

Institution: Buckinghamshire New University
Unit of Assessment: 24 - Sport & Exercise Sciences, Leisure and Tourism
<p>1. Unit context and structure, research and impact strategy</p> <p>Unit Structure</p> <p>The unit comprises two research groups:</p> <ol style="list-style-type: none"> Sport, exercise, society and performance Aviation and travel. <p>Sport, exercise, society and performance is a small group currently consisting of nine FTE academic staff covering the core disciplines of physiology, biomechanics, physiotherapy/sports therapy, strength and conditioning, sports psychology, and sociology of sport. This includes five individuals with significant responsibility for research (SRR), specifically Campbell-Karn (sports therapy), Clayton (sociology of sport), McCormack (sociology of sport), Morgan (sports psychology), and Nevin (strength and conditioning). The current REF cycle has seen a number of research staff leave the institution, including three of the five submitted to REF2014 (Stone, Gibbon, Humberstone). Stone went on to University of Central Lancashire and Gibbon took up a research fellowship at Liverpool John Moores University, both in 2018. Humberstone retired in 2017 from her longstanding post as Professor of Sport and unit lead. However, Morgan and Warnock-Smith both achieved their professorships, and McCormack was promoted to associate professor as part of the University's transformation programme. Further, Campbell-Karn, who joined the unit from London Metropolitan University in 2015, and Nevin, who began his academic career at Buckinghamshire New University (BNU) in 2017, were both supported to achieve SRR status through staff development, peer-support, and flexible work schedules. Campbell-Karn was awarded a PhD in 2019. This combination of new and existing staff has provided continuity of focus in the areas of sport, exercise, society, and performance, while the recruitment of further staff, not yet of SRR status, has been aligned with the unit's longer-term REF strategy. These staff are now being encouraged to engage in research, with two commencing PhDs in the next 12-months with the aim of contributing towards the next REF.</p> <p>The aviation and travel group consists of five FTE academic staff with expertise in aviation impacts and management, sustainable aviation, travel and aviation education and employability, cultural & ethical tourism and the handling and transportation of dangerous goods by air. It includes two colleagues with SRR, Warnock-Smith (aviation impacts and management) and Guachalla (cultural and ethical tourism). Other staff members pursuing research in the group are Guest (transportation of dangerous goods by air), Gledhill (aviation education and employability) and Hamzat (sustainable aviation). The group has an overriding research plan that is shared across the wider aviation and travel team to encourage further research participation. Stainton (left May 2020) was the only notable example of an SRR colleague leaving the group during this REF period, who went on to set up her own tourism teaching, training, consultancy and research business based out of Guangzhou, China.</p> <p>Research and Research Strategy</p> <p>During this REF period, there has been a continued strengthening of research activity in the broad strategic themes of applied sport, exercise and sport, society and social policy as well as the re-establishment of the tourism and leisure research strand with a particular focus during this period on aviation and travel.</p>

Our REF2014 research strategy identified four key foci:

1. Grow external academic strategic collaborations.
2. Grow externally-funded, applied research with external professional and industry partners.
3. Extending social policy research and community projects with a clear applied focus to health and wellbeing.
4. Investment in physical infrastructure.

These strategies are also line with the University's research strategic goals as specified in the institutional environment statement:

- a) Increase the volume and quality of research and impact;
- b) Maintain research and enterprise income;
- c) Ensure research and enterprise activity enriches the student experience; and
- d) Secure improved external recognition for the impact of our research and enterprise.

During the REF period (2016/17 to 2018/19), the University implemented a transformation programme to achieve significant efficiencies and this presented some change for the unit coupled with the retirement of the longstanding unit lead (Humberstone). Despite this, progress has been made (e.g., growth of the unit); furthermore, the reorganisation of internal school structures (from more hierarchical faculty structures to flatter School units) resulted in new synergies between cognate subjects. To illustrate, the new School of Human and Social Sciences builds greater critical mass and sustainability for staff researching in the areas of sport, society, performance, and psychology.

