

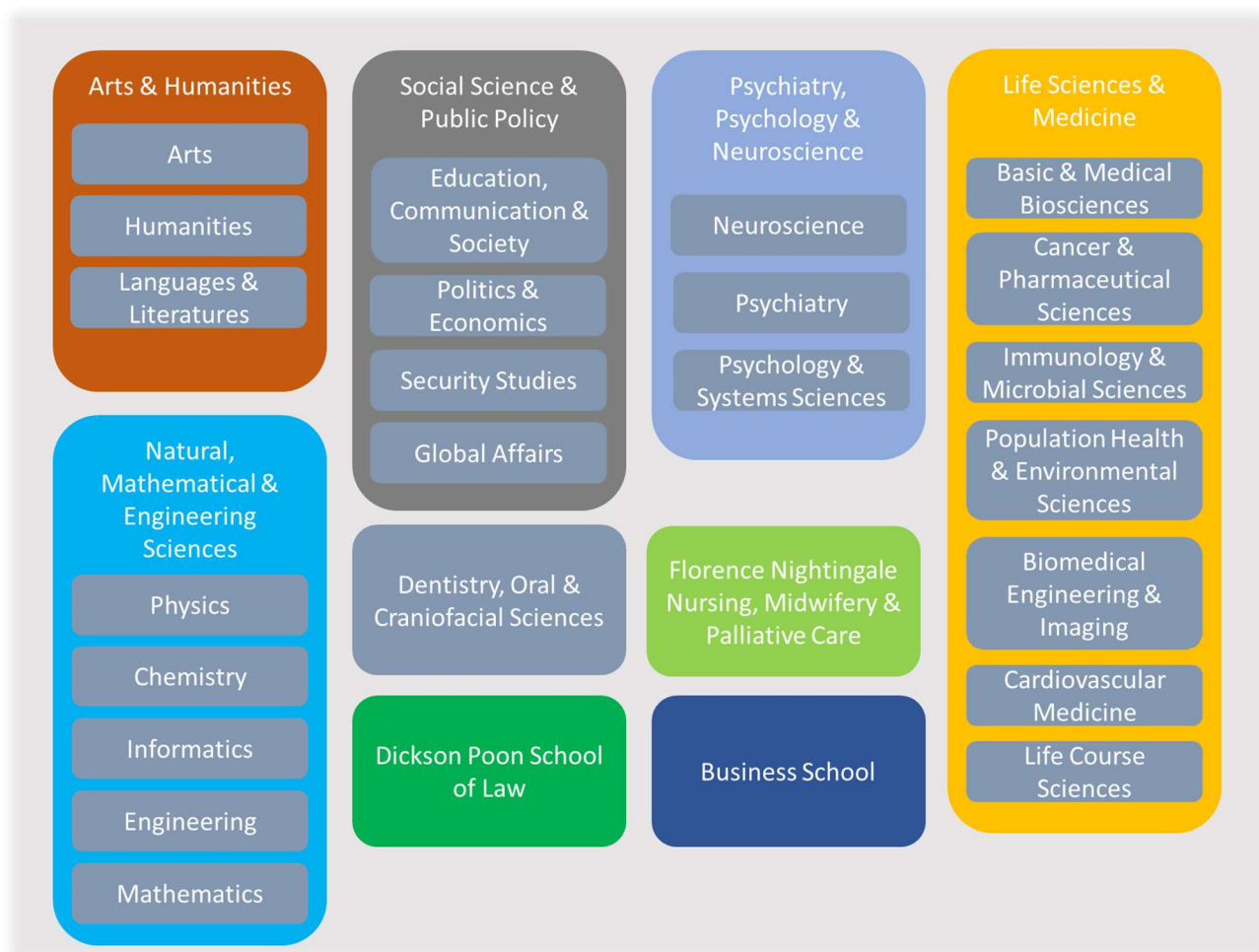
Institution: King's College London
1. Context and mission

King's is a large, multi-faculty university. Founded in 1829, King's has made a defining contribution to knowledge and society for almost 2 centuries, including through 14 Nobel Prize winners. It employs >11,000 staff and has >45,000 students (of which >12,800 postgraduates), from >150 countries. Our annual income was c.£971m in 2019/20.

We are a research-intensive university, with annual research awards of c.£230m (excluding Research England QR funding), a member of the Russell Group, and ranked 7th in the UK (9th in Europe) by the *Times Higher Education* World University Rankings (2021).

