

**Institution: Middlesex University**

**1. Context and mission**

Middlesex University is a public university with campuses in London, Malta, Dubai and Mauritius. It has 1637.5 fte UK staff (31/07/2020), turnover of £213.5m (2019/20); 76.2% of revenue comes from teaching. Our research tradition is Victorian in origin (education (1878), art (1882) and STEM (1901)), although Middlesex is a young institution (university status 1992). Middlesex has been influential in the development of subjects still important in its own research (e.g. ‘critical criminology’, ‘practice as research’).

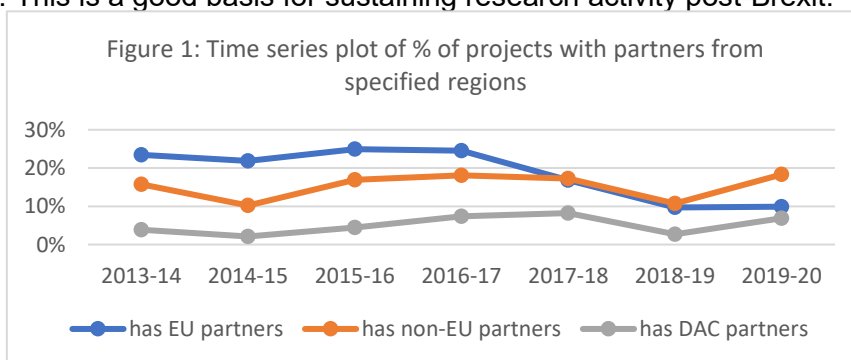
The economic geography of our hinterland influences research strategy and focus. Of the 84,375 businesses in the sub-region (Outer London W&NW, UKI7 in NUTS2), only 3 sectors accounted for more than 10% of them but seven sectors have positive (>1.0) location quotients (ONS). Of the seven >1.0 LQ industries, the University has active research in all but one.

Our research also reflects our *London* context. We have 4.74% of PGR numbers in London (average 2014-19) (HESA data) and longstanding research collaborations with other London universities - over the REF period 43 large funded research projects involved partnerships with more than one central London HEI – e.g.16 with UCL, 9 with KCL and 7 with Imperial.

We’re an international institution and this shapes our research. Research project partners over the REF period came from 99 countries; 29% of partnerships were non-UK/EU:

Partners from region	Income to MU (£m)
non-UK only	41.2
UK only	53.6
Both	49.0
no partners	75.5
Total	219.3

The share of EU partners in our work declined ahead of Brexit. Value of research projects with non-EU partners remained between 10% and 18%, and there was a small rise in projects with DAC countries. This is a good basis for sustaining research activity post-Brexit.



Middlesex has a presence in developing countries, having a campus in Mauritius. In 2017/18, the University supported 22 projects in 31 developing countries. Some research groups have a presence in developing countries – e.g. Flood Hazard Research Centre in Bangladesh. (322)

**2. Strategy**

In REF2014 the University was ranked as the 10th most improved in the UK ( power rank of 58th with 92% of submitted work being ranked at 2\*-4\*).The evolution of our research strategy is documented in our annual reports (<https://bit.ly/34rS8OV>).

**Phase 1 (2015-17):** Our 2015/16 'Refresh' of the University's strategy 'focuse[d] investment...selectively on areas that are truly outstanding [to] support our strategic priorities' ('Strategic Plan refresh: process' paper for Governors, 21 September 2015), building on the Strategic Plan (2012-17) call for 'a renewed emphasis on academic and research leadership' (p.3).

**Phase 2 (2017-20):** The 2017-22 Strategy required the University to make **focused selective investments** to support excellent research, improve the **utility and impact of research** within a teaching-led institution (including impact overseas) whilst **sustaining research excellence** in those areas to which we submitted previously

**Phase 3 (2020-):** Our emerging strategy ('Strategy 2031') is an ambitious attempt to build upon **all three dimensions** of Phase 2; it will shape research at Middlesex beyond REF2021. It prioritises research themes connected to the SDGs, excellent practice-oriented interdisciplinary enquiry, 'inclusive innovation', and innovative modes of partnership. It is ambitious, seeking to direct research toward shaping a better world. The strategy will appear in Spring 2021.

These **three themes** gained expression in the following ways over the REF period:

*(i) Focused selective investment*

Over the REF period the University invested £12.6m on substantial research-related capital investments consistent with strategic ambitions. For example, the Centre for Abuse and Trauma Studies (CATS) and European Human Rights Advocacy Centre (EHRAC) moved to a newly renovated (£680,000 in 2016/17) Grade II\* listed building. To build capacity in sports science (no separate submission in REF2014) we committed to space/facilities in the new £23m West Stand for Allianz Park, home of Saracens Rugby Club, with dedicated research equipment. In total we invested over £48m in research during the REF period.