Impact workshops provided by Prof Mark Reed were attended by three SSR in the unit. This provided strong support for a clearer focus on impact at a timely stage in the REF cycle. The unit has actively sought to share professional networks to encourage wider engagement in impactful research. The concept of industry engagement has been extended as part of industry boards.

In sport, exercise, society, and performance, we have secured a number of strategic collaborations. Examples in performance sport include collaborative research with Northumbria University on fatigue and performance reserves in competitive cyclists (Stone), Cardiff Metropolitan University on approaches to working on strength and conditioning with para-athletes (Nevin), and Reading Football Club on methods to develop team resilience for athletes within the academy structure (Morgan). We also continue to build our reputation in performance sport support through our national accreditations as a delivery site for TASS (Talented Athlete Scholarship Scheme), The Football Association WSL Academy (Women's Super League) and Swim England National Performance Centres. External academic collaborations have further developed with Loughborough University, Nottingham Trent University and KU Leuven (Morgan) producing opportunities for high quality research outputs. These developments have provided a strong platform for further research that enhances practitioners' delivery through evidence-based practice. In areas of education and sport in the community, collaborative work has continued in this REF period with Sheffield Hallam University into undergraduate sport students' motivations to learn (Clayton) and with Nottingham Trent University in areas of student employability from undergraduate sports programmes (McCormack). Work is also ongoing with Manchester Metropolitan University exploring approaches to coach mentoring, especially in relation to issues of trust and the presentation of trustworthiness (Clayton). Fruitful international collaborations have also been formed with Gallaudet University (USA) to explore the effects of ageing on sport

and leisure experiences (Humberstone) and with University of Waikato (New Zealand) to advance ethnographic research for outdoor and alternative sports (Humberstone).

We have extended our social policy research and community projects with a clear applied focus to health and wellbeing. A commissioned study for Leap With Us (the Buckinghamshire and Milton Keynes Active Partnership) provided a platform to influence approaches towards improving engagement of disabled people in physical activity in their communities (Clayton & Ives – See Clayton Impact Case Study REF2021). This has culminated in a practice-focused conference for community providers to enhance understanding of methods to reach these groups. Further invited talks detailing the outcomes and recommendations of the study were given at England Golf and the Bucks and Milton Keynes Disability Summit. Furthermore, as a nationally accredited TASS delivery site, we have contributed to developing ways to support young athletes with the local community (McCormack). It is with the support of Sport England (TASS) funding we have continued to improve our Human Performance Laboratory through investment in the physical infrastructure. The strength and conditioning area has been enhanced to provide some higher quality equipment to enable increased research and high-performance athlete support. As our research focus develops, we have seen a growth in activity related to human performance in sport, inclusive practice and wellbeing. With a growing team and increased external links and reputation we will build on these opportunities.

In the aviation and travel area colleagues have had an input into the setting of an airport policy agenda and the commissioning of industry focussed research through the Airports Council International Europe (ACI-Europe) Economics (Warnock-Smith) and Security (Ackroyd – left in 2020) Committees and also contributions to the policy and research objectives of the Independent Commission on Civil Aviation Noise (ICCAN) as expert and independent advisors (Warnock-Smith).

The aviation and travel group has developed research collaborations with other Universities in the development of novel research into airline ancillary revenues (Warnock-Smith and University of Surrey), airline strategic benchmarking (Warnock-Smith and University of Surrey and Cranfield University), small European regional airport strategies for attracting additional airline services (Warnock-Smith and University of Huddersfield), and the role of organisational trust in the aviation sector's employer-employee relationships (Warnock-Smith and University of Huddersfield, University of Surrey). An Erasmus research exchange programme was also set up with researchers from Lusofona University, Lisbon, Portugal to develop an airport operations disruption and crisis management model that incorporates the effective use of social media platforms. This model was tested in the UK with management representatives from British Airways (operations team), and Kenyon International Emergency Services (Warnock-Smith). More recently, there has been participation in the Oxford-Cambridge ARC Sustainable Aviation Group of Universities with a particular focus on achieving a net zero carbon future for aviation (Warnock-Smith).