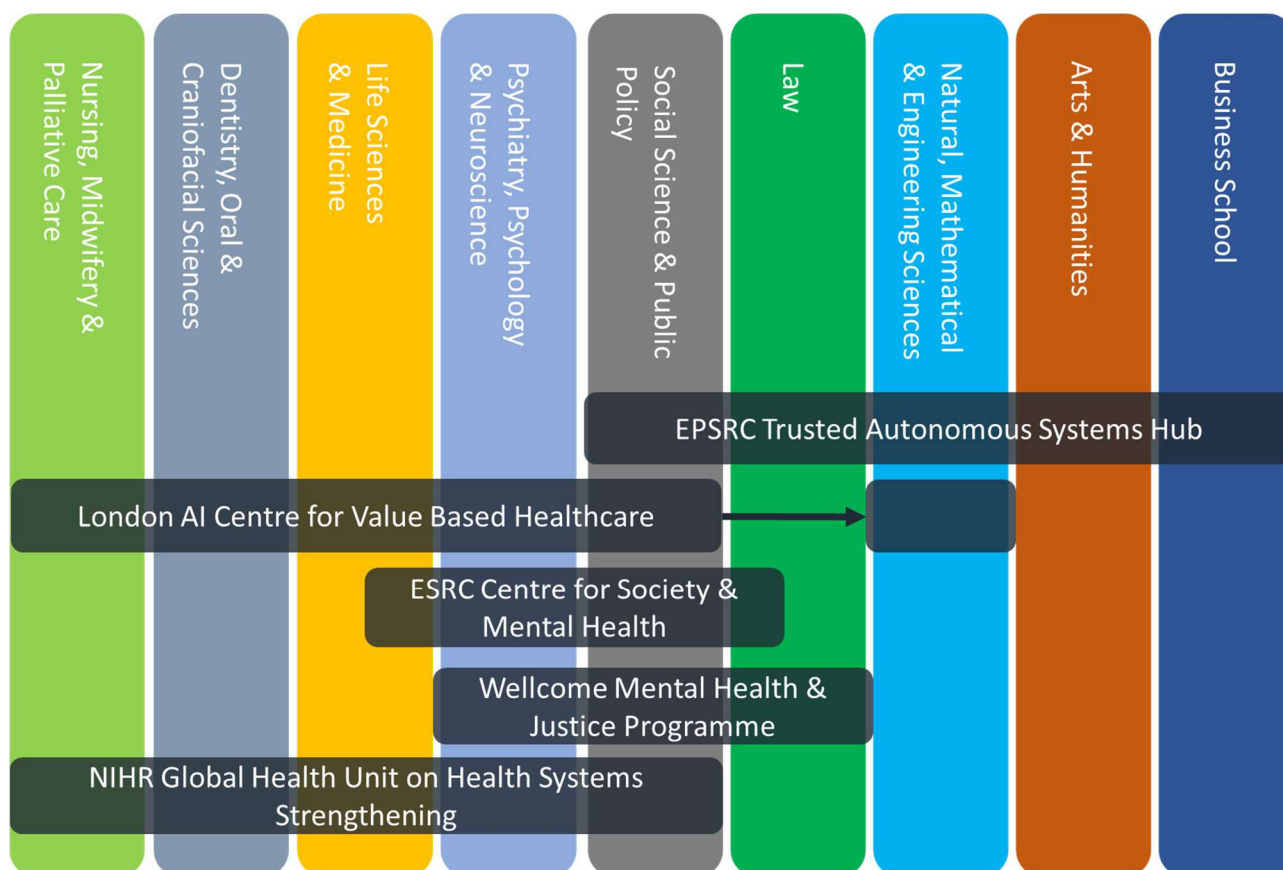
1.1 Organisational Structure

King's is organised into 9 Faculties, all of which deliver the mission of the university across research, teaching and service. Our research is strongly multidisciplinary and crosses these structures; this is balanced by Faculties' constituent Departments, which provide disciplinary coherence.



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The highly-multidisciplinary nature of our research is illustrated below with examples of cross-Faculty research centres (also see Section 4.1):



1.2 Research and Teaching Balance

The majority of academic staff undertake research, teaching, and service & administration (normal split 40%/40%/20%). This drives a culture of research-enhanced learning, and directly benefits our research through capacity building and a thriving post-graduate research community.

Our submission contains 1884.96FTE: 1829 Category A teaching and research staff, alongside 178 Category A research-focused staff (mainly fellowships). We have 231 staff on the Academic Education Pathway (not submitted) who also undertake scholarship activities (approximately 20%).

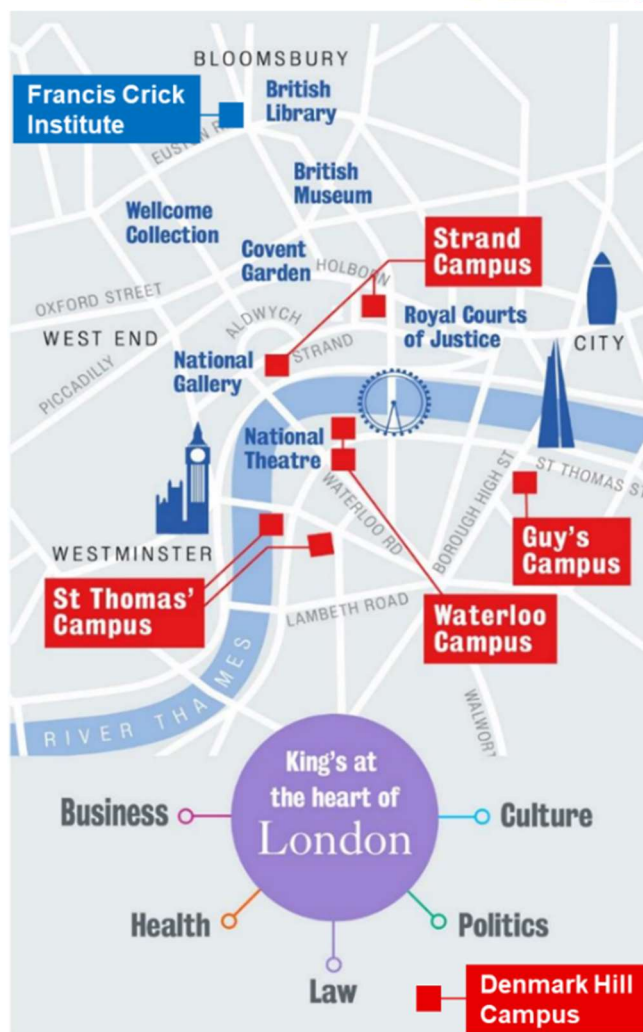
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1.3 Local Economic and Demographic Context

King's is a Civic University at the heart of London, one of the world's most dynamic and connected cities, placing us at the centre of national and global networks. We operate across 5 central London campuses (3 co-located with major NHS hospitals), and the UK Defence Academy site in Wiltshire.