*(ii) Utility and impact*

In REF2014 79% of our impact case studies were rated as 4\* & 3\*, and our 2017-22 strategy sought to make our research 'have real world impact and enhance our external reputation as an applied institution' in all disciplines. After 2015 research impact *outside* of the University was joined by an ambition to secure benefits from it for students. The University appointed an Impact Officer (2014), created support workshops attended by 92 academic staff, a micro-site for impact support (<https://bit.ly/2wHGTF3>) with a toolkit of resources (focused on supporting an impact culture at research group level), and a Yammer community. During the REF period the <https://mdxminds.com/> microsite, website news pages and PR messaging, social media accounts and public engagement (notably in STEM) brokered new engagement with Middlesex research from 2017. By March 2020 MDXMinds had received 28,656 unique visitors. Messaging (via webpages, social media, digital recordings etc.) on stories of impactful research included a 'video wall' of 16 videos and 48 text summaries of research.

*(iii) Sustaining research excellence*

Over the REF period the University enhanced research leadership. Restructuring of the management of all academic delivery meant that 6 Schools became 3 Faculties, 3 Executive

Deans were appointed, a new role of PVC (Research & Knowledge Exchange) [now DVC] chairing a Research & Knowledge Exchange Committee (RKEC) was created, and 3 Deputy Deans (Research & Knowledge Exchange) with faculty level RKEC committees were appointed in each Faculty. Collaboration was also key to sustaining research excellence and extending the breadth of our work. We partnered on 3,141 occasions with partners in the UK (876 projects) and with organisations (including universities) from 94 other countries.

### ***Measuring and managing excellence***

Middlesex regards peer and beneficiary review, not citation or other metrics, as key to research excellence. For example, criteria for promotion to Associate Professor include a 'record of high quality outputs, validated by external referees as consistent with a national leader in the field'. The research culture of the University is one in which the diversity of output types is recognised in assessment of research performance.

Data governance and collection are on a secure footing, and the Planning Unit is reviewing non-volumetric measures for research performance. The University Executive Team monitors the performance of the University against a range of performance indicators, including review of research-related metrics. The University values evidence-informed leadership by senior managers and research leaders, so research performance data is widely available via Tableau.

Research data governance lies with the University's Targets & Data Reporting Group (TDRG), which approves protocols for data collection and interrogates/approves data reported. TDRG periodically reviews arrangements for data collection in all areas of university activity including research.

Research metrics related to grant and contract research income, collaborations, repository downloads, OA access percentages for deposits, the proportion of deposits with full text on submission over the last year and last month are widely used. Web of Science and Incites Journal Citation reports to track performance by research field within departments. Senior managers and research leaders regularly to review reports on aspects of KPIs and performance. The University Executive Team receives reports on all aspects of KPI and non-KPI performance from the Planning Unit, and commissions new reporting as required.

The University sets no target for PGR student ftes AND recruits based on available supervisors' subject expertise. RKEC monitors research income (spend in eligible RGC categories within annual accounts), knowledge exchange (KE) income (via monthly reports against HEBCI income categories), PGR student applications, 'new start' FTEs, PGR student FTEs, outcomes/completions, enrolment duration, misconduct cases and PRES outcomes (the last seven through the Research Degrees Annual Monitoring Report which, on approval, is communicated to the Academic Board). At Faculty level, Deputy Deans use faculty level indicators akin to the RKEC metrics set; reporting is again via Tableau reports, with trend data and visualisation tools.

### ***Research integrity***

Research integrity is expected in all research activity at Middlesex. The University complies with the Concordat to Support Research Integrity, the principles of which are a key feature of the university's Code of Practice for Research (2009), itself periodically reviewed along with Research Ethics Review Framework Statement (reviewed in 2014 and 2019).

The Director of Research reports annually on research integrity to the RKEC – including cases of academic misconduct (investigations organised by Registry), Ethics Committee case work, training on research integrity/ethics, lessons learned and proposed actions for the coming year. RKEC reports on this to Academic Board. The Researcher Development Programme of face-to-face workshops, and an online Academic Integrity Awareness Course - compulsory for newly joined staff – assists.