Aviation facilities such as the flight simulator and simulation exhibition room have been used for undergraduate and postgraduate research projects and corporate leadership events in addition to their more regular use by undergraduate students in connection with flight training progression.

Additional aviation/travel related research themes that have developed and will be built on further include:

- Evolving perceptions on the role of food in the travel experience: The British outbound tourist perspective with the possibility of using British Academy-Leverhulme Grant funding (bid in progress) (Guachalla)
- The application of co-created learning experiences in support of travel and tourism students studying at BNU, wishing to gain employment in the travel and tourism sector (Guachalla and Gledhill).
- Aviation inequalities: Airport network connectivity, vulnerability and dependence differentials across the UK, EU and EEA region. (Warnock-Smith in conjunction with the European Union Joint Research Centre) – funded through core UKRI-funded University Strategic Priority Fund

In accordance with the University's institutional statement, the unit actively participates in the University's open access policy (2015) by rapidly placing all published items on BNU's open access repository and ensuring the long-term preservation of outputs. The unit has also actively engaged Associate Lecturers and fixed-term contract holders in the research process by ensuring that conference and research development opportunities are available to them.

The unit has participated in the University's Research and Enterprise Committee with four SRR committee members (Clayton, McCormack, Morgan, Warnock-Smith) playing an active role in shaping University wide research policies and activities. In addition, three members of the unit sit on the University professoriate (McCormack, Morgan, Warnock-Smith) and, through that body, promote and support the work of the unit and maintain its central position in the University's research strategy. The University Research Ethics Panel has a wide membership from across the University with a member of this unit acting as its Chair (Clayton). The ethics panel has oversight of school sub-committees, which review student and staff research. Through the University's research office, the unit subscribes to the UK Research Integrity Office and has participated in the UKRIO self-assessment exercise during the REF period. The Code of Good Research Practice and the University Ethics Policy are regularly updated, most recently in 2018 and 2019.

Future Strategy

The institutional statement points to the relatively early stage of developing the University's research profile. The University's current strategy, Impact 2022, places greater focus on research, especially that which is organised around the needs of users, facilitated by development of research impact centres. Researchers in this unit will join impact centres that have a wider multidisciplinary and supplier led focus in Health and Wellbeing (Sport performance and wellbeing in the community) and Sustainability and Innovation (aviation and travel). These centres, as well as the restructuring of the University from hierarchical faculties to flatter School units, will allow us to further build synergies and interdisciplinary research within the focused research priorities of wellbeing in the community, sports performance, and travel & aviation. The creation of the post of Knowledge Transfer Partnership (KTP) manager as part of Impact 2022 will also help the unit to develop strong partnerships and research with a clear emphasis on external stakeholders.

Another area of strategic focus for the University includes increasing the quality of research and impact. In the REF2014 exercise 15% of UoA 24 research outputs were rated at 3 or 4*. Indicative quality ratings for the REF2021 submission indicate that 81% of submitting outputs are at 3 or 4*.

To illustrate the focus on quality, Morgan's research (e.g., Morgan et al., 2015) in the area of team resilience in elite sport is frequently listed as one of the most downloaded articles in *Psychology of Sport and Exercise* (Impact factor of 2.83) and has attracted interest from a range of practitioners and organisations working with elite teams around the world. In the aviation area, Warnock-Smith's research on airline ancillary revenue strategies (e.g. Warnock-Smith et al., 2017) was cited more frequently than 70% of all articles published in that year within the *Journal of Air Transport Management* (Impact factor of 2.81).

Building on these types of developing strengths is a key future strategic priority that will combine the benefits of high quality outputs and positive impacts for beneficiaries of research. Another key future strategic priority will be to maintain the focus on dissemination of research at national and international conferences and build on existing external research collaborations.

Dissemination of empirical research at international conferences has facilitated a number of opportunities for wider networking and collaborations with practitioners and users of research (e.g., Active Partnerships, National Governing Bodies of Sport, Olympic committees, and with respect to the aviation and travel area, international airlines such as Saudia).