King's actively engages with our local communities. Our campuses are embedded in some of the most ethnically and economically diverse areas of the UK. Lambeth and Southwark rank amongst the 15% most deprived local authority areas in the country, whilst Westminster is one of the richest (although with pockets of deprivation). Southwark's population is 60% Black and Minority Ethnic (BAME), and Lambeth's is 46% BAME.

Lambeth and Southwark have the second and third largest LGBTQI+ communities in England.



1.4 King's Mission

Our university strategy *Vision 2029* aims to make the world a better place, building on foundations of: “proud heritage, contemporary outlook”; “of London, for the world”; “interdisciplinary by nature”; “academia into action”.

We deliver *Vision 2029* through five priorities: (1) educating to inspire and improve; (2) developing research to inform and innovate; (3) serving to shape and transform; (4) embracing our role as a civic university at the heart of London and (5) an international community that serves the world.

Delivering our vision and strategy is already bearing fruit: King's ranks 9th worldwide (2nd in the UK) in the *Times Higher Education* Impact Rankings (2020), and 4th in the UK in the *Times Higher Education* Most International Universities Ranking (2020). King's won the 2019 *Times Higher Education* DataPoints Merit Award for “Gender Equality and Reduced Inequalities”.

1.5 Affiliations and Peer Groupings

King's is a member of the **Russell Group**, the Guild of European Research-intensive Universities, Circle U European University Alliance (alliance of seven European Universities), Uniqua (association of 49 universities beyond the EU), and the Association of Commonwealth Universities (chaired by our Principal).

We are the academic lead in **King's Health Partners Academic Health Science Centre** (one of 8 UK accredited AHSCs), combining academic and clinical strengths to enhance both research and clinical outcomes. KHP has c.5 million patient contacts/year, and >600 clinical trials in delivery. Research collaborations are strengthened through a formalised “Adjunct” academic programme, which provides full “academic rights” to selected clinicians.

King's is a founding partner of the **Francis Crick Institute**, Europe's largest biomedical research facility. The Crick's ambition is to discover the biology underlying human health, improving the treatment, diagnosis and prevention of human disease, and generating economic opportunities for the UK. 9 academic staff are based (full/part time) at the Crick, with c.60 staff and c.20 joint PhD students.

We are a founding partner of the **Rosalind Franklin Institute**, a national institute dedicated to bringing about transformative changes in life science through interdisciplinary research and technology development. We have particular involvement in the Correlated Imaging theme.

In 2018 King's joined the **London Centre for Nanotechnology** (joint venture with UCL/Imperial) aiming to solve global problems in information processing, healthcare, energy and the environment through the application of nanoscience and nanotechnology.

King's is a founding partner of the **Thomas Young Centre for Theory and Simulation of Materials** (TYC), involving c.100 research groups across London, alongside national/international partners (including NPL, Pacific Northwest National Laboratory, Argonne National Laboratory, BP and Rio Tinto) to address the challenges of society and industry.

King's has strong international partnerships including the **PLuS Alliance** (with Arizona State University and University of New South Wales) and the **Dresden TransCampus** (with Technische Universität Dresden), alongside strategic partnerships with University of North Carolina, Université de Paris and Humboldt University in the arts, humanities and social sciences.

King's views London as a living laboratory, and through research collaborations and partnerships with London's businesses, organisations and agencies we work across disciplines to address challenges and opportunities. We host [MedCity](#) (connecting industry and universities across London), lead the Research England "Connecting Capabilities" partnership [London Advanced Therapies](#) (includes dedicated funding for SME engagement), and lead the Innovate UK [London AI Centre for Value-Based Healthcare](#) (£40m across 4 universities, 11 NHS Trusts, 6 industry partners, 11 SMEs). We have close links with key Government departments (Cabinet Office, FCO, Treasury and MoD), and partnerships with London's major institutions such as the British Library, National Archives, Royal Collections Trust, V&A, British Museum, and Shakespeare's Globe. [National Gallery X](#), a strategic partnership between the National Gallery, King's and Google Arts and Culture, explores the potential of technology in the future of galleries.

2. Strategy

2.1 Research Strategy

King's launched its University Research Strategy in December 2016. It aims to enhance research quality, impact and scale by building on both disciplinary excellence and transformative research that crosses disciplines and changes paradigms. We have recently updated this strategy to define priorities for the next 18-24 months, addressing challenges and opportunities created by the COVID-19 pandemic.

