Gender Equality Initiatives Amongst Academics in Engineering and Physical Sciences 6. Northern power – Making Engineering and Physical Sciences Research a Domain for All in the North of England 7. Promoting EDI in University Spinout Companies 8. Reimaging Recruitment 9. STEM Equals 10. STEMM Change – Uncovering Barriers to Inclusivity and Transforming Institutional Culture 11. VisNET – Virtual in situ networking to reinvent the rules of international collaborations and reduce gender differences in academic careers 3 workshops bringing all IM projects together (1: getting to know each other, 2: sharing findings/ challenges, 3: sharing and celebrating successes) 	Academic publications (e.g. academic journal articles, chapters in edited books etc.) Wider engagement news pieces/press releases (e.g. blog posts, open-access project reports etc.) Publically accessible resources developed by IM projects Wider dissemination activities (e.g. IM projects' social media profiles, webpages, events/conferences, invited talks/speeches etc.) Update or new EDI institutional/ organisational policy/guidelines Contribution to (inter)national policy documents (e.g. white paper development etc.) New staff groups, EDI committees/ roles, and/or working groups established Media engagement with IM project content IM project awards and recognition Promotion/next destinations of staff involved in IM projects	Encourage implementation of EDI initiatives, both within the IM institutions and across the sector Engage senior management in EDI initiatives' implementation and integration Increase the visibility and empower EDI colleagues at senior management level Provide for and recognise the contributions of technicians, software engineers and all other support staff involved in EPS research and innovation Spread knowledge and good practice outwards from EPS to other disciplines and organisations and vice versa Raise awareness about the EDI issues pertinent in EPS research and innovation community in other disciplines Establish sustained academic and non-academic partnerships (i.e. both within institutions and between institutions and other organisations) Influence institutional, national and/or international EDI policy	Diversify the EPS research and innovation population (e.g. increase representation of academics from ethnic minority backgrounds and women academics, improve recruitment, retention and progression of postdoctoral disabled scientists etc.) Build a more inclusive environment and culture in EPS research and innovation, recognising and providing for researchers, academic and support staff as well as industry and other partners Harness EDI good practice in IM institutions, across the sector, across partner organisations and/or more widely, nationally or internationally Improve attitudes towards EDI initiatives across the EPS community Accelerate sector-wide implementation of effective EDI practice Raise awareness of diversity and collaboration as davantages for EPS research and innovation addressing global challenges Burst pertinent EDI-related stereotypes in the EPS research and innovation EPS research and innovation Encourage further funding into EDI initiatives in EPS research and innovation Encourage shift towards long-term behavioural and culture change
2 Rationale and	Rationale: a) IM portfolio addresses EDI-related issues EDI agenda is fast-paced, always evolving and changing come up thereafter.	in EPS community. IM addresses the is . IM portfolio tried to address EDI issue	ssues identified by each project which re es pertinent in 2017-8, but more issues a	late to the promotion of culture change, b) and increased awareness around EDI have

Assumptions: a) EDI-related disparities really do exist within the EPS research and innovation community, b) some of the inequities and culture problems are caused by the issues that IM projects are trying to address, c) 3 years is enough time for impact to be detected, and d) all projects funded will be successfully and timely completed.

Appendix D: Traditional Academic Output

Advanced strategic platform for inclusive research environments (ASPIRE)

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Disability Inclusive Science Careers

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Richards, J and Sang, K (2021) 'Socially irresponsible human resource management? Conceptualising HRM practice and philosophy in relation to in-work poverty in the UK', *The International Journal of Human Resource Management*, 32 (10): 2185-2212. Available at: tandfonline.com/doi/abs/10.1080/09585192.2019.1579249

Sang, K, Calvard, T and Remnant, J (2022) 'Disability and academic careers: Using the social model to reveal the role of human resource management practices in creating disability', *Work, Employment and Society*, 36 (4), 722-740. Available at: doi.org/10.1177/0950017021993737

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eBase: Evidence-Base; growing the Big Grant Club

Cebula, C, Baines, K N, Lido, K, Thijssen, J H J, Halliday, K, Hedge, N, Mulvana, H and Gauchotte-Lindsay, C (2020) 'Inclusion DOES matter: Covid-19 as an opportunity (not a near miss) for making decisive changes in UK STEMM academia', SocArXiv, 2 October. Available at: osf.io/preprints/socarxiv/rkj5h/

Cebula, C, Baines, KN, Lido, K, Thijssen, J H J, Halliday, K, Hedge, N, Mulvana, H and Gauchotte-Lindsay, C (2021) 'Inclusion in the time of Covid: 14 ways to seize the moment for change', *Nature Index*, 9 February. Available at: <u>natureindex.com/news-blog/inclusion-time-covid-pandemic-how-to-</u> seize-the-moment-for-change

Cebula, C, Gauchotte-Lindsay, C, Lido, C and Mulvana, H (2020) 'Comment on: The association between early career informal mentorship in academic collaborations and junior author performance', *SocArXiv*, 28 November. Available at: doi.org/10.31235/osf.io/5r42z

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Promoting EDI in university spinout companies

Griffiths, H, Manfredi, S, Still, A and Tzanakou, C (2022) 'Increasing women's representation as founders of university spinout companies: A case for action', in Owalla, B, Vorley, T and Lawton-Smith, H (eds) *Gender, Diversity and Innovation*. Cheltenham: Edward Elgar Publishing, pp 46-62. Available at: doi.org/10.4337/9781800377462.00011

VisNET: Virtual in situ networking to reinvent the rules of international collaborations and reduce gender differences in academic careers

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