Our strategic aims for 2021-2028 are therefore to:

1. Grow the research reputation of the unit by further increasing the quantity and improving the quality of research outputs in focused areas.
2. Build on current collaborations and networks of practitioners and users of research, and create new ones, to ensure our research remains responsive and focussed on the needs of external stakeholders.
3. Ensure the sustainability of the research unit through focused recruitment, improved research culture through better internal diffusion, and a commitment to expanding, supporting and training ECRs.

2. People

Staffing strategy and staff development within the submitted unit

The staffing strategy for this unit reflects the University commitment outlined in the Strategic Plan and People Strategy. The strategy builds on our REF2014 priorities to employ and support research active staff that align with the unit's developing themes. To illustrate, two part-time doctoral students employed by the university (Campbell-Karn, Morgan) were supported (e.g. sabbatical for doctoral thesis writing, conference funding) facilitating completion of their PhD and published outputs. Both staff are included in this REF submission, with Morgan also included in REF2014. These strategies have enabled employed staff to complete their doctorates, publish in peer-reviewed scientific journals, dissemination of empirical research at national and international conferences and create future strategies for impact (e.g., cultivating new networks of practitioners) based on the underpinning research.

Following the institutional transformation process that occurred between 2016/17 and 2018/19, the staffing position has been characterised by flexibility, interdisciplinarity, renewal and growth. The University's transformation programme involved the reorganisation of internal school structures that has facilitated new synergies between cognate subjects. This represents a positive opportunity for research aligned to sport and exercise and aviation and tourism, enabling greater integration of research activity across the University's seven schools. Also as

part of the institutional transformation process, the staffing strategy includes the ongoing implementation of the BNU Academic Framework, which was introduced in 2019, where staff have been able to prioritise research alongside their teaching responsibilities. This has resulted in increased recognition and appreciation of staff undertaking research activities and enabled more targeted focus of support and development for those staff where research is a significant focus within their role. Currently seven FTE staff in sport have selected the route with research and three in the travel and aviation area. The BNU Academic Framework also enables staff to identify specific objectives related to research and training needs within the PDR process.

Our ongoing staff research strategy reflects the BAF research framework:



Our staff research strategy follows the three principles: *Engage; Enable; Excel.*

Engage:

Engagement starts at the recruitment stage where applicants and new staff are encouraged to share their research interests so that synergies with our existing research hubs can be identified. This allows us to identify potential mentors and opportunities within existing projects. This is further enhanced by the university research activity including research seminars, internal research publications, and research student conferences, which allow new researchers to share their work and ideas in a supportive environment.

Enable:

Staff with a research focus have been able to access centralised university funding and support for continued professional development and research development activities. Eight staff members have been supported to undertake doctoral studies through fee support with an additional £8,000 invested to support their completion of study, for teaching release and sabbatical (Morgan) and MRi scanner time (Campbell-Karn).

A further two PhD fee waivers for staff members were awarded in the aviation and tourism area for a study on TEFL tourism in Thailand (Stainton) and a study on the safe repatriation of human remains by air transport (Guest). Staff are able to request study leave, remote and flexible working in accordance with Human Resources policy and management support. Fixed-term staff

(e.g. Associate Lecturers) are supported by inviting colleagues to School meetings focused on research and to share opportunities for career progression (e.g., permanent roles).

Staff within the unit also have the opportunity of taking sabbaticals in accordance with the University's Sabbatical and Career break policy to pursue scholarly activity.