The research strategy is structured around five pillars:

Pillar 1: *Retaining, developing and recruiting world-class talent*, recognising the central contribution of our staff to our research mission. University-wide initiatives supporting this include the *Leading Researchers* and *Emerging Research Leaders* programmes and *King's Prize Fellowships*, described in Section 3. *Leading Researchers* (c.20 staff/year) supports the development of strategic research leadership skills; outcomes include the ESRC Centre for Society and Mental Health. *Emerging Research Leaders* (just launched) offers a similar programme for early-career academics. The *Prize Fellowships* support the transition to research independence (section 3.3). To enhance King's support for under-represented groups, we will shortly launch dedicated PhD scholarship and post-doctoral fellowship programmes for black researchers.

Pillar 2: **Providing the best environment and systems to deliver world-leading research.** This includes enhancements to core facilities (including eResearch) and dedicated support for research development, industry engagement and commercialisation. Core facilities are described in Section 4; recent developments include London 7T MRI Clinical Imaging Centre, Advanced Therapies Centre, Microscopy Innovation Centre, PET Imaging Centre, London AI Centre for Value-Based Healthcare, and King's Digital Lab (digital humanities). All have substantial funding from UKRI, Wellcome and industry, alongside university investment (total c.£110m). The research development function, established as part of the Strategy, has increased research funding by 45%, including major strategic awards (>£500m awards supported). Updated actions in this Pillar include transforming research delivery on-site (post-COVID), and enhancement of eResearch capabilities.

Pillar 3: **Broadening the research base whilst increasing quality.** A key focus is enhancing interdisciplinary research at King's, including our flagship initiative *King's Together*, (Section 4). This has been highly successful, with >100 projects securing >£30m of external follow-on funding, including an ESRC Centre and Wellcome/Leverhulme PhD programmes. We created cross-faculty research institutes, (e.g. Institute for Global Health; AI; Arts and Humanities Research Institute).

Pillar 4: **Increasing impact and expanding research partnerships.** We have created a new leadership position, Dean of Research Impact, with Associate Deans in each Faculty, and a cross-university Impact Committee. We have developed an Impact Strategy and Action Plan, leading to appointment of a team of Impact Leads and a new Industry Partnerships function. We have significantly expanded our Commercialisation function. Our impact is enhanced by strong public and community engagement, including the flagship Science Gallery London, and the Cultural Arcade which hosts research-related exhibitions. We have developed major new strategic partnerships with industry and Government, including Siemens, Nvidia, GSK, UCB, Celgene, Medtronic, IBM, GE and Ericsson (total value of new industry investment c.£65m), and the Freeman Air & Space Institute (funded by MoD) alongside a close working relationship with the UK Cyber Security Centre. We work closely with partners in law and business, and the cultural sector, including British Library, National Archives, British Museum, and the National Gallery. New actions include establishment of a joint venture with partner NHS Trusts for medtech commercialisation.

Pillar 5: **Delivering research-enhanced education**, is a shared objective between our Research and Education Strategies (see section 3). We have expanded our King's Undergraduate Research Fellowship scheme (900 projects since 2014, all Faculties), and provide sector-leading support to our student community through the King's Entrepreneurship Institute (year-long programme including expert knowledge, space and access to investment; 81 ventures created, £20m funding raised, revenue of £17m delivered, +400 new jobs created, 69% of ventures still trading).

2.2 Research Integrity

King's has upgraded its approach to Research Integrity during the current REF cycle, with updated procedures, and expanded Research Integrity Team, including a Dean for Research Governance, Ethics, and Integrity, and Research Integrity Manager (dedicated to research misconduct and integrity).

We have focused on increasing visibility and awareness of Research Integrity, adopting best-practice through transparent processes, and support for staff and students:

- A Research Integrity Champion is embedded within every Faculty. This is a high-level advocacy role. Research Integrity Advisors are embedded in each faculty to provide a visible point of contact for researchers.
- Improved outreach activities and online visibility, including published annual statement and provision of a dedicated mailbox for advice.

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- Updated procedures for investigating and resolving allegations of research misconduct (following 2017 update to RCUK/UKRI Policy and Guidelines), and clarified procedure on partially-upheld allegations to increase transparency.
- Collaboration with the Centre for Research Staff Development and Centre for Doctoral Studies to enhance training.

We are compliant with the Concordat to Support Research Integrity at institution level. We are also a signatory to the San Francisco Declaration on Research Assessment at institution level, and have an institutional policy on the use of research metrics for research assessment.

2.3 Open Research

King's has a strong commitment to Open Research, and is a formal member of the UK Reproducibility Network (see Section 4.6).

Many of our activities – including high-profile, university wide conferences – are led by the King's Open Research Group Initiative (KORGI), which brings together academic staff, research staff, PhD students and professional services. KORGI reports into the University Research Committee.

Open Access is supported by King's Libraries and Collections, including managing, curating and disseminating publications and research data, in line with funder and REF OA policy. This includes:

- Data input and quality control of publication metadata and full-text in King's CRIS and repository system, including journals/monographs and grey literature.
- Administration of King's OA grants to enable publishing in fully open access journals.
- Support with Data Management Plans and options for storage/preservation/dissemination of research data.
- Creating a Research Data Management Roadmap and infrastructure.
- Delivering training on Open Access publishing and research data management.
- Founding of the 'Open Research Group' – a quarterly meeting of professional services staff and faculty reps.

We are working towards compliance with the Concordat on Open Research Data.

2.4 Disciplinary Focus, Institutional History and Development, and Relative Maturity of Disciplines

King's portfolio includes substantial health/biomedical activity, alongside a rich and diverse coverage of arts, humanities and social science disciplines. We have a growing presence in engineering and natural/mathematical sciences.