### **Open Access and Open Data**

Middlesex's Open Access (OA) Policy has been overseen by Academic Board since inception, on report from RKEC, and is supported by professional staff attached to the Research Repository (<https://eprints.mdx.ac.uk/>). Promotion of OA has included events connected with Open Access Week annually, face-to-face/online researcher training, consortium and pilot site membership of the Jisc RDSS service (2016-), a 'Researchers: Open Access' micro-site, support for Green and Gold open access, and Faculty-level advice from Deputy Deans. OA is fully integrated into the research life of the University and Middlesex is working to comply with the Concordat on Open Research Data.

Governance of research data management issues rests with the University's Research & Knowledge Exchange Committee (RKEC) and with the Information Governance Group (IGG), which liaise with each other. A 'Policy on Research Data Management' (APS27) (June 2015) requires all research proposals to generate a Data Management Plan (DMP) including a plan for making data open (in accordance with Concordat principle #2). Middlesex DMPs are based on Digital Curation Centre models and the Research & Knowledge Transfer Office (RKTO) is experienced in framing any associated non-disclosure agreement for research data sharing (<https://bit.ly/2Rz5ALZ>).

A culture of open research data (ORD) is encouraged through a dedicated Researcher Library Guide portal (including a webinar on ORD, advice pages on ORD and a dedicated Research Support Team with email contact point ([research-data@mdx.ac.uk](mailto:research-data@mdx.ac.uk)), ORD coverage in the Researcher Development Programme, through the leadership of the RKEC and Faculty leadership by Deans and Deputy Deans, and by the Director of Research.

### **3. People**

We submitted 271.85 ftes in Cat A to REF2014, and submit 404.7 ftes in REF2021, a 49% increase.

Our Code of Practice (COP) shows how all staff employed on academic contracts (teaching and research route, Senior Manager Academic or research only) on the REF census date (31 July 2020) who satisfy the REF2021 criteria for inclusion as Category A eligible staff have been submitted.

Para 2.3 of our COP notes 'At Middlesex, academic staff with significant responsibility for research are determined according to the distinctions of our existing role profiles. Therefore, no additional procedure is required in order to identify staff with significant responsibility for research (SRR) for the purposes of REF'. Since 2014, Middlesex University has aligned all academic staff from Grade 7 to Professor to one of two routes: 'teaching and research' or 'teaching and professional practice'. Staff have significant responsibility for research if they are on the 'teaching and research' route or

in designated research posts i.e. Research Fellow or Senior Research Fellow. Some staff designated as 'Senior Manager Academic' with significant responsibility for research meet the criteria for inclusion. Academic staff on the 'teaching and professional practice route do not have significant responsibility for research and will not be included.'

### ***Equality, diversity and inclusion***

Diversity is a characteristic of our University community and our values-driven culture. Equality, diversity and inclusion are core to our values and they shape how our students learn, how we work together as colleagues in different roles, and how we engage with wider society. We value and respect difference, and aim to use our diversity of abilities and identities as a resource to achieve a vibrant student experience and outstanding research and practice environment. The characteristics of our submission and overall academic staffing profile indicate the significance of diversity in the research culture of the institution:

- ECRs in submission, 13.6% (headcount)
- Disabled staff in submission, 3.1% (headcount), (academic staff total, 4%)
- Female staff in submission, 46.5% (headcount), (academic staff total, 56%)
- BAME staff in submission, 26.4% (headcount), (academic staff total, 29%)

Diversity and inclusivity are central to our University research strategy and the Pro Vice-Chancellor with responsibility for diversity has overseen this aspect of our REF preparations. The University's Equality, Diversity and Inclusion Committee launched four equalities forums (LGBT+, Race Religion and Belief, Disability and Gender) in 2016 and extended them – as 'staff networks' – in 2019/20, with a new group for Carers. Networks to provide a safe environment for staff to learn from each other in an inclusive and respectful way, and provide support to the University's ambitious Equalities Plan.

Overall responsibility for action on equality and diversity within the University rests with the Board of Governors, Vice-Chancellor and his Executive team. Equality and diversity policy leadership is driven by the University Executive Team (which includes an Executive Dean and DVC as Diversity Lead) with the support of Academic Board (and its Wellbeing and Inclusivity subcommittee).

Middlesex's Equality and Diversity policy (<https://bit.ly/2OgSWyV>) is overseen by the Academic Board which reports on progress to the Governors. The University's Equality, Diversity and Inclusion Committee advises on the direction of equality and diversity strategy and the Associate HR Business Partner (Policy and Advice) ensures the University's range of people policies and processes are communicated clearly to stakeholders. All staff complete an Equality, Diversity & Inclusion online course.