Excel:

With centralised funding arrangements in place from 2017 to 2020, 13 academic staff were supported to present at national and international academic conferences (an investment of £24,700). This included:

- Transport Practitioners Meeting : TPM 2019 Oxford 2019 (Hamzat, related to PhD output)
- Air Transport Research Society Conference Amsterdam 2019 (Warnock-Smith, related to Shaw et al. 2021)
- 10th International Conference on Sustainable Niche Tourism, Vietnam 2019 (Stainton, related to Iordanova and Stainton, 2019)
- FEPSAC European Congress of Sport Psychology, Germany 2019 (Morgan; symposium related to Morgan et al., 2019)
- FEPSAC European Congress of Sport Psychology, Switzerland 2015 (Morgan; symposium related to Morgan et al., 2015)
- International Conferences on Tourism (ICOT), Portugal 2019 (Guachalla, related to Guachalla, 2021)
- Air Transport Research Society Conference Seoul, Korea 2018 (Warnock-Smith, related to Warnock-Smith et al., 2020)
- American College of Sports Medicine Annual Meeting 2018; 9th World Congress on Exercise is Medicine Minneapolis, USA
- Association for Applied Sport Psychology - Annual conference, Toronto, Canada 2018 (Morgan; symposium related to Morgan et al., 2015)
- Association for Applied Sport Psychology, Orlando, Florida 2017 (Morgan; oral presentation related to Morgan et al., 2017)
- Association of Sport Psychology inaugural student conference, 2015, Loughborough University (Morgan; related to Morgan et al., 2015)
- UK Sport Development Network (UKSDN) 2017 conference University of St Mark and St John Campus in Plymouth 2017

Research is now an integral part of staff development conferences for all staff, with a member of the research support unit on the organising committee. Staff have access to all opportunities offered to research students. Staff from the sport and travel/aviation teams have benefited from researcher development, training and conference sessions run centrally in the University, as well as the appointment of an Associate Professor for Research and Enterprise (McCormack) and two new professorial appointments (Warnock-Smith and Morgan) to guide sport and aviation & tourism research areas into a new era at BNU.

Four REF submitted staff (Campbell-Karn, Nevin, Stainton and Guachalla) have demonstrated efficacy of the research environment during this REF period with developing Early Career Researcher profiles. In line with the above stated 'Engage' principle, newly employed staff are currently working towards researcher independence.

Support and training of research students

Over the period of this submission the unit has supported:

- MPhil – 2 part-time in the sport area
- PhD – 3 part-time / 1 full-time in the aviation & tourism area
- PhD – 2 full-time / 1 part-time in the sport area

Students in this unit have been supported in a range of ways. To illustrate, resources and facilities are available through BNU membership of the Guild HE Research consortium. This offers access to training opportunities, sector support and networking including annual Summer schools and a Virtual Doctoral Training Network.

All PGR students are required to use the Vitae Researcher Development framework planner. After induction, they receive a one-to-one meeting with the research support team to discuss development requirements and set up their planner account. MPhil and PhD students may access any postgraduate research training programmes or modules running for taught Masters and Professional Doctorate students.

Students are given the opportunity to disseminate their research internally through research student conferences or the University journal Novos and externally through centrally-funded national and international conference attendance. External conferences attended by research students include the Annual British Hypertension Society conference, Dublin 2016 (Morrin), the Annual European Society of Sports Science conference, Germany 2017 (Morrin), and the Leisure Studies Association annual conference, Bournemouth 2015, SPSS training course (Stainton) and Logistics Research Network Conference, Cardiff, Wales, 2020 (Okeke).

Research students are supported by a team of dedicated supervisors who in turn are supported through dedicated research supervisor training, with the latest training provided virtually by Staffordshire University in 2020.

Equality and diversity

The unit aligns fully with the University's commitment to deliver a vibrant, inclusive learning community free from discrimination and the active celebration of diversity. The University is committed to full equal opportunity. To illustrate, annual action plans are led by the Equality, Diversity and Inclusion (EDI) working group that reports to a new University EDI committee chaired by the Vice Chancellor.

All staff recruitment and selection processes are in accordance with institutional policies on equality and diversity. This includes training in equality and diversity and unconscious bias. The University is committed to further accreditations linked to its EDI work including the 'Disability Confident Employer' (Job Centre Plus) and 'Mindful Employer' charter.