Founded in 1829, the University rapidly grew during the 1980s and 1990s through mergers with several health-related institutions: King's College School of Medicine & Dentistry (1983), Chelsea and Queen Elizabeth Colleges (1985), Institute of Psychiatry (1997), United Medical & Dental Schools of Guy's and St Thomas' Hospitals (1998). Subsequent integration and strategic alignment led to a substantial increase in the scale and quality of health-related research, across fundamental and translational science.

Over the last decade, we have grown rapidly in social sciences (now 5 interdisciplinary Schools in a single Faculty). The department of Management has grown into King's Business School, an independent Faculty, and the Law School has grown significantly.

Art & Humanities has also grown substantially, evolving from fifteen constituent departments to three thematic interdisciplinary clusters, with increased collaboration.

In the last 10 years we have developed a major strategic plan to invest in science and engineering, with the rebirth of both chemistry and engineering departments, growth in physics and

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mathematics, and substantial growth in computer science. Substantial investment is planned over the next five years.

3. People

People are the heart of our institution, and the retention, development and recruitment of staff and students is central to the delivery of our vision.

3.1 Undergraduate and postgraduate taught research opportunities

Research-enhanced education is prioritised, including final-year research projects in almost all degrees, research lectures and a research mentoring programme. King's Undergraduate Research Fellowships (paid summer studentships) support deeper engagement in research (900 projects since 2014, across all Faculties).

All Masters programs have a major research component. We have an expanding suite of MRes programmes, with 50% research content.

Our "King's Together" interdisciplinary research programmes support creation of innovative interdisciplinary education initiatives (e.g. interdisciplinary module on Revelatory Religious Experience).

3.2 Training of postgraduate research students

King's post-graduate research activities are led by the Dean for Doctoral Studies, a new senior academic position to provide oversight and accountability. The Dean works in partnership with the **Centre for Doctoral Studies**, which has responsibility for ensuring high-quality PGR provision across the university. The Centre has dedicated staff focusing on: (1) provision of support, (2) funding opportunities, (3) high quality training (personal, professional, academic & career development) and (4) nurturing an inclusive environment for all research students.

We aim to ensure that all PGR students at King's receive a high-quality and rounded experience, and benefit from being part of a wider cohort. We offer tailored training courses and networking opportunities, covering both subject-specific and "transferable" skills training. We ensure best practice for student supervision and mentoring, with particular attention to student welfare (and with specific programmes to support mental health). Equality, Diversity and Inclusion are integrated into PGR programmes, with respect to both students (inc. selection) and supervisors.

Our Health Sciences Doctoral Training Centre exemplifies this approach. It provides training, development and careers support for the c.1,800 doctoral research students in our Health Faculties, ensuring that all students receive an outstanding experience, irrespective of funding stream.

During the current REF cycle, we have established 9 new Doctoral Training Partnerships (AHRC, BBSRC, ESRC, EPSRC, MRC, Wellcome, BHF, Leverhulme), enabling development of structured PhD programmes and reinforcing inter-institutional partnerships. >1,150 PhD students have benefitted from these fully-funded programmes, which include internships, bespoke training, and enhanced research and employability skills.

The King's Cultural Institute offers a Collaborative Scheme for Early Career Researchers, supporting PhD students and Early Career Researchers to collaborate with a cultural sector, enhancing research impact. This programme was created in response to PhD student feedback.

3.3 Support for Research Staff

The Centre for Research Staff Development supports research staff (postdocs, research assistants and technicians) with bespoke training, mentoring and career counselling, and leads our action plan for renewal of the HR Excellence in Research Award, alongside work on research culture (including combating bullying and harassment). The Centre focuses on five core themes:

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- Community: Facilitation and support of an active, engaged research staff community.
- Careers: Including support from a team of qualified careers consultants.
- Courses: Delivering a number of professional workshops and events that enhance researcher skills and future opportunities.
- Communications: Information regarding opportunities for research staff within and outside of King's.
- Concordat: King's aims to exceed the standards set by the Concordat to Support the Career Development of Researchers.

King's is addressing the uncertainty that comes from short contracts for research-only staff with regulations to define the minimum length of contracts and ensuring that staff with multiple renewals of short-term contracts are moved to open-ended contracts.

King's Prize Fellowships provide 2 years of funding to support transition to research independence (particularly by obtaining externally-funded fellowships) (c.30 supported in current REF cycle; successful outcome c.80%). We have faculty-based schemes to support research-only staff to move to permanent academic posts and have recently moved to make this a cross-university initiative.

3.4 Development of academic staff

We offer organisational development programmes to staff at all career stages. This includes the **King's Leading Researchers Programme** to support rising stars (c.25/year), at or around Professor level, and the recently-launched **Emerging Research Leaders Programme** for earlier career stages.

We participate in StellarHE to enhance leadership skills of BAME staff, and Aurora, Advance HE's leadership development initiative for women and those who identify as a woman. We have a range of mentoring schemes, including **B-Mentor** for BAME academics/post-docs, and More than Mentoring which prioritises women, BAME, LGBTQ+ or staff with a disability.

We have enhanced support for staff with caring responsibilities (including parents returning from family leave) by providing funding to maintain research progress. The **Carers' Career Development Fund** provides awards up to £250 to cover expenses for conferences and travel and the **Parents' and Carer's Fund** provides awards of up to £10k to support return to research.