Preparations for REF2021 included establishing a University REF Equality and Diversity Panel, chaired by the PVC (Diversity), which follows university policy closely in its deliberations. All staff involved in REF committees, panels and working groups have completed mandatory training in equality, as well as further training for the purposes of REF2021, including unconscious bias training for all staff involved in decision making.

The University is committed to gender equality. Women make up 50% of the University Executive Team (Dec 2020), 38% of all senior managers and 56% of all academic staff. The academic staff gender pay gap is smaller than the sector average (4.95% mean). A Gender Forum is available

for any staff member to join. Middlesex submitted (November 2020) an application for an Athena Swan Bronze Award, which is awaiting assessment.

Middlesex was the first UK university to receive Corporate Gold/Embedded Charter Mark from UK Investor in Equality & Diversity. The proportion of BAME staff at Middlesex (29%, 2020) is markedly higher than the 9.8% of known BAME academic staff in the UK (Advance HE Staff Statistical Report 2019). Middlesex's first submission to the UK Stonewall Workplace Equality Index was in 2017 and the University set targets for achievement over the period 2017-22, and was ranked 165th (of 503) in the Index in 2020 (2017: 264th of 439). The University is a Disability Confident (and formerly a 'Two Ticks') employer.

### ***Career development in research***

Middlesex does not currently hold the HR Excellence in Research Award. It follows the principles of the Concordat to Support the Career Development of Researchers and the Technician Commitment closely. We offer,

- An Academic Mentoring Programme supporting career development in all aspects of academic work including research (31 mentees, 39 mentors (2014-2020));
- A 'Researcher Development Programme' (26 themed clusters of workshops) including ECR/PhD student courses across four key areas of research practice ('Methods and techniques', 'Context and process', 'Profile development' and 'Delivering research') supplemented by department-specific activities, Research Supervisor Training pathway, Project Development pathway, Project Management pathway, Masterclasses, and Knowledge Transfer pathway. Publicity is given to these, including a 'PGR Weekly Update' circulated to research students;
- 'Being a resilient researcher' course on mentoring and peer support for the creation of quality research outputs;
- Discipline specific workshops provided across faculties – for example, NVivo training to social scientists (Business School) and writing workshops for arts students (Dance). Sharing of resources for researcher career development is common, with joint workshops on research writing or writing retreats being shared;
- Seminars and research workshops are widely trailed, and notices of events of interest to ECRs are circulated via intranet sites (Unihub and intra.mdx.ac.uk), and conference attendance budgets support ECRs;
- External networking for ECRs (such as the London universities TCCE ECR network in the arts), research allowance against teaching, sabbatical leave applications based on university-wide policies and encouragement to discuss these opportunities in the context of career development happens in all faculties.

## **4. Income, infrastructure and facilities**

### ***Income***

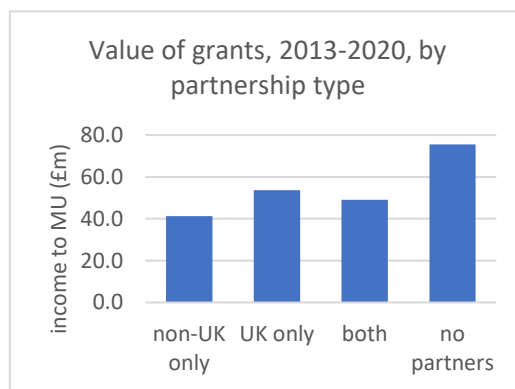
Over the REF period Middlesex led or partnered in research projects totalling £219.3m in value and £98.9m in value to Middlesex. Research grants and contract income (consolidated) rose overall from August 2014 to July 2018, dipped slightly in 2018-19 due to the reduced number and value of grants for which income was recognised in-year (Financial Statement, 2018-19). Bidding activity rates are good (funded and unfunded projects over the REF period totalled 1,992 projects).

Year	RGC (consolidated) (000s)
2014/15	4,924
2015/16	5,267
2016/17	5,530
2017/18	5,325
2018/19	4,529
2019/20	3,355

Withdrawal from the EU has affected access to larger scale grants, but we have sought out other sources of funding for projects without the impact once anticipated.

Funder class	Percentage of grants won over REF period
UKRI Research Councils	25%
UK government departments	4%
EU government	25%
Other sources	46%

We have built on our strength in international collaboration. The aggregate value of research grants by partnership type suggests that while UK-only and Middlesex-only projects contributed the majority of the University’s research income, 41.2% of grant income came from projects with at least one non-UK partner.