The University is in the process of applying for the Race Equality Charter mark and a BAME network has been created to promote enhanced awareness and inclusivity within our populations. The University also created the GTRSBintoHE initiative, a sector-wide pledge to support the participation of students from Gypsy, Traveller and Roma communities in Higher Education.

To encourage greater diversity, a new role level was introduced at the University in 2018. The Graduate Tutor role has attracted much interest in the area of sport and travel/aviation. The current role holder in the sport area has recently enrolled on a PhD. There is an additional Graduate Tutor in the Travel and Tourism area (Dane), starting in 2020. All research support facilities and resources are open to all staff, irrespective of circumstances and contract hours. Funding support for training, research degrees and conference presentations are open to all staff on substantive contracts irrespective of FTE or any periods of absence.

Finally, reasonable adjustments and increased support is provided for staff whose circumstances may impact their research productivity. Such support has included employing additional part time lecturers and flexible working to support researcher development and impact strategy. All staff in the unit were confidentially asked to submit details of any equality-related circumstances during the REF period. No such circumstances were declared in the present unit.

3. Income, infrastructure and facilities

Research Income

Despite changes in staffing, some useful projects have been funded during this period. The aim is to grow externally funded research over the next period as new professional staff develop their research expertise and collaborative networks. Examples of externally-funded research in this period include:

- Funded by Buckinghamshire and Milton Keynes County Sport Partnership (LEAP) “Provision, motivations, and challenges for disability sport and physical activity in Buckinghamshire and Milton Keynes.” £5,374 (Clayton)
- Funded by Sport England “Active Medicine project evaluation” (£10,000 2019-21 – delayed due to COVID-19)
- Funded by European Commission Joint Research Centre (€13,000 2016-2018) Latin America/Caribbean connectivity and competitiveness (Warnock-Smith)

Infrastructure

At the organisational level, the University supplements QR (c. £225k pa during the REF period) with its own resources to fund the Research Enterprise Development Unit (RED), staff research activity, and development and dissemination initiatives. The unit comprises the Director of Research and Enterprise, administrators, and a dedicated PGR registrar, together with a Head of Business Engagement. RED has responsibility for the institutional repository, ethical review processes, project management, funding bid support, reporting, governance, REF and KEF. The University has appointed a Knowledge Transfer Manager to establish KTPs across the organisation. In 2020, the University created a Professorial forum to provide a leading role in the intellectual life of the University. In this UoA, members include Morgan, Warnock-Smith, and McCormack. The Professoriate will play an important role for this UoA to build public and community engagement.

The unit comprises subjects focused on sport, health and well-being, and aviation and travel areas with local research activity organised within two separate Schools.

In 2015, the university provided a significant infrastructure investment of £1.7m to create a brand new facility (Centre for Human Performance, Exercise, and Wellbeing). This helped to further develop the university's reputation, identity, and partnerships. The centre has also enabled an increasing focus on developing networks with service users and participants (e.g., athletes, coaches, community groups) that is part of the longer-term strategy to help incubate research activity. This builds on the REF2014 strategy to build a commitment to enhancing visibility, and expanding professional networks to stimulate synergies for research.

The School of Human and Social Sciences houses the sport, health and wellbeing research areas and is focused on the following themes:

- Sport Performance (including sports psychology & strength and conditioning)
- Sport, Society and Policy (including inclusion, disability and youth sport)
- Physical Wellbeing (including sport and exercise science and sports therapy)

The School of Aviation and Security houses the travel and aviation research area focussing primarily on:

- Aviation and Travel Industry Impact and Management (including regional air transport socio-economic impacts and markets, airport/airline relationships, sustainable air transport in developing regions and ancillary revenue developments)
- Tourism typologies (including TEFL tourism and cultural/social & ethical motivations for travel and tourism)

Facilities

The Human Performance, Exercise and Wellbeing Centre is based at the High Wycombe Campus and brings together our teaching, research and enterprise across health, sport, exercise and wellbeing. The centre comprises of our Human Performance Laboratory (HPL) and the Sports and Wellbeing Clinic, which is accessible to staff, students and the public. As mentioned above, this new facility was a key catalyst to attract external professional networks and a growing reputation for sports performance teaching and research.