We strongly encourage wide participation of colleagues with protected characteristics in leadership opportunities across the university. Academic leadership roles within faculties, departments and schools and at university level are appointed through transparent, competitive processes, with diverse panels and shortlists.

3.5 Equality and Diversity

Equality, Diversity & Inclusion underpins *Vision 2029*, with the guiding principle to 'create an inclusive environment where all individuals are valued and able to succeed'. ED&I plays a key role in attracting and retaining talented staff, enabling success.

King's recognises that feeling part of a community is an integral part of a positive work experience. Staff networks can have transformative effects on involvement with the organisation, enhancing wellbeing and enabling participation in decision-making and strategy. King's has six staff networks: Elevate (King's Gender Equality Network), Race Equality Network, Athena SWAN Network, Proudly King's (LGBT+ Staff Network), Staff Disability Network & Groups, and Parents & Carers Network.

King's has been a member of the Athena SWAN Charter since 2007. The Charter now recognises work undertaken in arts, humanities, social sciences, business and law, in professional and support roles, and for trans staff and students. Our four Health Faculties all have Silver Awards. All the departments in our Faculty of Natural, Mathematical and Engineering Sciences have Bronze

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Awards (Physics have a project Juno Silver). In Social Sciences and Arts and Humanities, applications are underway. The university as a whole has applied for the Silver Award (pending).

Since 2017, King's has identified race equality as a strategic priority. We have worked to identify and reflect on institutional and cultural barriers to black, minority ethnic (BAME) success. Actions include expansion of Widening Participation programmes, Structural Inequality training for Senior Management, halving our institutional attainment gap at 'good' degree level, development of our Race Equality Network, and renewal of our Race Equality Charter Mark, committing to deliver our 4-year Race Equality Action Plan. ED&I training is compulsory for all staff.

4. Income, infrastructure and facilities

King's research environment is enhanced by a comprehensive range of resources, capabilities and facilities. These enable cutting-edge research, maximise the translation and impact of our research, and stimulate collaboration between disciplines.

4.1 Income and Awards

Our new research awards total was £233m in 2018/19 and £223m in 2019/20, representing a 41-47% increase since 2015/16. In 2019/20, this came from UKRI and UK Government (44%), charities (26%; particularly Wellcome, BHF/CRUK), industry (16%) and the EU (11%). Examples of major awards include:

- AHRC Flagship project in Language Acts and Worldmaking (£3m).
- ESRC Centre for Society & Mental Health (£6.3m).
- Wellcome/EPSCRC Centre for Medical Engineering (£12.3m), and The London AI Centre for Value Based Healthcare (Innovate UK, £26m through 2 awards).
- 4 Research England UKRPIF capital awards (total £51m).
- Two NIHR Biomedical Research Centres (total £130m, awarded to NHS Trusts with King's as sole academic partner).
- NIHR Applied Research Collaboration South London.
- The EPSRC/UKRI UK Hub for Trustworthy Autonomous Systems (£12m; led by Southampton with King's as major partner).
- Global research centres including NIHR Global Health Unit and 2 UKRI "Growing Capabilities" centres (total c.£30m).
- ERC Synergy Awards in humanities (*Cosmological Visionaries*), biological sciences (£15m) and 5 ERC Advanced Grants in languages/history/arts/health research.
- MRC, British Heart Foundation and Cancer Research UK Centres (total c.£30m)
- Leverhulme Wildfire Research Centre (£10m, with Imperial College).
- Wellcome Innovation Flagship in Psychosis (£15m).
- UK in a Changing Europe Hub (ESRC, total c.£6m).

4.2 Institutional Internal Funding Programmes

Institutional funding programmes support new research ideas, collaborations, and translational/impact activities. These are managed by the Research Development Team, maximising opportunities for synergy between programmes and ensuring visibility.

- **King's Together:** £1m/year flagship Research Strategy initiative to drive new multidisciplinary collaborations, allocated as £20-100k awards. >£30m of follow-on awards have already been secured. Our rapid-response COVID-19 research funding call (first decisions on 23rd March), supported outcomes including the COVID Symptom Study/App and UKRI NHS CHECK programme.
- **Research & Development Challenge Fund:** c.£1m/year, for projects of up to £80k, aimed at bridging the gap between fundamental science and translational product (therapy/device/diagnostic) development (funded by MRC Confidence in Concept). Outcomes include >£150m follow on funding (inc. spinouts Gammadelta Therapeutics, Quell

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Therapeutics), and major industry collaborations. Aligned £1m Challenge Fund for Multiple Long-Term Conditions.

- **ESRC Impact Accelerator:** we are the only multi-Faculty institution in London to host an ESRC IAA, (>£1m/4 years). Funding is awarded competitively through Advancing Impact Awards, supporting engagement with 33 external partners from government, civil society, and business. Activities include collaborative workshops building on health policy for homeless people, which have influenced national policy on transfers of care and 'Safeguarding', with new resources being rolled out across the NHS in 2020.
- **EPSRC Impact Accelerator:** >£2m since 2015 to support impact from EPSRC-funded grants. This has leveraged £4.6M of additional funding from industry and others, seeding 22 new academic-industry partnerships.
- **King's Health Accelerator, now King's Commercial Development Fund:** supports staff to commercialise research. Since 2012 it has invested >£4m, producing 88 Commercial Development Plans.
- **Faculty-level pilot funding** is offered in many areas – for example £170k/year in Social Sciences – to kickstart new research programmes.