**Research expenditure and income generation strategy**

Middlesex’s research culture is supportive of impactful, applied discovery based on primary research – guided by field-specific research methodologies or practice-based research.

The breadth of disciplines and modalities of research require careful research resourcing plans to ensure that, a small footprint campus, that the value of research resource is maximised. The University does this through a contribution accounting model and annual plans, requiring all units to ‘seek to use their purchasing activities to advance University priorities while achieving value for money with probity and accountability’ (Financial Regulations, May 2019).

Faculty annual plans set out research facility enhancements. Our Infrastructure Investment Appraisal Board (IIAB) reviews capital cases stated in an investment appraisal based business

case. The close integration of value for money, coherence with strategic plans, an assessment of feasibility and ongoing services support reflects a business culture of close attention to investment.

Expectations of research income generation are set by Faculties, and the achievement of targets consistent with those plans is managed by Deputy Deans. They are supported by the RKTO which produces monthly funding notices for Faculties, a funding portal with support tools, early notice of opportunities for competitions and PINs for tendered research opportunities via a large number of tender portals.

### **Research investment performance**

Over the REF period, the University has invested significantly in facilities and equipment to support research. Capital investments in research have been conceived as 'dual use' investments – allowing researchers and students to benefit from the investments made 2014-2020 as follows:

2014/15	£1,795,567
2015/16	£3,332,431
2016/17	£2,957,253
2017/18	£3,266,213
2018/19	£835,122
2019/20	£494,094
<b>TOTAL</b>	<b>£12,680,680</b>

£48m of *total investment* in dual use (including re-equipment) took place over the REF period. Projects included the development of the Allianz Park S&C Suite; Festo Metratronics and other robotics equipment for the robotics lab in our new Ritterman building; cell analyser, GCMS, BNMR spectrometer installation and chemistry lab refurbishment in bioscience; physiology measurement equipment for the London Sport Institute; renovation of a 17th century Grade II\* listed building as space for EHRAC and CATS in law and criminology (as mentioned above); and the purchase of laptops for the use of PhD students.

### **Facilities and equipment**

We make targeted, high quality, investments to support research activity on a small footprint campus (4.5 m<sup>2</sup> per staff+ student fte). Access management, technical support and equipment management, periodic review of equipment needs, the use of donations and in-kind contributions to research from industry, sharing of off-site research resource and campus-wide, cloud-based, equipment fault reporting maximise the efficiency of research resource use.

Support for infrastructure includes 3 Technical Managers/Deputy Technical Managers, 20 technicians and senior technicians, and (for research students) the 15 technical tutors, supported by 3 Estates Service operational and support managers, 3 Coordinators and 11 assistants and a maintenance team offering planned and reactive maintenance. Extensive training in the use of research equipment is based in Faculties. All new researchers are introduced to the facilities and equipment profile of the University, and given guidance locally on safety and other protocols.

An indication of the quality may be gained from some examples:

(i) In the Science & Technology Faculty research equipment in our £36 million Hatchcroft building is, in the main, less than 12 years old, and supported by 5 specialist technicians and a Technical Manager. Specialist equipment includes,



- Psychology: 128-electrode, BioSemi, 64 electrode ActiChamp & wireless EEG LiveAmp, (BrainProducts) EEG systems, Transcranial Magnetic/Electrical Stimulation, Eye-tracking equipment (Tobii), Biopac and Powerlab Systems for psychophysiological measurement, and specialist psychology laboratory cubicles.
- Bioscience: a MS suite features several MS machines, including BNMR spectrometer; cell/tissue culture lab for mammalian cell lines, atmosphere-controlled incubators; tissue culture facility for the large scale production of monoclonal antibodies and proteins. Microscopy equipment includes four phase contrast and fluorescence microscopes, a Leica SP2 confocal for high resolution analysis of protein sub-cellular distribution and a Nikon live cell microscope system for time lapse imaging.
- Computer Science: Cisco units, Blade servers, high-end simulation and research software and industry-standard telecommunications equipment; robotics and haptics labs with industry-standard equipment and software including CAD/CAM equipment, automation devices, LabView and Multisim tools, Compact Rio control systems.