Our Human Performance Laboratory is equipped for assessing the function and performance of a wide range of human physiological, biomechanical and psychological parameters. The activities of both staff and students in the lab are supported by a full-time lab technician with specialist expertise in sport science and nutrition. This ensures that all equipment and assessment techniques are carried out with due regard for calibration, validity and reliability. Exercise testing and other measurements are used in accordance with appropriate protocols and adhere to safety considerations. The lab is accredited as a Sport England TASS delivery site and is used to support a range of talented athletes from sports such as swimming, fencing, women's and men's football and rowing. These sports science support services are provided to any team or individual whether community or performance level who may benefit from objective performance assessments. The staff provide research informed advice on appropriate training methods and preparation for competition, nutritional and dietary analysis and sports psychology support.

In the aviation and travel area students and researchers are able to make use of the Simulation Exhibition facility, which houses a narrow body airliner cabin mock-up and model airport

simulator with virtual reality capability. This facility has been used to test research informed operational and management concepts in terms of efficiency, safety, comfort and practicality. There is also a full surround vision Elite Flight Simulator based on a Cessna 172, where it has been possible to conduct human factor trials, primarily for Masters level research projects.

Collaboration with other HEIs in the aviation and tourism area (e.g. with the University of Surrey) has created extended access to subscription software packages for pooled research studies in aviation. The human performance lab has benefited from equipment provided by TASS and lab funds to increase our capabilities in research.

4. Collaboration and contribution to the research base, economy and society

Research Collaborations

Academic collaborations in performance sport include Morgan's work on team resilience in elite sport with Loughborough University, Nottingham Trent University, KU Leuven University (Belgium) as well as in applied settings including the Reading Football Club Academy. Morgan's research also led to invitations from the following organisations: Dutch Olympic Committee (workshop for Olympic coaches and sport psychologists); Blosoexpert Platform, Belgium (workshop for Olympic coaches and sport psychologists); Ludwig-Maximilians University, Munich (an event sponsored by the Bavarian Research Consortium for Change). Morgan's research collaboration with researchers at KU Leuven University led to the publication of the world's first measure of team resilience (Decroos et al, 2017) which will assist sport psychology practitioners develop interventions for elite teams. Current work with Reading Football Club is utilising this measure to benefit team development of academy athletes and creating an evidence-based programme for psychologists to utilise. Similar collaboration is being developed with sport psychologists in other sports (e.g., hockey) and a PhD programme is being sought within the unit to establish an agenda of interventions to optimise team functioning during pressurised situations. Morgan's published empirical team resilience research is currently the most cited in the discipline of sports psychology and has helped to advance knowledge of this construct across several areas of psychology (e.g., organisational and social psychology).

Ongoing research into handcycling (Nevin) includes collaborations with Cardiff Metropolitan University, Northumbria University, Deutsche Sporthochschule Köln (Germany), and Heliomare Rehabilitation Center, Wijk aan Zee (Netherlands). In sport sociology and development, Dr Clayton and Dr Ives worked with Buckinghamshire County Council and the Buckinghamshire Active Partnership (Leap With Us) to develop recommendations to improve engagement in sport and physical activity by people with disabilities, which has been further supported by the establishment of a cross-sector consultative industry board for disability sport, which meets regularly to promote research and good practice across a range of settings (See Clayton Impact Case Study REF2021). Dr Clayton is also working with colleagues at Manchester Metropolitan University exploring the role of trust in coach mentor/mentee relationships. Prof. Humberstone has continued her work developing outdoor studies, which in this REF period has included the co-edited volumes 'Research Methods in Outdoor Studies' (Routledge, with Prof. Prince of Cumbria University) and the 'International Handbook of Outdoor Studies' (Routledge, with Prof. Prince and Prof. Henderson of North Carolina State University), which combined brought together 77 contributions from international scholars and experts. Prof. Humberstone also works with Prof. Cutler-Riddick of Gallaudet University exploring older people's experiences of leisure.