4.3 Research Support

We have invested significantly in research support, including:

- **Research Development:** c.10 PhD-qualified staff supporting development of strategic researching funding applications, providing academic staff training and acting as a key point of expertise on research funding. This function includes specialist support to develop and manage industry partnerships. The team has supported c.£500m of awards in the current REF period.
- **Research Management:** recent successful deployment of new Worktribe system for grant management and costing; restructure of pre-/post-award and contracts/governance functions; launch of Research Management Helpdesk as single point of contact; establishment of Research Data Analysis Team.
- **Impact & Engagement Services:** Expert support to embed public engagement and impact activities in research programmes.
- King's hosts the London **NIHR Research Design Service** to improve statistical and methodological design of research programmes.

4.4 Infrastructure and Core Facilities

King's offers a range of world-class research facilities, overseen by the Research Facilities Strategic Management Board. Facilities include:

- **Medical Imaging:** clinical research capabilities including **London ultra-high field 7T Magnetic Resonance Imaging (MRI) facility**, 10 research MRI systems including PET/MR, interventional X-ray/MR suite, 3 PET/CT scanners and PET tracer manufacturing facility with two cyclotrons. Dedicated **pre-clinical imaging facilities** including MRI PET/CT, SPECT/CT and ultrasound.
- **Nikon Imaging Centre:** cutting-edge light microscopy facility in partnership with Nikon (one of 9 worldwide); linked **Nikon Centre of Excellence in Advanced Neuroscience Imaging**; adjacent **Microscopy Innovation Centre**.
- **Centre for Ultrastructural Imaging:** advanced electron microscopy facility with some of the most advanced equipment in Europe, in partnership with JEOL.
- **Centre of Excellence for Mass Spectrometry:** provides liquid and gas chromatography, matrix assisted laser desorption ionisation and inductively coupled plasma, advanced data analysis; **dedicated proteomics facility**.
- **Nuclear Magnetic Resonance Facility (NMR):** state-of-the-art spectrometers configured to address biological questions.
- **London Metallomics Facility:** the UK's first facility.

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- **Immune Monitoring Platform:** with (GSTT Biomedical Research Centre) Cutting-edge immune profiling for pre-clinical/clinical samples, with advanced flow cytometry inc. imaging mass cytometry.
- **Genomics and Biomarker Facility:** CSPro-certified provider of Illumina platforms; state of the art robotics and LIMS tracking.
- **MRC/NIHR Single Cell Functional Genomics Facility:** low- and high-throughput single cell workflows with integrated data analysis.
- **Advanced Therapies Accelerator:** pre-GMP laboratory facilities for cell and gene therapy, linked to GMP cell therapy suites and lenti/retrovirus manufacturing facilities.
- **Materials, Synthesis and Characterisation Facility:** state-of-the-art instruments, including Atomic Force Microscopy, Scanning Electron Microscopes, and spectrometers.
- **Wellcome/Wolfson Medical Devices Manufacturing Facility and Mock Interventional Suite (Operating Room):** facilities to manufacture of first-in-patient complex medical devices and evaluate in humans post-mortem (opening 2021).
- **UK 5G Testbed and London 5G Tactile Internet Lab:** London's first 5G prototype testbed, supporting cloud robotics, live video streaming, haptic applications and synchronised reality (UK Government with Ericsson).

Sustainability of our research facilities is central to our strategy. King's is piloting **LEAF: A new framework for lab sustainability**, to reduce impact on the environment. We have reduced Scope 1/2 carbon emissions by 54% since 2005/06, and emissions per staff/student FTE from 2.41 to 0.64 tonnes/year.

Research infrastructure includes:

- **eResearch:** enabling computational and data-intensive research across King's. Includes a High-Performance Compute Cluster and cloud server, supporting large-scale data analytics, Ceph storage for long-term curation, and an OpenStack private cloud with flexible, scalable development environments, allowing users greater control using virtual machines. We have invested in new posts to coordinate eResearch (linking advanced research requirements to IT systems and planning), and plan major investment over the next year.
- **King's Digital Lab** is a humanities and social science Research Software Engineering (RSE) facility, working with researchers at King's, other universities and cultural heritage organisations to produce digital tools (repositories, archives, visualizations, maps, mobile applications) and immersive experiences. The team of 13 project managers, analysts, UI/UX designers, and engineers use industry standard software engineering methods tailored to specific disciplinary contexts.
- **King's Health Partners Clinical Trials Office and UKCRC-Accredited Clinical Trials Unit:** providing oversight, governance, sponsorship, management, statistical expertise, design and analysis for clinical trials across our partnership.
- **Clinical Research Facilities:** Four facilities across partner NHS Trusts, including MHRA phase 1 accredited facility (one of only two NHS units in England), paediatric facility, specialist neuroscience and mental health facility, and advanced imaging facility. The CRFs play a vital role in translation of scientific breakthroughs into improved healthcare, and include a CRUK Experimental Cancer Medicine Centre.
- **Guy's & St Thomas' and South London & Maudsley NIHR Biomedical Research Centres:** £130m infrastructure funding over 5 years to support translational research (King's is the academic partner). Strengths include advanced therapies and experimental medicine (GSTT), mental health (SLaM) and clinical data science.
- **King's Technology Evaluation Centre (KiTEC):** A Health Technology Assessment centre supported by the National Institute for Health and Care Excellence (NICE).