(ii) In the Arts and Cultural industries Faculty specialist equipment includes

- Design: 3D workshops featuring 5 Dimensional milling machines, CAM-CAD lathes, Mig, Tig and Arc Welding equipment, a large CNC Router, computer controlled lathes and saw tables, Laser cutters, a Perspex oven, vacuum-forming machines, ceramics and glass kilns, body casting facilities and traditional potters' wheels.
- Visual arts: animation researchers use iMac workstations with Adobe Creative Suite, TV Paint and Maya; Drawing display Wacom Cintiq tablets; Flatbed and batch scanners; stop-motion capture booths with iMac computers and Dragonframe software; a multiplane and rostrum rig; camera arms and tripods; and DSLR cameras and lights.
- Performing arts: Four fully-equipped Dance studios and flagship Grove Dance Theatre with sound editing studio and costume workshop; in Theatre Arts five studios and a main theatre configured to seat up to 80 people with flexible staging and scaffolding stock.

(iii) In the Faculty of Professional and Social Sciences:

- Accounting and finance: A high specification Financial Markets Lab, Bloomberg and Datastream financial software and specialist accounting software;
- Behavioural economics: a dedicated experimental laboratory, with bespoke software, cameras.

The University's Sheppard Library has 350,000 books and e-books, over 40,000 journal titles (25,000 available in full text online in all subjects) enhanced by searchable resource discovery databases, current awareness services and bibliographic management software.

Unique library and archival resources reflect research interests. In design disciplines, the Fashion Collection contains ~2,000 items of clothes, accessories, fabrics from c.1850, the Library of Historic Advertising comprises over 300 boxes of advertisements from the 19th century to the 1970s, while the Samples Collection holds several thousands of product samples from manufacturers of new materials for buildings and interiors. We have an Ephemera Collection illustrating the history of print design and the Hornsey College of Art Archive containing material from the art school's history (1882-1980). The Museum of Domestic Architecture (MODA) is one

of the most comprehensive collections of 19th- and 20th-century decorative arts for the home (designated as being of outstanding international value by Arts Council England). Collections include the Silver Studio collection of designs for wallpapers and textiles, the Charles Hasler collection, the Crown Wallpaper Archive and the Sir James Richards Library.

Donations and in-kind contributions to research from industry, equipment sharing and off-site research resource use are common. In-kind funding (£989k p.a. for the last four years) rose as a proportion of total collaborative research funding from 16.3% to 41.9% (2014/15 to 2018/19) (HEBCI data).

### ***Impact generation support***

Middlesex employed an Impact Officer, developed a microsite, courses and other resources supporting academic staff during the REF period. Specialist advice from the RKTO helps shape pathways to impact; guidance is routinely provided on this at workshops in the Researcher Development Programme workshops. External bid development support is sourced with the specific intention of improving impact specification and routes to its generation.

### ***Support for the diversification of research income***

Over the REF period we have broadened the base of research income through a mix of collaboration, access to KE funding and opportunities in greater numbers for contract and collaborative research, and by the employment of a field expert on contract to seek out and disseminate opportunities directly to staff.

This last activity involved profiling the research interests and ambitions of a large number of research leaders and groups and conducting bespoke trawls for opportunities. Staff in the RKTO remain in direct contact with research funders to understand changing patterns of funding and new opportunities, which are then sent to researchers or research groups most likely to progress bids. Regular preparatory 'sandpits' have been held to encourage participation in new calls, and RKTO staff provide briefings on new calls or programmes (such as GCRF) in faculties.

### ***Support for maximising inclusivity in research***

Research is considered an inclusive activity, not one separately carried out by people classed as 'researchers'. The University's 'Research Policy statement' (APS4) expects that 'all academic staff will be active in research (including professional practice and scholarship for teaching)... [and Middlesex will provide] academic staff with the support necessary to foster their research, scholarship and professional practice activity' (p.1). This inclusive approach reflects the nature of academic life in the University: some academic staff pursue a research and teaching track in the conduct of their work and development, others a practice and teaching track (Middlesex REF2021 CoP, para 2.3). Where enquiry proceeds through practice, for example in fine art, outputs may be reflective; dissemination, though, is an expectation for all domains of research activity in this broad conception of the activity of research.

Research is inclusive as a *process* and not just in principle. The University requires that 'Research leaders...ensure fairness in the allocation of time and resources among members of their group...[and that] the principles outlined apply to the grant application process, the subsequent research process, and the dissemination of the research' (Code of Practice on Research, 2016 para 2.9). Colleagues are required not to presume authorship of outputs for those supervising

**Institutional level environment template (REF5a)**

research groups on those grounds alone (ibid. para 3.3), for example, and the principle that 'All persons...who have made a substantial contribution to the research...must be given the opportunity to be included' as author (para 3.3) operates.