In the aviation and travel research area important research collaborations are also maintained with the University of Surrey (Prof Warnock-Smith with Dr O'Connell on data collaborations with a number of commercial airlines (e.g. Saudia, Vietnam Airlines, Jet2 and PIA) in the testing of new ancillary products and services, University of Westminster (Prof Warnock-Smith with Prof Anne Graham on the impact of Covid-19 on the aviation sector), the University of Huddersfield (Prof Warnock-Smith with Mr Dziedzic, Dr Njoya and Dr Hubbard on developing a model for explaining the main drivers for traffic and capacity development at Europe's smaller regional airports - <1mn passengers per annum), Lusafona University, Portugal (Prof Warnock-Smith is working with Dr Piedade on developing a new Airport crisis and disruption communications framework that incorporates the correct use of social media) and the European Commission Joint Research Centre (Prof Warnock-Smith with Panayotis Christidis on inequalities of access to air transport services across the EU/EEA/UK).

Networks and partnerships

In sport, the main focus has been on growing our performance sport partnerships which are underpinned by TASS and Sport England. This area has expanded to include active partnerships to support a sustainable approach towards dual career athletes working with The Football Association and women's Super League, Swim England, Wycombe District Swimming Club, Reading Rockets Basketball and Academy 23 (football). We continue to work closely with other sporting partners including Watford Academy FC, Wycombe Wanderers FC and Bisham Abbey National Sports Centre.

In the aviation and travel area the University has built up a strong relationships with international governmental and non-governmental organisations with responsibility for tourism and aviation in the Caribbean region including CARICOM, the Caribbean Development Bank and the Caribbean Tourism Organisation and also a number of aviation players in the region including LIAT and a number of Caribbean international airports, which have been instrumental in generating sustained socio-economic impacts from further liberalisation of air transport markets in the region (see Warnock-Smith Impact Case Study REF2021). Other external collaborations in this area include Heathrow Airport, specifically the Heathrow Skills Partnership, which has been commissioned to build a lasting legacy of skills at Heathrow in the period through to 2030. Prof Warnock-Smith sits on the Partnership's working group, which is responsible for researching, designing and planning for new collaborations within the partnership that can fulfil the airport's ambitious skills targets, which are inclusive and career focussed. Care leavers, adults returning to work and widening participation groups are central to the Heathrow Partnership's skills plan. Further external partnerships in the aviation/tourism area include:

- Airports Council International Europe: impacting on Economics policy of individual airports and EU policy makers
- UK Airlines: impacts interactions between the UK airline sector and the UK government, influencing government aviation policy
- Bucks Business First (Tourism in Buckinghamshire): impacts on the generation of live working briefs for our travel and tourism students to contribute to making the county of Buckinghamshire a more attractive location to visit.
- Approved Flight Training Organisations (ATOs) such as CAE, Leading Edge Aviation and Booker: impacts include enhancement of the quality of training and in providing additional skills and competencies amongst pilot trainees

- Independent Commission on Civil Aviation Noise (ICCAN): impact on improving the way in which noise pollution and measures are mitigated in a sustainable way and informing government policy.
- Oxford-Cambridge ARC – Sustainable Aviation: impact on generating new technologies and an aviation sector that is prepared and ready for net zero aviation.
- International Civil Aviation Organisation (ICAO) in the area of aviation education: impact through membership of the newly formed ALICANTO to share research and best practice in aviation education and the use of new learning and digital technologies fit for people wishing to join the sector in the 21st century.

The aviation and travel area will build on its strength and breadth of national and international research and collaborations by actively contributing to the vitality and sustainability of the aviation and tourism sectors, particularly in supporting the sector's management of its COVID-19 recovery phase, and in particular for its transition towards a zero carbon future. It will also research and develop the knowledge, skills, competencies and ethical considerations that will be required to secure its long-term future with a continued focus on understudied regions, suppliers and consumers.