Coming soon: **London Institute for Healthcare Engineering** (Research England, Siemens, Medtronic, Nvidia, IBM and GSK, providing dedicated facilities for academic-industry-clinical collaboration), and **MRC Gene Therapy Innovation Hub** (GMP AAV and lentivirus production/innovation).

Our research is enhanced through patient and public involvement and engagement (PPIE), in collaboration with the NHS and other (e.g. cultural) partners. This is detailed in individual Unit of Assessment Environment Statements.

4.5 Facilitating the Delivery of Research Impact

King's is fully committed to delivering impact through our research, as described in Pillar 4 of our Research Strategy (Section 2). This is achieved through internal support, our Innovation Institutes and national/international partnerships.

King's Innovation Institutes (supporting research impact and engagement)

King's Innovation Institutes are university-wide structures which create impact by acting as an interface between our research activities and the outside world – including policy makers, the cultural sector, and commercial partners.

King's Cultural Community

Across and beyond King's, an inclusive cultural community brings together artists, cultural partners and researchers in collaborations that enhance research, drive innovation and support impact and engagement while serving the needs of the cultural sector. A central Culture team supports, strengthens and showcases the work of this community through brokering and facilitating partnerships and through a series of programmes that support the research strategy by provoking new approaches to research, testing and scaling up and disseminating research findings. Several spaces across the campuses are dedicated to this distinctive cultural engagement, including the Arcade at Bush House and Science Gallery London, a free to visit space in London Bridge, opened in 2018, with a particular focus on connecting art, science and health to drive innovation in the heart of the city.

Entrepreneurship Institute

The Entrepreneurship Institute supports entrepreneurial thinking, skills and experiences amongst King's students, staff and alumni. The Institute's activities are delivered through three strands: Engage, Skills and Accelerate. The Institute's year-long programme includes access to expert knowledge, space and access to investment. 81 new ventures have been created, £20m funding raised, revenue of £17m delivered, +400 new jobs created, and 69% of ventures are still trading.

Policy Institute

The Policy Institute aims to solve society's challenges with evidence and expertise, and combines academic rigour with the agility of a consultancy and the connectedness of a think tank. The Institute's research draws on a wide range of disciplines and methods, making use of skills, expertise of resources from across the university and its wider network. The Institute works across six main research areas, with communications, impact and engagement an important connecting thread. Its research themes are: *The value of evidence*, *Defence and security policy*, *Health systems and delivery*, *Communities and opportunity*, *Cities, growth and innovation*, and *Trust, facts and democracy*. Examples of its work include **King's Commission on London** launched by the Mayor, Sadiq Khan, in 2018. Additional policy partnerships include the **Strand Group**, the **Global Institute for Women's Leadership**, and the **Health & Social Care Workforce Research Unit**, aiming to drive societal change.

Arts & Humanities Research Institute

The AHRI is a platform to mobilise impactful, social justice-oriented research and education collaborations with civil society organisations. It supports 13 interdisciplinary research centres.

Commercialisation Institute and IP & Licensing

King's Commercialisation Institute and IP & Licensing function focuses on the acceleration of research breakthroughs into commercially-viable products and services. Staff are provided with bespoke support to create commercial development plans, to understand the needs, opportunities and requirements for their inventions, and to spin out or licence their technologies as appropriate.

Institutional level environment template (REF5a)

We have recently reorganised and expanded this function, with a doubling of budget, and leveraged additional funding for research impact including a Wellcome Innovation Translational Partnership Award.

Recent successes include the spinouts Quell Therapeutics, Gammadelta Therapeutics, Neurogeneus and many more: our spin-outs attract c.£100m/year investment. Major licensing deals include a \$340m (including milestone payments) agreement with Merck on a new pain treatment, the most valuable achieved by a British university for a specific drug development programme.

We have also created a medtech commercialisation joint venture with GSTT, KCH and SLaM NHS Trusts, which is raising its own early-stage investment fund of £50m.

Global Engagement

King's has over 300 global partnerships, supported by a dedicated Global Engagement (GE) team to build deeper, broader, multi-disciplinary relationships. Examples of university-wide partnerships include:

- Launched in 2016, the PLoS Alliance between King's, Arizona State University and University of New South Wales has created a network of 120 fellows working together to find solutions to issues of sustainability, global health and social justice. We have jointly created TEDI, a new engineering university in London, expected to grow to 5,000 students over the next decade.
- King's and Peking University Health Sciences Centre are collaborating within a joint institute for medical research to address major health issues related to cancer and cardiovascular care, dentistry and mental health.
- Our 10-year relationship with the University of North Carolina Chapel Hill has driven collaborations including workshops/conferences in History, Philosophy, Literature and Music, and the recent publication of joint King's-UNC essay collections.

4.6 Supporting the Reproducibility of Research

As described in Sections 2.2 & 2.3, King's has a strong commitment to research integrity, open science and improving research reproducibility. We are a formal institutional member of the [UK Reproducibility Network](#) (UKRN) with a focus on understanding the factors that contribute to robust research, promoting training, and disseminating best practice across the university. Our approach is to understand the factors that contribute to poor research reproducibility and replicability across different disciplines, adapt approaches to counter these, and reevaluate in order to see improvement in trustworthiness and quality of research. This work is a key component of our wider initiatives around research culture.